खंड–2
(केवल कार्यालय उपयोग हेतु)

Volume-II
(FOR OFFICIAL USE ONLY)

सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
जल संसाधन, नदी विकास और गंगा संरक्षण मंत्रालय
MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION
केन्द्रीय जल आयोग
CENTRAL WATER COMMISSION

जलवर्ष पुस्तिका
WATER YEAR BOOK
(जून 2016 - मई 2017) (June 2016-May 2017)
ब्राह्मणी बेसिन
BRAHMANI BASIN

जल विज्ञानीय प्रेक्षण परिमंडल
HYDROLOGICAL OBSERVATION CIRCLE
भुवनेश्बर (BHUBANESWAR)

September: 2017

खंड–2

Volume-II

जलवर्ष पुस्तिका

WATER YEAR BOOK

(जून 2016 से मई 2017) (June 2016 - May 2017)

ब्राह्मणी बेसिन

BRAHMANI BASIN

FOREWORD

Proper assessment, analysis and compilation of hydro-meteorological data are essential for planning and management of precious water resources, which is vital not only for economic development but also for providing basic needs for such a large population of our country. Water reaches the land-mass through precipitation, a part of which evaporates, a portion of it percolates into ground as natural ground water and the excess runoff flows through rivulets and rivers and drain into the sea. Central Water Commission (CWC), an apex technical Organisation of Government of India for surface water resources, carries out systematic collection of hydro-meteorological data and assessment of surface water as one of its prime functions.

Hydro-meteorological observation stations have been established by CWC in almost all the river basins of India in a phased manner. These are further modernised and strengthened under various schemes. In the process, additional Divisions, Circles and Regional offices have been set up on a basin-wise concept.

The basin encompassing the east flowing rivers in-between the Ganga and the Godavari basins viz. Subarnarekha, Burhabalang, Baitarani, Brahmani, Mahanadi, Rushikulya, Vamsadhara, Nagavali and Sarada has been identified as Mahanadi and Eastern Rivers Basin which is dealt by Mahanadi and Eastern Rivers Organisation (MERO), CWC, Bhubaneswar. Hydrological Observation Circle (HOC), Bhubaneswar under MERO carries out hydrological observation and flood forecasting activities in these 9 river basins flowing mainly through Odisha along with its neighbouring States of Jharkhand, Chattisgarh, Andhra Pradesh and West Bengal through two Divisions under its jurisdiction viz. Mahanadi Division (MD), Burla and Eastern Rivers Division (ERD), Bhubaneswar.

There are a total of 119 observation stations under MERO. Systematic gauge and discharge observations are regularly conducted at 42 hydrological stations (out of the above 119) throughout the year. Sediment, Water Quality and Meteorological data are also observed at some of the stations. After scrutiny and checking, the collected & processed data are stored in a database through a custom made software “Surface Water Data Entry System (SWDES) and published in the form of Water Year Books. The present publication of Water Year Book contains Hydrological, Sediment and Water Quality data for the hydrological year 2016-17, i.e. from June 2016 to May 2017.

Water Year Book pertaining to the Hydrological Observation Circle, CWC, Bhubaneswar is published in four volumes. While Volume-I incorporates data of Mahanadi basin, Volume-II contains data of Brahmani basin, Volume-III of Subarnarekha, Burhabalang & Baitarani basins and Volume-IV of Rushikulya, Vamsadhara, Nagavali and Sarada basins. Each Volume contains Discharge data as Section-I, Sediment data as Section-II and Water Quality data as Section-III for respective river basins.

This Volume-II covers hydrological, sediment and water quality data for Water Year 2016-17 of seven sites of Brahmani river basin and three effluent stations alongwith salient features and other important statistical information. Sincere effort put in by the officers and staff of ERD, CWC, Bhubaneswar namely, Smt. Dr. Shanthala Devi B.S, Extra Assistant Director and S.S. Mohanty, Senior Computer of Hydromet Section under the able leadership of Shri C. Mohanty, Executive Engineer, in collecting & processing the data and bringing out this publication is highly commendable. The guidance and encouragement of Shri A.K.Nayak, Chief Engineer, MERO, Bhubaneswar and co-operation of the officials of H.O. Circle and Chief Engineer’s office are duly acknowledged.

Place: Bhubaneswar
Date: September,2017

(D.K. Jena)
Superintending Engineer
HOC, CWC
Bhubaneswar

LIST OF ABBREVIATIONS USED:

General:

CWC	:	Central Water Commission
H.P.	:	Hydrology Project
IMD	:	India Meteorological Department
msl	:	mean sea level
Q	:	Discharge
WL	:	Water level

Type of station:

G	:	Gauge (Water Level)
D	:	Discharge (Average discharge passing across a cross section of the river
S	:	Sediment (suspended sediment load)
Q	:	Water Quality

Units:

m	:	meter
mm	:	milli meter
km	:	kilometer
s	:	second
MCM	:	million cubic meters
MT	:	metric tonne
g	:	gramme
l	:	litre

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BRAHMANI BASIN

BRAHMANI BASIN

1. BASIN DESCRIPTION

1.1 General

Brahmani is a major inter-state east flowing river amongst the peninsular rivers in India, falling into Bay of Bengal. Brahmani basin is situated within the geographical co-ordinates of north latitude 20 °-28′- to 23°-35′ and east longitude 83°52′ to 87°03′ approximately. The basin is bounded in the north by Chhota Nagpur plateau, in the west & south by the Mahanadi basin and in the east by the Bay of Bengal. The river flows through Jharkhand, Chhattisgarh and Odisha States and drains a total area of 39,033 sq.km, before out-falling in to the Bay of Bengal. State-wise break up of drainage area is tabulated below:

Sl. No.	Name of State	Catchment Area (sq. km)	Percentage of total catchment area
1.	Jharkhand	15,769	40.4
2.	Odisha	22,364	57.3
3.	Chhattisgarh	900	2.3
	Total	39,033	100

Basin map of Brahmani river system depicting various hydrological and hydro-meteorological observation stations maintained by CWC is placed herewith. CWC is maintaining 8 stations in the basins, out of which 6 are of type GDSQ, 1 of GQ and balance 1 of G (Seasonal) type. In addition, water quality is also observed at 3 sampling stations in this basin. However, this report contains data of seven sites (6 GDSQ and 1 GQ type) which are operated round the year along with the water quality of 3 sampling stations.

1.2 River System

River Brahmani, known as South Koel river in the upper reaches, originates near Nagri village in Ranchi district of Jharkhand, at an elevation of about 600 m. The total length of the river is about 799 km. Principal tributaries of this river are Sankh, Tikra and Karo. The catchment area details are tabulated below:

Name of Stream	River/Tributary	Length (km)	Catchment area (sq.km)	Percentage of total catchment area
Brahmani	Main stream	799	26,831	68.7
Karo	Left Tributary	112	2,741	7.0
Sankh	Right Tributary	196	6,933	17.8
Tikra	Right Tributary	101	2,528	6.5
		Total	**39,033**	**100.0**

1.3 Climatic Characteristics

The climate of the basin is tropical, with fairly hot summers and moderately cold winters. This basin is influenced by south-west monsoon from June to October, in addition to some occasional down-pours in the lower reaches due to the cyclonic depressions in the Bay of Bengal. The average annual rainfall of this basin is 1460 mm. The maximum temperature varies from 38 to 43° C and the minimum temperature ranges between 10 to 15° C.

1.4 Geology

The soils in this basin can be grouped as red and yellow, mixed red and black soils, red sandy soils, laterite, red loamy, coastal alluvium, saline and forest. The basin is rich in mineral resources. Coal, Iron ore, Copper, Bauxite, Chromite, Limestone, Manganese, Dolomites, Lead, Fire-clay and China clay are the main mineral resources of this basin.

1.5 Water storage/Diversion Structures

Details of water storage/ diversion structures in the Brahmani basin are as below:

Sl. No	Name of Project	River	Status of the project
1.	Rengali Multipurpose Dam	Brahmani	Existing
2.	Samal Barrage	Brahmani	Existing
3.	Gohira	Gohira	Under construction
4.	Aunil	Aunil	Under construction
5.	Nandini Reservoir	Nandini	Under construction
6.	Kans Reservoir	Kans	Existing
7.	Upper Sankh Reservoir	Sankh	Existing
8.	Chargaon Reservoir	Kodari	Existing
9.	Pitamahal	Pitamahal	Existing
10.	Tikra WRO Project	Tikranarli	Under construction
11.	Derjang	Derjang	Existing
12.	Ramiala	Ramiala	Existing
13.	Samakhoi	Samakhoi	Under Construction
14.	Dadaraghati	Dagachira	Existing
15.	Jaipur Reservoir	Saphi	Existing
16.	Gorkho Reservoir	South Koel	Existing
17.	Baski Reservoir	South Koel	Existing
18.	Karanjholi	Bhangi	Existing
19.	Matukdihi	Marda	Existing
20.	Sankh Irrigation	Tributary of Sankh	Existing
21.	Ramarekha Reservoir	Tributary of Sankh	Existing
22.	Mandira	Brahmani	Existing

2 STREAM FLOW DATA

2.1 Observation Methodology

Discharge Observation Methods: Area-velocity method is generally adopted for measuring discharge at sites. Cup type current meter is used to measure the velocity of the flow and the depth is measured by using sounding rod for depths upto 3 m and by log line beyond 3 m. Discharge by area velocity method is being observed once in a day starting at 0800 Hrs. at all the sites except on Sundays and holidays. Besides, silt and water quality observation are also being carried out at the CWC sites as per the table below.

Computation of flows on non-observed days: The observed stage and discharge figures for each season (monsoon and non-monsoon) are plotted and a mean Stage V/s. Discharge curve is drawn, giving due attention to the scattered points with reference to area, velocity etc.

The factors responsible for the shifting of the curves are also taken care of by studying the river cross section at regular intervals and with super imposition of previous years' Stage V/s. Discharge curves. Accordingly, the trend of the current curve is finalised. Finally, the discharges of the non observed days are computed from these Stage V/s. Discharge Curves.

2.2 Data Availability

The data of following sites is presented in this volume:

Sl. No.	Code No.	Station Name	Type	Data available	
				From	To
1.	EBI00L3	Tilga	GDSQ	G-27.04.78 D-15.06.79 S-21.07.80 Q-01.06.80	Continuing -do- -do- -do-

2.	EBJ00D5	Jaraikela	GDSQ	G-23.07.71 D-29.12.71 S- 01.06.75 Q-01.09.75	Continuing -do- 04-09-2002 Continuing
3.	EB000H6	Panposh	GDSQ	G-22.07.72 D-21.06.96 S- 01.08.96 Q-01.11.96	Continuing -do- -do- -do-
4.	EB000W3	Gomlai	GDSQ	G-29.08.77 D-21.01.79 S- 17.07.80 Q-01.06.80	Continuing -do- -do- -do-
5.	EB000G6	Jenapur	GDSQ	G-09.07.77 D-20.07.79 S- 09.07.80 Q-01.03.80	Continuing -do- -do- -do-
6.	EBA00I3	Altuma	GDSQ	G-09.07.77 D-20.07.79 S- 19.08.13 Q-01.06.13	Continuing -do- -do- -do-
7.	-	Talcher	GQ	G-16.08.85 D-16.08.85 S- 16.08.85 Q-16.08.85	Continuing 31-05-96 31-05-96 Continuing
9.	-	Nandira	Q	Q-01.11.90	Continuing
10.	-	Kamalang	Q	Q-01.11.90	Continuing
11.	-	RSP Nala	Q	Q-01.11.90	Continuing

2.3 Explanatory Notes of Water Year Book

SWDES (Surface Water Data Entry Software), a custom made software for processing hydrological data, has been used for preparation of this volume. The explanatory notes described below can be used for the interpretation of data presented in this volume.

i) Water Year ranges from June 1st of one calendar year to May 31 st of the next calendar year and covers one complete hydrological cycle.

ii) Discharge is given in cubic meters per second.

iii) Discharges are expressed as 0.000 when river bed is dry and 0.000 N.F. when velocity is observed as 'NIL'.

iv) The zero R.L. of gauge is a datum level fixed for given site, which is kept 1 or 2 m lower than the lowest water level recorded in a perennial stream. In a non-perennial stream, it is kept 1 or 2 m lower than the lowest bed level of the stream.

v) Discharges are rounded off as per standard practice.

vi) Runoff in mm is the notional depth of water in millimeters over the catchment, equivalent to annual runoff volume calculated at the discharge measurement station. It is computed using the relation:

$$\text{Runoff (mm)} = \frac{\text{Annual runoff (Mm}^3\text{) x 1000}}{\text{Catchment area (km}^2\text{)}}$$

vii) Peak and lowest flow correspond to the highest and lowest water levels recorded from 'SWDES' entered data.

viii) Measuring Authority refers to the field division of Central Water Commission (Eastern Rivers Division) responsible for the operation of the gauging station.

ix) The gauging station code number is a unique seven column alphanumeric reference number which facilitates storage and retrieval of flow data in data base. The first column is identifier of either an integral river basin or, for the sake of convenience, a region having several contiguous river catchments. This is followed by a column which identifies an independent river system which either has one or more outlets to the sea or crosses international border to enter another country. The third, fourth and fifth column spaces denote first, second and third order tributaries, respectively, from the mouth upstream. The sixth and seventh column spaces indicate the location of the gauging station in one of the 225 slots earmarked on the river. The blank column spaces are filled by zero.

3. HYDROLOGICAL DATA

This volume contains the following information for each site stated above:

i. History Sheet: Site Name, State, District, River Basin, Tributary, Sub-Tributary, Catchment Area, Latitude / Longitude, Opening / Closing date for various types of data.
ii. Annual maximum/minimum discharge since period of observation.
iii. Daily Water level and observed/ computed discharge data including 10-daily, monthly and annual totals etc.
iv. Histogram and Hydrograph showing current year monthly mean discharges, Historical monthly mean discharges, historical monthly minimum and monthly maximum discharges.
v. Histogram showing Annual Run off volume since beginning of observation.
vi. Pie-Charts showing monthly mean run off (as percentage of Annual Run off) historical for the current year.
vii. Plot of Pre and Post Monsoon Cross-section of the rivers for current year.
viii. Water Level hydrograph for 3(three) major flood events of current year.

4. SEDIMENT DATA (For Sediment Observation sites)

The frequency of sediment observation is carried out daily during monsoon season and once in a week (on Monday) during the non-monsoon period. Data for non-observed days is estimated/ interpolated from the relationship of discharge v/s. sediment load, prepared on the basis of observed sediment concentration and weighted mean discharge of the same year.

Sediment samples are collected from 0.6 depth, using Punjab type bottle sampler, from all the verticals along the hydrological observation sections where velocity is observed for computation of discharge. The collected samples from all the segments are combined in 3 to 7 groups having compartments or groups of equal or nearly equal discharges for analysis. Quantum of suspended sediment load is estimated in three grades, viz. Coarse, Medium and Fine. Coarse and medium grades are separated by sieving process and the fine grade by filtration of left over samples after sieving through filter paper. Grade wise concentration is

derived gravimetrically as per standard procedure. The following parameters are derived and recorded:

- Daily Observed suspended sediment (g/l).
- Corresponding discharge.
- Average sediment load in tonnes/day (10 daily & monthly basis).
- Annual sediment load for the current year.
- Annual & Seasonal sediment load and the corresponding volume of inflow for all the years since inception.
- Grain size distribution of bed load.

5. WATER QUALITY DATA (For Water Quality Observation sites)

The water samples are collected at a regular interval of once in a month for trend stations and once in two month for base stations (on 1st working day), from the main flowing segment of the stream just below the water surface (20 to 30 cm) on the Station Gauge line where depth of flow and velocity are maximum, preferably in the mid stream. The water samples are collected in the pre-rinsed and cleaned one-litre capacity polythene bottle having double stopper (inside and out side) facility. Sampling bottle is filled to its full capacity without entrapping air bubbles inside.

After sampling, the collected samples are sent to the Water Quality Laboratory (Level-II) based at Bhubaneswar (under the Eastern Rivers Division) along with in-situ physical characteristics, for analysis. The samples received from the sites are preserved in a refrigerator in the water quality laboratories for analysis**.**

Analysis of parameters, namely pH, Electrical conductivity, Sodium, Potassium, Iron, Fluoride, Nitrate, Nitrite, Phosphate, Silicate, Boron, Sulphate, Calcium, Magnesium, Carbonate, Bi-carbonate, Chloride, Dissolved Oxygen, BOD and COD, are carried out at the Level II laboratory by using standard methodology. Micro biological parameters like total colliform and faecal colliform are also being analyzed. For analysis of trace and toxic elements, samples are sent to Level-II + laboratory at Hyderabad once in a year, in the month of April and to Level-III+ laboratory at Kalindi Bhawan, New Delhi twice in a year in the months of March and September. The results so recorded, include:

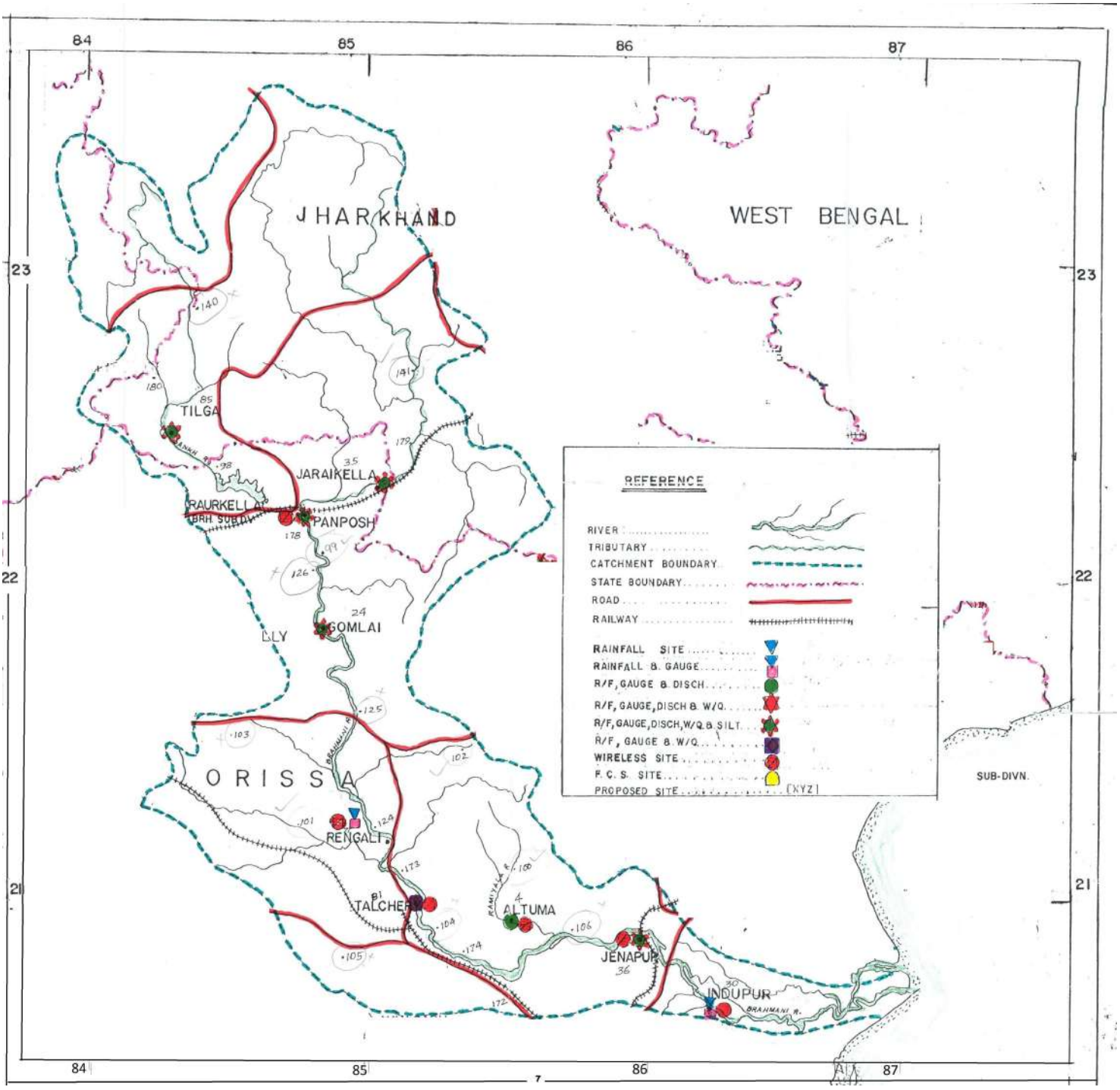
- River Water Analysis: Monthly physical, chemical & biological parameters.
- Annual Water Quality Summary: physical, chemical & biological parameters.
- Average Values over the years: Season-wise averages;
  - Average for Summer (March to June)
  - Average for Floods (July to October).
  - Average for Winter (November to February)

DETAILS OF SITES IN OPERATION UNDER BRAHMANI BASIN

Sl. No.	Station Name	River/ Tributary	Code No.	Type	Latitude	Longitude
1.	Tilga	Sankh	EBI00L3	GDSQ	20°-.20-'00"	84°-30-'00"
2.	Jaraikela	Koel	EBJ00D5	GDSQ	22°-19 '-08"	85°-06-'19"
3.	Panposh	Brahmani	EB000H6	GDSQ	22°-16 '-19"	84°-51-'07"
4.	Gomlai	Brahmani	EB000W3	GDSQ	21°-50 '-16"	84°-56-'33"
5.	Jenapur	Brahmani	EB000G6	GDSQ	20°-53 '-23"	86°-06-'51"
6.	Altuma	Ramiya	EBA00I3	GDSQ	20°-55 '-48"	85°-31-'20"
7.	Talcher	Brahmani	EB000N5	GQ	20°-57 '-00"	85°-20-'00"
8.	Rengali	Brahmani	-	G	21°-15 '-22"	85°-02-'14"

In addition, Water Quality observation samples are also collected from the following locations in the basin, which are not CWC sites per-se. The data of these sites are also presented in this report:

Sl. No.	Station Name	River/tributary	Type	Co-ordinates	
				Latitude	longitude
1	Nandira	Nandira Nala	Q	20°-53 '-56"	85°-15 '-50"
2	Kanlang	Brahmani	Q	20°-52 '-16"	85°-17 '-52"
3	RSP Nalla	RSP Nala	Q	22°-17 '-18"	84°-49 '-05"


84
85
86
87
23
22
21
JHARKHAND
WEST BENGAL
ORISSA
TILGA
JARAIKELLA
RAURKELLA
BRH SUB DIV
PANPOSH
GOMLAI
RENGALI
TALCHER
ALTUMA
JENAPUR
INDUPUR
BRAHMANI R.
SUB-DIVN.
REFERENCE
RIVER
TRIBUTARY
CATCHMENT BOUNDARY
STATE BOUNDARY
ROAD
RAILWAY
RAINFALL SITE
RAINFALL & GAUGE
R/F, GAUGE & DISCH
R/F, GAUGE, DISCH & W/Q
R/F, GAUGE, DISCH, W/Q & SILT
R/F, GAUGE & W/Q
WIRELESS SITE
F. C. S. SITE
PROPOSED SITE (XYZ)

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**TILGA**	**Code**	:	**EBI00L3**
State	:	Jharkhand	District		Simdega
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmani
Tributary	:	Sankh	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Sankh
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela.
Drainage Area	:	3160 Sq. Km.	Bank	:	Left
Latitude	:	22°20'00"	Longitude	:	84°30'00"
Zero of Gauge (m)	:	372 (m.s.l)	14.04.1978	-	31.03.2028
		Opening Date	Closing Date		
Gauge	:	27.04.1978			
Discharge	:	15.06.1979			
Sediment	:	21.07.1980			
Water Quality	:	01.06.1980			

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1980-1981	2004	377.400	12.07.1980	0.231	373.480	22.05.1981
1981-1982	579.6	375.830	27.07.1981	0.000	373.595	11.05.1982
1982-1983	654.4	376.100	22.08.1982	0.050	373.625	03.06.1982
1983-1984	660.6	375.990	19.09.1983	0.000	373.375	18.05.1984
1984-1985	967.7	376.700	04.09.1984	0.000	373.450	03.05.1985
1985-1986	561.4	376.130	11.07.1985	0.000	373.730	07.05.1986
1986-1987	1162	376.640	27.07.1986	0.000	373.640	23.04.1987
1987-1988	2830	378.625	28.08.1987	0.200	373.675	01.06.1987
1988-1989	989.7	377.050	28.06.1988	0.000	373.500	25.04.1989
1989-1990	696.6	376.400	22.06.1989	0.000	373.500	21.04.1990
1990-1991	628.8	376.205	21.07.1990	0.000	373.500	15.05.1991
1991-1992	1600	378.035	23.07.1991	0.000	373.645	02.06.1991
1992-1993	429.2	375.670	22.07.1992	0.000	373.420	17.05.1993
1993-1994	632.3	375.995	27.09.1993	0.020	373.420	13.05.1994
1994-1995	2504	377.808	29.06.1994	0.435	373.525	03.06.1994
1995-1996	1153	376.920	18.09.1995	0.276	373.490	18.05.1996
1996-1997	1428	377.620	26.07.1996	0.000	373.510	18.05.1997
1997-1998	2083	377.735	06.08.1997	0.000	373.460	10.06.1997
1998-1999	1536	377.495	10.09.1998	0.000	373.480	05.05.1999
1999-2000	1300	376.760	08.08.1999	0.407	373.535	08.05.2000
2000-2001	459.3	375.585	31.07.2000	0.000	373.530	04.05.2001
2001-2002	1500	376.840	22.07.2001	0.000	373.445	12.05.2002

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
2002-2003	662.3	376.203	24.06.2002	0.000	373.550	06.05.2003
2003-2004	1350	377.500	25.10.2003	0.000	373.450	21.04.2004
2004-2005	1211	377.078	14.08.2004	0.000	373.565	29.04.2005
2005-2006	932.6	376.595	30.06.2005	0.000	373.700	03.05.2006
2006-2007	891.7	376.310	31.07.2006	0.000	373.645	13.04.2007
2007-2008	703.8	376.095	27.09.2007	0.000	373.640	01.05.2008
2008-2009	786.4	376.383	07.07.2008	0.000	373.645	02.05.2009
2009-2010	773.4	376.300	28.07.2009	0.000		14.03.2010
2010-2011	341.1	375.575	17.09.2010	0.000		11.06.2010
2011-2012	1500	377.460	24.09.2011	0.491	373.325	31.05.2012
2012-2013	962.8	376.860	04.08.2012	0.321	373.305	07.06.2012
2013-2014	1650	378.030	14.10.2013	1.330	373.570	25.05.2014
2014-2015	949.2	376.175	04.08.2014	0.000	373.910	15.07.2014
2015-2016	1078	376.510	23.07.2015	0.000	374.990	01.09.2015
2016-2017	551.7	376.700	12.08.2016	0.034	373.390	26.04.2017

Stage-Discharge Data for the period 2016 - 2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	373.555	0.983	373.780	7.171	374.573	87.04	374.725	160.8	374.303	72.63	373.730	18.26
2	373.600	3.700	373.740	4.509	374.660	120.8	374.675	171.2	374.250	59.47 *	373.720	20.51
3	373.570	1.720	374.375	61.40 *	375.020	175.0	374.698	162.5	374.255	60.71	373.720	17.52
4	373.555	1.524	374.658	86.76	374.775	155.4	375.305	208.9 *	374.228	57.52	373.715	18.11
5	373.540	0.756 *	375.550	206.8	374.650	114.1	374.713	183.4	374.215	55.51	373.715	16.23
6	373.675	7.674	375.353	223.3	374.670	109.9	374.475	102.2	374.565	114.3	373.745	17.72 *
7	373.625	6.905	374.810	138.9 *	374.885	154.9 *	374.410	109.8	374.665	136.5	373.725	16.93
8	373.590	3.596	374.365	69.78	374.833	140.3	374.390	93.23	374.568	116.9	373.715	15.97
9	373.680	3.184	374.265	60.06	374.745	129.6	374.395	104.4	374.600	116.9 *	373.695	14.82
10	373.840	10.63	374.210	59.32 *	374.840	143.3	374.325	97.84	374.940	117.0 *	373.690	14.33
11	373.775	8.287	373.950	56.36	374.640	115.8	374.450	109.1 *	374.610	116.9 *	373.700	16.98
12	373.725	10.83 *	374.188	65.71	376.700	551.7	374.740	130.5	374.400	70.85 *	373.705	13.85
13	373.690	3.971	374.240	56.77	375.940	349.2	375.005	185.8 *	374.285	70.85	373.720	18.08 *
14	373.680	4.183	374.108	37.82	375.370	342.9 *	374.843	149.4	374.205	57.24	373.710	16.67 *
15	373.685	3.853	375.085	198.3	374.930	342.5 *	374.685	117.0	374.145	51.01	373.705	12.43
16	373.685	4.001	375.048	171.2	375.990	333.7	374.525	105.9	374.105	45.75 *	373.690	15.28
17	373.680	3.688	375.360	256.3 *	375.403	205.2	374.373	70.59	374.065	40.50	373.690	14.84
18	373.795	8.456	375.360	256.4	375.770	335.5	374.275	57.14 *	374.035	38.58	373.685	13.40
19	373.800	8.050	374.860	139.1	376.790	457.5	375.205	208.9	374.033	40.41	373.690	12.33
20	373.800	8.522	374.690	112.5	375.325	241.5	374.755	144.2	374.005	32.46	373.685	11.93 *
21	373.770	8.278	374.813	167.0	374.760	175.7 *	375.687	217.0	373.970	31.99	373.680	13.14
22	373.745	6.684	374.733	133.8	374.428	126.5	375.228	169.6	373.970	28.02	373.675	13.21
23	373.715	3.952	374.645	104.0	374.430	129.4	374.750	153.7	373.935	31.08 *	373.675	12.04
24	373.705	3.451	374.715	115.4 *	375.055	225.6	374.598	129.5	373.910	29.07	373.685	12.10
25	373.700	3.717	374.353	73.45	374.825	181.3	374.470	127.9 *	373.893	28.56	373.675	11.93
26	373.945	11.63 *	375.315	233.1	374.835	440.1	374.660	130.3	373.853	28.23	373.675	11.38
27	373.885	9.690	375.045	175.6	374.530	161.3	374.468	95.19	373.830	27.92	373.675	11.20 *
28	374.143	34.13	374.695	111.3	374.445	143.4 *	374.580	118.6	373.830	27.92	373.675	11.19
29	373.923	14.11	374.395	84.02	374.140	100.6	374.535	110.9	373.820	26.51	373.670	11.20
30	373.840	8.685	374.350	78.08	374.815	170.9	374.398	84.60	373.795	23.59 *	373.675	8.064
31			375.000	171.1 *	375.355	234.4			373.775	21.27		
Ten-Daily Mean												
I Ten-Daily	373.623	4.067	374.510	91.79	374.765	133.0	374.611	139.4	374.459	90.73	373.717	17.04
II Ten-Daily	373.732	6.384	374.689	135.0	375.686	327.5	374.685	127.9	374.189	56.45	373.698	14.58
III Ten-Daily	373.837	10.43	374.733	131.5	374.692	189.9	374.737	133.7	373.871	27.65	373.676	11.55
Monthly												
Min.	373.540	0.756	373.740	4.509	374.140	87.04	374.275	57.14	373.775	21.27	373.670	8.064
Max.	374.142	34.13	375.550	256.4	376.790	551.7	375.686	217.0	374.940	136.5	373.745	20.51
Mean	373.731	6.961	374.647	119.8	375.036	216	374.678	133.7	374.163	57.29	373.697	14.39

Annual Runoff in MCM = 1503 Annual Runoff in mm = 476

Peak Observed Discharge = 551.7 cumecs on 12/08/2016 Corres. Water Level :376.7 m

Lowest Observed Discharge = 0.034 cumecs on 26/04/2017 Corres. Water Level :373.39 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2016 - 2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	373.670	9.793	373.605	2.160	373.640	3.748	373.605	2.154	373.505	0.672	373.450	0.360
2	373.665	9.587	373.665	6.587	373.630	3.744	373.605	1.914	373.505	0.672 *	373.440	0.341
3	373.665	9.667	373.670	6.946	373.630	3.503	373.600	1.776	373.500	0.679	373.430	0.271
4	373.665	9.669 *	373.675	7.169	373.625	3.028	373.600	1.666	373.500	0.638	373.460	0.426
5	373.665	8.816	373.675	6.130	373.620	3.199 *	373.600	1.667 *	373.490	0.553	373.460	0.381
6	373.675	9.925	373.680	6.401	373.615	3.369	373.590	1.432	373.490	0.537	373.455	0.337
7	373.675	8.547	373.680	6.381	373.615	3.048	373.580	1.389	373.490	0.563	373.460	0.444 *
8	373.670	7.582	373.670	5.617 *	373.615	3.010	373.570	1.397	373.485	0.532	373.495	1.272
9	373.720	8.778	373.670	5.619	373.605	2.729	373.570	1.386	373.485	0.547 *	373.470	0.525
10	373.725	8.987	373.670	5.857	373.605	2.828	373.580	1.678	373.485	0.559	373.520	3.656 *
11	373.715	8.572 *	373.675	4.968	373.605	2.712	373.575	1.451	373.485	0.540	373.490	1.777
12	373.705	10.31	373.670	4.886	373.605	2.712 *	373.575	1.451 *	373.485	0.545	373.480	1.767
13	373.715	8.265	373.680	5.583	373.600	2.653	373.570	1.273 *	373.480	0.500	373.480	0.726
14	373.710	7.708	373.680	5.651	373.600	2.547	373.570	1.273	373.480	0.483 *	373.480	0.727 *
15	373.700	6.970	373.675	5.620 *	373.640	4.888	373.570	1.191	373.480	0.477	373.480	0.729
16	373.690	6.661	373.670	5.610	373.630	3.569	373.575	1.313	373.480	0.477 *	373.490	1.179
17	373.690	6.759	373.665	5.703	373.670	3.205	373.570	1.193	373.485	0.514	373.475	0.773
18	373.685	6.742 *	373.665	6.188	373.665	3.119	373.560	1.241	373.480	0.485	373.460	0.599
19	373.690	6.742	373.655	5.489	373.660	3.555 *	373.550	1.340 *	373.475	0.468	373.455	0.529
20	373.685	6.978	373.655	3.917	373.660	3.556	373.545	1.389	373.470	0.448	373.450	0.197
21	373.680	6.816	373.645	3.733	373.650	2.790	373.560	1.435	373.465	0.389	373.450	0.197 *
22	373.680	6.739	373.645	3.752 *	373.645	3.195	373.550	1.246	373.460	0.345	373.455	0.326
23	373.685	7.000	373.645	5.006	373.645	3.175	373.540	1.246	373.455	0.258 *	373.435	0.259
24	373.690	7.338	373.640	4.122	373.645	3.176 *	373.535	1.136	373.445	0.083	373.430	0.238
25	373.695	6.898 *	373.640	3.898	373.640	2.931	373.520	1.263	373.430	0.038	373.430	0.185
26	373.700	6.454	373.640	3.899 *	373.625	2.665 *	373.520	1.259 *	373.390	0.034	373.435	0.196
27	373.690	6.128	373.640	4.127	373.605	2.286	373.520	1.189	373.390	0.035	373.435	0.187
28	373.680	5.647	373.640	3.889	373.605	2.218	373.510	1.076	373.400	0.139	373.450	0.860 *
29	373.680	5.936	373.640	3.889 *			373.510	1.063	373.430	0.316	373.470	1.756
30	373.675	6.623	373.640	3.874			373.505	0.960	373.430	0.316 *	373.445	0.976
31	373.670	6.989	373.635	3.574			373.505	0.695			373.465	1.835
Ten-Daily Mean												
I Ten-Daily	373.680	9.135	373.666	5.887	373.620	3.221	373.590	1.646	373.493	0.595	373.464	0.801
II Ten-Daily	373.698	7.570	373.669	5.361	373.633	3.252	373.566	1.311	373.480	0.494	373.474	0.900
III Ten-Daily	373.684	6.597	373.641	3.978	373.633	2.805	373.525	1.142	373.430	0.195	373.445	0.638
Monthly												
Min.	373.665	5.647	373.605	2.160	373.600	2.218	373.505	0.695	373.390	0.034	373.430	0.185
Max.	373.725	10.31	373.680	7.169	373.670	4.888	373.605	2.154	373.505	0.679	373.520	3.656
Mean	373.687	7.73	373.658	5.04	373.628	3.113	373.559	1.359	373.468	0.428	373.461	0.775

Peak Computed Discharge = 342.9 cumecs on 14/08/2016 Corres. Water Level :375.37 m

Lowest Computed Discharge = 0.197 cumecs on 21/05/2017 Corres. Water Level :373.45 m

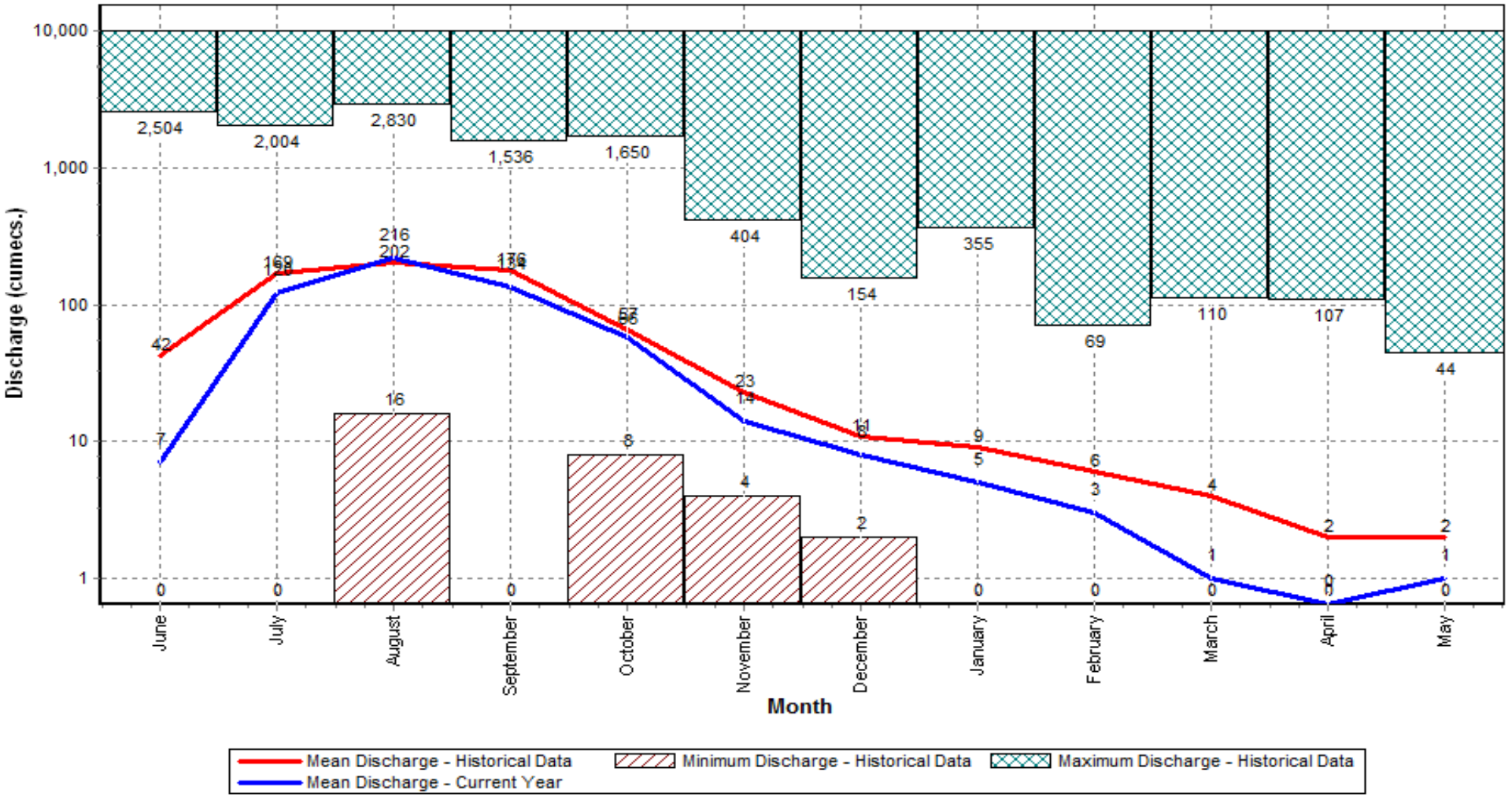
Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2016-2017

Station Name : TILGA (EBI00L3) | **Data considered : 1980-2017** | **Division : E.E., Bhubaneswar**

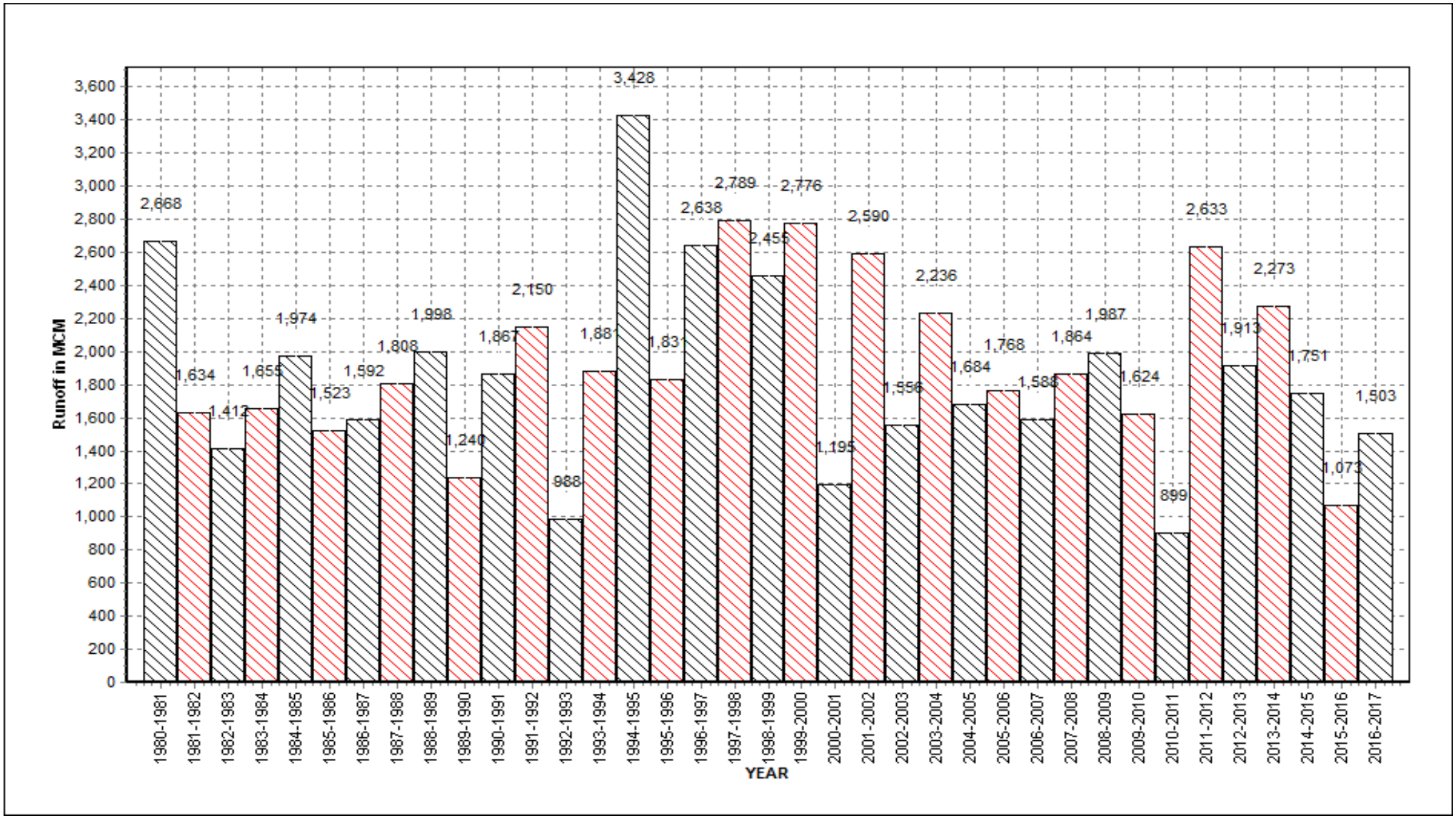
Local River : Sankh | **Sub-Division : Rourkela.**



Annual Runoff Values for the period: 1980 - 2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

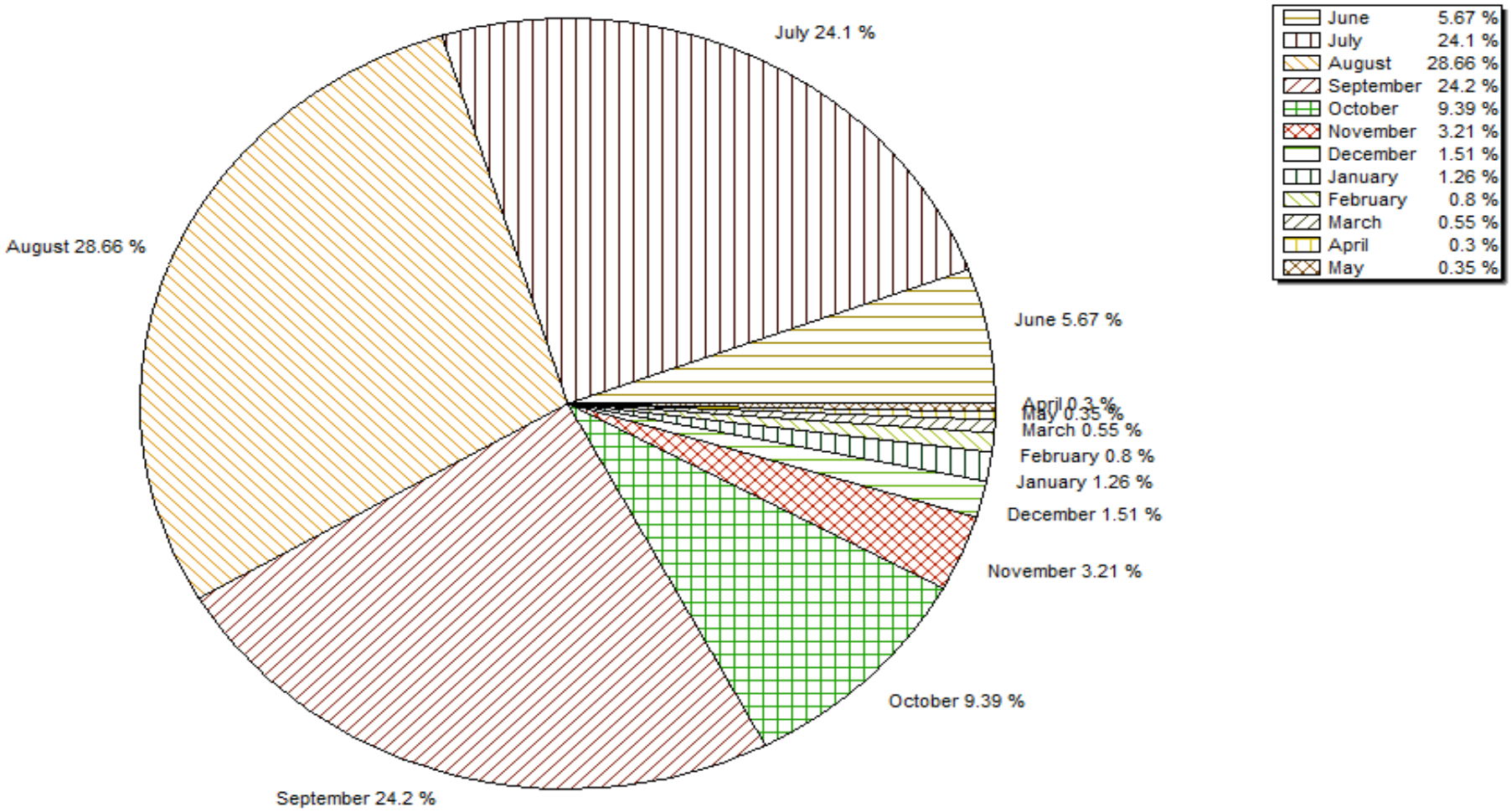


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1980-2016

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

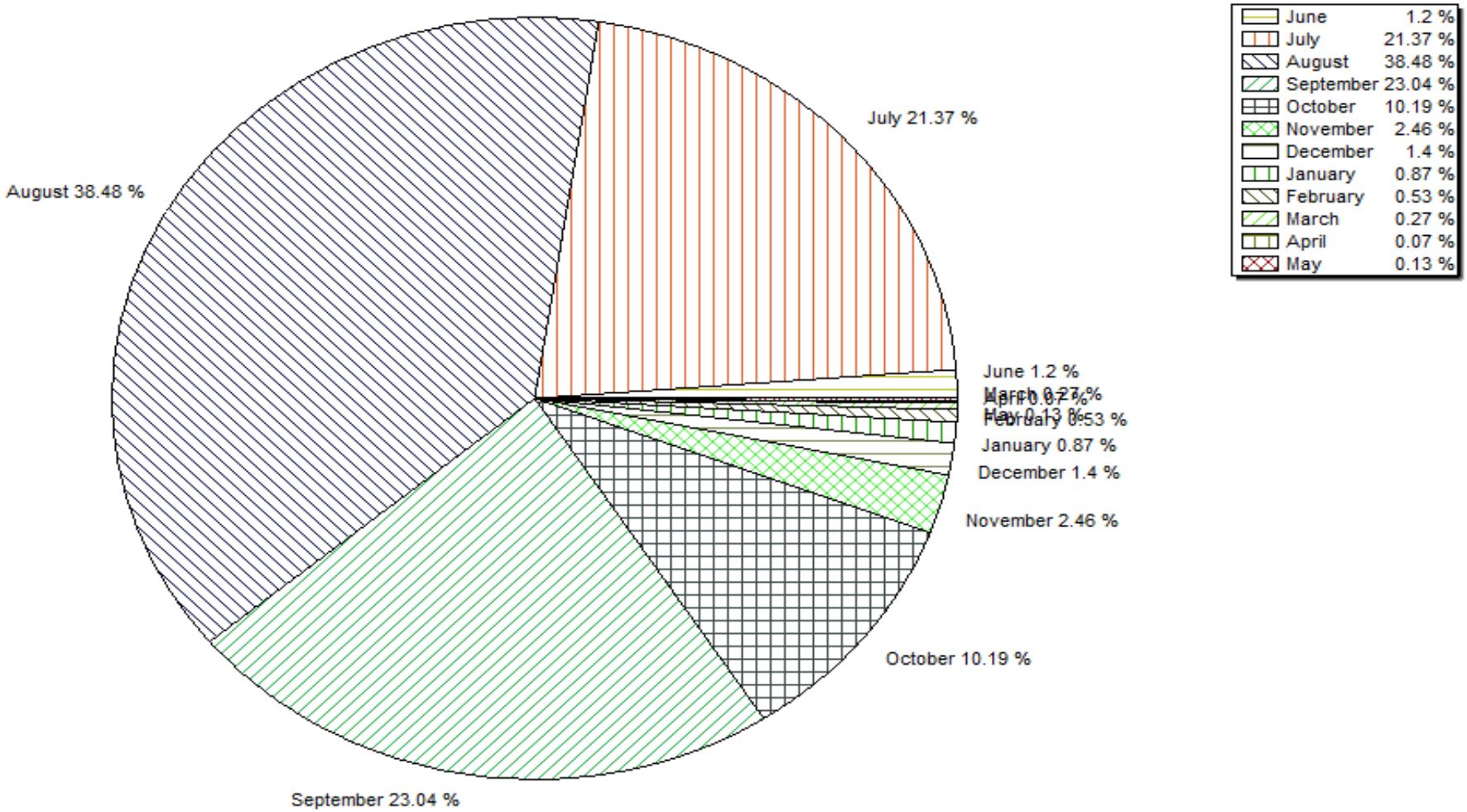
Local River : Sankh **Sub-Division : Rourkela.**



Monthly Runoff for the Year : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

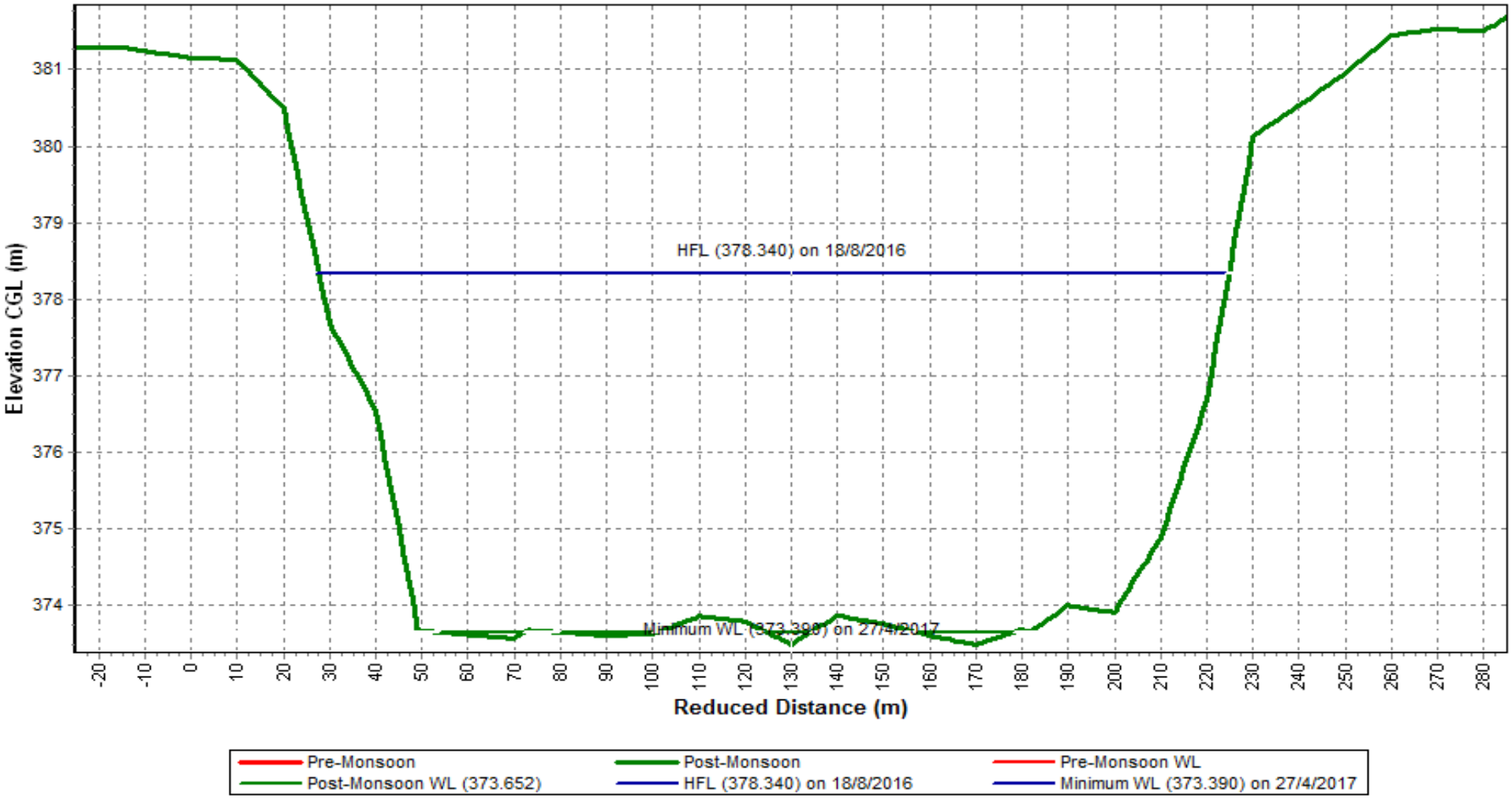
Local River : Sankh **Sub-Division : Rourkela.**



Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

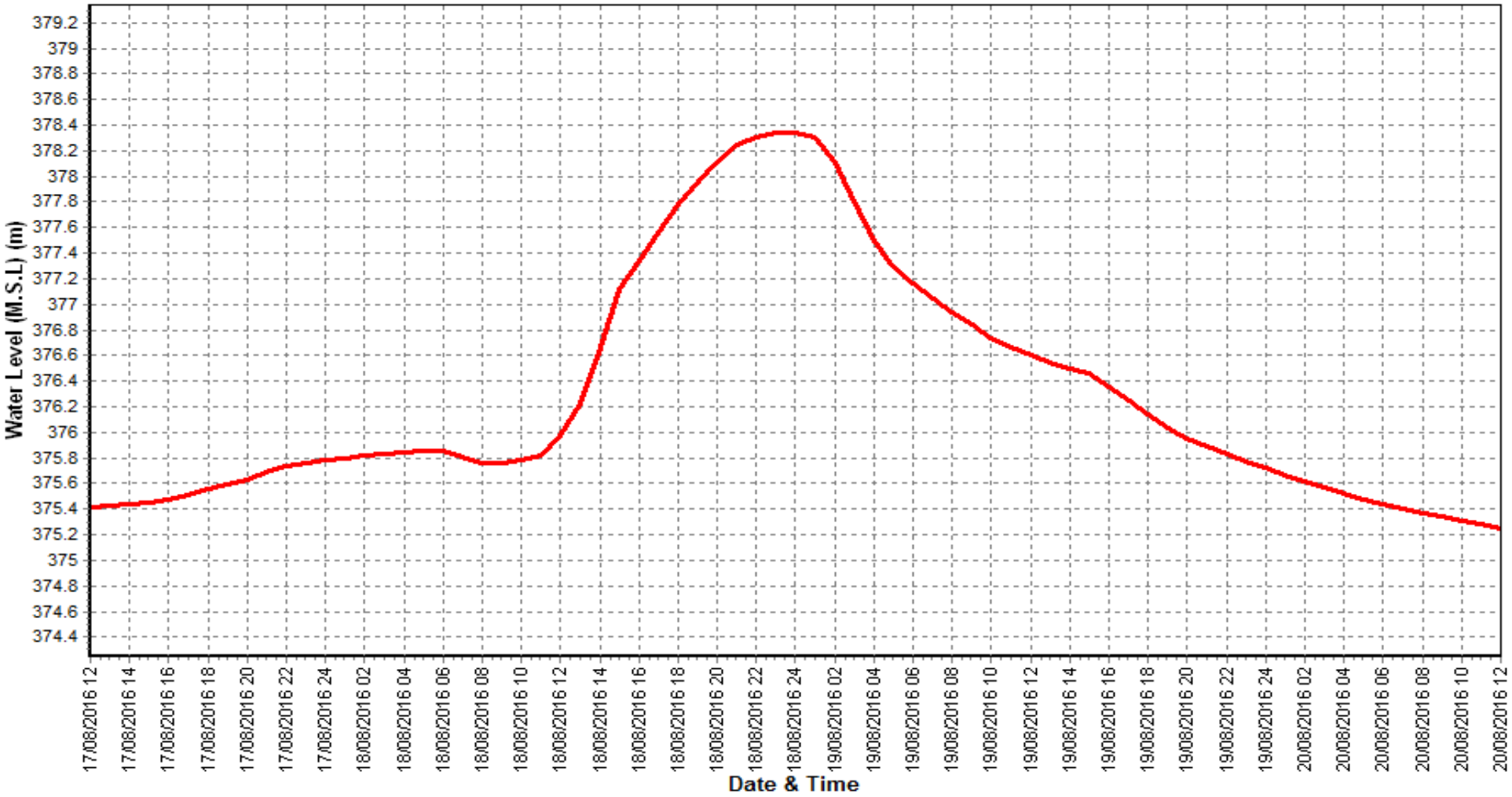
Local River : Sankh **Sub-Division : Rourkela.**



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

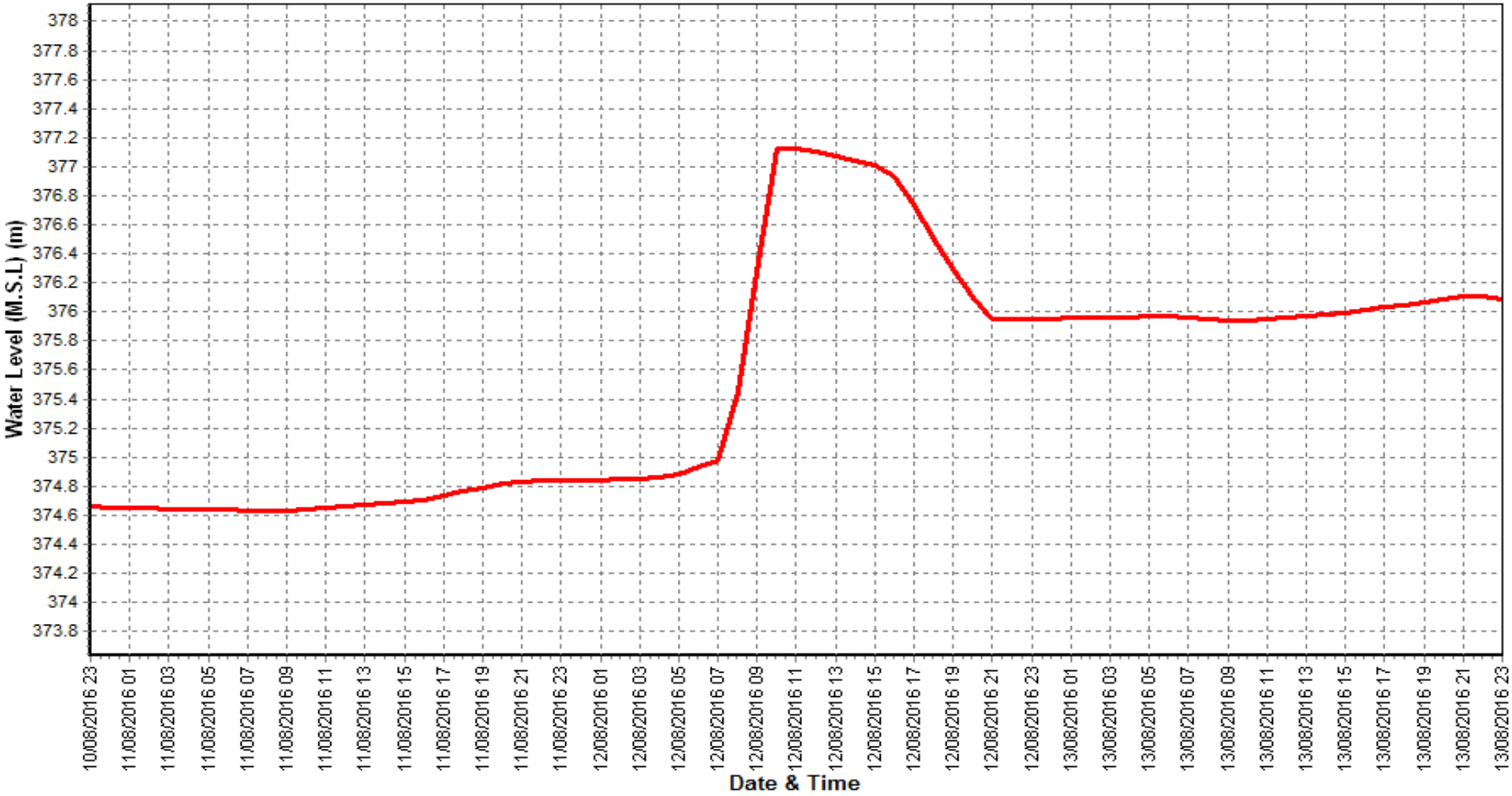


Time Span: 72 Hrs

Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

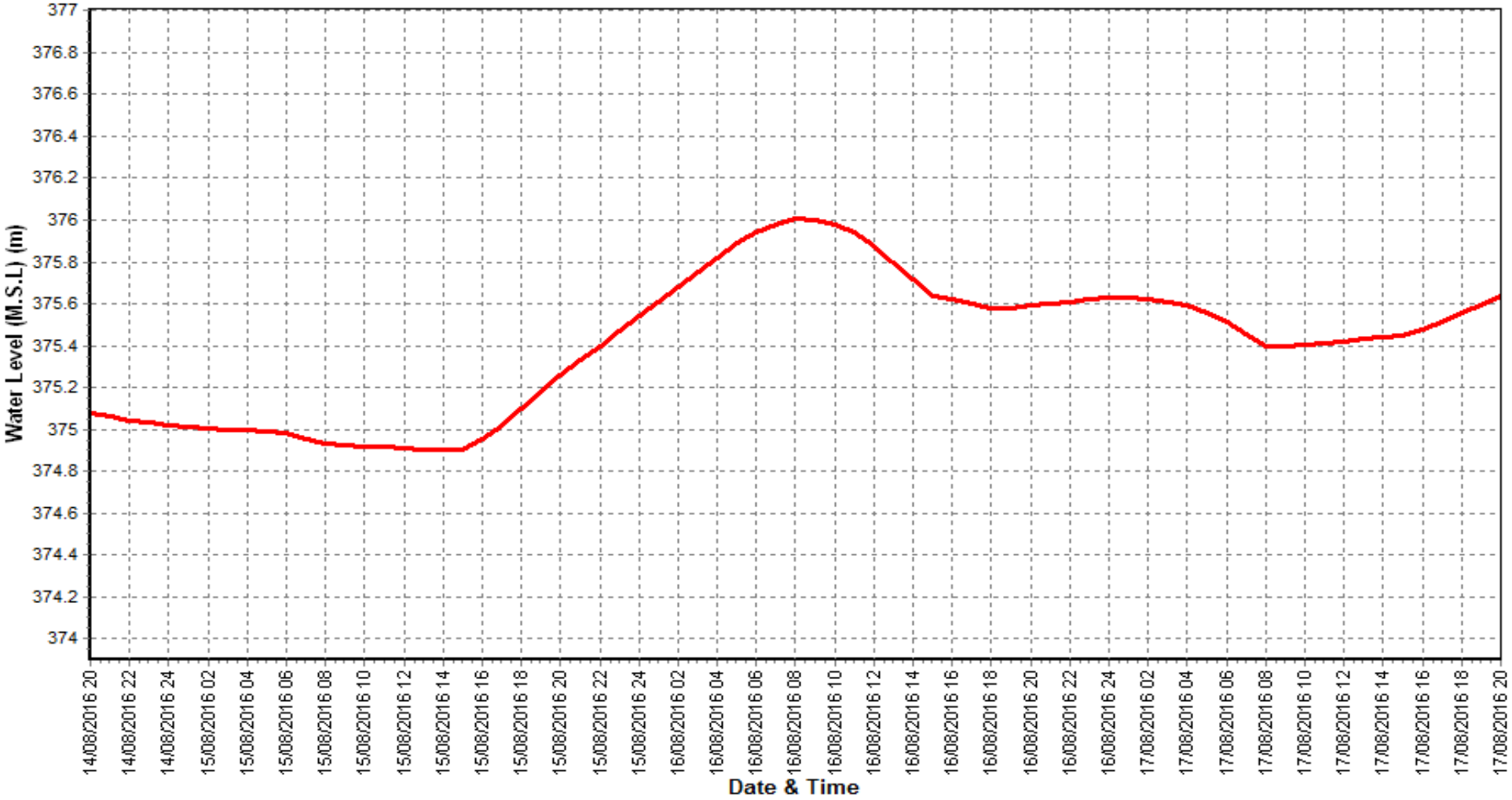


Time Span: 72 Hrs

Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**



Time Span: 72 Hrs

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.983	0.000	0.000	0.000	0.000	0	7.171	0.000	0.000	0.000	0.000	0	87.04	0.001	0.003	0.228	0.232	1745
2	3.700	0.000	0.000	0.000	0.000	0	4.509	0.000	0.000	0.000	0.000	0	120.8	0.001	0.001	0.431	0.433	4519
3	1.720	0.000	0.000	0.000	0.000	0	61.40	0.000	0.000	0.000	0.000	0	175.0	0.002	0.010	0.412	0.424	6410
4	1.524	0.000	0.000	0.000	0.000	0	86.76	0.002	0.006	0.508	0.516	3868	155.4	0.011	0.003	0.286	0.300	4027
5	0.756	0.000	0.000	0.000	0.000	0	206.8	0.048	0.031	2.610	2.689	48035	114.1	0.013	0.004	0.206	0.223	2199
6	7.674	0.000	0.000	0.000	0.000	0	223.3	0.003	0.023	0.563	0.589	11362	109.9	0.002	0.005	0.291	0.298	2830
7	6.905	0.000	0.000	0.000	0.000	0	138.9	0.000	0.000	0.000	0.000	0	154.9	0.000	0.000	0.000	0.000	0
8	3.596	0.000	0.000	0.000	0.000	0	69.78	0.013	0.003	0.179	0.195	1176	140.3	0.000	0.004	0.226	0.230	2788
9	3.184	0.000	0.000	0.000	0.000	0	60.06	0.006	0.002	0.157	0.165	856	129.6	0.001	0.003	0.195	0.199	2229
10	10.63	0.000	0.000	0.000	0.000	0	59.32	0.000	0.000	0.000	0.000	0	143.3	0.001	0.001	0.405	0.407	5042
11	8.287	0.000	0.000	0.000	0.000	0	56.36	0.001	0.001	0.115	0.117	570	115.8	0.002	0.001	0.234	0.237	2370
12	10.83	0.000	0.000	0.000	0.000	0	65.71	0.003	0.003	0.160	0.166	942	551.7	0.038	0.090	1.624	1.752	83517
13	3.971	0.000	0.000	0.000	0.000	0	56.77	0.002	0.002	0.208	0.212	1040	349.2	0.163	0.041	0.542	0.746	22508
14	4.183	0.000	0.000	0.000	0.000	0	37.82	0.008	0.015	0.099	0.122	399	342.9	0.000	0.000	0.000	0.000	0
15	3.853	0.000	0.000	0.000	0.000	0	198.3	0.041	0.078	1.286	1.405	24078	342.5	0.000	0.000	0.000	0.000	0
16	4.001	0.000	0.000	0.000	0.000	0	171.2	0.011	0.009	0.601	0.621	9186	333.7	0.009	0.004	0.629	0.642	18508
17	3.688	0.000	0.000	0.000	0.000	0	256.3	0.000	0.000	0.000	0.000	0	205.2	0.001	0.005	0.300	0.306	5426
18	8.456	0.000	0.000	0.000	0.000	0	256.4	0.003	0.006	0.336	0.345	7642	335.5	0.001	0.002	0.349	0.352	10202
19	8.050	0.000	0.000	0.000	0.000	0	139.1	0.004	0.006	0.203	0.213	2560	457.5	0.002	0.031	0.640	0.673	26600
20	8.522	0.000	0.000	0.000	0.000	0	112.5	0.006	0.013	0.259	0.278	2701	241.5	0.007	0.012	0.277	0.296	6177
21	8.278	0.000	0.000	0.000	0.000	0	167.0	0.010	0.006	0.449	0.465	6711	175.7	0.000	0.000	0.000	0.000	0
22	6.684	0.000	0.000	0.000	0.000	0	133.8	0.020	0.017	0.352	0.389	4496	126.5	0.001	0.005	0.127	0.133	1453
23	3.952	0.000	0.000	0.000	0.000	0	104.0	0.002	0.003	0.200	0.205	1843	129.4	0.002	0.005	0.184	0.191	2135
24	3.451	0.000	0.000	0.000	0.000	0	115.4	0.000	0.000	0.000	0.000	0	225.6	0.017	0.043	0.285	0.345	6726
25	3.717	0.000	0.000	0.000	0.000	0	73.45	0.007	0.001	0.273	0.281	1783	181.3	0.002	0.020	0.374	0.396	6203
26	11.63	0.000	0.000	0.000	0.000	0	233.1	0.004	0.030	1.048	1.082	21788	440.1	0.001	0.014	0.257	0.272	10343
27	9.690	0.000	0.000	0.000	0.000	0	175.6	0.003	0.020	0.341	0.364	5522	161.3	0.002	0.000	0.154	0.156	2174
28	34.13	0.000	0.000	0.000	0.000	0	111.3	0.004	0.003	0.200	0.207	1991	143.4	0.000	0.000	0.000	0.000	0
29	14.11	0.000	0.000	0.000	0.000	0	84.02	0.002	0.000	0.081	0.083	603	100.6	0.001	0.002	0.115	0.118	1026
30	8.685	0.000	0.000	0.000	0.000	0	78.08	0.001	0.006	0.360	0.367	2476	170.9	0.004	0.040	0.497	0.541	7990
31							171.1	0.000	0.000	0.000	0.000	0	234.4	0.021	0.060	0.526	0.607	12295
Ten Daily Mean																		
Ten Daily I	4.067	0.000	0.000	0.000	0.000	0	91.79	0.007	0.007	0.402	0.415	6530	133.0	0.003	0.003	0.268	0.275	3179
Ten Daily II	6.384	0.000	0.000	0.000	0.000	0	135.0	0.008	0.013	0.327	0.348	4912	327.5	0.022	0.019	0.460	0.500	17531
Ten Daily III	10.43	0.000	0.000	0.000	0.000	0	131.5	0.005	0.008	0.300	0.313	4292	189.9	0.005	0.017	0.229	0.251	4577
Monthly																		
Total						0						161627						257445

Annual Sediment Load (Metric Tonnes) : 518883

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	160.8	0.001	0.008	0.324	0.333	4628	72.63	0.003	0.005	0.077	0.085	533	18.26	0.003	0.001	0.015	0.019	30
2	171.2	0.010	0.022	0.220	0.252	3729	59.47	0.000	0.000	0.000	0.000	0	20.51	0.001	0.001	0.050	0.052	92
3	162.5	0.003	0.013	0.401	0.417	5856	60.71	0.006	0.003	0.072	0.081	425	17.52	0.022	0.003	0.028	0.053	80
4	208.9	0.000	0.000	0.000	0.000	0	57.52	0.009	0.001	0.056	0.066	328	18.11	0.000	0.002	0.026	0.028	44
5	183.4	0.009	0.012	0.312	0.333	5277	55.51	0.001	0.001	0.024	0.026	125	16.23	0.000	0.002	0.012	0.014	20
6	102.2	0.012	0.005	0.137	0.154	1360	114.3	0.001	0.007	0.159	0.167	1649	17.72	0.000	0.000	0.000	0.000	0
7	109.8	0.007	0.001	0.081	0.089	845	136.5	0.004	0.010	0.358	0.372	4386	16.93	0.001	0.000	0.032	0.033	48
8	93.23	0.003	0.001	0.097	0.101	814	116.9	0.010	0.013	0.026	0.049	495	15.97	0.001	0.001	0.027	0.029	40
9	104.4	0.002	0.002	0.114	0.118	1064	116.9	0.000	0.000	0.000	0.000	0	14.82	0.000	0.000	0.049	0.049	63
10	97.84	0.002	0.001	0.099	0.102	862	117.0	0.000	0.000	0.000	0.000	0	14.33	0.000	0.000	0.052	0.052	64
11	109.1	0.000	0.000	0.000	0.000	0	116.9	0.000	0.000	0.000	0.000	0	16.98	0.000	0.000	0.026	0.026	38
12	130.5	0.002	0.014	0.315	0.331	3731	70.85	0.000	0.000	0.000	0.000	0	13.85	0.000	0.000	0.012	0.012	14
13	185.8	0.000	0.000	0.000	0.000	0	70.85	0.020	0.005	0.057	0.082	502	18.08	0.000	0.000	0.000	0.000	0
14	149.4	0.001	0.011	0.239	0.251	3240	57.24	0.003	0.003	0.001	0.007	35	16.67	0.000	0.000	0.000	0.000	0
15	117.0	0.007	0.009	0.322	0.338	3417	51.01	0.001	0.001	0.041	0.043	190	12.43	0.000	0.000	0.012	0.012	13
16	105.9	0.001	0.006	0.169	0.176	1610	45.75	0.000	0.000	0.000	0.000	0	15.28	0.000	0.000	0.028	0.028	37
17	70.59	0.000	0.004	0.129	0.133	811	40.50	0.001	0.001	0.046	0.048	168	14.84	0.000	0.000	0.045	0.045	58
18	57.14	0.000	0.000	0.000	0.000	0	38.58	0.000	0.001	0.056	0.057	190	13.40	0.000	0.000	0.037	0.037	43
19	208.9	0.009	0.042	0.646	0.697	12582	40.41	0.001	0.001	0.043	0.045	157	12.33	0.000	0.000	0.016	0.016	17
20	144.2	0.003	0.019	0.474	0.496	6182	32.46	0.002	0.003	0.056	0.061	171	11.93	0.000	0.000	0.000	0.000	0
21	217.0	0.016	0.054	0.496	0.566	10612	31.99	0.001	0.001	0.033	0.035	97	13.14	0.000	0.000	0.038	0.038	43
22	169.6	0.020	0.025	0.301	0.346	5070	28.02	0.001	0.000	0.034	0.035	85	13.21	0.000	0.000	0.008	0.008	9
23	153.7	0.009	0.007	0.192	0.208	2761	31.08	0.000	0.000	0.000	0.000	0	12.04	0.000	0.000	0.002	0.002	2
24	129.5	0.005	0.009	0.059	0.073	817	29.07	0.001	0.001	0.043	0.045	113	12.10	0.000	0.000	0.014	0.014	15
25	127.9	0.000	0.000	0.000	0.000	0	28.56	0.010	0.002	0.031	0.043	106	11.93	0.000	0.000	0.002	0.002	2
26	130.3	0.006	0.010	0.506	0.522	5876	28.23	0.001	0.001	0.037	0.039	95	11.38	0.000	0.000	0.003	0.003	3
27	95.19	0.007	0.003	0.146	0.156	1283	27.92	0.016	0.001	0.050	0.067	162	11.20	0.000	0.000	0.000	0.000	0
28	118.6	0.001	0.005	0.212	0.218	2234	27.92	0.007	0.001	0.042	0.050	121	11.19	0.000	0.000	0.005	0.005	5
29	110.9	0.001	0.003	0.270	0.274	2626	26.51	0.001	0.001	0.044	0.046	105	11.20	0.000	0.000	0.004	0.004	4
30	84.60	0.005	0.002	0.179	0.186	1360	23.59	0.000	0.000	0.000	0.000	0	8.064	0.000	0.000	0.006	0.006	4
31							21.27	0.000	0.001	0.052	0.053	97						
Ten Daily Mean																		
Ten Daily I	139.4	0.005	0.007	0.179	0.190	2443	90.73	0.003	0.004	0.077	0.085	794	17.04	0.003	0.001	0.029	0.033	48
Ten Daily II	127.9	0.002	0.011	0.229	0.242	3157	56.45	0.003	0.002	0.030	0.034	141	14.58	0.000	0.000	0.018	0.018	22
Ten Daily III	133.7	0.007	0.012	0.236	0.255	3264	27.65	0.003	0.001	0.033	0.038	89	11.55	0.000	0.000	0.008	0.008	9
Monthly																		
Total						88646						10333						788

Annual Sediment Load (Metric Tonnes) : 518883

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	9.793	0.000	0.000	0.006	0.006	5	2.160						3.748					
2	9.587	0.000	0.000	0.001	0.001	1	6.587	0.000	0.000	0.000	0.000	0	3.744					
3	9.667	0.000	0.000	0.005	0.005	4	6.946						3.503					
4	9.669						7.169						3.028					
5	8.816	0.000	0.000	0.011	0.011	8	6.130						3.199					
6	9.925	0.000	0.000	0.022	0.022	19	6.401						3.369	0.000	0.000	0.000	0.000	0
7	8.547						6.381						3.048					
8	7.582						5.617						3.010					
9	8.778						5.619	0.000	0.000	0.000	0.000	0	2.729					
10	8.987						5.857						2.828					
11	8.572						4.968						2.712					
12	10.31	0.000	0.000	0.000	0.000	0	4.886						2.712					
13	8.265						5.583						2.653	0.000	0.000	0.000	0.000	0
14	7.708						5.651						2.547					
15	6.970						5.620						4.888					
16	6.661						5.610	0.000	0.000	0.000	0.000	0	3.569					
17	6.759						5.703						3.205					
18	6.742						6.188						3.119					
19	6.742	0.000	0.000	0.000	0.000	0	5.489	0.000	0.000	0.012	0.012	6	3.555					
20	6.978						3.917						3.556	0.000	0.000	0.000	0.000	0
21	6.816						3.733						2.790					
22	6.739						3.752						3.195					
23	7.000						5.006	0.000	0.000	0.000	0.000	0	3.175					
24	7.338						4.122						3.176					
25	6.898						3.898						2.931					
26	6.454	0.000	0.000	0.000	0.000	0	3.899						2.665					
27	6.128						4.127						2.286	0.000	0.000	0.000	0.000	0
28	5.647						3.889						2.218					
29	5.936						3.889											
30	6.623						3.874	0.000	0.000	0.000	0.000	0						
31	6.989						3.574											
Ten Daily Mean																		
Ten Daily I	9.135	0.000	0.000	0.009	0.009	7	5.887	0.000	0.000	0.000	0.000	0	3.221	0.000	0.000	0.000	0.000	0
Ten Daily II	7.570	0.000	0.000	0.000	0.000	0	5.361	0.000	0.000	0.006	0.006	3	3.252	0.000	0.000	0.000	0.000	0
Ten Daily III	6.597	0.000	0.000	0.000	0.000	0	3.978	0.000	0.000	0.000	0.000	0	2.805	0.000	0.000	0.000	0.000	0
Monthly																		
Total						37						6						0

Annual Sediment Load (Metric Tonnes) : 518883

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	2.154						0.672						0.360	0.000	0.000	0.000	0.000	0
2	1.914						0.672						0.341					
3	1.776						0.679	0.000	0.000	0.000	0.000	0	0.271					
4	1.666						0.638						0.426					
5	1.667						0.553						0.381					
6	1.432	0.000	0.000	0.000	0.000	0	0.537						0.337					
7	1.389						0.563						0.444					
8	1.397						0.532						1.272	0.000	0.000	0.000	0.000	0
9	1.386						0.547						0.525					
10	1.678						0.559	0.000	0.000	0.000	0.000	0	3.656					
11	1.451						0.540						1.777					
12	1.451						0.545						1.767					
13	1.273						0.500						0.726					
14	1.273	0.000	0.000	0.000	0.000	0	0.483						0.727					
15	1.191						0.477						0.729	0.000	0.000	0.000	0.000	0
16	1.313						0.477						1.179					
17	1.193						0.514	0.000	0.000	0.000	0.000	0	0.773					
18	1.241						0.485						0.599					
19	1.340						0.468						0.529					
20	1.389	0.000	0.000	0.000	0.000	0	0.448						0.197					
21	1.435						0.389						0.197					
22	1.246						0.345						0.326	0.000	0.000	0.000	0.000	0
23	1.246						0.258						0.259					
24	1.136						0.083	0.000	0.000	0.000	0.000	0	0.238					
25	1.263						0.038						0.185					
26	1.259						0.034						0.196					
27	1.189	0.000	0.000	0.000	0.000	0	0.035						0.187					
28	1.076						0.139						0.860					
29	1.063						0.316						1.756	0.000	0.000	0.000	0.000	0
30	0.960						0.316						0.976					
31	0.695												1.835					
Ten Daily Mean																		
Ten Daily I	1.646	0.000	0.000	0.000	0.000	0	0.595	0.000	0.000	0.000	0.000	0	0.801	0.000	0.000	0.000	0.000	0
Ten Daily II	1.311	0.000	0.000	0.000	0.000	0	0.494	0.000	0.000	0.000	0.000	0	0.900	0.000	0.000	0.000	0.000	0
Ten Daily III	1.142	0.000	0.000	0.000	0.000	0	0.195	0.000	0.000	0.000	0.000	0	0.638	0.000	0.000	0.000	0.000	0
Monthly																		
Total						0						0						0

Annual Sediment Load (Metric Tonnes) : 518883

Annual Sediment Load for period : 1987-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

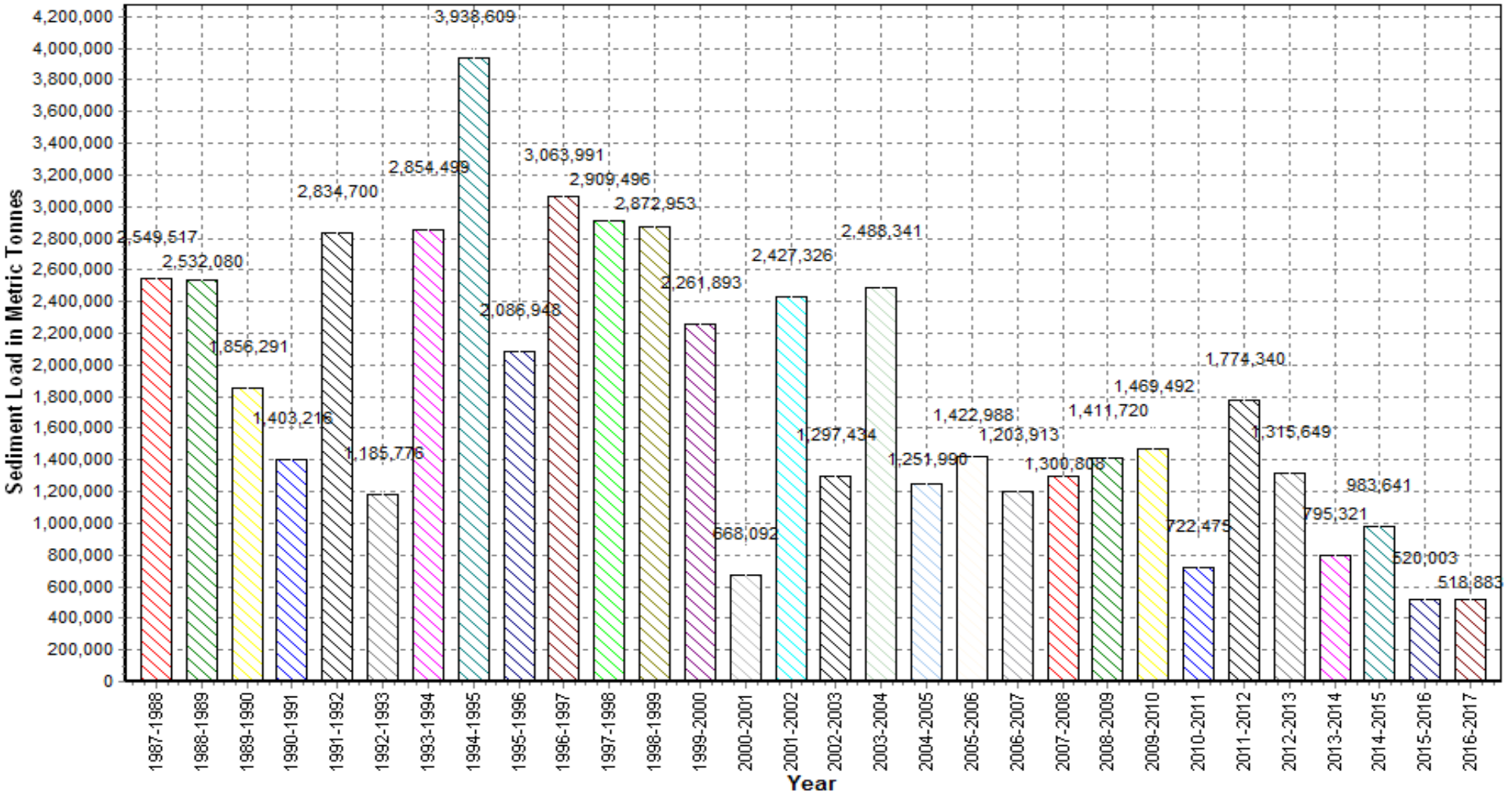
Local River : Sankh **Sub-Division : Rourkela.**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1987-1988	2547446	2071	2549517	1808
1988-1989	2531017	1063	2532080	1998
1989-1990	1842714	13578	1856291	1240
1990-1991	1387808	15408	1403216	1867
1991-1992	2742881	91819	2834700	2150
1992-1993	1184174	1602	1185776	988
1993-1994	2852461	2038	2854499	1881
1994-1995	3912141	26468	3938609	3428
1995-1996	2054374	32574	2086948	1831
1996-1997	3063393	598	3063991	2638
1997-1998	2801400	108096	2909496	2789
1998-1999	2868272	4682	2872953	2455
1999-2000	2260030	1864	2261893	2776
2000-2001	667129	963	668092	1195
2001-2002	2426912	414	2427326	2590
2002-2003	1297120	314	1297434	1556
2003-2004	2462651	25690	2488341	2236
2004-2005	1248959	3031	1251990	1684
2005-2006	1420741	2248	1422988	1768
2006-2007	1203294	619	1203913	1588
2007-2008	1300660	148	1300808	1864
2008-2009	1411720	0	1411720	1987
2009-2010	1469309	183	1469492	1624
2010-2011	721353	1122	722475	899
2011-2012	1759072	15268	1774340	2633
2012-2013	1314262	1387	1315649	1913
2013-2014	785923	9398	795321	2273
2014-2015	982814	827	983641	1751
2015-2016	515947	4056	520003	1073
2016-2017	518840	43	518883	1503

Annual Sediment Load for the period: 1987-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : Rourkela.**



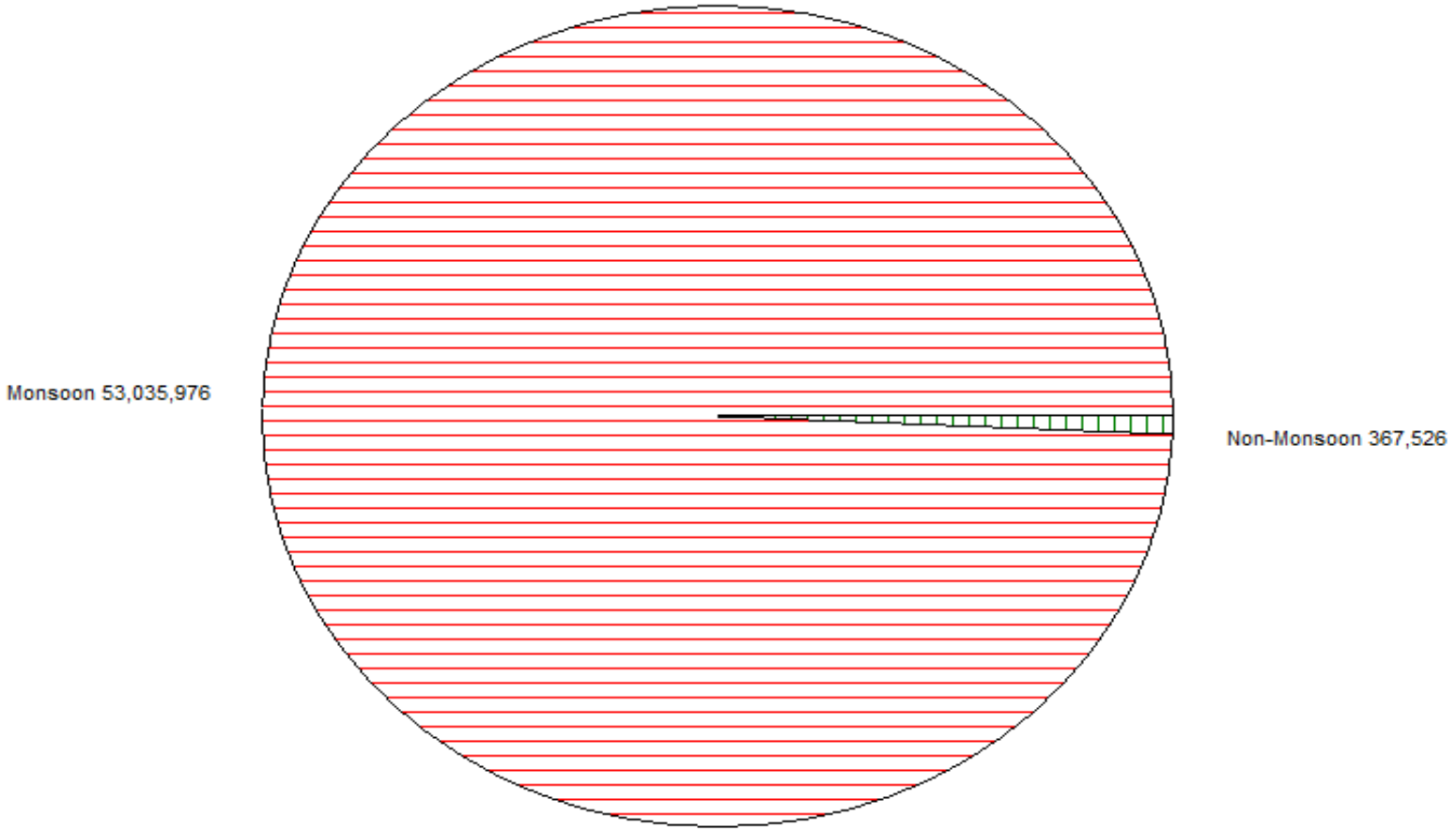
Seasonal Sediment Load for the period : 1987-2016

Station Name : TILGA (EBI00L3)

Local River : Sankh

Division : E.E., Bhubaneswar

Sub-Division : Rourkela.



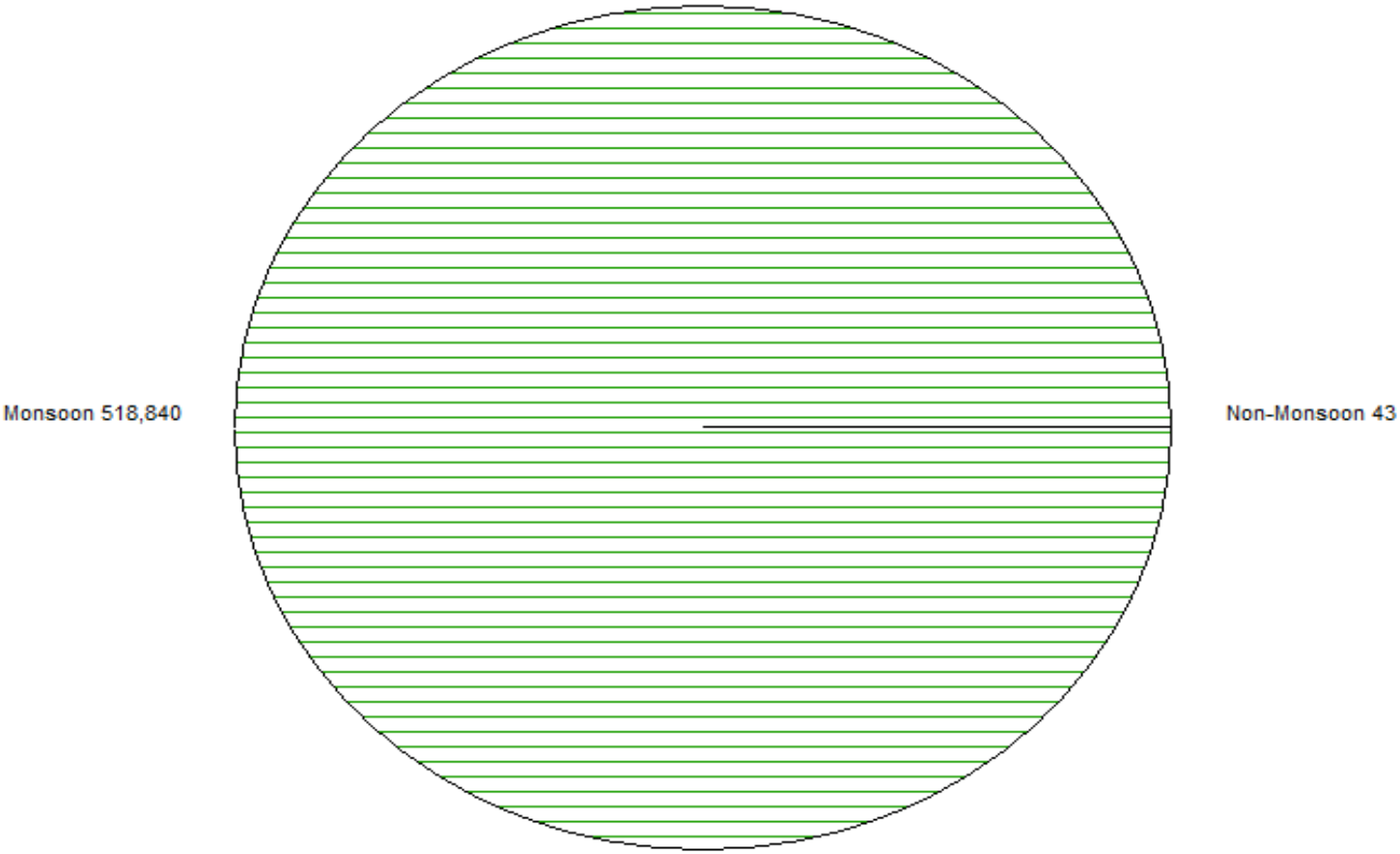
Seasonal Sediment Load for the Year: 2016-2017

Station Name : TILGA (EBI00L3)

Local River : Sankh

Division : E.E., Bhubaneswar

Sub-Division : Rourkela.



Water Quality Datasheet for the period : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **River Water Analysis** **Sub-Division : A.E, Rourkela.**

S.No	Parameters	01.06.2016	01.08.2016	01.10.2016	01.12.2016	01.02.2017	01.04.2017
		A	A	A	A	A	A
	PHYSICAL						
1	Q (cumec)						
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	179	52	239	198	151	142
4	EC_GEN (µmho/cm)	180	54	242	203	153	145
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.0	7.6	7.5	7.7	7.5
7	pH_GEN (pH units)	7.7	7.1	7.7	7.5	7.8	7.6
8	Temp (deg C)	33.0	28.0	28.0	27.5	13.5	22.0
	CHEMICAL						
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	46	74	55	60	51	55
3	B (mg/L)	0.03	0.02	0.02	0.01	0.02	0.01
4	Ca (mg/L)	14	16	19	21	21	22
5	Cl (mg/L)	5.7	7.5	11.3	13.2	13.2	9.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.7	0.4	0.6	0.5
9	HCO3 (mg/L)	56	90	68	73	62	68
10	K (mg/L)	1.5	5.8	3.8	3.5	2.2	2.9
11	Mg (mg/L)	7.8	8.8	18.9	10.7	11.7	11.7
12	Na (mg/L)	5.5	13.5	15.6	16.9	38.2	39.0
13	NO2+NO3 (mg N/L)	0.94	1.23	1.11	1.26	1.11	1.20
14	NO2-N (mgN/L)	0.03	0.00	0.01	0.03	0.01	0.01
15	NO3-N (mgN/L)	0.91	1.23	1.09	1.23	1.09	1.19
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	8.0	6.0	6.0	6.0	7.0	8.0
18	SO4 (mg/L)	2.8	2.7	7.2	3.0	3.1	3.2
	BIOLOGICAL/BACTERIOLOGICAL						
1	BOD3-27 (mg/L)	0.2	0.6	0.4	0.6	0.4	1.2
2	DO (mg/L)	7.6	6.8	9.9	8.9	11.1	7.0
3	DO_SAT% (%)	105	86	127	112	106	79
4	FCol-MPN (MPN/100mL)				90	90	110
5	Tcol-MPN (MPN/100mL)				170	110	220
	TRACE & TOXIC						
	CHEMICAL INDICES						
1	HAR_Ca (mgCaCO3/L)	36	40	48	52	52	56
2	HAR_Total (mgCaCO3/L)	68	77	127	97	101	105
3	Na% (%)	15	26	21	27	45	44
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.7	0.6	0.8	1.7	1.7
	PESTICIDES						

Water Quality Summary for the period : 2016-2017

Station Name : TILGA (EBI00L3) **Division : E.E., Bhubaneswar**

Local River : Sankh **Sub-Division : A.E, Rourkela.**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	6	239	52	160
3	EC_GEN (µmho/cm)	6	242	54	163
4	pH_FLD (pH units)	6	7.7	7.0	7.5
5	pH_GEN (pH units)	6	7.8	7.1	7.6
6	Temp (deg C)	6	33.0	13.5	25.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	74	46	57
3	B (mg/L)	6	0.03	0.01	0.02
4	Ca (mg/L)	6	22	14	19
5	Cl (mg/L)	6	13.2	5.7	10.1
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.05	0.05	0.05
8	Fe (mg/L)	6	0.7	0.4	0.5
9	HCO3 (mg/L)	6	90	56	70
10	K (mg/L)	6	5.8	1.5	3.3
11	Mg (mg/L)	6	18.9	7.8	11.6
12	Na (mg/L)	6	39.0	5.5	21.5
13	NO2+NO3 (mg N/L)	6	1.26	0.94	1.14
14	NO2-N (mgN/L)	6	0.03	0.00	0.02
15	NO3-N (mgN/L)	6	1.23	0.91	1.13
16	P-Tot (mgP/L)	6	0.010	0.010	0.01
17	SiO2 (mg/L)	6	8.0	6.0	6.8
18	SO4 (mg/L)	6	7.2	2.7	3.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.2	0.2	0.6
2	DO (mg/L)	6	11.1	6.8	8.5
3	DO_SAT% (%)	6	127	79	103
4	FCol-MPN (MPN/100mL)	3	110	90	97
5	Tcol-MPN (MPN/100mL)	3	220	110	167
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	56	36	47
2	HAR_Total (mgCaCO3/L)	6	127	68	96
3	Na% (%)	6	45	15	29
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	1.7	0.3	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : TILGA (EBI00L3) | **Division : E.E., Bhubaneswar**

Local River : Sankh | **River Water** | **Sub-Division : A.E, Rourkela.**

S.No	Parameters	Flood																			
		Jun - Oct																			
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	82	62	86			109		137	94	102	111	56	83	160	157	80	82	84		
3	EC_GEN (µmho/cm)	82	62	88			104		137	94	102	111	56	83	151	159	80	82	84		
4	pH_FLD (pH units)	7.6	7.2	7.7			7.5		7.5	7.3	7.9	7.5	7.5	7.6	7.0	7.5	7.3	7.2	7.6		
5	pH_GEN (pH units)	7.6	7.2	7.7			7.6		7.5	7.2	7.9	7.5	7.5	7.6	7.0	7.5	7.3	7.1	7.7		
6	Temp (deg C)	28.3	26.2	28.1			31.0		26.0	28.2	27.8	27.8	25.8	29.2	28.2	29.7	17.5	17.5	19.0		
	CHEMICAL																				
1	ALK-TOT (mgCaCO3/L)						33		26	30	34			46	63	59					
2	B (mg/L)	0.00	0.00	0.00			0.00		0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00		
3	Ca (mg/L)	9	3	8			10		11	7	38	9	9	15	22	17	6	7	9		
4	Cl (mg/L)	8.2	8.2	11.9			9.9		11.7	8.1	14.5	14.5	12.5	11.7	13.2	8.2	9.4	8.7	7.8		
5	F (mg/L)	0.00	0.00	0.40			0.00		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.40		
6	Fe (mg/L)			0.1			0.1		6.3	0.1	0.0	1.9	0.0	0.3	0.4	0.5			0.1		
7	HCO3 (mg/L)	39	18	34			40		38	33	41	30	46	60	77	71	30	31	32		
8	K (mg/L)	1.6	1.1	1.7			1.8		1.6	2.2	1.5	1.6	1.5	1.2	1.5	3.7	1.7	1.4	1.1		
9	Mg (mg/L)	3.4	1.3	3.5			2.0		4.9	2.9	3.6	1.9	2.7	5.2	12.0	11.8	1.5	1.5	2.9		
10	Na (mg/L)	5.7	5.5	8.2			6.8		8.0	5.1	4.1	2.8	9.0	2.9	2.5	11.5	6.2	6.1	4.9		
11	NO2+NO3 (mg N/L)	0.50	0.06	0.70			0.20		0.15	0.29	0.38	0.71	0.41	0.84	0.99	1.09	0.27	0.11	0.71		
12	NO2-N (mgN/L)	0.02	0.00	0.01			0.00		0.00	0.01	0.07	0.00	0.30	0.04	0.00	0.01	0.02	0.01	0.00		
13	NO3-N (mgN/L)	0.48	0.06	0.69			0.20		0.14	0.28	0.31	0.71	0.39	0.80	0.98	1.08	0.25	0.11	0.71		
14	P-Tot (mgP/L)			0.003			4.740		0.018	0.002	0.010	0.001	0.001	0.001	0.001	0.010			0.001		
15	SiO2 (mg/L)	12.3	6.9	21.7			8.2		6.6	4.7	7.7	10.7	7.9	4.3	5.0	6.7	12.6	8.9	22.3		
16	SO4 (mg/L)	1.8	0.6	6.3			2.2		13.3	5.8	6.2	15.9	14.7	4.7	3.2	4.2	1.1	0.8	2.4		
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	0.7	0.8	0.8			1.1		1.0	1.3	1.1	0.9	0.2	0.3	0.5	0.4	0.8	0.7	1.0		
2	DO (mg/L)	6.5	6.4	7.0			6.1		7.1	7.3	6.3	6.6	6.9	6.9	6.0	8.1	7.5	8.6	7.0		
3	DO_SAT% (%)	83	79	90			82		87	93	80	84	85	90	77	106	78	89	75		
4	FCol-MPN (MPN/100mL)																				
5	Tcol-MPN (MPN/100mL)																				
	TRACE & TOXIC																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	22	8	20			25		27	19	96	23	23	39	56	41	16	17	22		
2	HAR_Total (mgCaCO3/L)	36	14	35			34		47	31	111	31	34	60	106	91	22	23	34		
3	Na% (%)	26	45	33			29		26	25	17	14	35	15	5	20	36	36	27		
4	RSC (-)	0.0	0.0	0.0			0.0		0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0		
5	SAR (-)	0.4	0.7	0.6			0.5		0.5	0.4	0.3	0.2	0.7	0.2	0.1	0.5	0.6	0.6	0.4		
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : TILGA (EBI00L3) | **Division : E.E., Bhubaneswar**

Local River : Sankh | **River Water** | **Sub-Division : A.E, Rourkela.**

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	89		99	97	90	86	76	110	187	175	139	127				92		103	158	102
3	EC_GEN (µmho/cm)	84		99	97	90	86	76	110	188	178	139	127				95		103	158	102
4	pH_FLD (pH units)	7.3		7.3	7.1	7.0	7.6	7.6	7.5	7.6	7.6	7.7	7.6				7.7		6.4	8.0	7.2
5	pH_GEN (pH units)	7.4		7.3	7.1	7.0	7.6	7.7	7.5	7.5	7.7	7.8	7.6				7.8		6.4	8.0	7.2
6	Temp (deg C)	14.8		14.5	17.8	16.8	15.5	17.5	18.0	20.0	20.5	23.7	24.7				22.0		23.0	24.5	24.0
	CHEMICAL																				
1	ALK-TOT (mgCaCO3/L)	29		32	26	39				53	55						31			59	51
2	B (mg/L)	0.00		0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00				0.00		0.00	0.00	0.01
3	Ca (mg/L)	9		7	10	9	10	9	9	20	21	10	15				11		8	14	13
4	Cl (mg/L)	10.7		11.7	8.5	14.1	12.3	12.0	14.1	17.9	13.2	9.7	11.3				9.2		7.4	9.4	24.5
5	F (mg/L)	0.00		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00				0.05		0.05	0.05	0.05
6	Fe (mg/L)	0.1		0.0	0.1	0.0	1.9	0.0	0.2	0.4	0.5								0.1	0.1	0.0
7	HCO3 (mg/L)	36		30	32	48	31	43	48	65	68	39	73				38		50	72	62
8	K (mg/L)	1.5		1.1	1.3	1.0	1.2	1.2	1.1	1.2	2.9	1.9	2.1				0.8		1.2	1.1	1.2
9	Mg (mg/L)	2.2		3.4	2.9	1.0	2.9	1.4	3.4	11.2	11.2	2.4	5.0				2.8		4.9	5.8	1.0
10	Na (mg/L)	6.2		7.2	5.3	4.6	5.0	2.9	3.8	5.2	27.6	6.5	7.2				6.1		4.8	5.8	4.8
11	NO2+NO3 (mg N/L)	0.29		0.07	0.31	0.45	0.70	0.36	0.92	1.08	1.18	0.54	0.08				0.29		0.13	0.55	0.36
12	NO2-N (mgN/L)	0.00		0.00	0.00	0.07	0.00	0.01	0.01	0.01	0.02	0.01	0.00				0.00		0.00	0.03	0.07
13	NO3-N (mgN/L)	0.29		0.07	0.31	0.38	0.70	0.35	0.90	1.06	1.16	0.53	0.08				0.29		0.13	0.52	0.29
14	P-Tot (mgP/L)	0.002		0.002	0.001	0.010	0.001	0.003	0.001	0.010	0.010						0.050		0.001	0.001	0.010
15	SiO2 (mg/L)	9.7		6.4	5.7	10.0	11.5	9.1	5.3	5.5	6.5	13.6	15.4				6.2		6.7	7.6	11.0
16	SO4 (mg/L)	1.8		4.5	6.6	2.1	2.2	12.4	2.1	3.1	3.0	1.0	0.8				6.3		2.6	2.0	1.6
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	0.8		1.0	1.2	2.1	0.2	0.3	0.4	1.7	0.5	1.0	0.8				1.7		0.8	1.9	1.1
2	DO (mg/L)	8.6		7.2	7.9	8.1	8.6	8.1	11.5	8.6	10.0	6.7	7.6				8.6		7.8	7.5	6.8
3	DO_SAT% (%)	84		71	82	83	87	84	122	95	109	78	90				98		91	89	80
4	FCol-MPN (MPN/100mL)										90										
5	Tcol-MPN (MPN/100mL)										140										
	TRACE & TOXIC																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	21		18	24	22	24	23	22	50	52	24	37				28		20	36	32
2	HAR_Total (mgCaCO3/L)	31		32	36	26	36	28	36	97	99	34	58				40		40	60	36
3	Na% (%)	29		34	24	27	22	18	17	10	36	28	25				25		20	17	22
4	RSC (-)	0.0		0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0				0.0		0.0	0.0	0.3
5	SAR (-)	0.5		0.6	0.4	0.4	0.4	0.2	0.3	0.2	1.2	0.5	0.5				0.4		0.3	0.3	0.3
	PESTICIDES																				

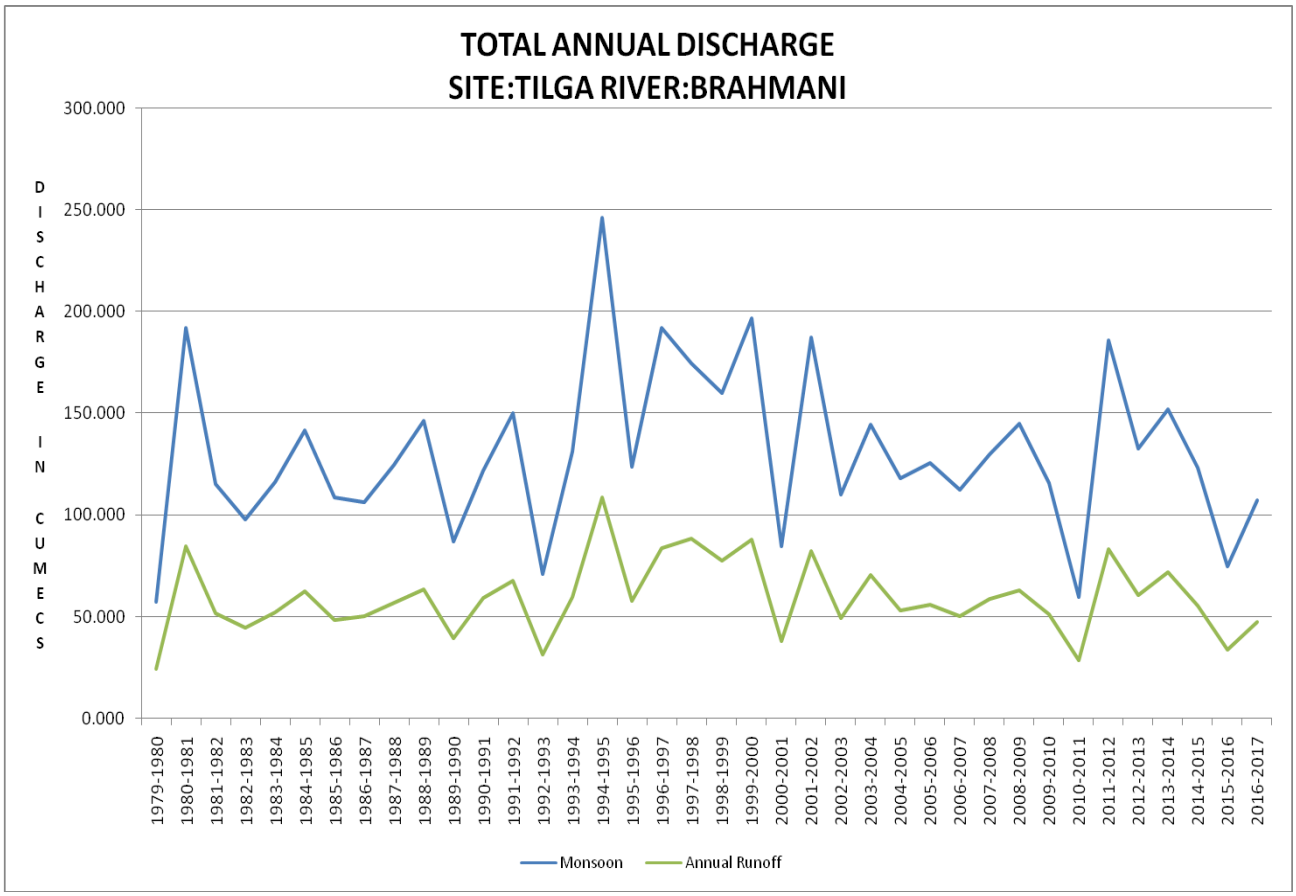
Water Quality Seasonal Average for the period: 2002-2017

Station Name : TILGA (EBI00L3)
Local River : Sankh

Division : E.E., Bhubaneswar
Sub-Division : A.E, Rourkela.

River Water

S.No	Parameters					
		2013	2014	2015	2016	2017
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	115	93	154	179	142
3	EC_GEN (µmho/cm)	115	93	154	182	145
4	pH_FLD (pH units)	7.7	7.5	7.4	7.9	7.5
5	pH_GEN (pH units)	7.7	7.5	7.4	7.9	7.6
6	Temp (deg C)	23.5	24.0	25.0	23.5	22.0
	CHEMICAL					
1	ALK-TOT (mgCaCO3/L)				55	55
2	B (mg/L)	0.00	0.00	0.00	0.01	0.01
3	Ca (mg/L)	13	9	13	22	22
4	Cl (mg/L)	21.4	12.3	23.5	13.2	9.4
5	F (mg/L)	0.05	0.05	0.05	0.05	0.05
6	Fe (mg/L)	0.2	0.1	0.4	0.6	0.5
7	HCO3 (mg/L)	90	28	62	68	68
8	K (mg/L)	2.4	1.6	1.4	1.0	2.9
9	Mg (mg/L)	2.5	2.4	9.7	12.6	11.7
10	Na (mg/L)	16.3	12.6	4.6	8.9	39.0
11	NO2+NO3 (mg N/L)	0.84	0.50	0.69	1.28	1.20
12	NO2-N (mgN/L)	0.00	0.00	0.01	0.00	0.01
13	NO3-N (mgN/L)	0.84	0.50	0.67	1.28	1.19
14	P-Tot (mgP/L)	0.001	0.001	0.001	0.010	0.010
15	SiO2 (mg/L)	22.5	7.8	3.0	5.0	8.0
16	SO4 (mg/L)	4.0	10.6	1.6	3.2	3.2
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	1.6	0.4	0.2	0.8	1.2
2	DO (mg/L)	7.7	7.3	6.0	6.9	6.9
3	DO_SAT% (%)	90	87	72	81	79
4	FCol-MPN (MPN/100mL)					110
5	Tcol-MPN (MPN/100mL)					220
	TRACE & TOXIC					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	32	22	32	56	56
2	HAR_Total (mgCaCO3/L)	42	32	73	109	105
3	Na% (%)	44	45	12	15	44
4	RSC (-)	0.6	0.0	0.0	0.0	0.0
5	SAR (-)	1.1	1.0	0.2	0.4	1.7
	PESTICIDES					


TOTAL ANNUAL DISCHARGE
SITE:TILGA RIVER:BRAHMANI
DISCHARGE IN CUMECS
300.000
250.000
200.000
150.000
100.000
50.000
0.000
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
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1999-2000
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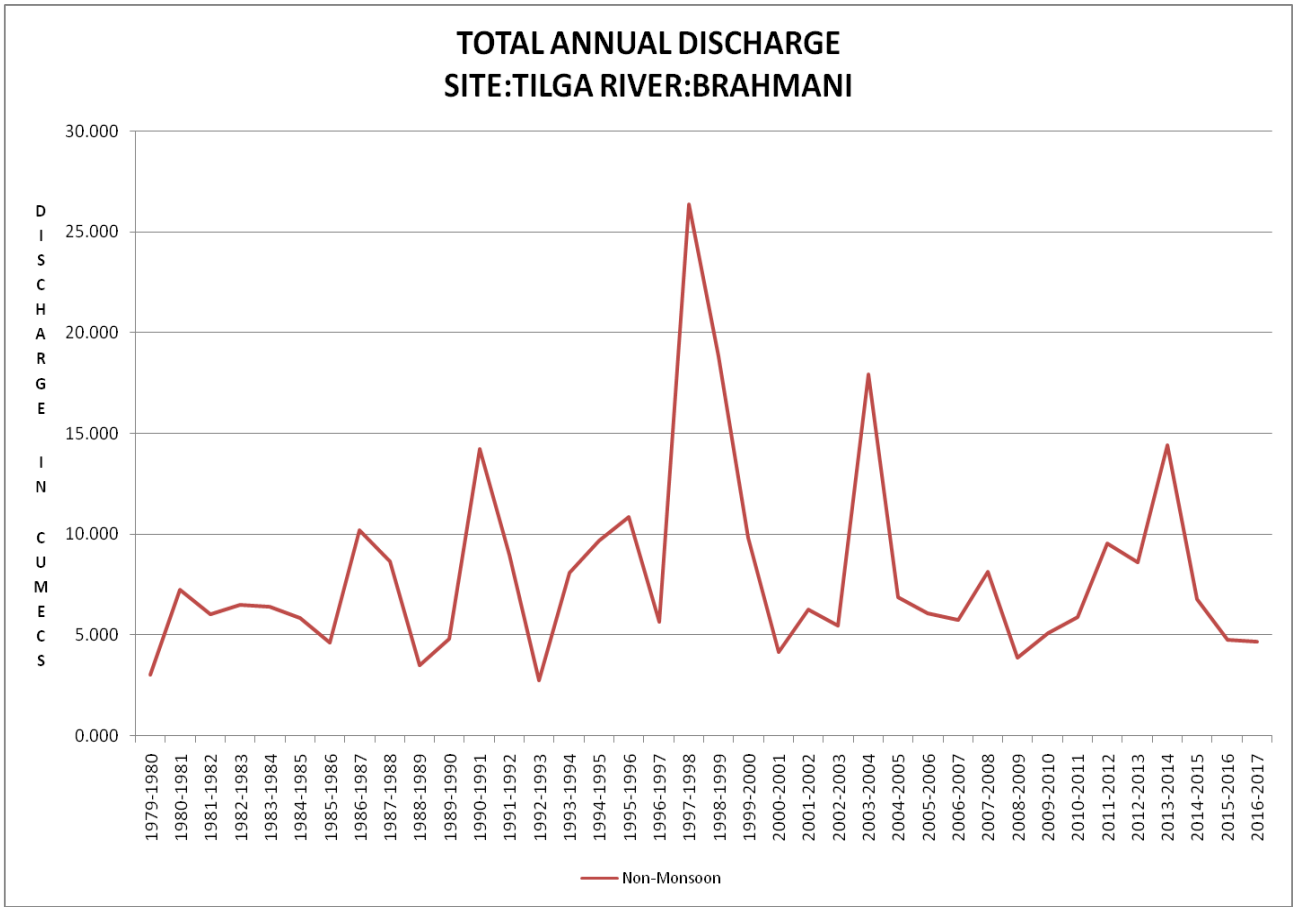
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon
Annual Runoff


TOTAL ANNUAL DISCHARGE
SITE:TILGA RIVER:BRAHMANI
DISCHARGE IN CUMECS
30.000
25.000
20.000
15.000
10.000
5.000
0.000
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
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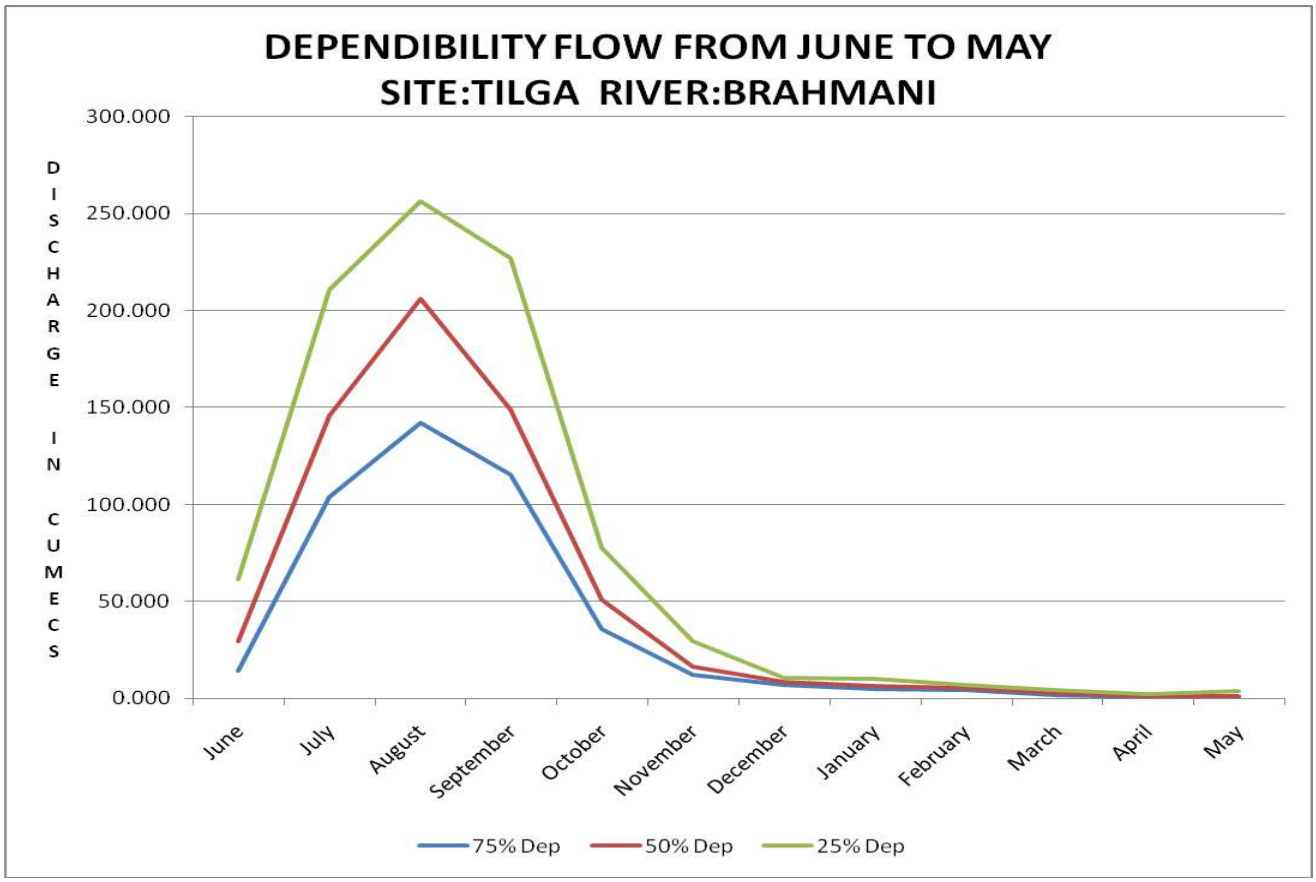
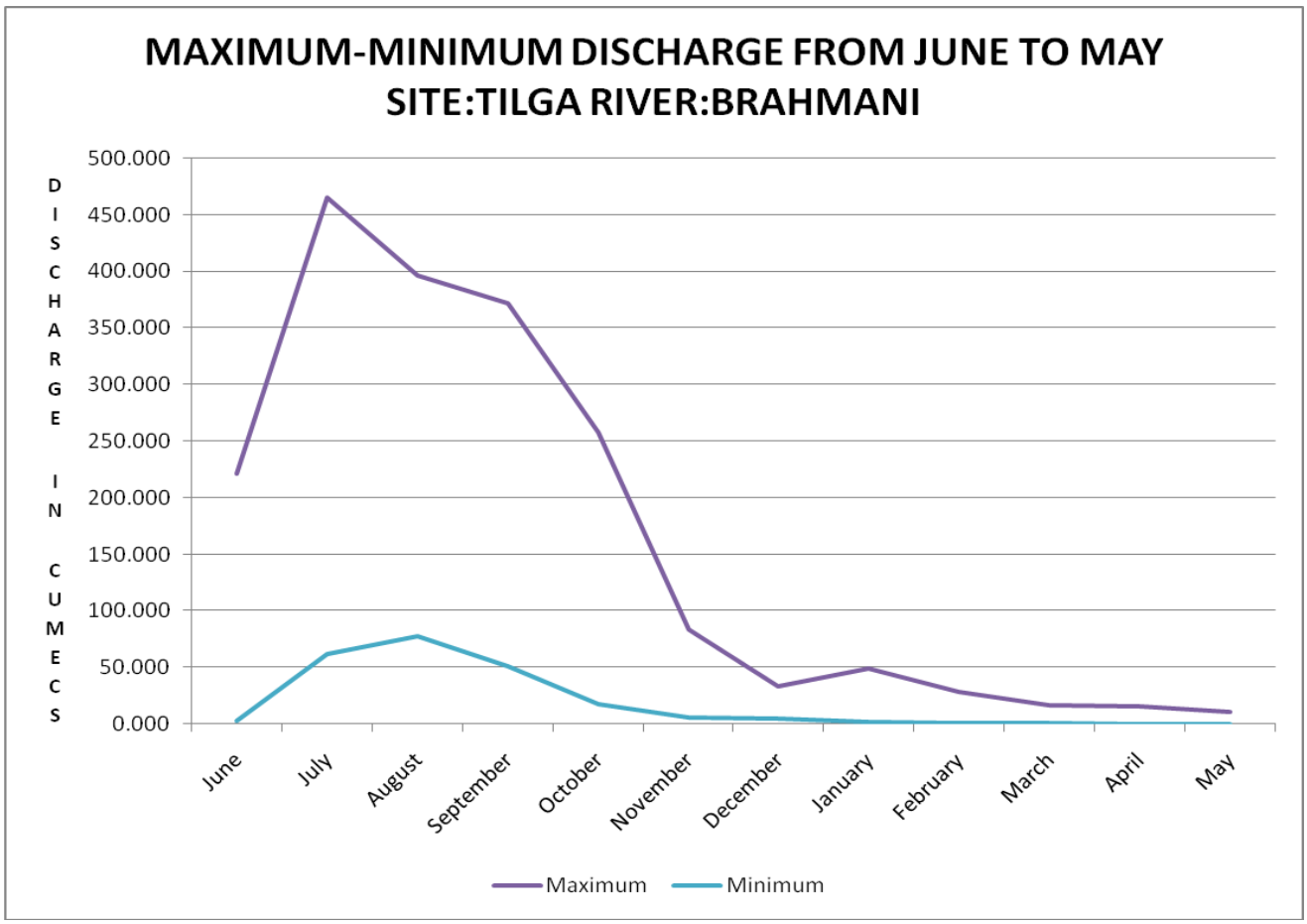
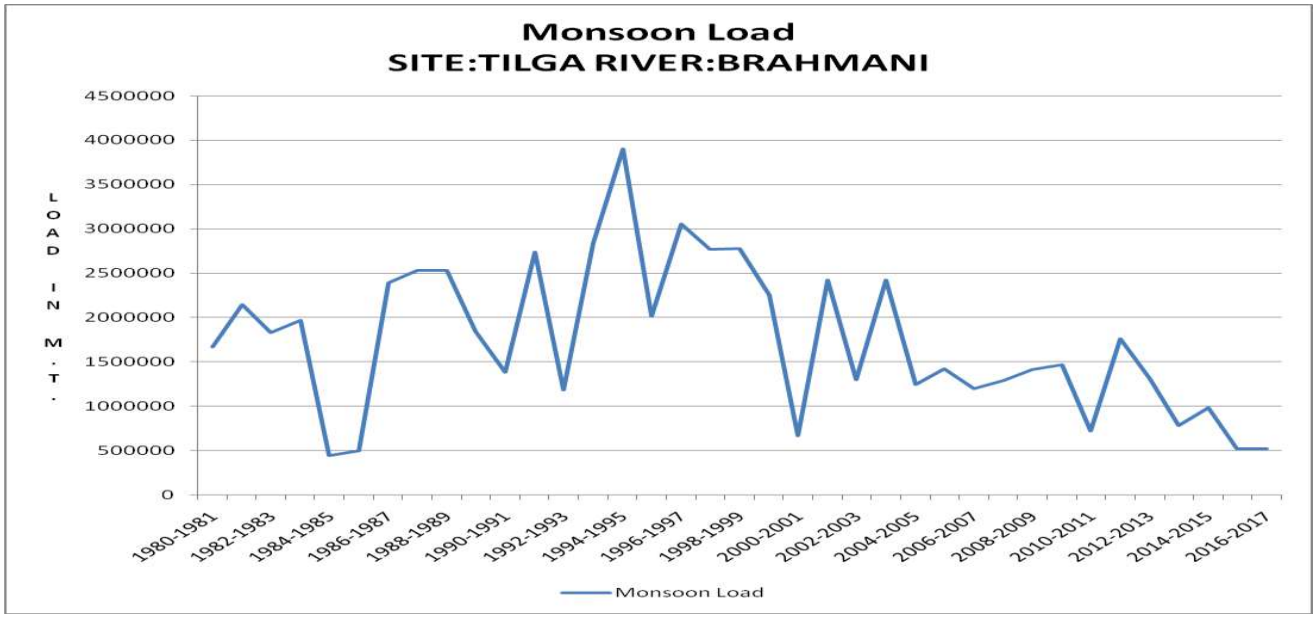
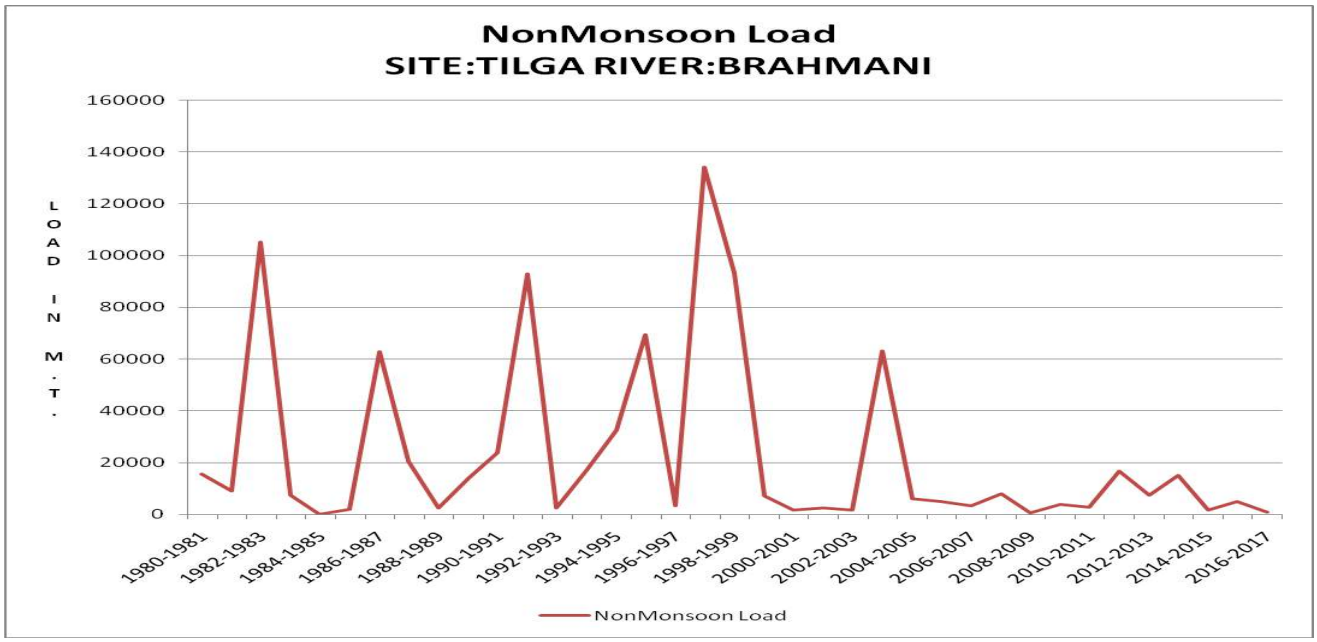
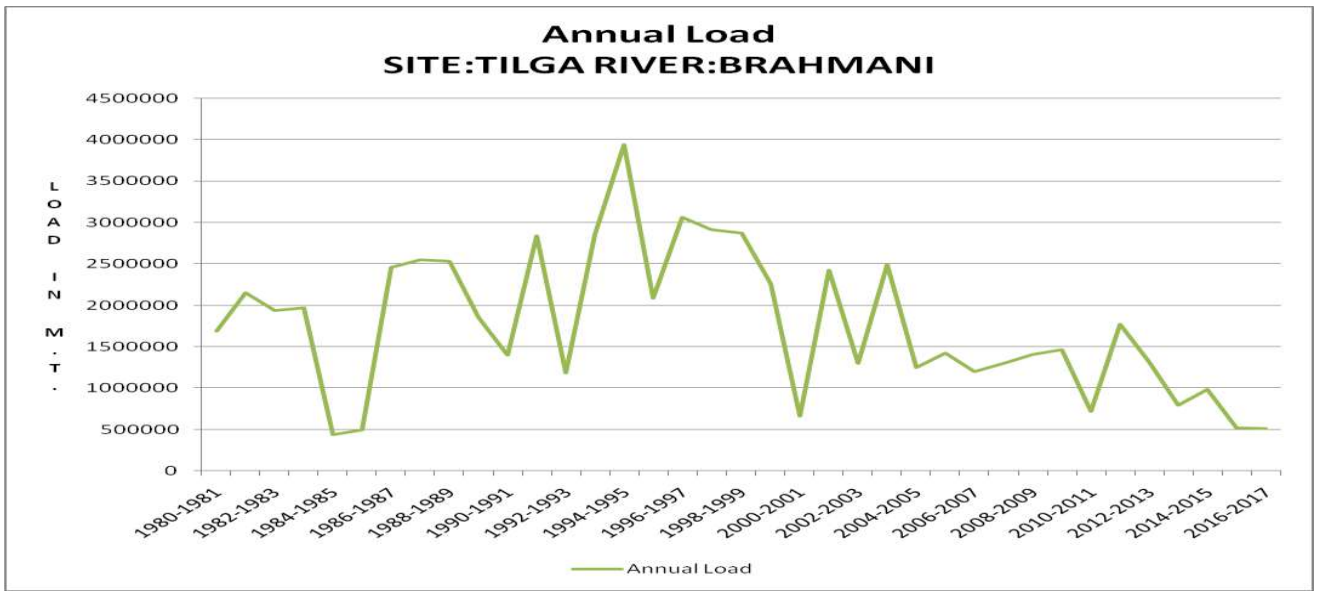
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Non-Monsoon

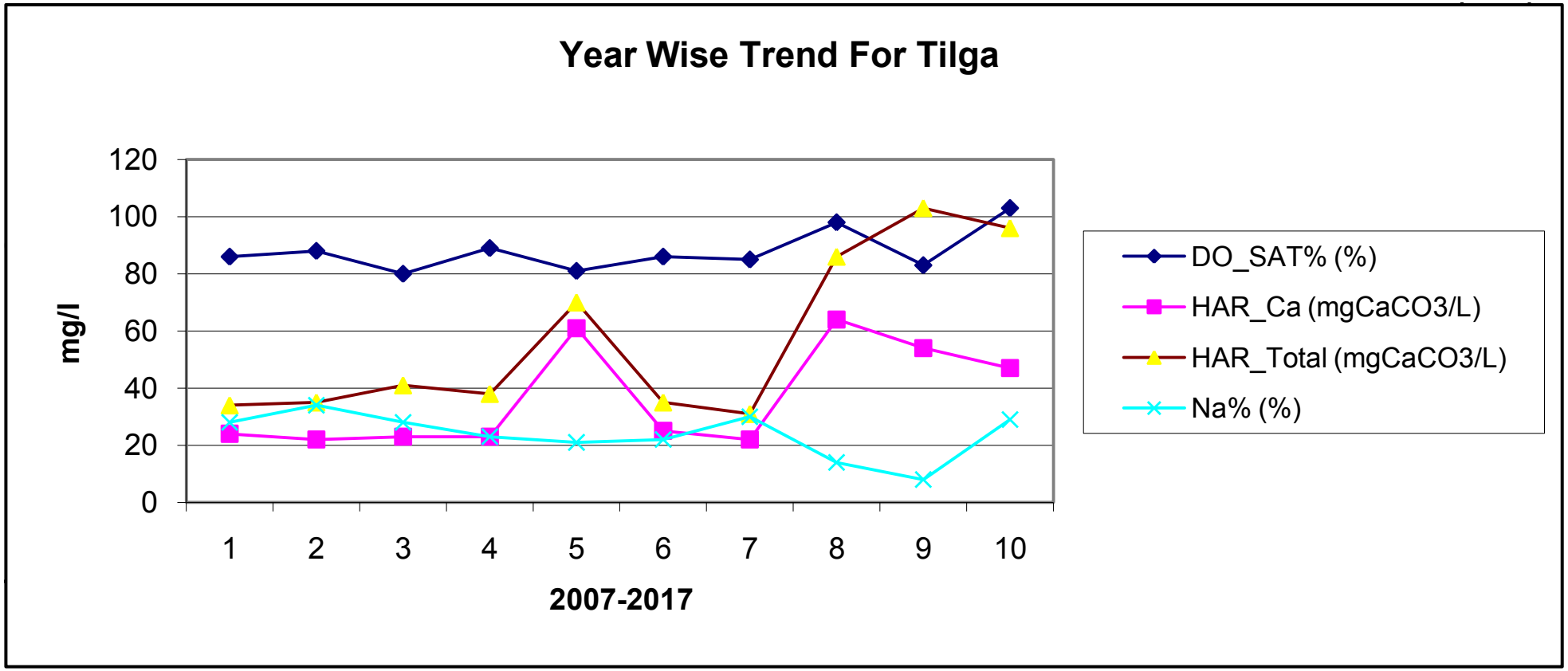

DEPENDIBILITY FLOW FROM JUNE TO MAY
SITE:TILGA RIVER:BRAHMANI
DISCHARGE IN CUMECS
300.000
250.000
200.000
150.000
100.000
50.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
75% Dep
50% Dep
25% Dep

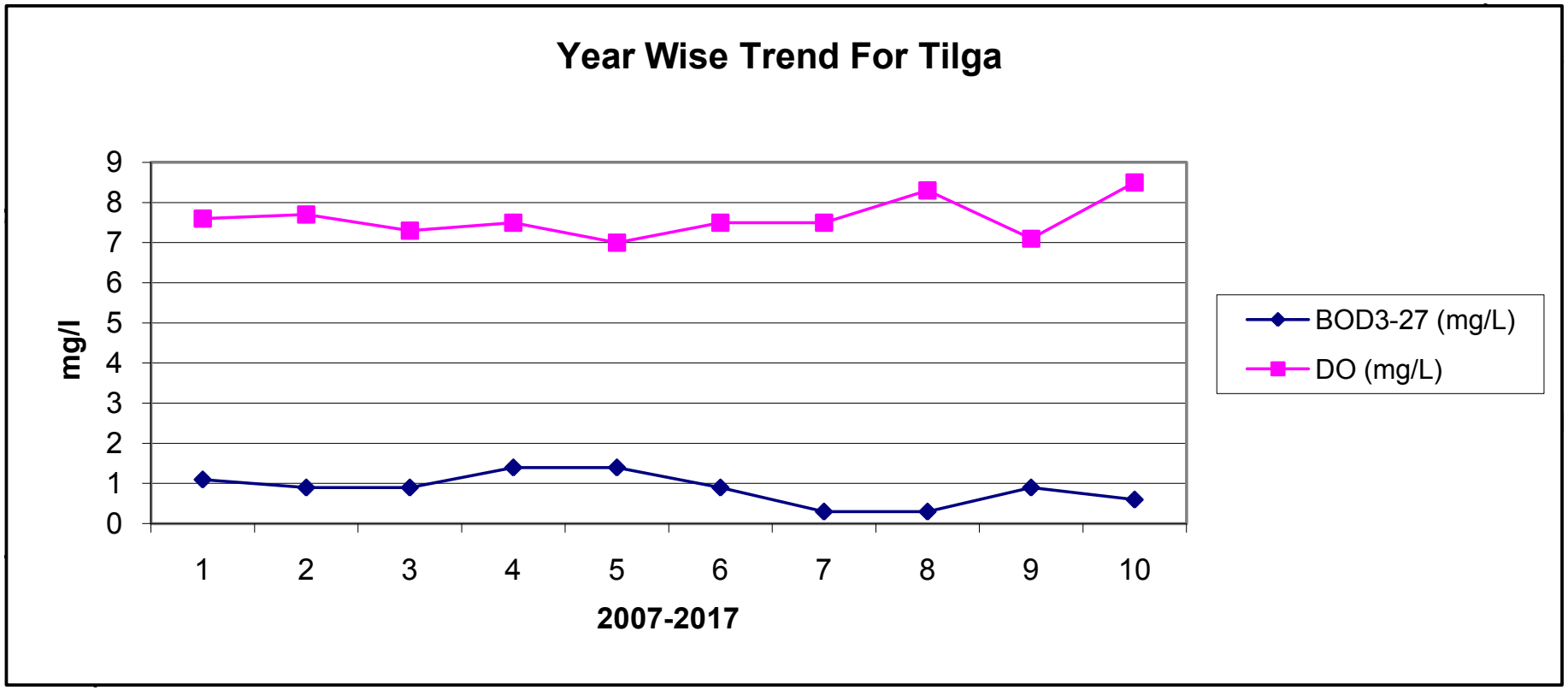

MAXIMUM-MINIMUM DISCHARGE FROM JUNE TO MAY
SITE:TILGA RIVER:BRAHMANI
DISCHARGE IN CUMECS
500.000
450.000
400.000
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
Maximum
Minimum

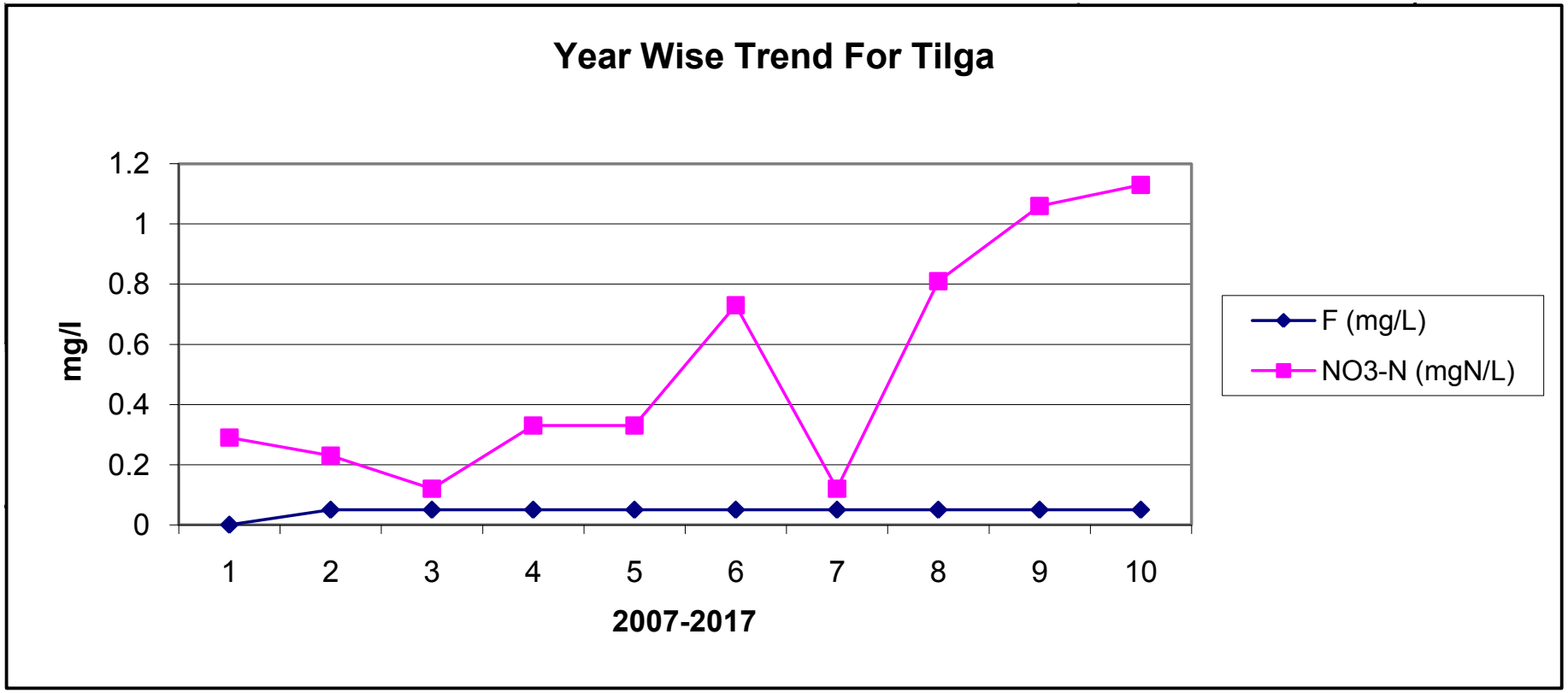

Monsoon Load
SITE:TILGA RIVER:BRAHMANI
LOAD IN M.T.
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Monsoon Load

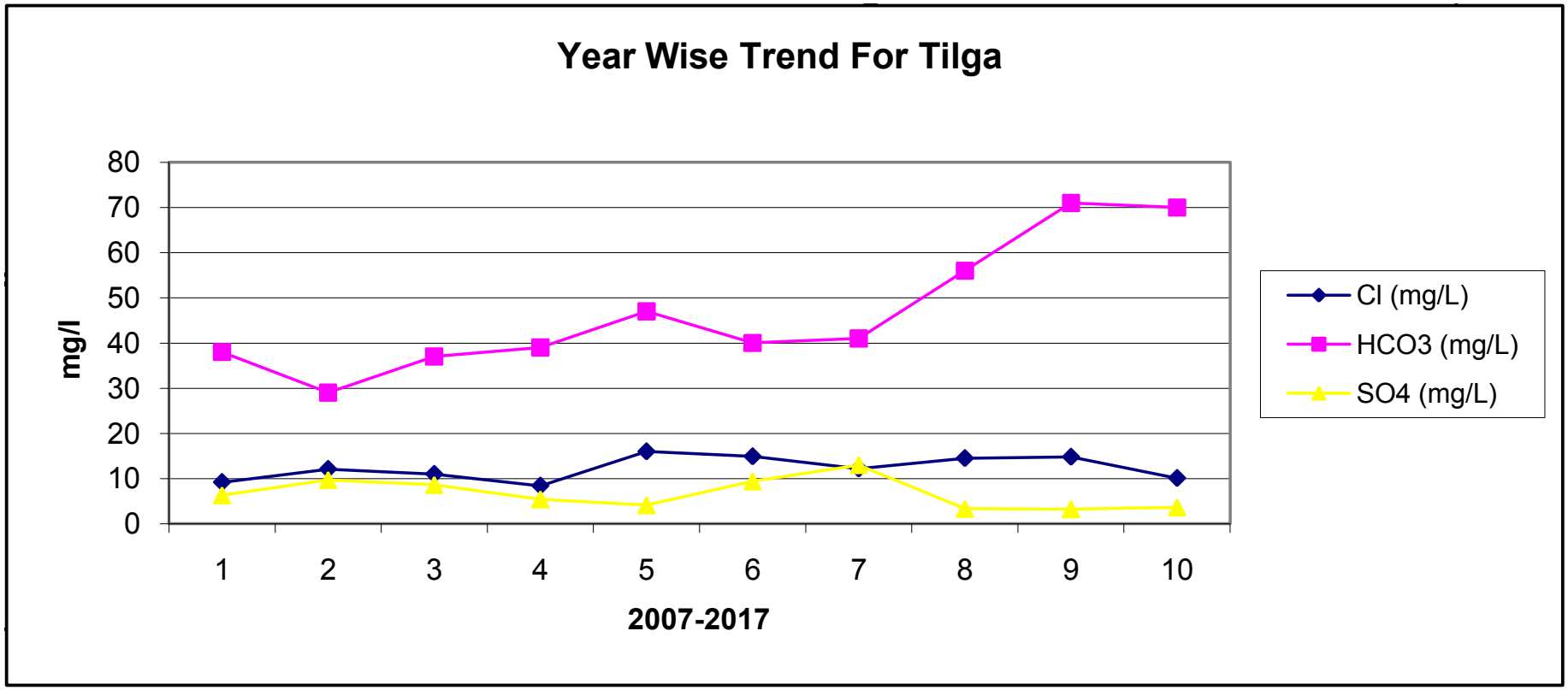

NonMonsoon Load
SITE:TILGA RIVER:BRAHMANI
LOAD IN M.T.
160000
140000
120000
100000
80000
60000
40000
20000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
NonMonsoon Load

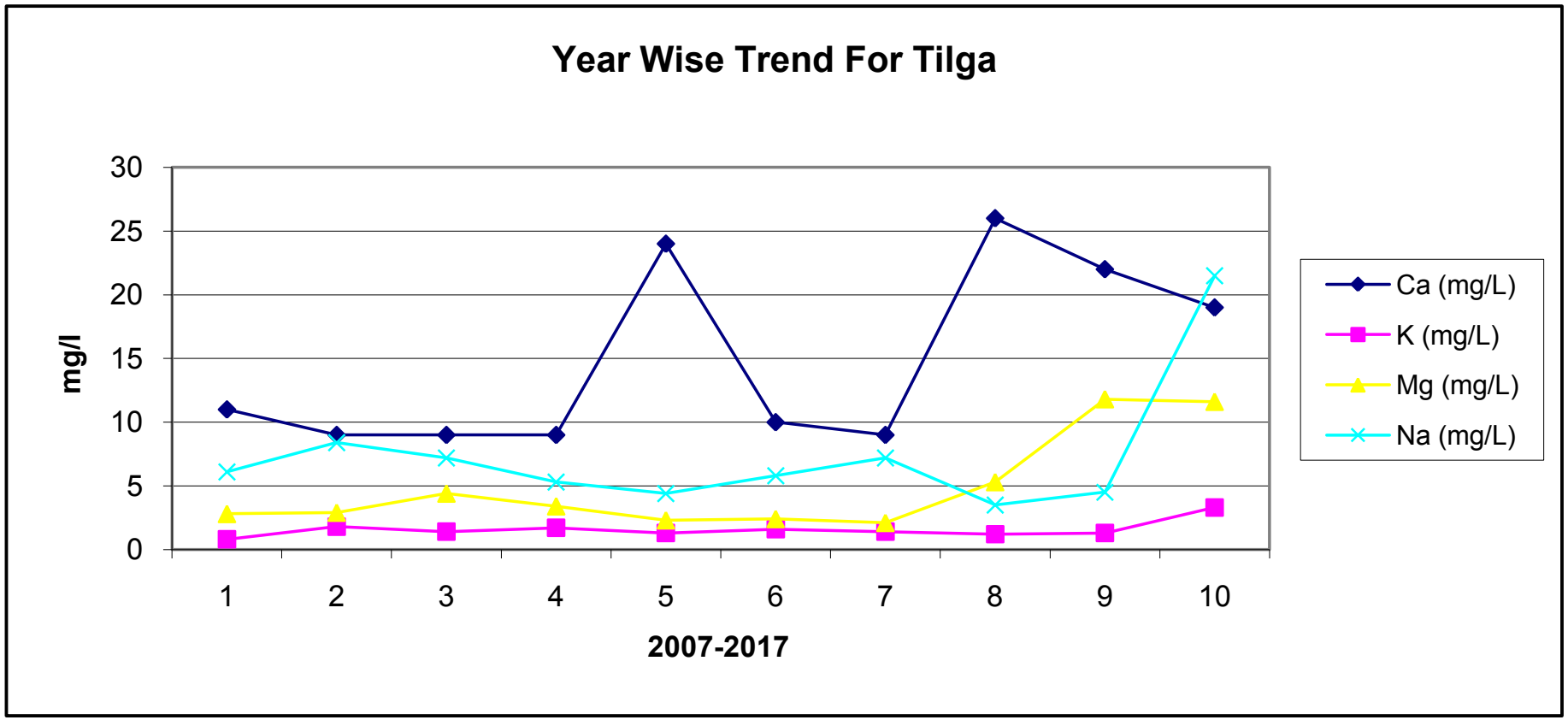

Annual Load
SITE:TILGA RIVER:BRAHMANI
LOAD IN M.T.
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Annual Load


Year Wise Trend For Tilga
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Ca (mgCaCO3/L)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Tilga
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Tilga
1.2
1
0.8
0.6
0.4
0.2
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Tilga
mg/l
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Tilga
mg/l
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

Water Year : 2016-2017

Site	**:**	**JARAIKELA**	**Code**	**:**	**EBJ00D5**
State	:	Orissa	District		Sundergarh
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmani
Tributary	:	Koel	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Koel
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela
Drainage Area	:	9160 Sq. Km.	Bank	:	Left
Latitude	:	22°19'08"	Longitude	:	85°06'19"
Zero of Gauge (m)	:	182 (m.s.l) 185 (m.s.l)	01.07.1971 21.03.1975	-	20.03.1975 31.12.2025
		Opening Date	Closing Date		
Gauge	:	23.07.1971			
Discharge	:	01.08.1972			
Sediment	:	01.06.1975	04.09.2002		
Water Quality	:	01.09.1975			

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1973-1974	2436	192.185	26.09.1973	1.300	186.265	11.05.1974
1974-1975	3557	192.540	17.08.1974	1.000	186.055	26.04.1975
1975-1976	4130	192.405	18.07.1975	1.300	186.035	18.06.1975
1976-1977	8062	193.950	18.09.1976	1.711	185.865	05.04.1977
1977-1978	10730	193.900	06.08.1977	1.330	186.320	25.05.1978
1978-1979	5697	193.090	03.09.1978	0.730	186.230	30.05.1979
1979-1980	816.3	189.658	09.08.1979	0.410	186.260	10.05.1980
1980-1981	1372	190.135	11.07.1980	1.180	186.430	02.04.1981
1981-1982	1089	190.105	07.09.1981	0.970	186.645	13.05.1982
1982-1983	2251	191.370	21.08.1982	1.145	186.445	17.04.1983
1983-1984	1351	190.485	19.09.1983	0.604	186.615	30.05.1984
1984-1985	2611	191.810	27.08.1984	1.090	186.250	07.05.1985
1985-1986	2663	191.855	17.10.1985	2.260	186.665	21.04.1986
1986-1987	1818	190.900	28.07.1986	1.541	186.510	28.05.1987
1987-1988	3465	191.750	28.08.1987	1.000	186.265	29.05.1988
1988-1989	6422	192.975	28.06.1988	0.483	186.255	16.05.1989
1989-1990	1666	191.670	22.06.1989	2.656	186.395	05.06.1989
1990-1991	2293	191.365	15.07.1990	2.562	186.675	21.05.1991
1991-1992	2153	191.670	13.08.1991	2.200	186.465	24.05.1992
1992-1993	744.1	189.905	30.08.1992	1.318	186.445	18.05.1993
1993-1994	2202	191.770	13.07.1993	1.113	186.550	12.05.1994

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1994-1995	5007	192.915	03.08.1994	2.437	186.520	28.04.1995
1995-1996	4233	193.120	18.09.1995	1.538	186.465	19.05.1996
1996-1997	4903	192.965	26.07.1996	1.824	186.405	31.05.1997
1997-1998	12539	194.010	06.08.1997	0.884	186.365	12.06.1997
1998-1999	3252	192.205	11.09.1998	1.690	186.260	03.05.1999
1999-2000	1900	191.750	19.10.1999	2.337	186.380	25.04.2000
2000-2001	3872	193.010	25.07.2000	1.863	186.320	05.05.2001
2001-2002	4288	192.455	21.07.2001	1.764	186.295	14.05.2002
2002-2003	1139	190.400	24.06.2002	1.363	186.405	29.05.2003
2003-2004	2600	192.100	25.10.2003	0.895	186.355	08.06.2003
2004-2005	4063	193.060	21.08.2004	1.431	186.380	28.05.2005
2005-2006	1262	190.415	30.06.2005	0.990	186.280	22.06.2005
2006-2007	2658	191.190	30.07.2006	2.755	186.540	31.05.2007
2007-2008	4603	193.330	20.08.2007	1.682	186.490	08.06.2007
2008-2009	1240	190.625	08.07.2008	1.710	186.545	06.05.2009
2009-2010	2366	192.025	08.09.2009	0.957	186.230	28.04.2010
2010-2011	571.1	189.475	16.09.2010	0.770	186.440	04.04.2011
2011-2012	4032	193.085	20.06.2011	1.821	186.345	31.05.2012
2012-2013	878.7	190.200	17.08.2012	1.025	186.300	14.06.2012
2013-2014	1548	191.960	03.10.2013	0.000	188.715	20.08.2013
2014-2015	957.0	190.570	10.08.2014	0.000	190.020	21.07.2014
2015-2016	461.3	188.780	26.07.2015	0.000	189.920	24.07.2015
2016-2017	722.1	192.350	19.08.2016	0.173	186.225	10.05.2017

Stage-Discharge Data for the period 2016 - 2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	186.530	12.66	187.035	17.71	189.000	193.8	188.470	200.6	188.240	191.0	186.800	20.21
2	186.520	12.61	187.000	14.72	188.675	178.1	188.440	198.1	188.080	149.8 *	186.800	19.73
3	186.520	12.49	187.420	15.66 *	188.920	191.2	188.540	214.4	187.950	116.5	186.800	18.28
4	186.520	12.23	187.925	80.55	188.500	147.4	188.890	220.4 *	187.840	104.5	186.790	17.67
5	186.520	12.23 *	187.790	69.77	188.300	144.8	189.455	320.5	187.795	88.88	186.780	16.55
6	186.510	12.10	188.840	204.3	188.070	123.2	189.060	269.9	187.810	82.75	186.770	15.47 *
7	186.500	6.292	187.820	134.2 *	188.490	165.5 *	188.910	359.2	188.470	176.7	186.760	15.43
8	186.500	6.134	188.040	134.4	188.720	188.7	188.600	161.0	188.470	154.3	186.750	14.34
9	186.700	6.154	187.910	110.9	188.540	158.2	190.000	415.1	188.070	123.1 *	186.740	14.38
10	186.743	6.808	187.670	90.67 *	188.725	200.7	189.080	258.0	188.070	123.0 *	186.720	12.37
11	186.985	21.68	187.510	90.63	189.210	339.0	189.560	578.8 *	188.980	219.2 *	186.720	12.05
12	186.960	19.16 *	188.230	134.0	189.380	252.5	190.400	472.9	188.400	146.2 *	186.760	25.46
13	186.910	13.57	188.780	188.9	189.000	210.3	189.150	575.5 *	187.840	161.5	186.810	28.17 *
14	186.890	13.89	188.005	130.5	188.520	214.9 *	188.780	294.6	187.530	127.8	186.800	26.24 *
15	186.860	13.89	187.750	116.8	188.480	200.3 *	188.730	144.3	187.350	116.1	186.780	28.29
16	186.895	12.27	189.570	294.0	189.595	298.1	188.490	123.5	187.240	108.6 *	186.790	30.78
17	186.830	7.908	189.120	560.4 *	189.730	288.8	188.250	130.0	187.150	103.8	186.790	29.83
18	186.940	16.36	189.215	244.2	190.600	370.6	188.010	113.0 *	187.090	88.30	186.800	27.71
19	186.960	15.92 *	188.510	216.2	192.350	722.1	187.910	106.1	187.045	80.92	186.810	28.18
20	186.900	17.21	188.480	200.7	190.280	495.1	188.735	221.8	187.000	77.84	186.820	29.44 *
21	186.890	14.43	188.595	220.5	189.020	576.5 *	188.545	129.3	186.960	47.56	186.820	29.44
22	186.840	9.474	189.200	236.8	188.420	120.5	189.010	260.1	186.940	39.88	186.820	29.49
23	186.850	9.134	189.020	534.3	189.270	241.8	188.505	159.6	186.930	35.91 *	186.800	25.75
24	187.690	100.7	188.360	145.4 *	188.890	194.4	188.450	150.8	186.910	27.96	186.840	28.62
25	187.180	28.61	187.980	112.5	189.100	301.6	188.340	142.8 *	186.890	29.37	186.840	28.42
26	187.020	18.02 *	188.080	125.2	189.100	317.2	188.410	146.3	186.880	28.09	186.840	28.41
27	186.930	12.86	188.600	248.5	188.800	190.3	188.570	219.0	186.850	25.60	186.840	28.40 *
28	187.020	18.03	187.600	98.06	188.650	183.5 *	188.920	511.7	186.840	24.74	186.830	26.48
29	187.095	23.66	188.660	209.1	188.300	167.8	188.670	345.0	186.830	23.33	186.830	25.14
30	187.050	16.86	188.570	168.9 *	188.160	159.2	188.500	189.2	186.820	22.88 *	186.830	24.56
31			188.570	168.9	188.570	199.7			186.810	22.41		
Ten-Daily Mean												
I Ten-Daily	186.556	9.971	187.745	87.28	188.594	169.2	188.944	261.7	188.079	131.1	186.771	16.44
II Ten-Daily	186.913	15.18	188.517	217.6	189.715	339.2	188.801	276.1	187.563	123.0	186.788	26.62
III Ten-Daily	187.056	25.17	188.476	206.2	188.753	241.1	188.592	225.4	186.878	29.79	186.829	27.47
Monthly												
Min.	186.500	6.134	187.000	14.72	188.070	120.5	187.910	106.1	186.810	22.41	186.720	12.05
Max.	187.690	100.7	189.570	560.4	192.350	722.1	190.400	578.8	188.980	219.2	186.840	30.78
Mean	186.842	16.78	188.253	171.5	189.012	249.5	188.779	254.4	187.486	92.53	186.796	23.51

Annual Runoff in MCM = 2204 Annual Runoff in mm = 241

Peak Observed Discharge = 722.1 cumecs on 19/08/2016 Corres. Water Level :192.35 m

Lowest Observed Discharge = 0.173 cumecs on 09/05/2017 Corres. Water Level :186.225 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2016 - 2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	186.830	19.63	186.710	3.768 *	186.520	4.304	186.510	2.219	186.400	1.076	186.350	0.620
2	186.820	19.14	186.710	3.836	186.510	4.174	186.510	2.118	186.400	1.076 *	186.330	0.595
3	186.820	18.28	186.730	4.465	186.530	4.389	186.510	2.027	186.400	0.995	186.300	0.364
4	186.820	18.28 *	186.680	3.592	186.520	4.337	186.500	1.733	186.400	0.957	186.400	0.252
5	186.820	18.17	186.670	3.335	186.520	4.294 *	186.500	1.728 *	186.400	0.940	186.250	0.248
6	186.820	18.59	186.670	3.281	186.490	4.203	186.500	1.697	186.390	0.922	186.240	0.201
7	186.820	16.95	186.660	3.206	186.480	4.124	186.490	1.742	186.380	0.888	186.240	0.179 *
8	186.810	14.84	186.660	3.205 *	186.480	4.263	186.490	1.733	186.380	0.865	186.230	0.180
9	186.810	14.19	186.660	3.269	186.480	4.298	186.510	2.240	186.380	0.864 *	186.225	0.173
10	186.800	13.52	186.750	7.041	186.470	4.288	186.500	1.975	186.375	0.837	186.225	0.173 *
11	186.800	13.52 *	186.745	6.630	186.480	4.360	186.500	2.113	186.370	0.821	186.265	0.311
12	186.790	13.26 *	186.735	6.292	186.480	4.325 *	186.510	2.274 *	186.370	0.796	186.285	0.419
13	186.780	13.01	186.730	5.829	186.480	4.260	186.500	2.155 *	186.370	0.780	186.280	0.406
14	186.780	12.62	186.750	6.333	186.470	4.250	186.490	2.037	186.370	0.780 *	186.225	0.200 *
15	186.770	12.04	186.700	6.211 *	186.460	3.314	186.485	1.812	186.370	0.766	186.350	0.974
16	186.770	9.754	186.680	6.156	186.460	3.027	186.480	1.778	186.365	0.716 *	186.340	0.804
17	186.770	9.537	186.650	5.919	186.480	3.131	186.470	1.677	186.365	0.653	186.343	0.807
18	186.760	10.30 *	186.620	5.411	186.480	3.108	186.470	1.625	186.360	0.707	186.310	0.635
19	186.760	13.58	186.700	6.798	186.480	3.108 *	186.480	1.810 *	186.360	0.710	186.310	0.624
20	186.760	7.499	186.670	6.315	186.480	3.022	186.490	1.995	186.360	0.687	186.360	0.951
21	186.760	6.359	186.670	6.336	186.500	3.085	186.475	1.621	186.360	0.686	186.330	0.754 *
22	186.750	6.396	186.670	6.272 *	186.500	3.131	186.470	1.634	186.360	0.681	186.310	0.622
23	186.750	6.454	186.640	6.148	186.500	2.956	186.475	1.852	186.350	0.636 *	186.430	1.882
24	186.780	7.048	186.610	5.748	186.510	3.049 *	186.465	1.607	186.350	0.635	186.400	1.674
25	186.780	7.054 *	186.600	5.568	186.510	3.048	186.460	1.512	186.350	0.649	186.370	1.243
26	186.760	6.569	186.590	5.404 *	186.510	3.049 *	186.460	1.465 *	186.330	0.591	186.340	0.814
27	186.750	6.013	186.540	4.465	186.510	2.181	186.460	1.463	186.340	0.601	186.380	1.170
28	186.740	5.923	186.540	4.402	186.510	2.186	186.455	1.387	186.340	0.587	187.180	13.40 *
29	186.780	5.600	186.530	4.429 *			186.440	1.346	186.330	0.501	187.120	14.73
30	186.800	5.666	186.540	4.439			186.425	1.285	186.330	0.570 *	186.810	6.972
31	186.730	4.325	186.530	4.344			186.400	1.254			186.830	7.061
Ten-Daily Mean												
I Ten-Daily	186.817	17.16	186.690	3.900	186.500	4.267	186.502	1.921	186.391	0.942	186.279	0.298
II Ten-Daily	186.774	11.51	186.698	6.189	186.475	3.590	186.487	1.928	186.366	0.742	186.307	0.613
III Ten-Daily	186.762	6.128	186.587	5.232	186.506	2.836	186.453	1.493	186.344	0.614	186.591	4.575
Monthly												
Min.	186.730	4.325	186.530	3.205	186.460	2.181	186.400	1.254	186.330	0.501	186.225	0.173
Max.	186.830	19.63	186.750	7.041	186.530	4.389	186.510	2.274	186.400	1.076	187.180	14.73
Mean	186.784	11.42	186.656	5.111	186.493	3.616	186.480	1.771	186.367	0.766	186.399	1.918

Peak Computed Discharge = 578.8 cumecs on 11/09/2016 Corres. Water Level :189.56 m

Lowest Computed Discharge = 0.173 cumecs on 10/05/2017 Corres. Water Level :186.225 m

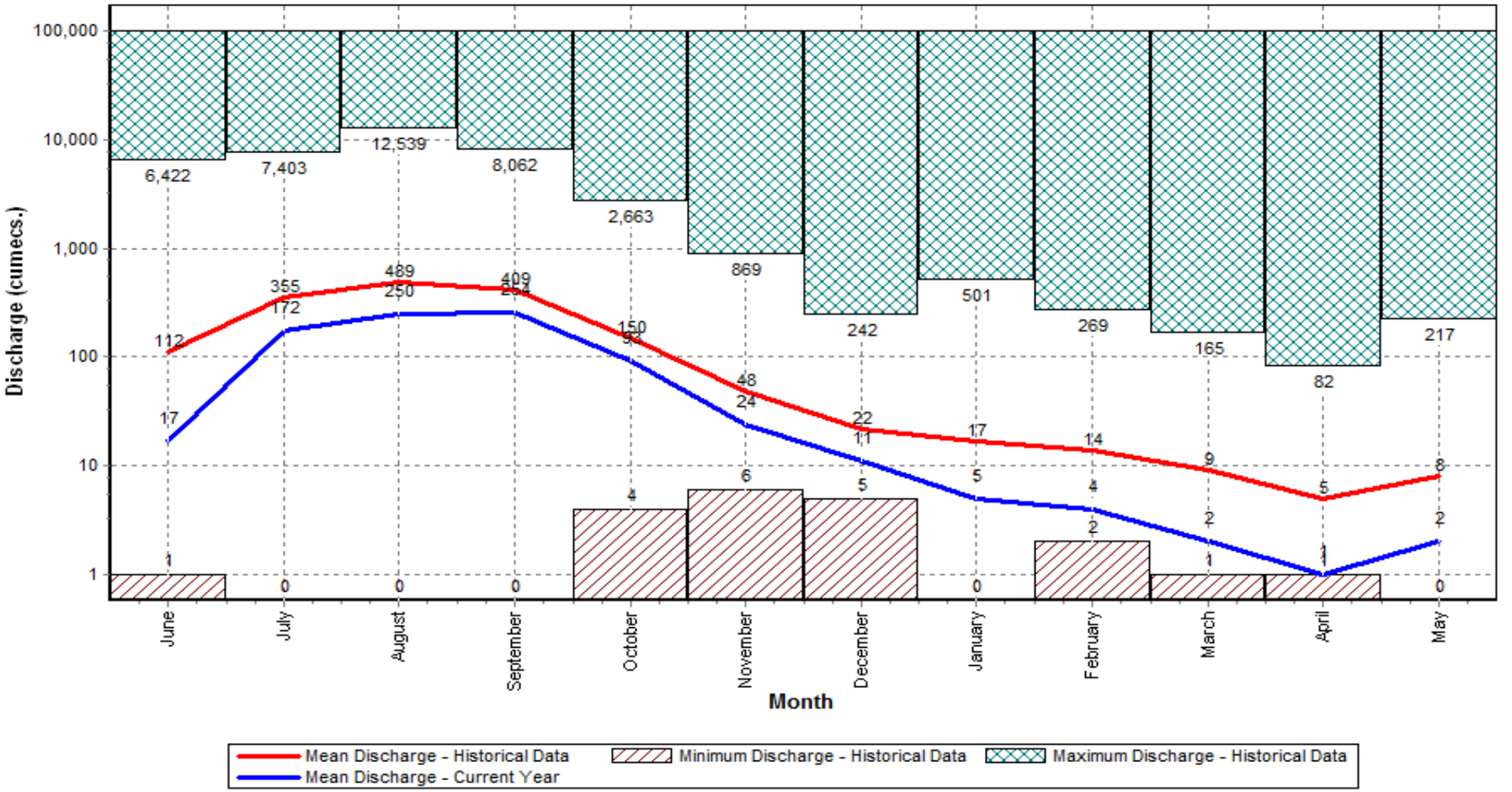
Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2016-2017

Station Name : JARAIKELA (EBJ00D5) | **Data considered : 1973-2017** | **Division : E.E., Bhubaneswar**

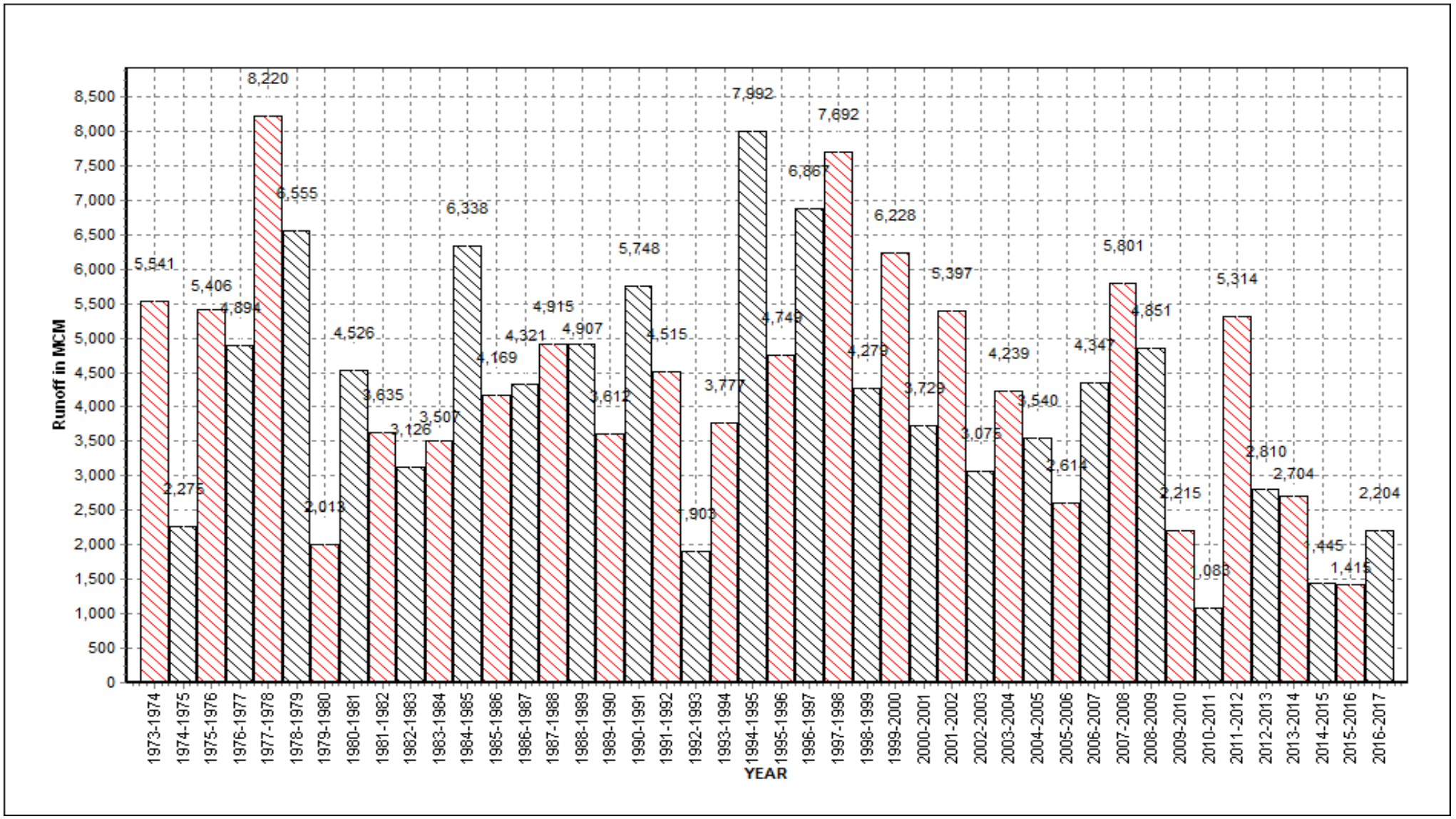
Local River : Koel | **Sub-Division : Rourkela**



Annual Runoff Values for the period: 1973 - 2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**

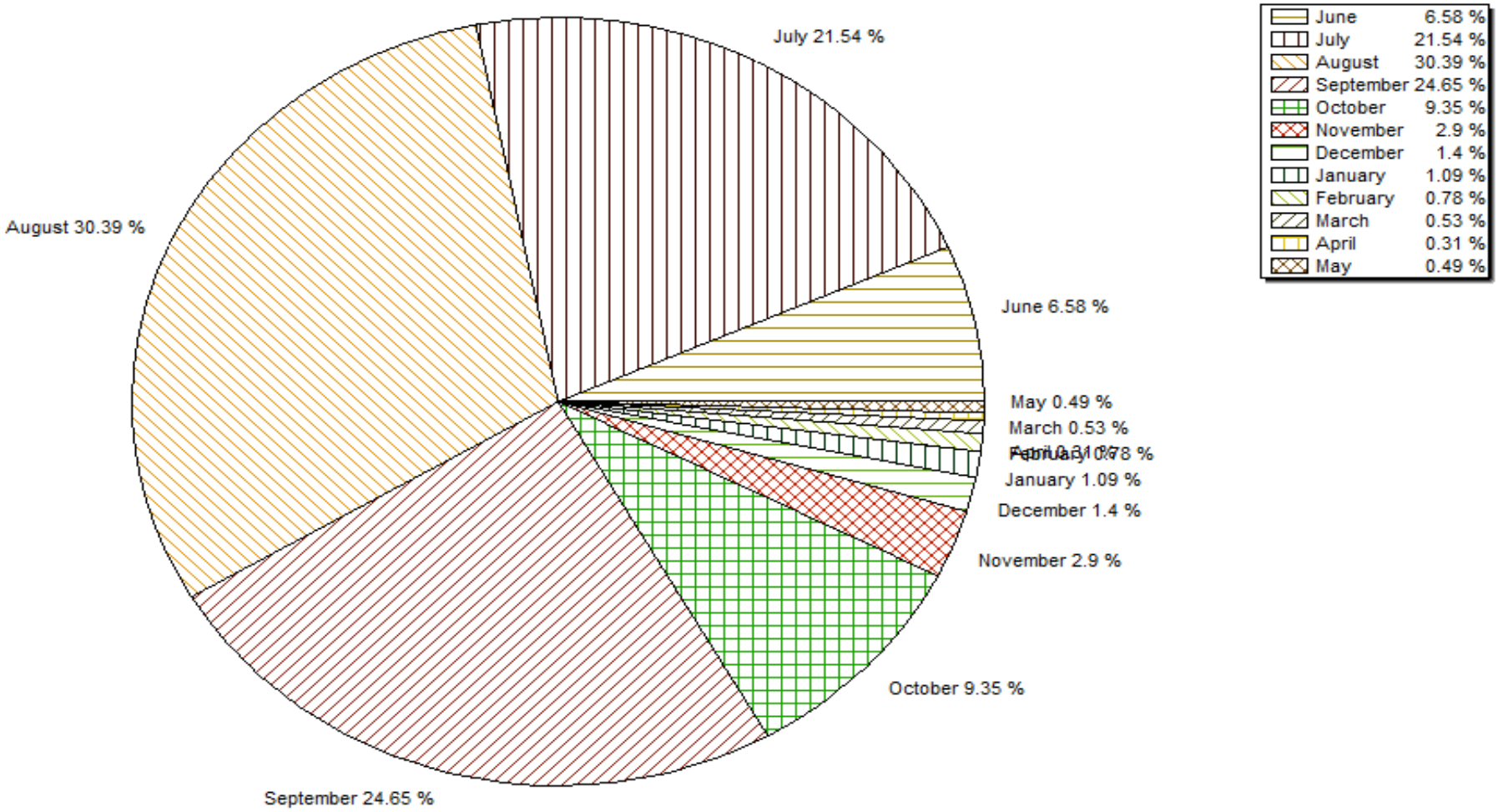


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1973-2016

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

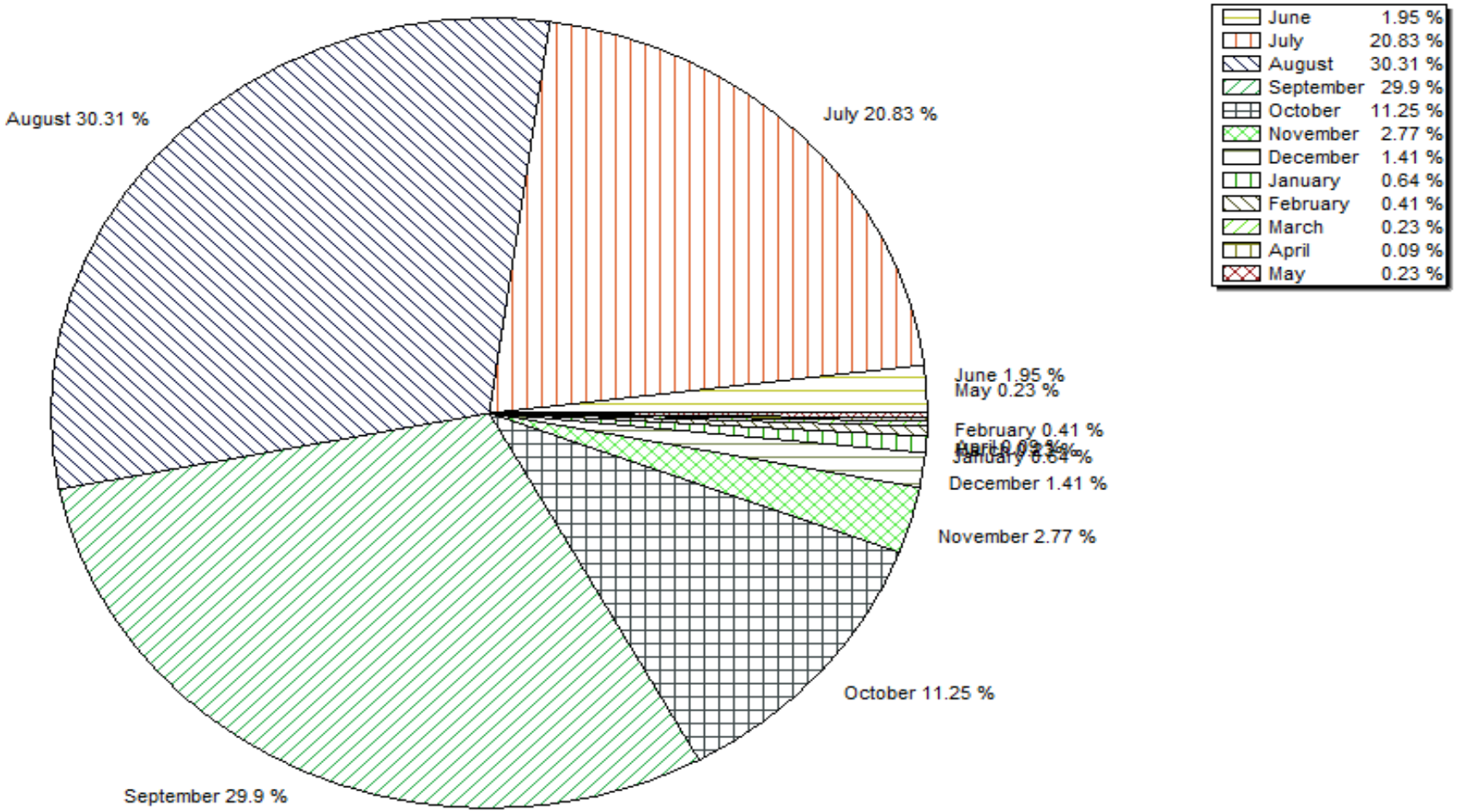
Local River : Koel **Sub-Division : Rourkela**



Monthly Runoff for the Year : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

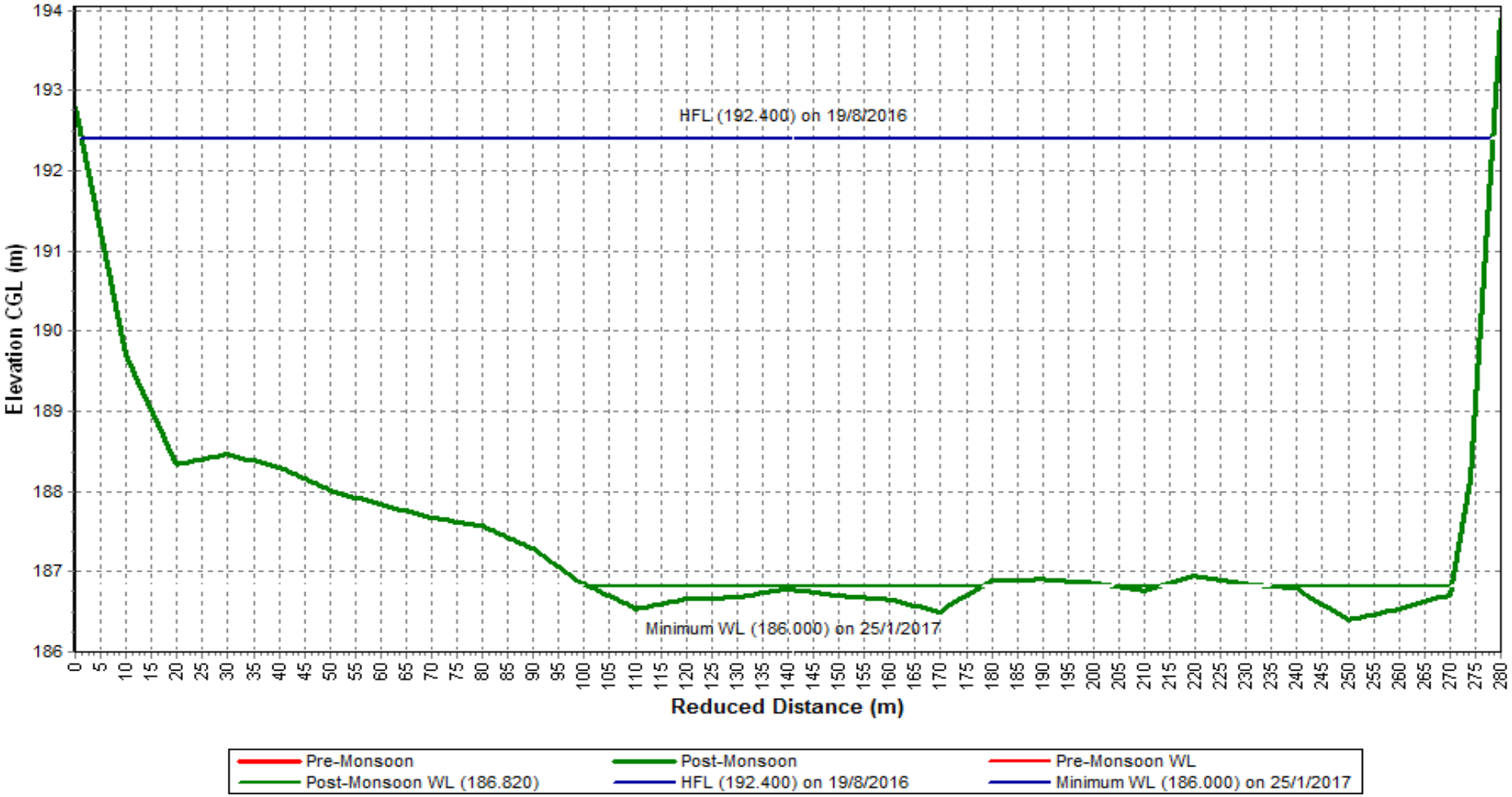
Local River : Koel **Sub-Division : Rourkela**



Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

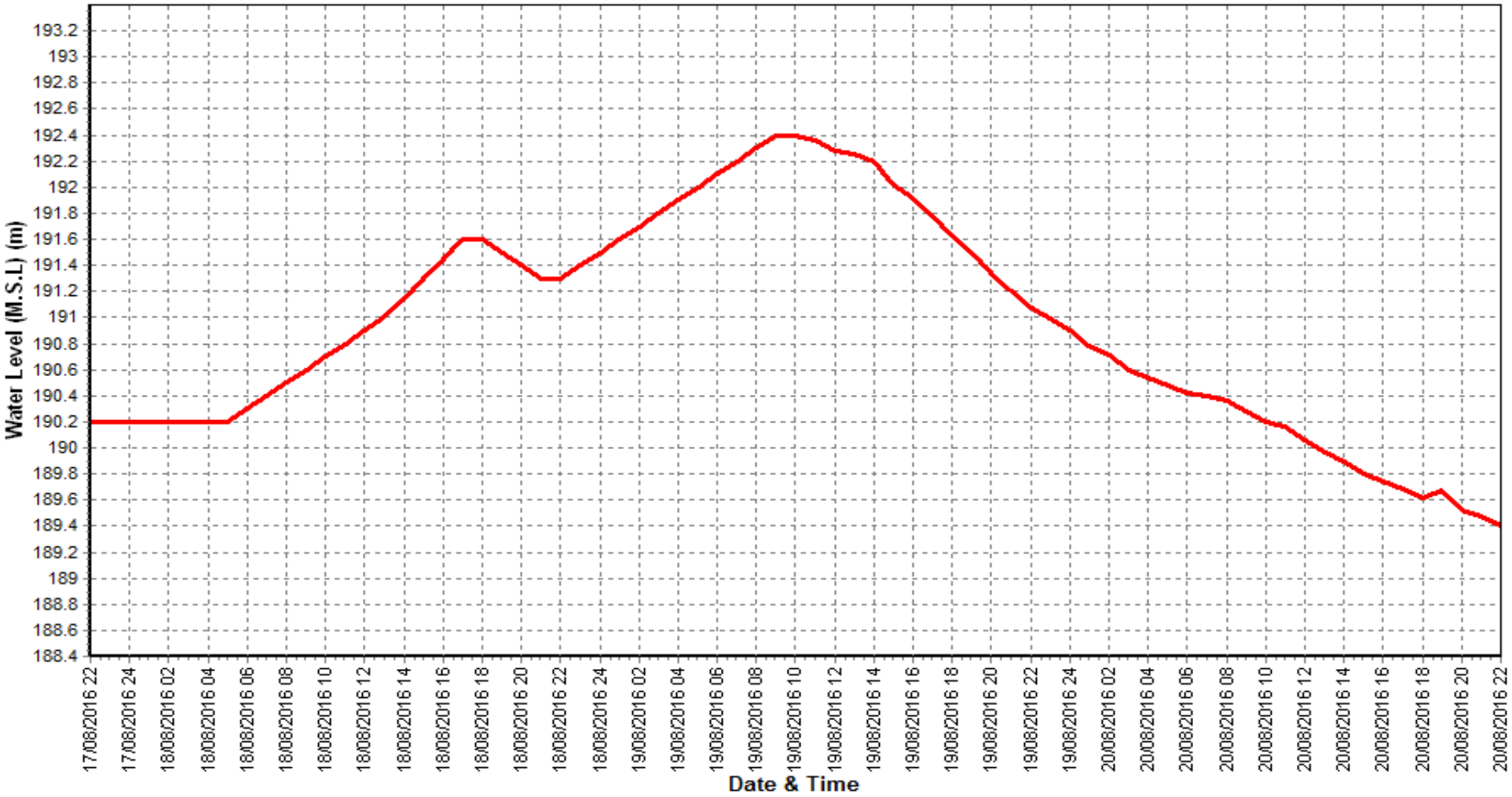
Local River : Koel **Sub-Division : Rourkela**



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**

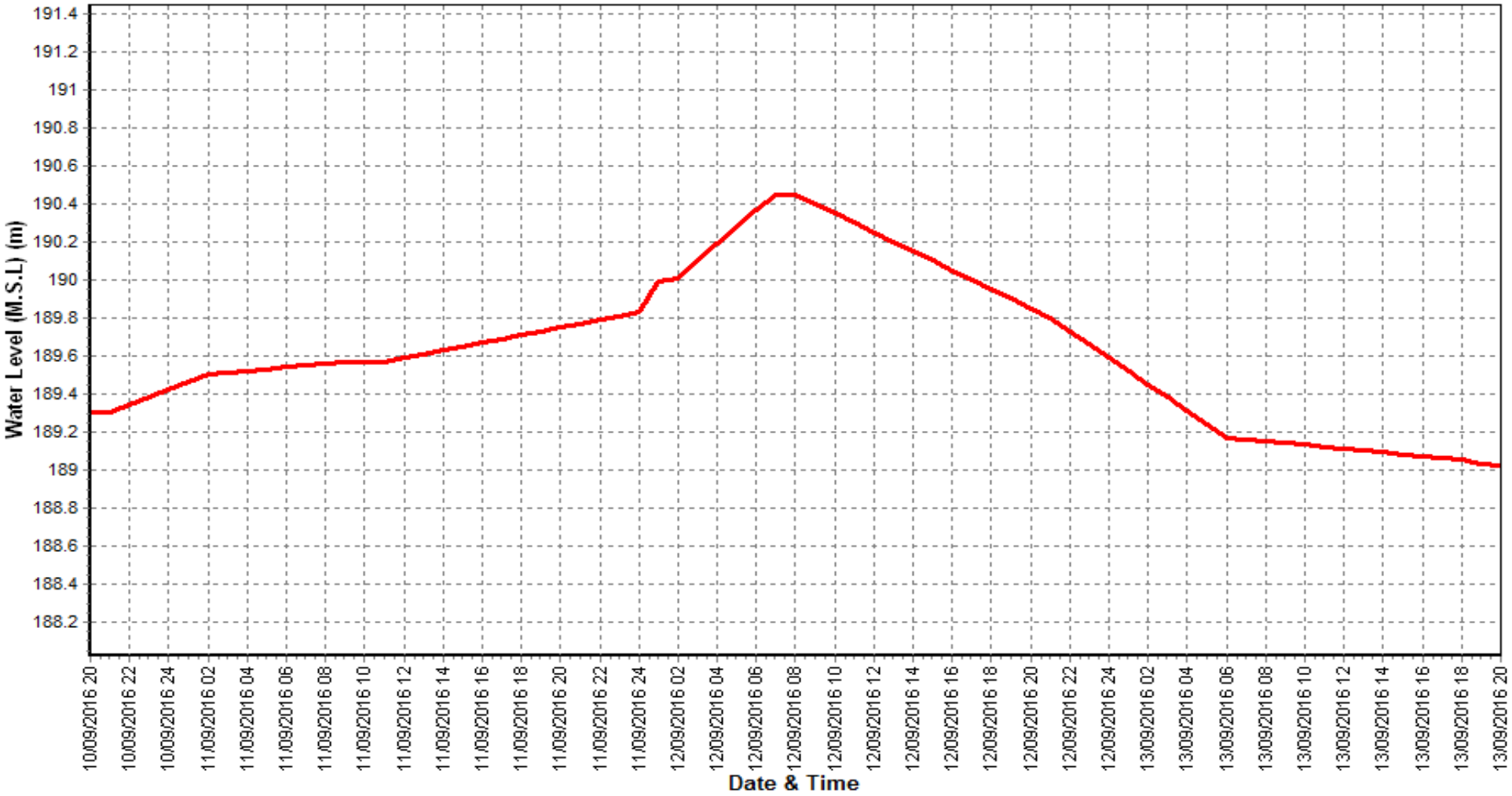


Time Span: 72 Hrs

Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**

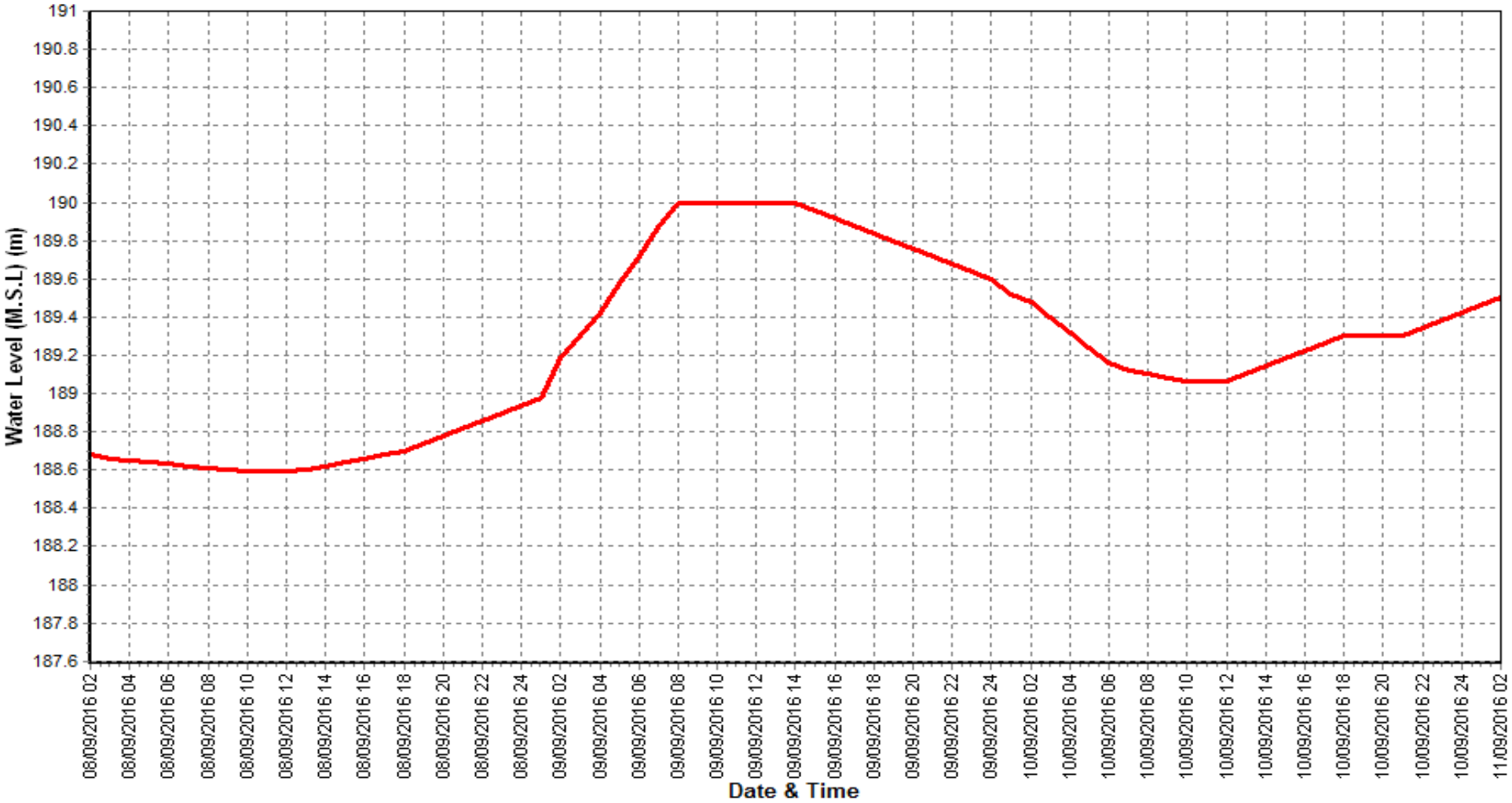


Time Span: 72 Hrs

Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**



Time Span: 72 Hrs

Annual Sediment Load for period : 1987-2003

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

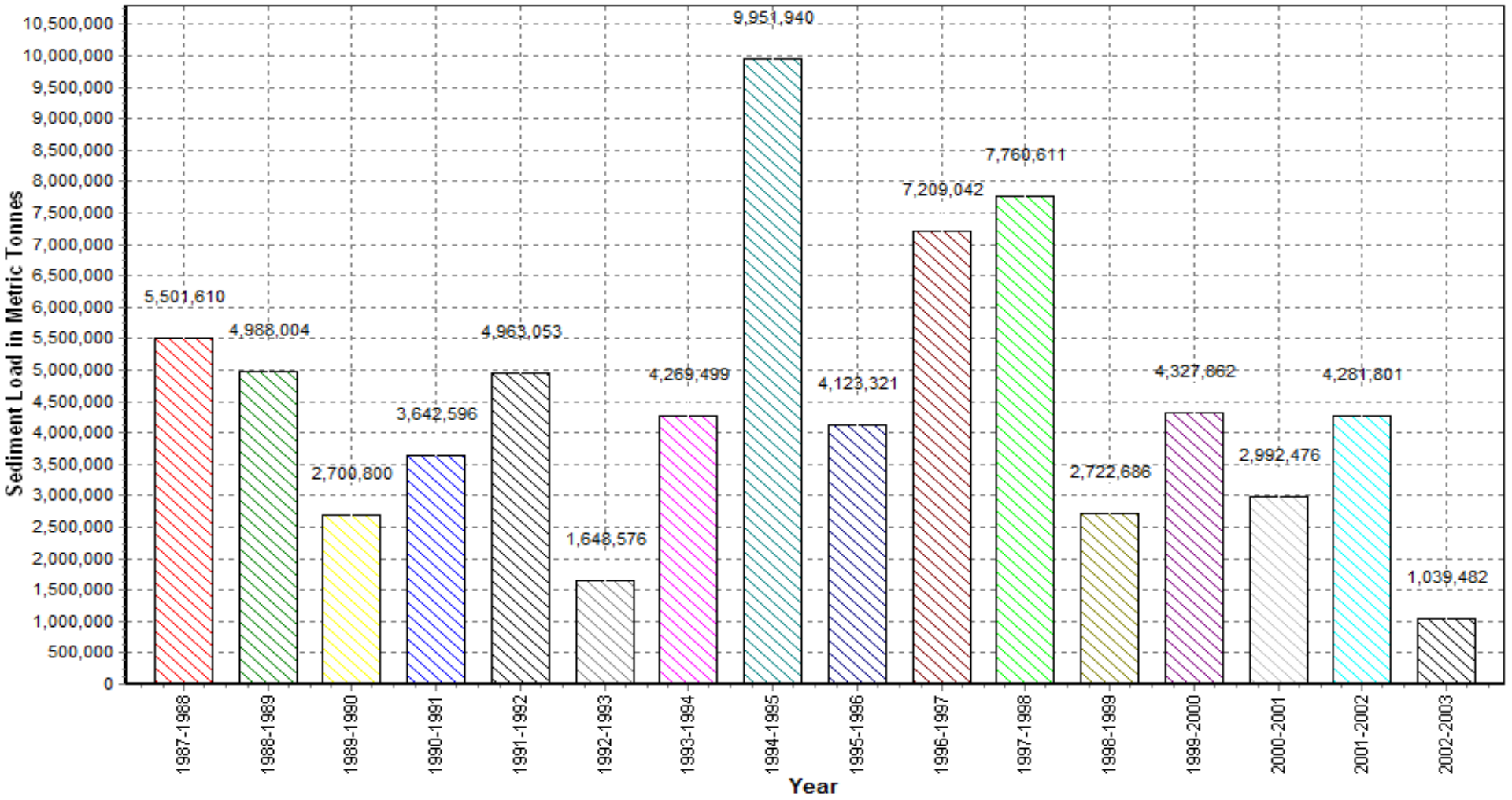
Local River : Koel **Sub-Division : Rourkela**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1987-1988	5497516	4094	5501610	4915
1988-1989	4987577	427	4988004	4907
1989-1990	2603338	97462	2700800	3612
1990-1991	3625398	17198	3642596	5748
1991-1992	4896065	66988	4963053	4515
1992-1993	1644493	4083	1648576	1903
1993-1994	4266917	2583	4269499	3777
1994-1995	9936700	15240	9951940	7992
1995-1996	4118120	5201	4123321	4749
1996-1997	7205966	3076	7209042	6867
1997-1998	7628906	131706	7760611	7692
1998-1999	2695021	27665	2722686	4279
1999-2000	4320733	7129	4327862	6228
2000-2001	2988903	3573	2992476	3729
2001-2002	4279961	1839	4281801	5397
2002-2003	1039482	0	1039482	3075

Annual Sediment Load for the period: 1987-2003

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**



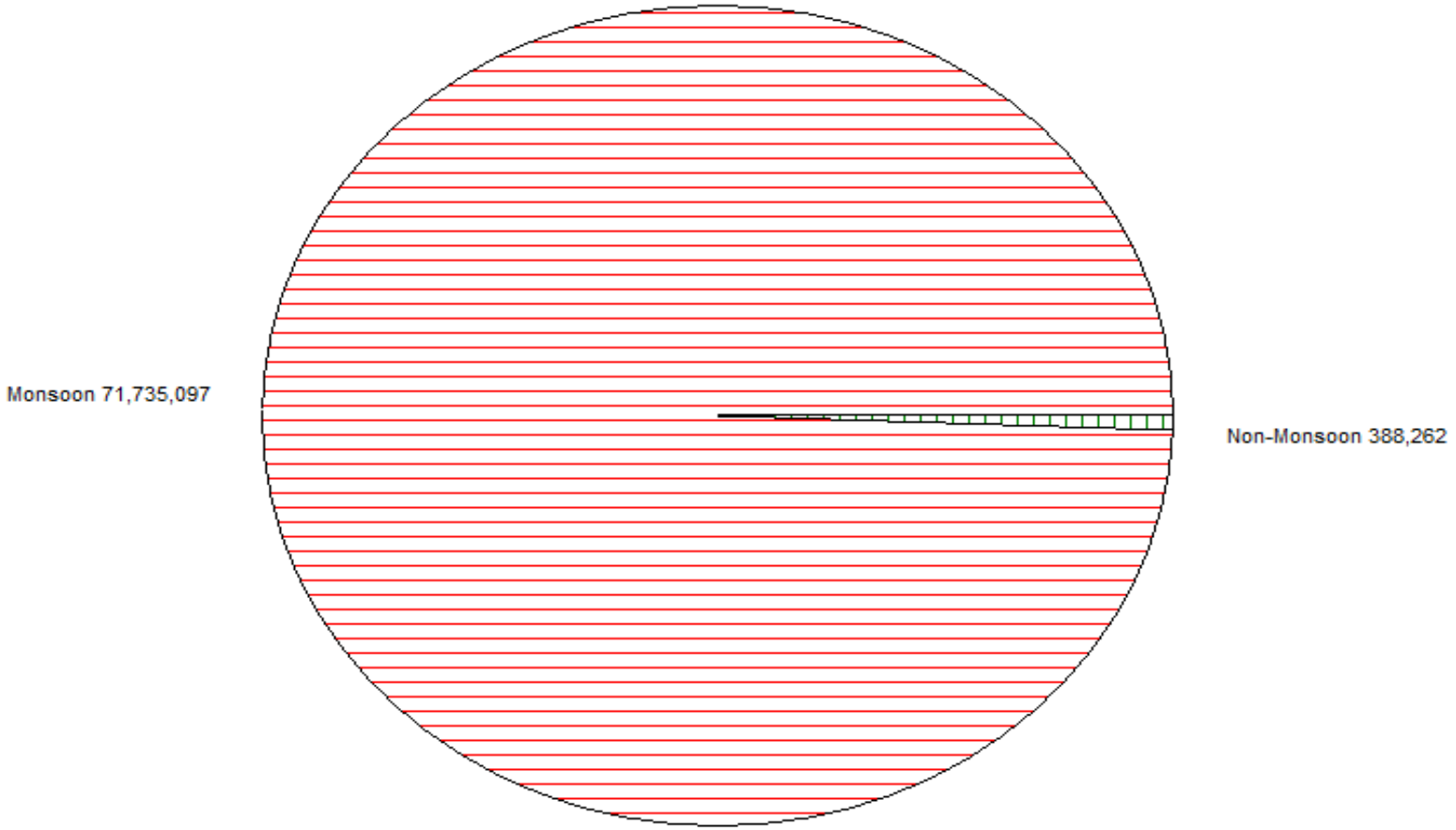
Seasonal Sediment Load for the period : 1987-2016

Station Name : JARAIKELA (EBJ00D5)

Local River : Koel

Division : E.E., Bhubaneswar

Sub-Division : Rourkela



Water Quality Datasheet for the period : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **River Water Analysis** **Sub-Division : Rourkela**

S.No	Parameters	01.06.2016	01.08.2016	01.10.2016	01.12.2016	01.02.2017	01.04.2017
		A	A	A	A	A	A
	PHYSICAL						
1	Q (cumec)						
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	130	84	199	456	208	266
4	EC_GEN (µmho/cm)	131	87	208	460	210	270
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.0	7.4	7.4	7.9	7.9
7	pH_GEN (pH units)	7.7	7.1	7.5	7.5	8.0	8.0
8	Temp (deg C)	29.0	27.0	27.0	20.2	16.0	34.0
	CHEMICAL						
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	88	51	55	46	88	92
3	B (mg/L)	0.01	0.01	0.01	0.01	0.02	0.02
4	Ca (mg/L)	35	37	21	37	38	37
5	Cl (mg/L)	39.5	15.1	11.3	13.2	15.1	9.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.3	0.4	0.5	0.5
9	HCO3 (mg/L)	107	62	68	56	107	113
10	K (mg/L)	2.5	7.6	4.9	3.9	3.9	3.8
11	Mg (mg/L)	18.5	18.5	12.6	13.6	13.6	11.7
12	Na (mg/L)	5.2	16.4	18.0	19.8	45.2	46.1
13	NO2+NO3 (mg N/L)	0.99	1.16	1.11	1.18	1.20	1.26
14	NO2-N (mgN/L)	0.01	0.00	0.03	0.00	0.01	0.03
15	NO3-N (mgN/L)	0.98	1.16	1.08	1.18	1.19	1.23
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	7.0	7.0	6.0	9.5	9.1
18	SO4 (mg/L)	2.4	2.3	12.6	5.1	5.2	5.4
	BIOLOGICAL/BACTERIOLOGICAL						
1	BOD3-27 (mg/L)	0.8	0.4	1.0	0.4	1.0	1.4
2	DO (mg/L)	7.6	6.4	8.9	8.7	10.1	7.8
3	DO_SAT% (%)	98	80	112	96	103	110
4	FCol-MPN (MPN/100mL)				330	170	90
5	Tcol-MPN (MPN/100mL)				340	330	140
	TRACE & TOXIC						
	CHEMICAL INDICES						
1	HAR_Ca (mgCaCO3/L)	88	92	52	92	96	92
2	HAR_Total (mgCaCO3/L)	165	169	105	149	153	141
3	Na% (%)	6	17	26	22	39	41
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.6	0.8	0.7	1.6	1.7
	PESTICIDES						

Water Quality Summary for the period : 2016-2017

Station Name : JARAIKELA (EBJ00D5) **Division : E.E., Bhubaneswar**

Local River : Koel **Sub-Division : Rourkela**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	6	456	84	224
3	EC_GEN (µmho/cm)	6	460	87	228
4	pH_FLD (pH units)	6	7.9	7.0	7.6
5	pH_GEN (pH units)	6	8.0	7.1	7.6
6	Temp (deg C)	6	34.0	16.0	25.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	6	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	6	92	46	70
3	B (mg/L)	6	0.02	0.01	0.01
4	Ca (mg/L)	6	38	21	34
5	Cl (mg/L)	6	39.5	9.4	17.3
6	CO3 (mg/L)	6	0.0	0.0	0
7	F (mg/L)	6	0.05	0.05	0.05
8	Fe (mg/L)	6	0.5	0.3	0.4
9	HCO3 (mg/L)	6	113	56	85
10	K (mg/L)	6	7.6	2.5	4.4
11	Mg (mg/L)	6	18.5	11.7	14.7
12	Na (mg/L)	6	46.1	5.2	25.1
13	NO2+NO3 (mg N/L)	6	1.26	0.99	1.15
14	NO2-N (mgN/L)	6	0.03	0.00	0.01
15	NO3-N (mgN/L)	6	1.23	0.98	1.14
16	P-Tot (mgP/L)	6	0.010	0.010	0.01
17	SiO2 (mg/L)	6	9.5	6.0	7.4
18	SO4 (mg/L)	6	12.6	2.3	5.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	6	1.4	0.4	0.8
2	DO (mg/L)	6	10.1	6.4	8.2
3	DO_SAT% (%)	6	112	80	100
4	FCol-MPN (MPN/100mL)	3	330	90	197
5	Tcol-MPN (MPN/100mL)	3	340	140	270
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	6	96	52	85
2	HAR_Total (mgCaCO3/L)	6	169	105	147
3	Na% (%)	6	41	6	25
4	RSC (-)	6	0.0	0.0	0
5	SAR (-)	6	1.7	0.2	0.9
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : JARAIKELA (EBJ00D5) | **Division : E.E., Bhubaneswar**

Local River : Koel | **River Water** | **Sub-Division : Rourkela**

S.No	Parameters	Flood																			
		Jun - Oct																			
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	120	145	135			167		186	189	159	246	140	148	244	138	160	146	167		
3	EC_GEN (µmho/cm)	120	145	134			163		186	189	159	246	140	148	246	142	160	146	164		
4	pH_FLD (pH units)	7.7	7.4	7.8			8.0		7.6	7.5	8.0	7.6	7.6	7.9	7.4	7.4	7.6	7.5	8.1		
5	pH_GEN (pH units)	7.7	7.4	7.8			8.1		7.6	7.5	8.0	7.6	7.5	7.9	7.3	7.4	7.6	7.5	8.1		
6	Temp (deg C)	29.2	29.4	29.7			29.8		28.7	28.7	27.7	28.0	27.7	28.8	27.4	27.7	20.1	20.8	23.0		
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)						0.0		0.0	0.0	3.1	0.0		0.0	0.0	0.0					
2	ALK-TOT (mgCaCO3/L)						81		64	63	62	46		32	55	65					
3	B (mg/L)	0.00	0.00	0.00			0.00		0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00		
4	Ca (mg/L)	12	8	13			15		17	15	43	18	17	18	21	31	15	14	14		
5	Cl (mg/L)	8.1	6.8	11.0			13.0		14.9	13.6	17.6	19.5	13.2	16.3	13.8	22.0	10.7	12.1	14.1		
6	CO3 (mg/L)	0.0	0.0	0.0			0.0		0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0		
7	F (mg/L)	0.02	0.00	0.25			0.00		0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.22		
8	Fe (mg/L)	0.1	0.1	0.1			0.2		0.1	0.1	0.0	0.6	0.1	0.4	0.3	0.4			0.1		
9	HCO3 (mg/L)	60	36	65			68		60	76	68	66	79	56	68	79	73	65	60		
10	K (mg/L)	1.6	1.7	1.9			2.1		2.3	2.2	1.7	2.1	1.5	1.5	1.6	5.0	2.1	4.5	1.0		
11	Mg (mg/L)	4.1	2.8	5.6			6.4		6.8	9.4	10.7	6.2	8.1	8.4	11.7	16.5	5.3	4.9	6.3		
12	Na (mg/L)	5.5	4.2	7.4			8.0		8.9	8.0	4.0	3.9	10.1	3.6	3.6	13.2	7.1	7.2	6.3		
13	NO2+NO3 (mg N/L)	0.47	1.22	0.65			0.60		0.35	0.54	0.44	1.00	0.43	0.88	0.97	1.09	0.52	0.22	1.21		
14	NO2-N (mgN/L)	0.00	0.02	0.01			0.04		0.00	0.00	0.07	0.00	0.00	0.02	0.03	0.01	0.00	0.00	0.03		
15	NO3-N (mgN/L)	0.47	1.19	0.64			0.57		0.35	0.54	0.37	1.00	0.43	0.85	0.93	1.07	0.52	0.22	1.18		
16	P-Tot (mgP/L)			0.001			0.001		0.001	0.001	0.010	0.001	0.001	0.001	0.004	0.010			0.001		
17	SiO2 (mg/L)	9.7	8.5	22.0			9.0		7.5	7.4	8.7	19.7	8.6	4.0	5.3	6.7	8.8	9.6	21.2		
18	SO4 (mg/L)	1.0	1.1	3.3			3.6		13.6	6.6	7.2	14.3	10.5	3.8	13.5	5.7	1.5	1.1	2.9		
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	0.8	0.9	0.8			1.0		1.0	1.2	1.1	0.7	0.6	0.8	0.9	0.7	0.8	0.6	0.6		
2	DO (mg/L)	7.1	6.1	7.0			7.0		6.7	6.8	6.3	6.4	6.2	6.4	6.9	7.6	7.5	8.5	7.8		
3	DO_SAT% (%)	92	79	92			92		87	88	80	81	78	83	87	97	82	94	91		
4	FCol-MPN (MPN/100mL)																				
5	Tcol-MPN (MPN/100mL)																				
	TRACE & TOXIC																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	31	21	34			37		41	37	108	45	43	46	53	77	37	34	34		
2	HAR_Total (mgCaCO3/L)	48	33	53			64		70	77	153	71	77	81	102	146	59	54	60		
3	Na% (%)	20	22	22			21		21	19	8	10	24	9	7	16	20	21	18		
4	RSC (-)	0.1	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0		
5	SAR (-)	0.4	0.3	0.4			0.4		0.4	0.4	0.2	0.2	0.5	0.2	0.2	0.5	0.4	0.4	0.4		
	PESTICIDES																				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : JARAIKELA (EBJ00D5) | **Division : E.E., Bhubaneswar**

Local River : Koel | **River Water** | **Sub-Division : Rourkela**

S.No	Parameters	Winter										Summer									
		Nov - Feb										Mar - May									
		2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	PHYSICAL																				
1	Q (cumec)																				
2	EC_FLD (µmho/cm)	161	245	189	202	159	182	150	225	377	332	180	199				182	280	220	310	210
3	EC_GEN (µmho/cm)	152	245	189	202	159	182	150	225	380	335	180	199				188	280	220	310	210
4	pH_FLD (pH units)	7.6	7.5	7.5	7.8	7.4	7.6	8.0	7.9	8.0	7.7	8.0	7.9				7.9	7.8	7.3	8.1	7.8
5	pH_GEN (pH units)	7.6	7.5	7.5	7.8	7.4	7.6	8.0	7.9	7.9	7.7	8.0	7.9				8.0	7.8	7.6	8.1	7.8
6	Temp (deg C)	20.8	22.5	18.3	22.3	19.0	18.0	18.5	20.0	22.0	18.1	25.2	27.5				26.5	26.5	19.5	23.0	24.0
	CHEMICAL																				
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	2.0	0.0	0.0				11.5	0.0						0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	50	104	57	65	74				72	67						60	90	88	112	83
3	B (mg/L)	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00				0.01	0.00	0.00	0.00	0.01
4	Ca (mg/L)	14	23	17	18	18	19	22	18	18	38	15	16				18	30	22	32	29
5	Cl (mg/L)	12.1	16.6	12.6	12.3	14.1	19.8	15.5	14.1	20.7	14.1	10.3	12.9				14.1	15.5	11.1	17.0	13.2
6	CO3 (mg/L)	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00				0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.7	0.1	0.1	0.0	0.5	0.1	0.2	0.3	0.4						0.1	0.2	0.1	0.1	0.0
9	HCO3 (mg/L)	61	97	65	86	90	48	117	90	59	82	85	81				73	110	107	136	101
10	K (mg/L)	1.9	1.9	2.5	1.6	1.3	3.8	1.6	1.3	1.3	3.9	2.0	2.2				0.5	1.3	1.6	2.5	1.5
11	Mg (mg/L)	4.8	7.3	6.8	8.7	3.9	9.5	6.8	8.7	12.2	13.6	5.5	7.0				5.6	10.2	9.7	11.7	4.9
12	Na (mg/L)	8.8	11.2	8.2	7.5	6.7	11.1	12.0	6.7	6.7	32.5	7.2	8.8				9.9	8.1	6.4	9.4	6.9
13	NO2+NO3 (mg N/L)	0.35	0.50	0.32	0.42	0.44	0.83	0.78	0.75	1.06	1.19	0.52	0.24				0.73	0.64	0.24	0.57	0.46
14	NO2-N (mgN/L)	0.00	0.02	0.00	0.00	0.07	0.00	0.00	0.02	0.01	0.01	0.01	0.03				0.00	0.00	0.00	0.00	0.07
15	NO3-N (mgN/L)	0.35	0.48	0.32	0.42	0.37	0.83	0.78	0.73	1.04	1.18	0.50	0.21				0.73	0.64	0.24	0.57	0.39
16	P-Tot (mgP/L)	0.001	0.002	0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.010						0.060	0.002	0.001	0.001	0.010
17	SiO2 (mg/L)	14.0	9.4	7.8	6.3	11.0	18.3	10.2	4.5	5.5	7.8	10.4	8.8				7.3	9.6	9.7	9.6	10.0
18	SO4 (mg/L)	7.3	11.6	9.0	6.8	1.2	2.2	12.8	1.2	3.5	5.2	1.2	0.8				10.2	13.6	3.1	7.6	1.6
	BIOLOGICAL/BACTERIOLOGICAL																				
1	BOD3-27 (mg/L)	0.9	0.9	1.4	1.1	1.8	0.3	0.5	0.3	1.8	0.7	0.6	0.7				0.8	1.0	1.0	1.4	1.0
2	DO (mg/L)	8.7	8.5	8.2	8.0	8.0	8.3	7.0	10.8	8.7	9.4	6.5	7.4				7.5	7.5	7.2	7.1	6.8
3	DO_SAT% (%)	96	98	87	91	86	88	75	119	100	99	79	93				92	93	77	83	80
4	FCol-MPN (MPN/100mL)										250										
5	Tcol-MPN (MPN/100mL)										335										
	TRACE & TOXIC																				
	CHEMICAL INDICES																				
1	HAR_Ca (mgCaCO3/L)	35	57	42	46	46	48	56	46	46	94	39	39				46	76	56	80	72
2	HAR_Total (mgCaCO3/L)	55	87	70	83	62	88	84	83	97	151	62	68				69	119	97	129	92
3	Na% (%)	25	23	19	16	20	20	24	15	13	30	21	22				24	13	12	13	14
4	RSC (-)	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.0	0.0	0.0	0.2	0.0				0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.4	0.4	0.4	0.5	0.6	0.3	0.3	1.2	0.4	0.5				0.5	0.3	0.3	0.4	0.3
	PESTICIDES																				

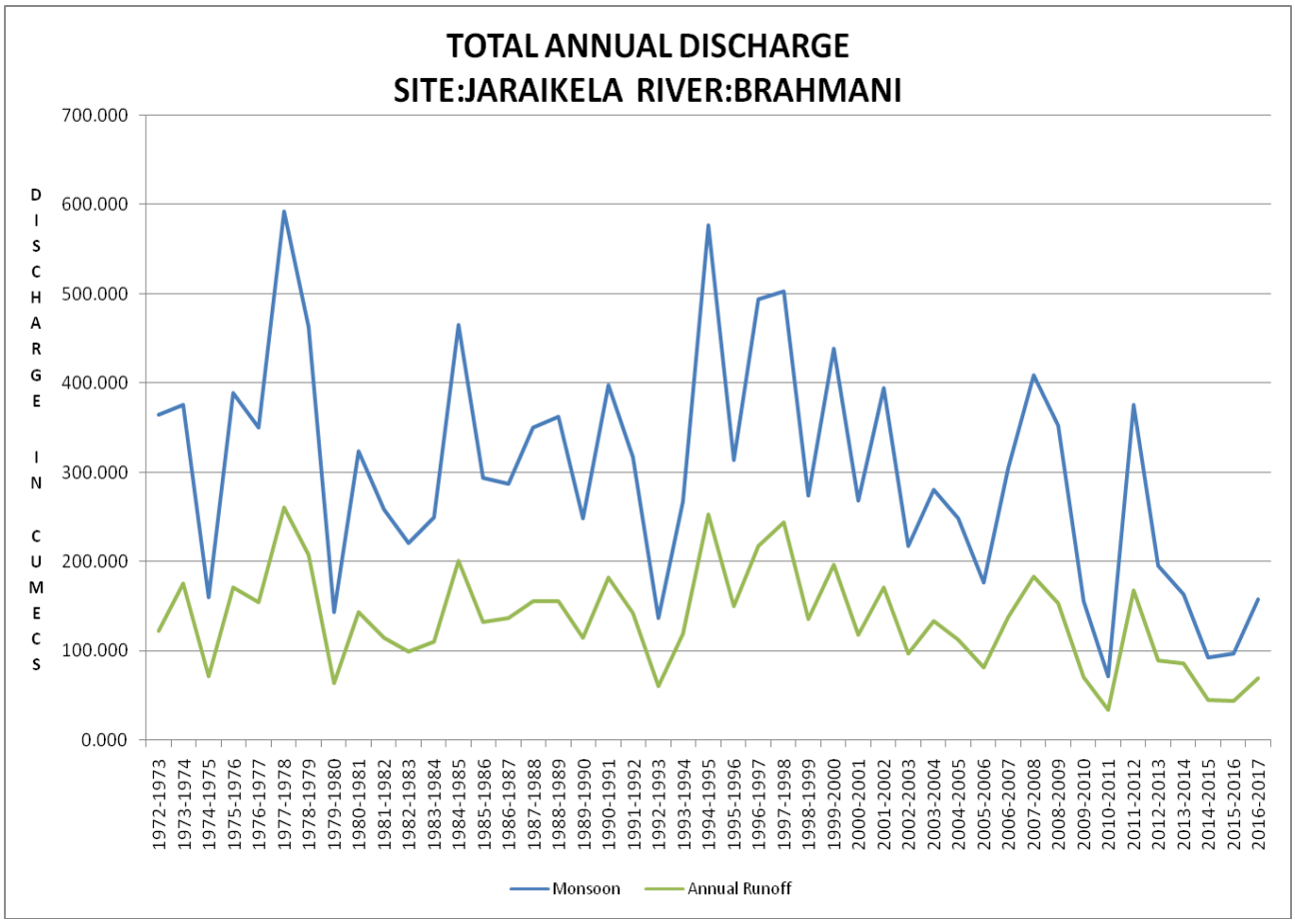
Water Quality Seasonal Average for the period: 2002-2017

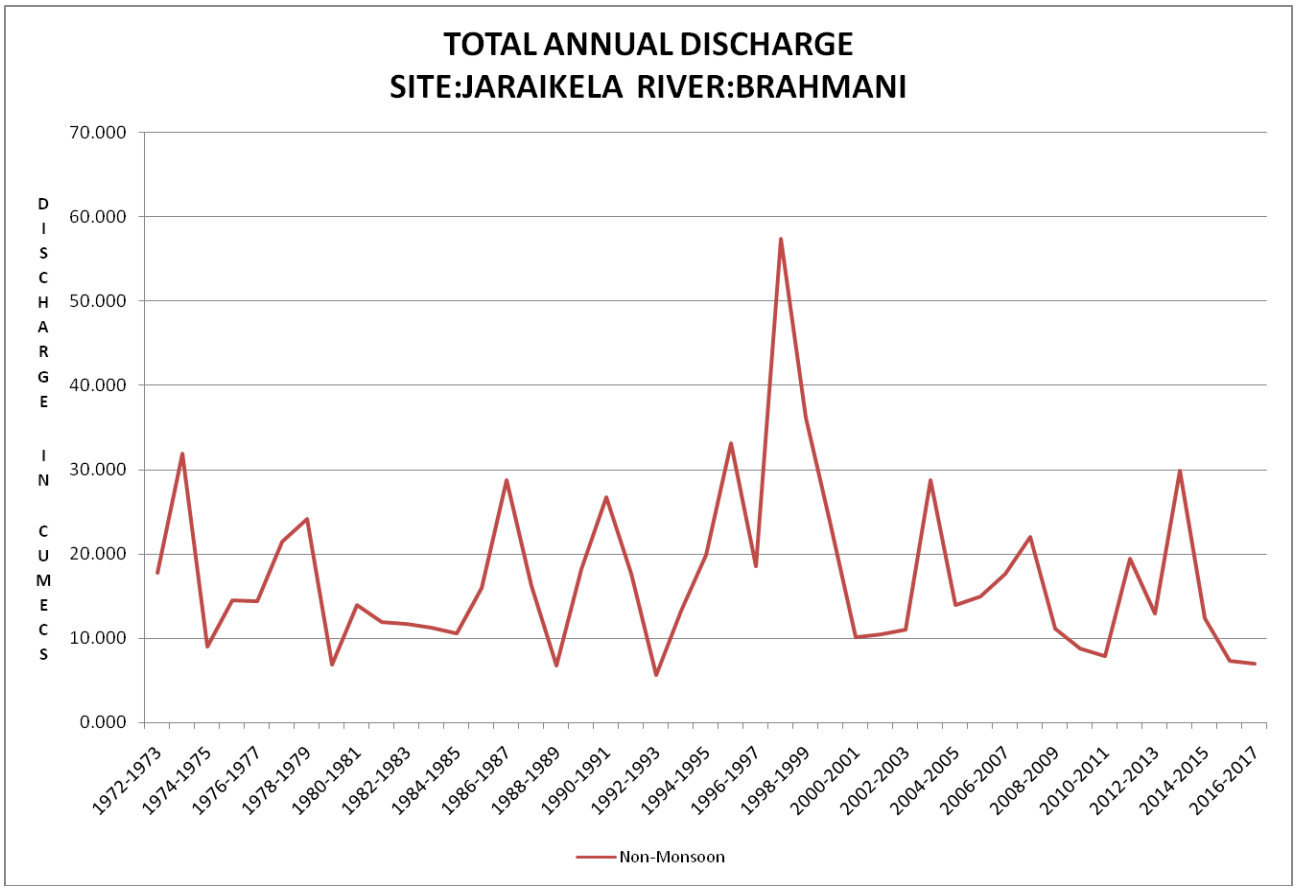
Station Name : JARAIKELA (EBJ00D5)
Local River : Koel

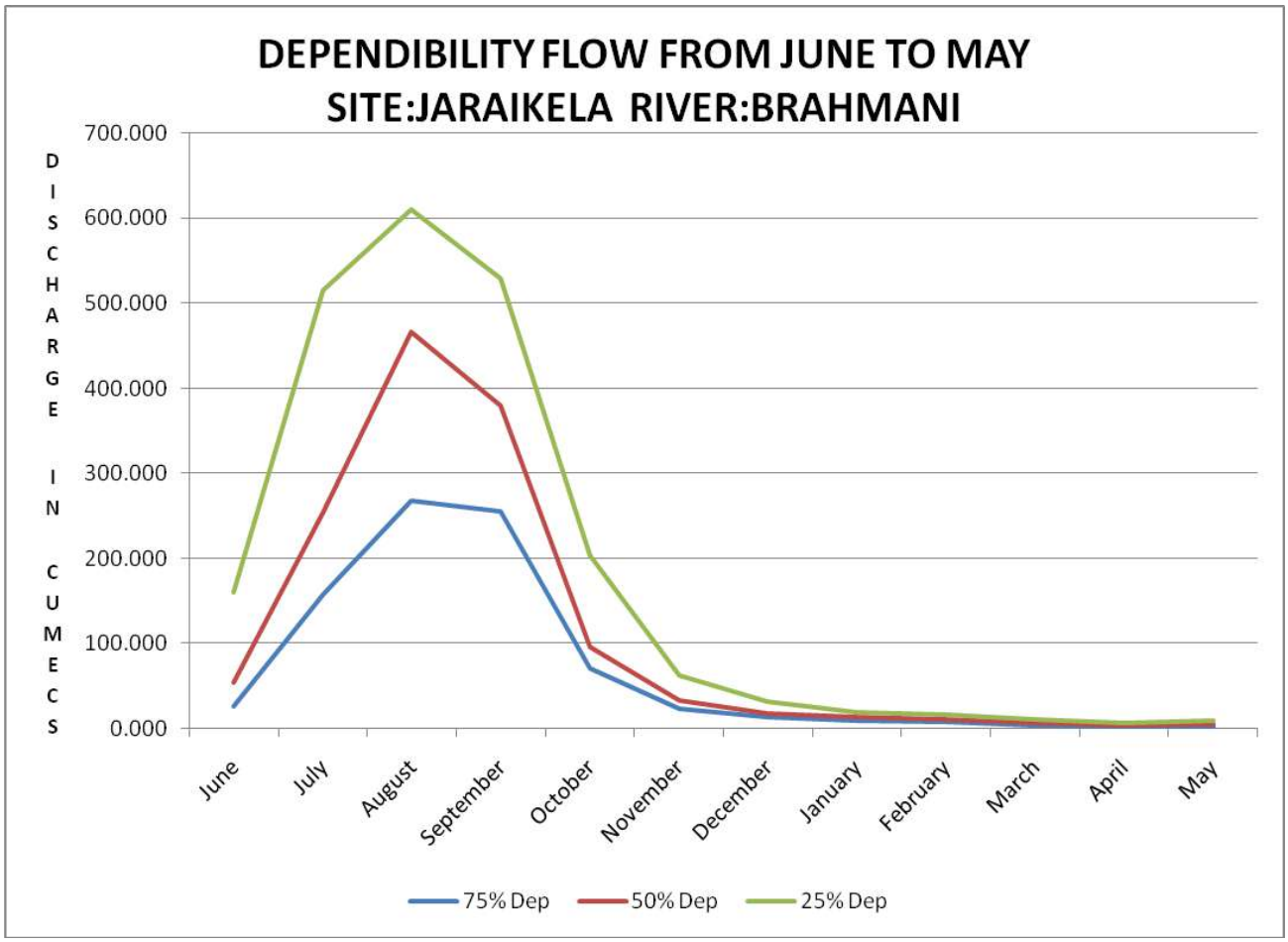
Division : E.E., Bhubaneswar
Sub-Division : Rourkela

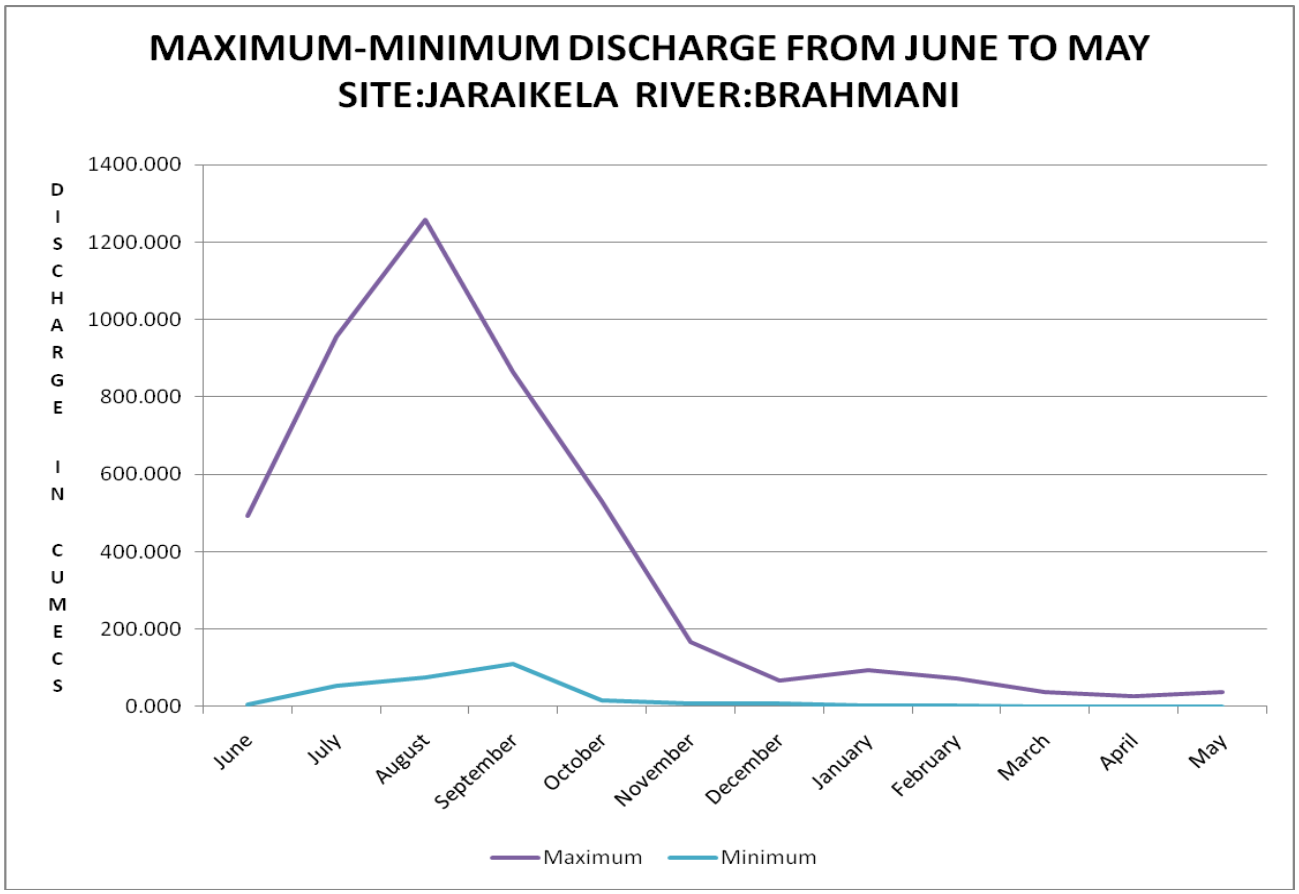
River Water

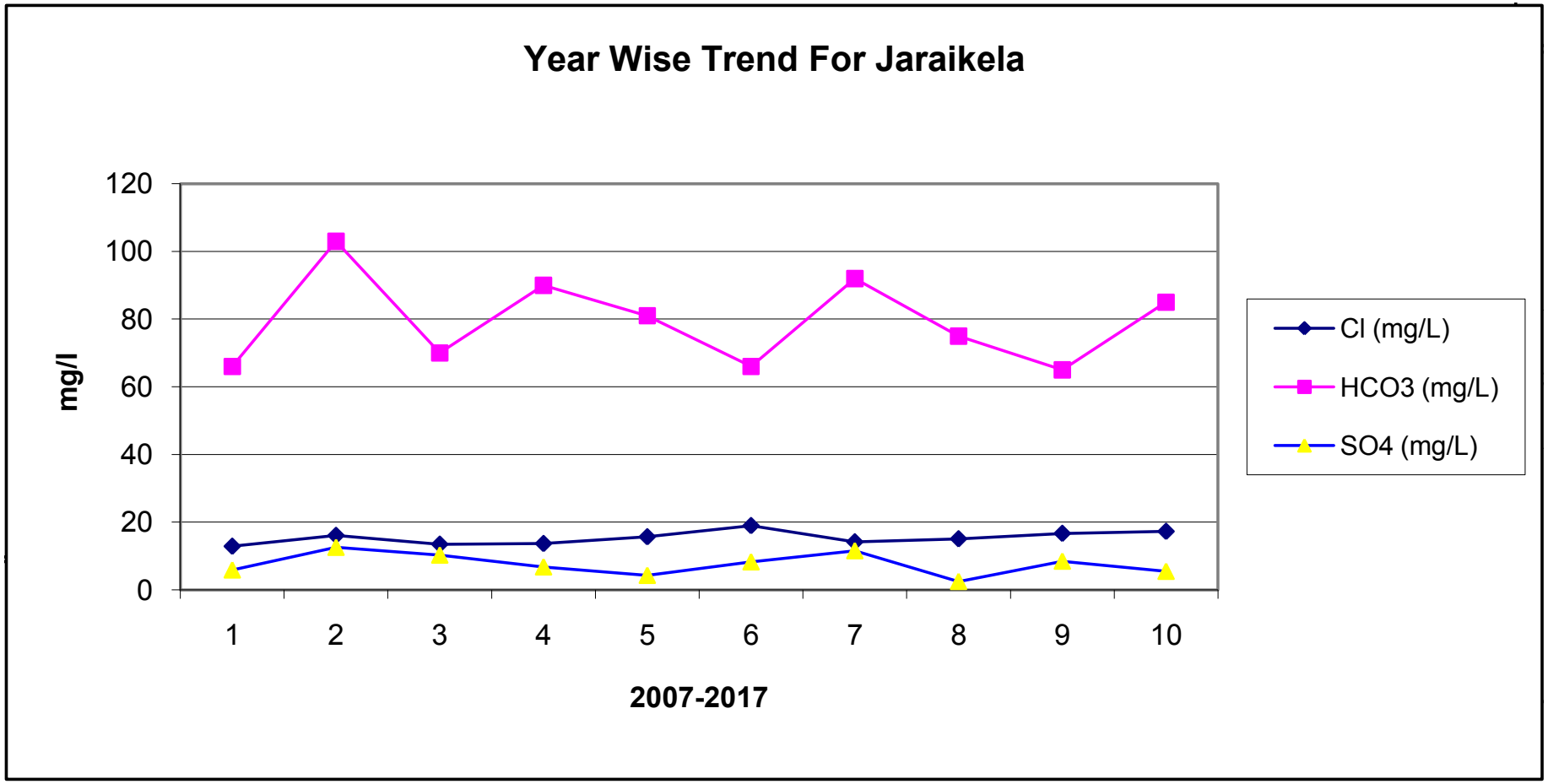
S.No	Parameters					
		2013	2014	2015	2016	2017
	PHYSICAL					
1	Q (cumec)					
2	EC_FLD (µmho/cm)	230	194	253	340	266
3	EC_GEN (µmho/cm)	230	194	253	343	270
4	pH_FLD (pH units)	7.8	7.7	7.6	8.0	7.9
5	pH_GEN (pH units)	7.8	7.7	7.6	8.1	8.0
6	Temp (deg C)	26.0	25.2	26.0	34.5	34.0
	CHEMICAL					
1	Alk-Phen (mgCaCO3/L)				13.8	0.0
2	ALK-TOT (mgCaCO3/L)				83	92
3	B (mg/L)	0.00	0.00	0.00	0.01	0.02
4	Ca (mg/L)	18	18	29	21	37
5	Cl (mg/L)	21.3	14.6	13.2	17.0	9.4
6	CO3 (mg/L)	0.0	0.0	0.0	16.6	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	5.2	0.0	0.2	0.4	0.5
9	HCO3 (mg/L)	104	79	101	68	113
10	K (mg/L)	8.1	2.1	1.5	1.3	3.8
11	Mg (mg/L)	8.2	5.2	4.9	13.6	11.7
12	Na (mg/L)	14.2	12.1	6.3	9.0	46.1
13	NO2+NO3 (mg N/L)	9.53	0.53	0.67	0.95	1.26
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.00	0.03
15	NO3-N (mgN/L)	9.53	0.53	0.67	0.95	1.23
16	P-Tot (mgP/L)	0.001	0.001	0.001	0.010	0.010
17	SiO2 (mg/L)	18.3	10.8	6.0	5.0	9.1
18	SO4 (mg/L)	2.8	12.8	1.4	3.6	5.4
	BIOLOGICAL/BACTERIOLOGICAL					
1	BOD3-27 (mg/L)	0.6	0.2	1.0	0.6	1.4
2	DO (mg/L)	6.6	6.9	5.8	6.3	7.8
3	DO_SAT% (%)	81	84	71	90	110
4	FCol-MPN (MPN/100mL)					90
5	Tcol-MPN (MPN/100mL)					140
	TRACE & TOXIC					
	CHEMICAL INDICES					
1	HAR_Ca (mgCaCO3/L)	46	46	72	52	92
2	HAR_Total (mgCaCO3/L)	80	67	92	109	141
3	Na% (%)	26	27	13	15	41
4	RSC (-)	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.7	0.6	0.3	0.4	1.7
	PESTICIDES					

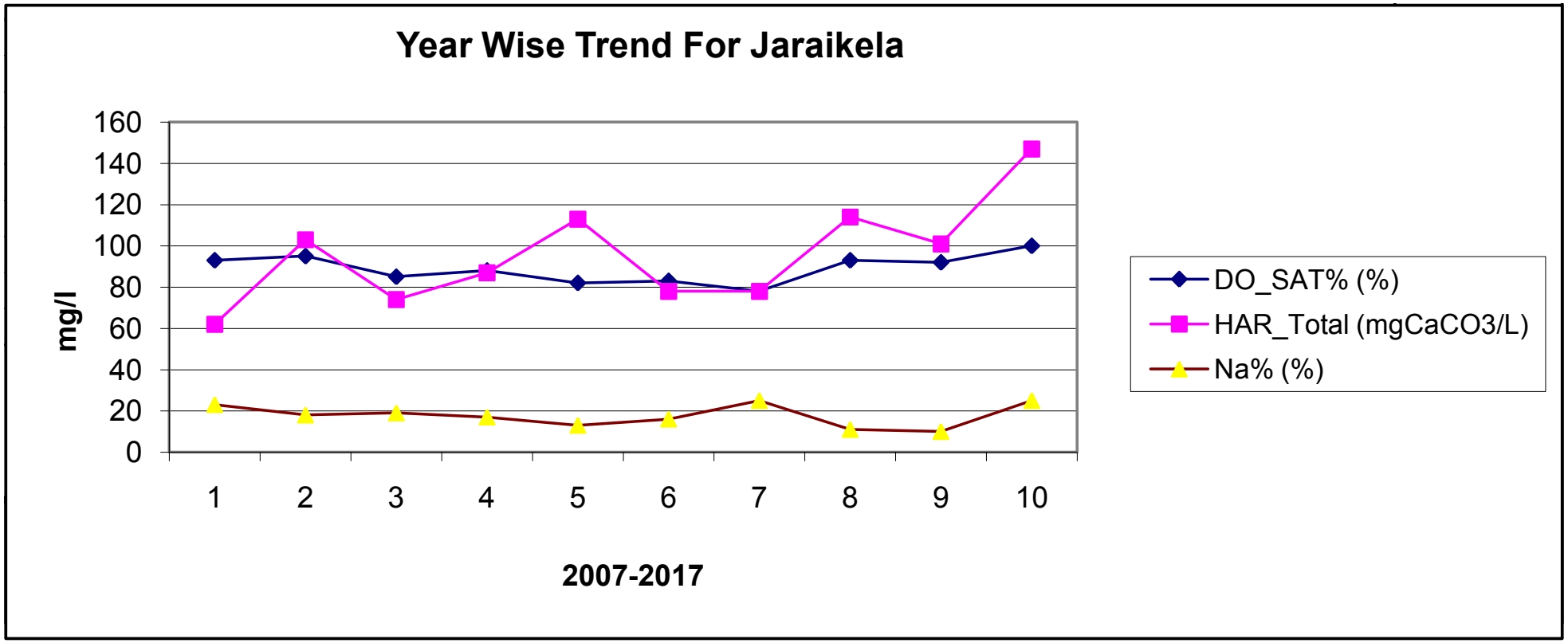

TOTAL ANNUAL DISCHARGE
SITE:JARAIKELA RIVER:BRAHMANI
DISCHARGE IN CUMECS
700.000
600.000
500.000
400.000
300.000
200.000
100.000
0.000
1972-1973
1973-1974
1974-1975
1975-1976
1976-1977
1977-1978
1978-1979
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon
Annual Runoff

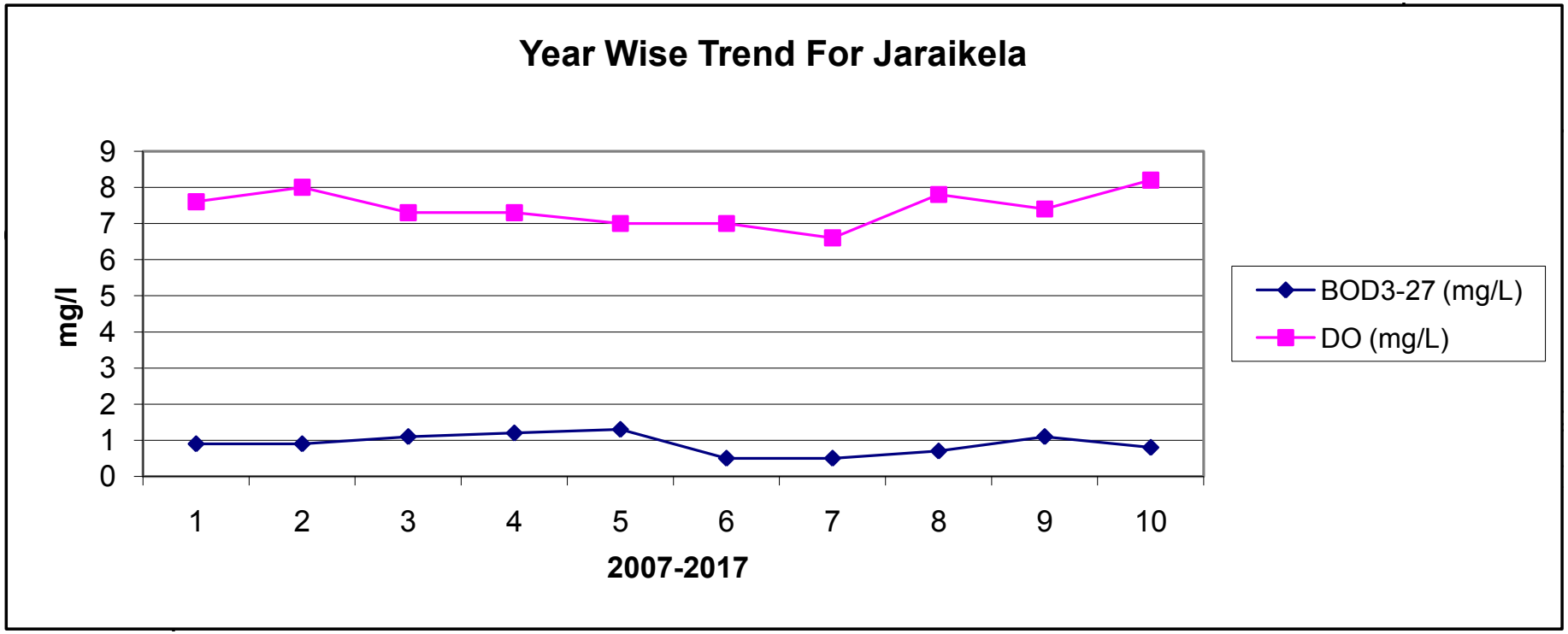

TOTAL ANNUAL DISCHARGE
SITE:JARAIKELA RIVER:BRAHMANI
DISCHARGE IN CUMECS
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
1972-1973
1974-1975
1976-1977
1978-1979
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Non-Monsoon

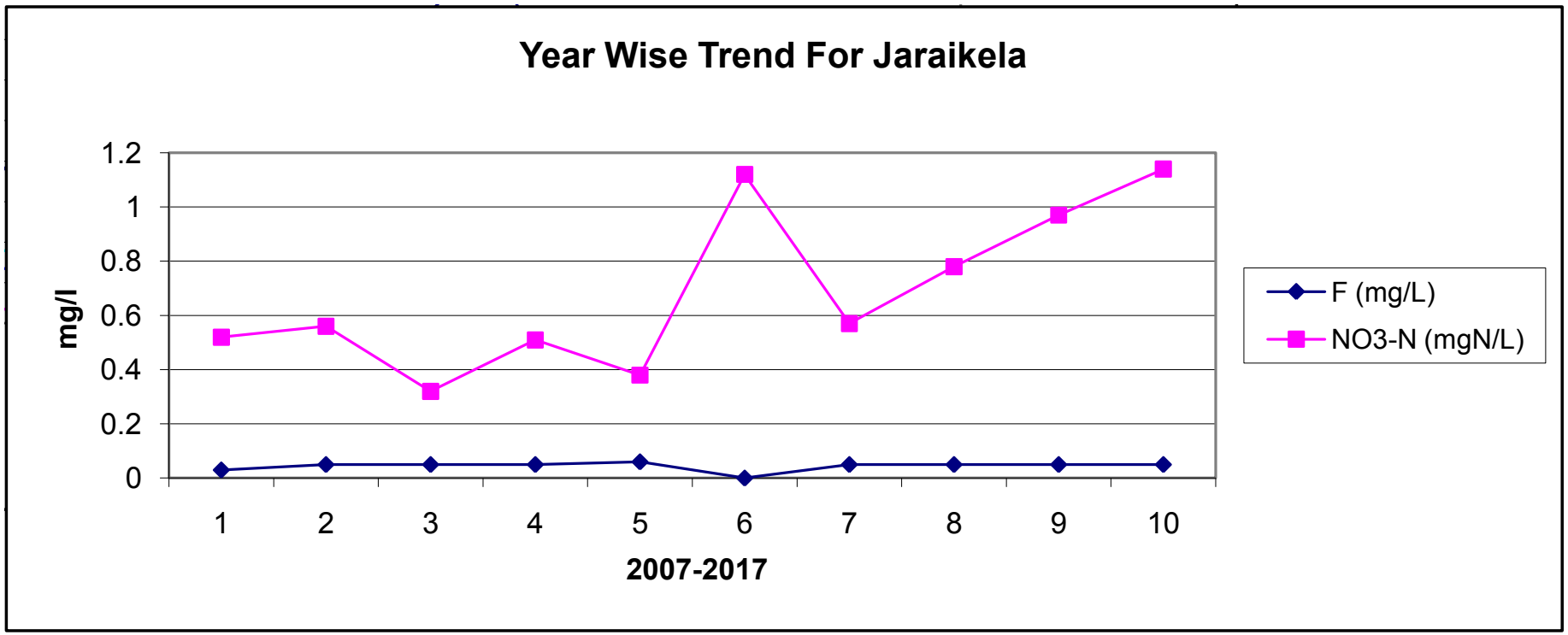

DEPENDIBILITY FLOW FROM JUNE TO MAY
SITE:JARAIKELA RIVER:BRAHMANI
DISCHARGE IN CUMECS
700.000
600.000
500.000
400.000
300.000
200.000
100.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
75% Dep
50% Dep
25% Dep

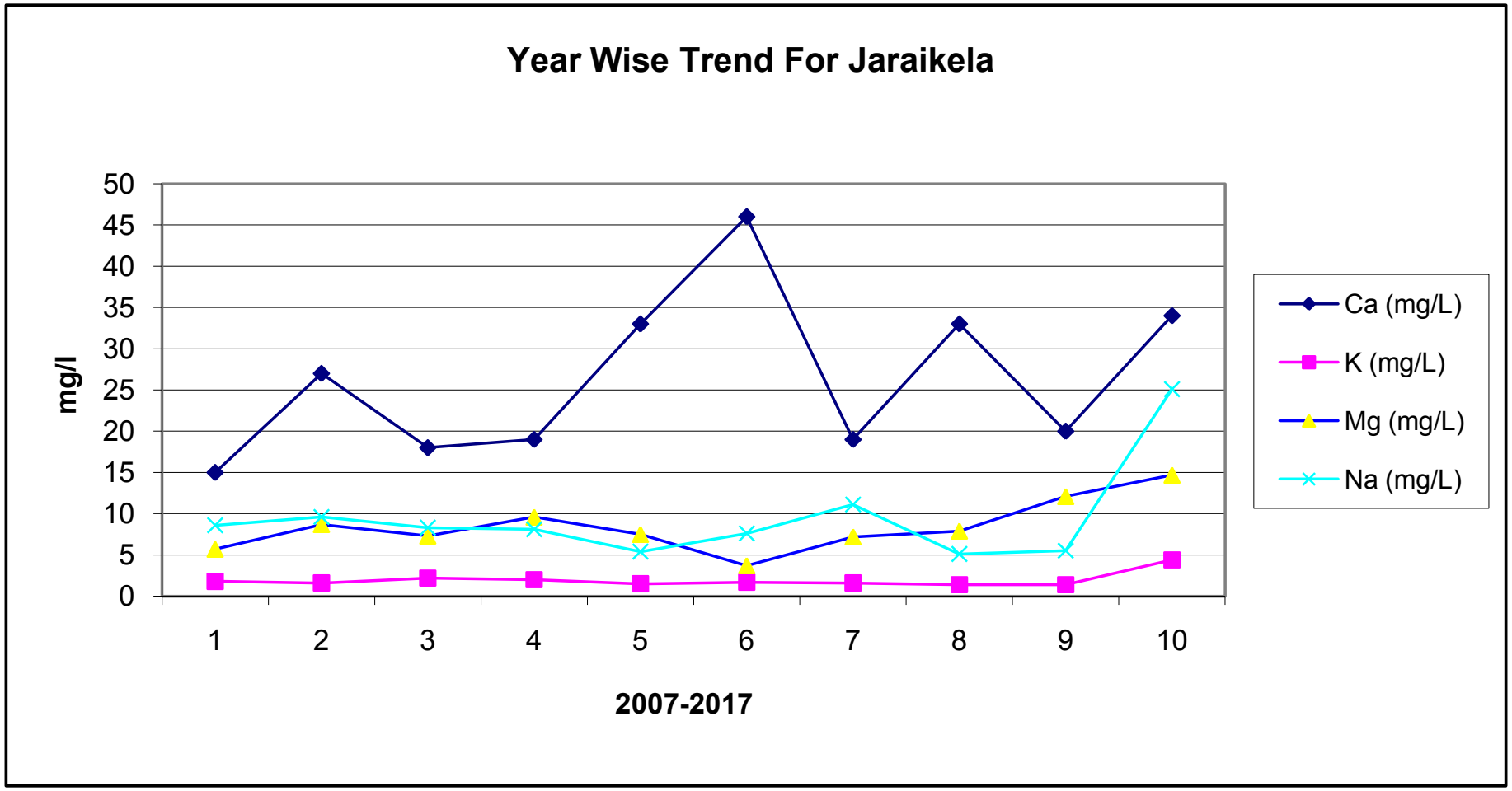

MAXIMUM-MINIMUM DISCHARGE FROM JUNE TO MAY
SITE:JARAIKELA RIVER:BRAHMANI
DISCHARGE IN CUMECS
1400.000
1200.000
1000.000
800.000
600.000
400.000
200.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
Maximum
Minimum


Year Wise Trend For Jaraikela
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Jaraikela
160
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Jaraikela
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Jaraikela
1.2
1
0.8
0.6
0.4
0.2
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Jaraikela
mg/l
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

Water Year : 2016-2017

Site	**:**	**PANPOSH**	**Code**	**:**	**EB000H6**
State	:	Orissa	District		Sundergarh
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:	Brahmni	Sub Tributary	:	Brahmni
Sub-Sub Tributary	:	Brahmni	Local River	:	Brahmni
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela
Drainage Area	:	19448 Sq. Km.	Bank	:	Left
Latitude	:	22°16'19"	Longitude	:	84°51'07"
Zero of Gauge (m)	:	170.5 (m.s.l)	01.01.1996	-	31.12.2025
		Opening Date	Closing Date		
Gauge	:	01.07.1972			
Discharge	:	21.06.1996			
Sediment	:	01.08.1996			
Water Quality	:	01.11.1990			

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1997-1998	9229	179.350	07.08.1997	12.30	171.140	03.06.1997
1998-1999	8815	178.620	11.09.1998	12.25	171.150	19.05.1999
1999-2000	6307	177.820	08.08.1999	8.565	171.020	24.04.2000
2000-2001	3999	176.325	27.07.2000	8.559	171.060	28.04.2001
2001-2002	11628	179.680	22.07.2001	9.718	171.100	27.03.2002
2002-2003	3066	175.515	13.09.2002	10.51	171.220	17.04.2003
2003-2004	6600	177.900	25.10.2003	11.98	171.050	29.05.2004
2004-2005	5429	177.235	20.09.2004	10.32	171.320	30.05.2005
2005-2006	3372	175.520	01.07.2005	8.010	170.985	18.04.2006
2006-2007	4701	176.800	23.08.2006	8.843	171.110	04.04.2007
2007-2008	9661	179.345	20.08.2007	9.809	171.110	02.06.2007
2008-2009	5412	176.350	08.07.2008	9.497	171.150	14.05.2009
2009-2010	4184	175.175	09.09.2009	9.179	171.270	21.04.2010
2010-2011	1279	173.575	18.09.2010	6.484	171.050	15.02.2011
2011-2012	10947	181.440	24.09.2011	10.21	171.310	07.04.2012
2012-2013	3500	175.350	12.08.2012	10.31	171.160	13.06.2012
2013-2014	5554	176.225	15.10.2013	13.93	171.180	01.06.2013
2014-2015	3852	174.910	22.07.2014	-94.509	171.080	23.02.2015
2015-2016	7431	177.475	11.07.2015	9.634	171.180	03.05.2016
2016-2017	4843	176.565	19.08.2016	6.254	171.060	11.05.2017

Stage-Discharge Data for the period 2016 - 2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	171.160	12.21	171.200	29.02	172.290	415.2	172.600	731.6	172.225	536.1	171.590	106.9
2	171.245	14.35	171.210	30.33	172.410	568.6	172.715	871.0	172.100	513.9 *	171.570	98.97
3	171.250	14.53	171.280	48.30 *	172.790	931.1	172.420	581.7	172.045	504.1	171.570	96.86
4	171.150	10.36	171.850	194.4	172.810	823.6	172.640	748.9 *	172.020	488.8	171.580	95.59
5	171.100	10.30 *	172.070	310.2	172.630	757.8	173.570	1455	171.980	462.6	171.570	90.76
6	171.115	10.10	172.510	588.5	172.575	609.0	173.010	903.7	171.990	448.0	171.560	64.65 *
7	171.070	8.252	172.510	588.5	172.700	1077 *	172.775	839.2	172.070	471.3	171.540	51.43
8	171.090	8.848	172.630	703.5	172.605	725.8	172.475	552.8	172.175	510.6	171.530	50.62
9	171.130	11.48	172.170	325.3	172.600	768.6	173.190	909.9	172.130	501.9 *	171.510	49.14
10	171.150	10.33	172.020	291.9 *	172.555	723.9	172.800	759.6	172.360	550.3 *	171.510	46.66
11	171.190	11.29	171.960	241.8	172.960	804.4	172.910	849.5 *	172.560	594.3 *	171.500	45.02
12	171.240	15.58 *	171.920	194.7	173.555	1266	173.885	1671	172.580	598.7 *	171.490	42.24
13	171.290	20.02	172.380	358.8	173.780	1316	173.570	1388 *	172.160	507.4	171.490	42.18 *
14	171.220	15.48	172.185	402.6	173.560	1160 *	172.795	753.9	172.015	263.8	171.490	42.00 *
15	171.230	18.12	172.020	362.2	172.910	696.5 *	172.760	1775	171.865	266.6	171.490	41.78
16	171.150	16.42	173.345	975.8	173.105	838.6	172.610	728.5	171.800	263.6 *	171.530	44.71
17	171.270	18.46	173.560	1047 *	173.930	1620	172.350	504.0	171.750	259.7	171.500	41.45
18	171.160	15.56	173.345	975.8	174.510	2630	172.230	488.6 *	171.700	158.1	171.500	41.92
19	171.290	19.65 *	173.390	1044	176.565	4843	172.130	475.8	171.680	154.7	171.520	42.60
20	171.270	19.01	172.580	547.6	175.040	2789	172.080	352.1	171.645	134.5	171.480	41.59 *
21	171.120	17.94	172.630	779.5	173.490	1732 *	172.300	476.7	171.640	143.1	171.480	40.47
22	171.200	18.18	172.875	807.4	172.730	888.5	172.460	583.6	171.635	137.9	171.500	42.81
23	171.210	16.77	172.960	869.4	172.885	806.7	172.640	620.4	171.610	123.4 *	171.480	39.45
24	171.200	16.20	172.480	635.0 *	172.875	802.2	172.590	588.6	171.615	132.6	171.490	40.94
25	171.400	65.38	172.255	508.2	173.430	1563	172.380	518.5 *	171.580	97.00	171.500	42.80
26	171.250	40.01 *	172.145	472.7	173.760	1584	172.200	449.7	171.620	104.6	171.500	42.56
27	171.160	15.39	172.415	503.6	173.730	1704	172.160	425.6	171.680	108.4	171.500	42.54 *
28	171.100	19.06	172.735	859.5	172.840	926.6 *	172.300	527.4	171.730	115.6	171.540	44.38
29	171.190	18.44	172.570	539.2	172.455	594.4	172.290	542.2	171.740	113.7	171.490	39.65
30	171.180	17.82	172.295	507.2	172.275	481.3	172.370	573.7	171.700	113.6 *	171.560	43.23
31			172.280	400.5 *	172.200	469.2			171.725	117.4		
Ten-Daily Mean												
I Ten-Daily	171.146	11.08	171.945	311.0	172.596	740.1	172.820	835.3	172.109	498.8	171.553	75.16
II Ten-Daily	171.231	16.96	172.669	615.0	173.992	1796	172.732	898.6	171.976	320.1	171.499	42.55
III Ten-Daily	171.201	24.52	172.513	625.7	172.970	1050	172.369	530.6	171.661	118.8	171.504	41.88
Monthly												
Min.	171.070	8.252	171.200	29.02	172.200	415.2	172.080	352.1	171.580	97.00	171.480	39.45
Max.	171.400	65.38	173.560	1047	176.565	4843	173.885	1775	172.580	598.7	171.590	106.9
Mean	171.193	17.52	172.380	520.7	173.179	1191	172.640	754.9	171.907	306.3	171.519	53.2

Annual Runoff in MCM = 7755 Annual Runoff in mm = 399

Peak Observed Discharge = 4843 cumecs on 19/08/2016 Corres. Water Level :176.565 m

Lowest Observed Discharge = 6.254 cumecs on 11/05/2017 Corres. Water Level :171.06 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2016 - 2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	171.500	41.35	171.200	19.38 *	241.500	12.12	171.120	10.62	171.040	9.682	171.220	10.89
2	171.410	34.22	171.170	17.59	171.120	12.60	171.110	10.14	171.060	9.645 *	171.200	10.28
3	171.500	29.32	171.240	20.65	171.120	12.02	171.110	9.949	171.120	9.839	171.200	10.03
4	171.530	33.07 *	171.200	19.48	171.120	12.39	171.100	9.485	171.090	8.979	171.180	9.471
5	171.490	27.68	171.200	16.34	171.120	12.40 *	171.080	9.266 *	171.090	8.788	171.150	8.268
6	171.500	28.43	171.210	17.45	171.120	12.25	171.000	8.436	171.000	7.756	171.140	7.782
7	171.530	31.95	171.220	18.48	171.110	11.98	171.000	8.347	170.980	7.116	171.140	7.780 *
8	171.490	24.87	171.250	19.82 *	171.090	10.77	171.000	8.248	170.970	6.823	171.120	7.515
9	171.540	26.70	171.140	14.86	171.070	9.732	171.000	8.300	171.080	7.941 *	171.080	6.285
10	171.520	25.69	171.240	18.88	171.040	9.253	170.980	7.808	171.080	8.771	171.070	6.285 *
11	171.500	25.18 *	171.190	15.92	171.020	8.820	171.000	8.076	171.100	8.764	171.060	6.254
12	171.530	25.96 *	171.250	18.97	171.040	12.57 *	171.200	8.120 *	171.050	7.964	171.140	6.608
13	171.480	24.65	171.220	16.75	171.190	13.10	171.200	8.120 *	171.050	9.265	171.140	6.638
14	171.460	23.64	171.210	14.94	171.120	11.50	171.230	14.42	171.040	9.151 *	171.150	6.603 *
15	171.420	23.13	171.210	14.95 *	171.080	10.78	171.240	14.09	171.150	9.696	171.160	6.462
16	171.380	21.91	171.210	14.87	171.050	10.26	171.150	11.47	171.150	9.645 *	171.180	6.929
17	171.380	21.82	171.210	14.77	171.020	8.820	171.150	11.26	171.140	9.508	171.180	7.114
18	171.180	19.36 *	171.210	14.82	171.010	8.681	171.140	11.25	171.130	9.339	171.170	9.551
19	171.200	20.03	171.220	15.62	171.070	10.47 *	171.150	11.08 *	171.120	9.221	171.180	9.629
20	171.200	19.55	171.190	14.88	171.070	10.45	171.160	11.42	171.140	9.358	171.190	11.65
21	171.210	19.38	171.190	14.21	171.070	10.24	171.150	10.87	171.130	9.035	171.180	11.33 *
22	171.180	18.08	171.190	14.20 *	171.080	10.29	171.180	10.98	171.130	9.015	171.170	10.65
23	171.180	18.11	171.180	13.64	171.120	12.16	171.150	10.24	171.160	8.066 *	171.160	9.676
24	171.120	15.18	171.190	13.46	171.120	12.17 *	171.150	10.10	171.220	11.87	171.150	9.257
25	171.100	15.47 *	171.180	13.37	171.150	12.05	171.100	9.233	171.250	10.85	171.150	9.262
26	171.100	15.47	171.180	13.43 *	171.160	12.80 *	171.050	9.117 *	171.270	10.46	171.130	14.93
27	171.100	15.26	171.150	12.53	171.150	11.80	171.000	7.648	171.250	11.36	171.140	15.26
28	171.090	15.61	171.150	12.48	171.130	10.76	171.000	7.568	171.290	11.63	171.250	18.51 *
29	171.200	20.28	171.150	12.42 *			171.000	9.012	171.220	10.69	171.340	21.17
30	171.240	20.53	171.140	12.30			171.010	9.406	171.220	10.50 *	171.350	24.88
31	171.220	20.57	171.130	12.11			171.000	9.087			171.330	22.82
Ten-Daily Mean												
I Ten-Daily	171.501	30.33	171.207	18.29	178.141	11.55	171.050	9.060	171.051	8.534	171.150	8.459
II Ten-Daily	171.373	22.52	171.212	15.65	171.067	10.54	171.162	10.93	171.107	9.191	171.155	7.744
III Ten-Daily	171.158	17.63	171.166	13.10	171.123	11.53	171.072	9.388	171.214	10.35	171.214	15.25
Monthly												
Min.	171.090	15.18	171.130	12.11	171.010	8.681	170.980	7.568	170.970	6.823	171.060	6.254
Max.	171.540	41.35	171.250	20.65	241.500	13.10	171.240	14.42	171.290	11.87	171.350	24.88
Mean	171.338	23.31	171.194	15.6	173.609	11.19	171.094	9.779	171.124	9.358	171.174	10.64

Peak Computed Discharge = 1732 cumecs on 21/08/2016 Corres. Water Level :173.49 m

Lowest Computed Discharge = 6.285 cumecs on 10/05/2017 Corres. Water Level :171.07 m

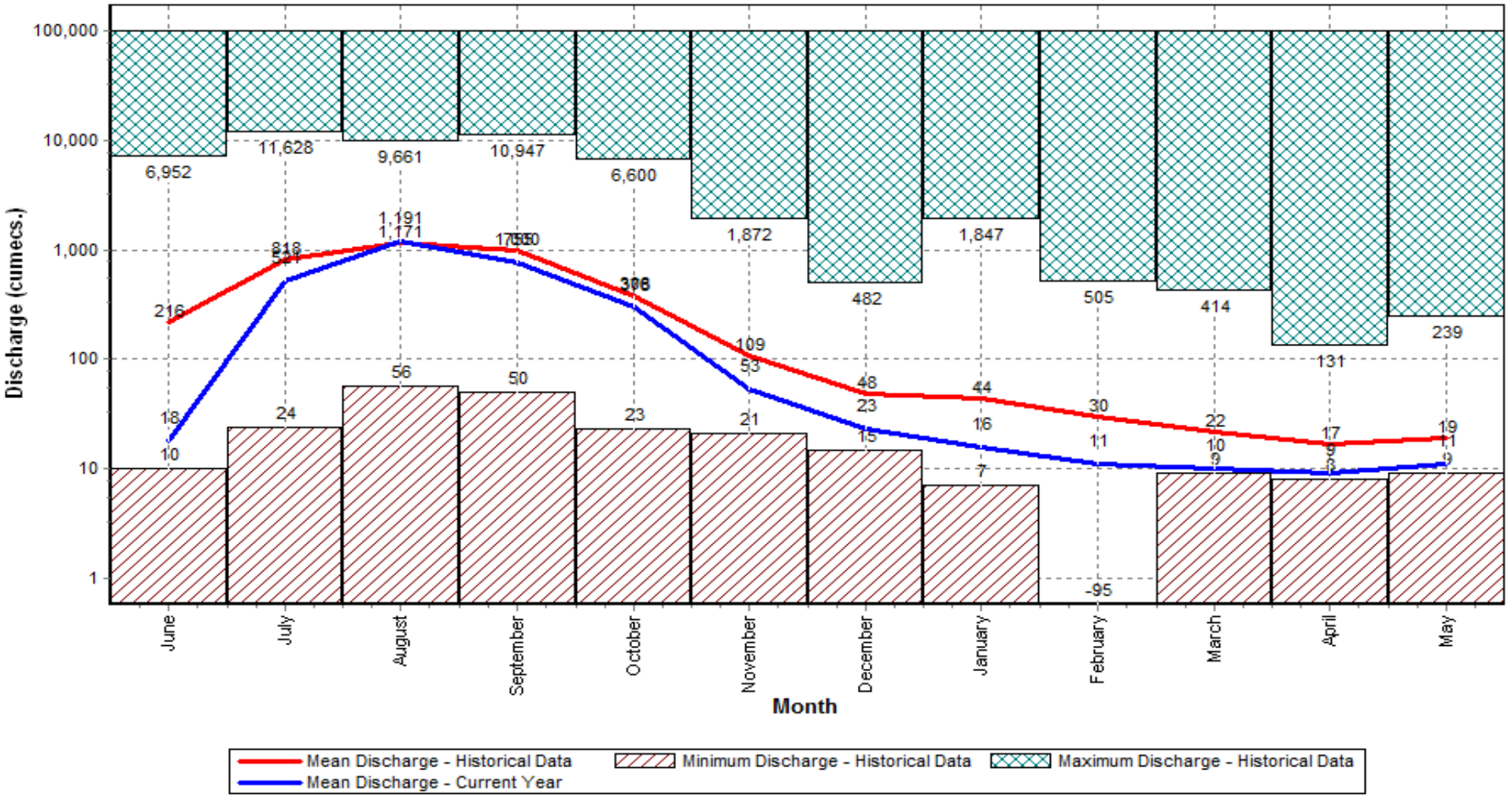
Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2016-2017

Station Name : PANPOSH (EB000H6) **Data considered : 1997-2017** **Division : E.E., Bhubaneswar**

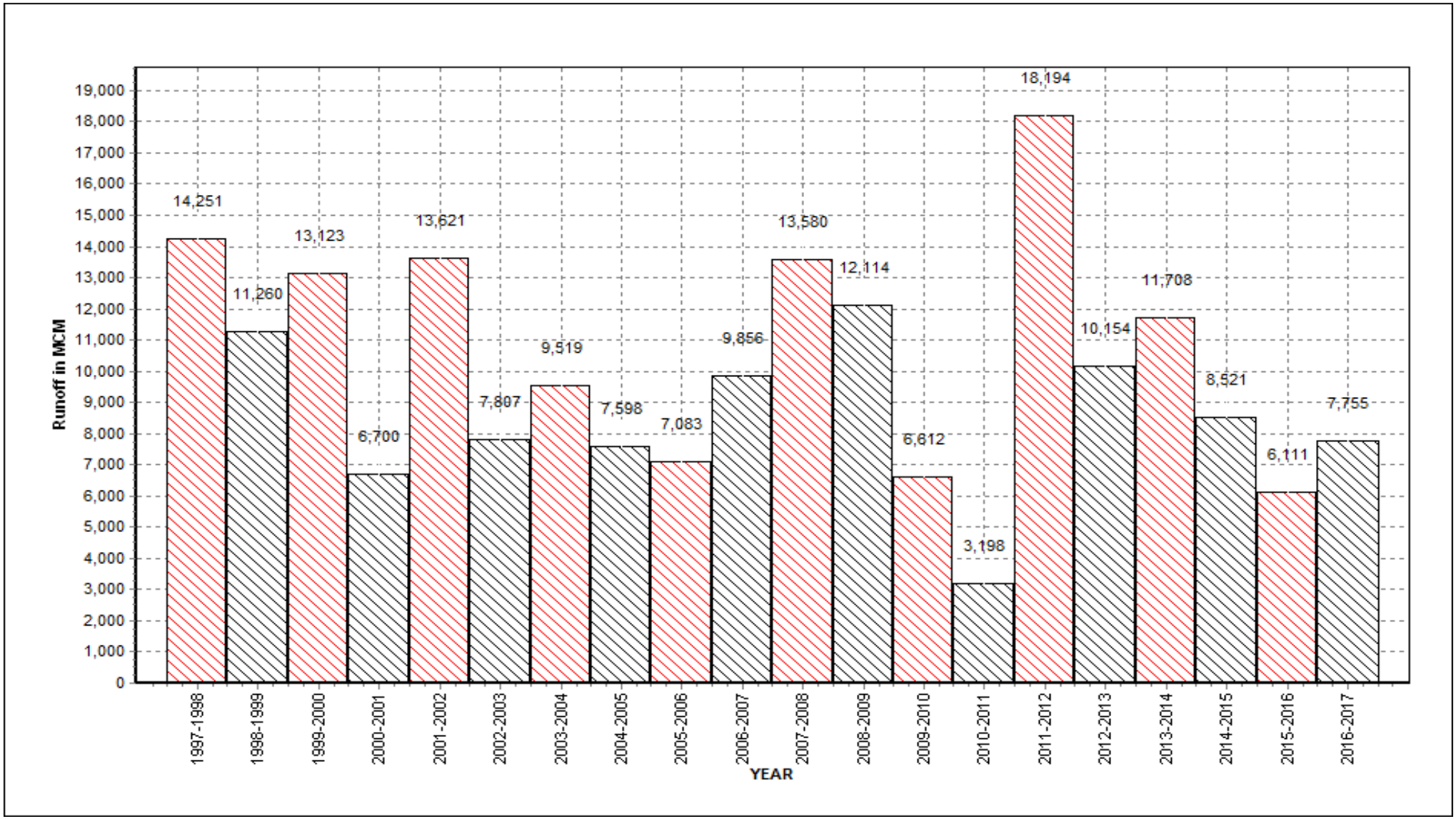
Local River : Brahmni **Sub-Division : Rourkela**



Annual Runoff Values for the period: 1997 - 2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

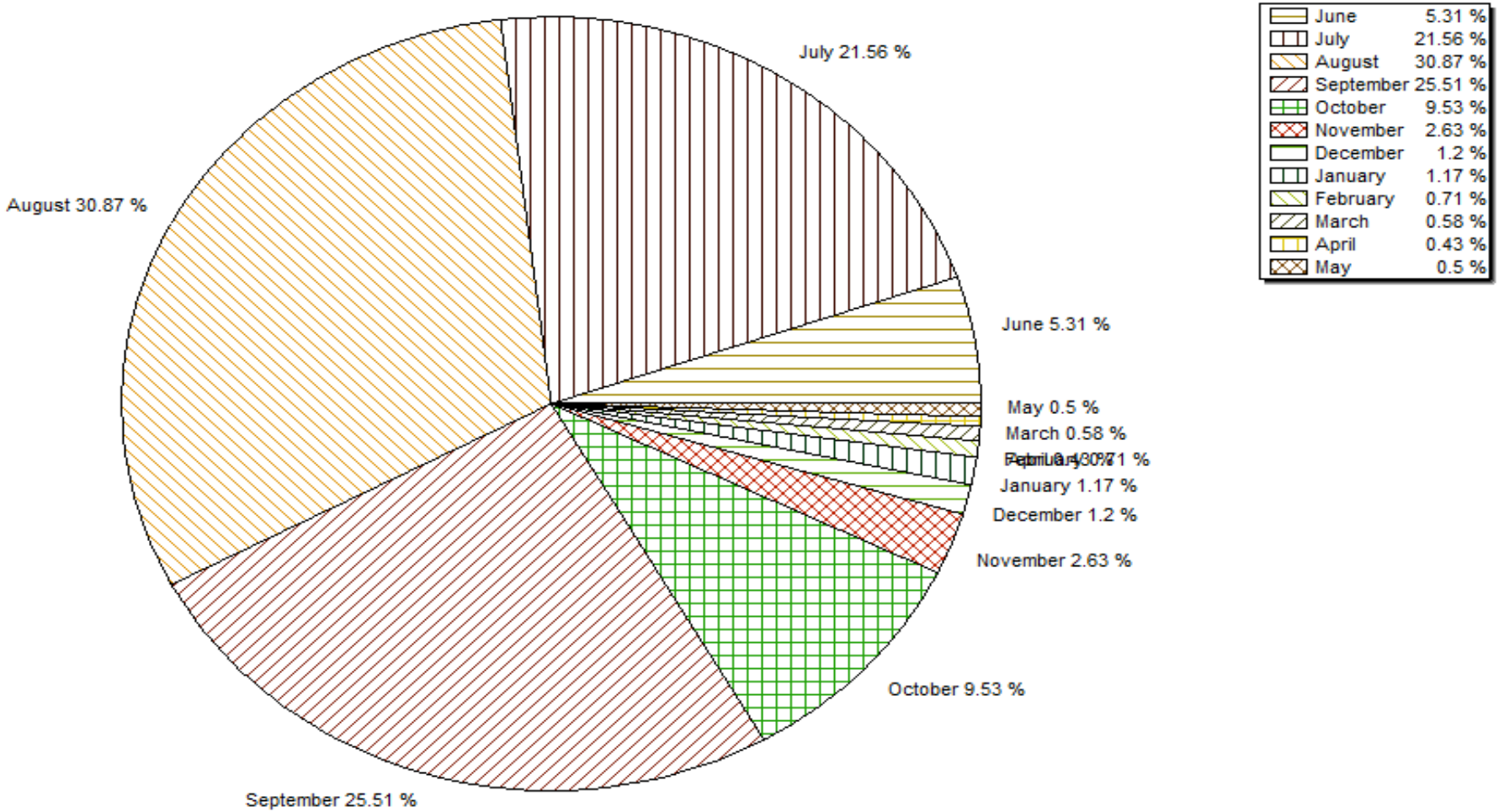


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1997-2016

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

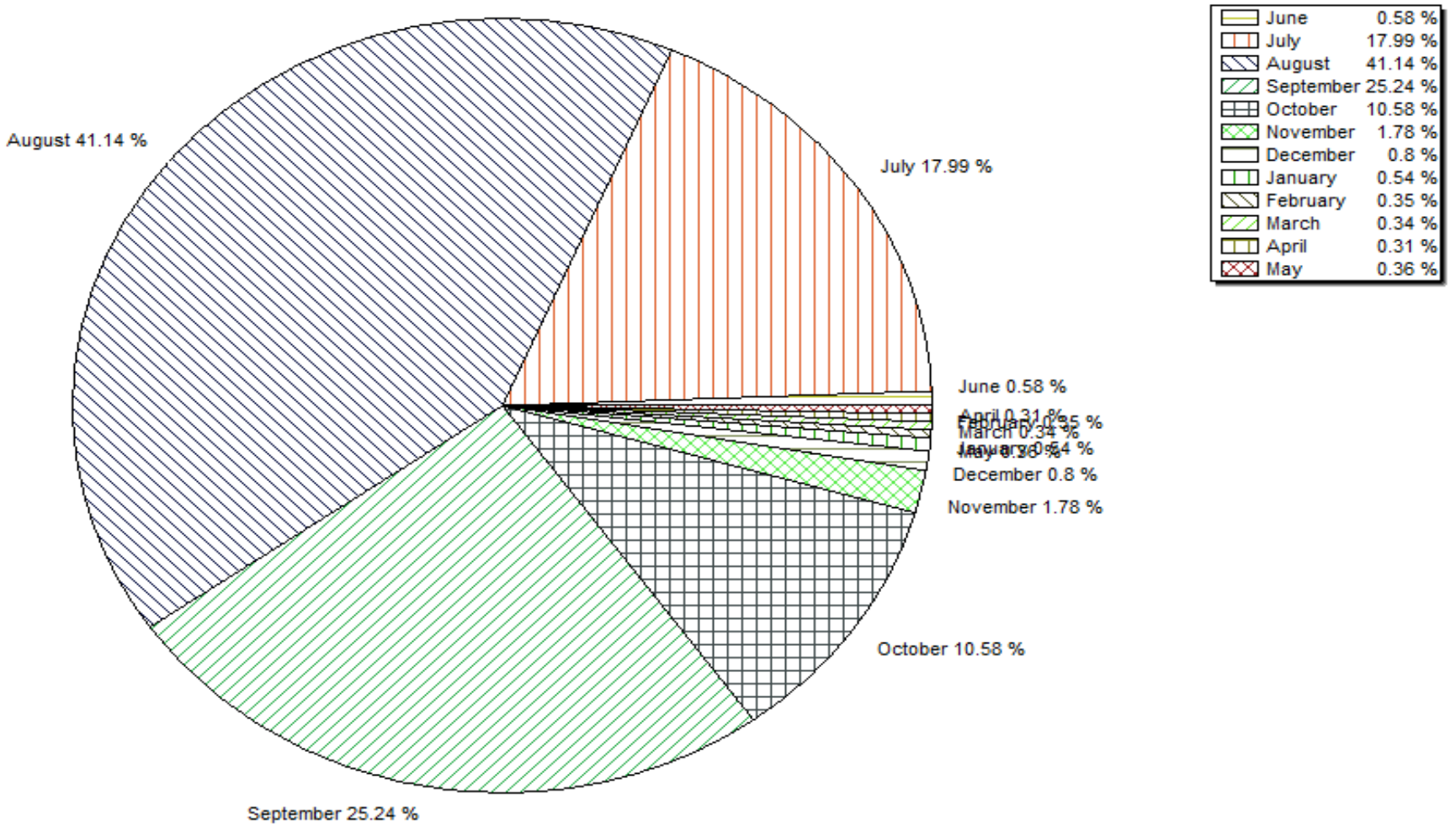
Local River : Brahmni **Sub-Division : Rourkela**



Monthly Runoff for the Year : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

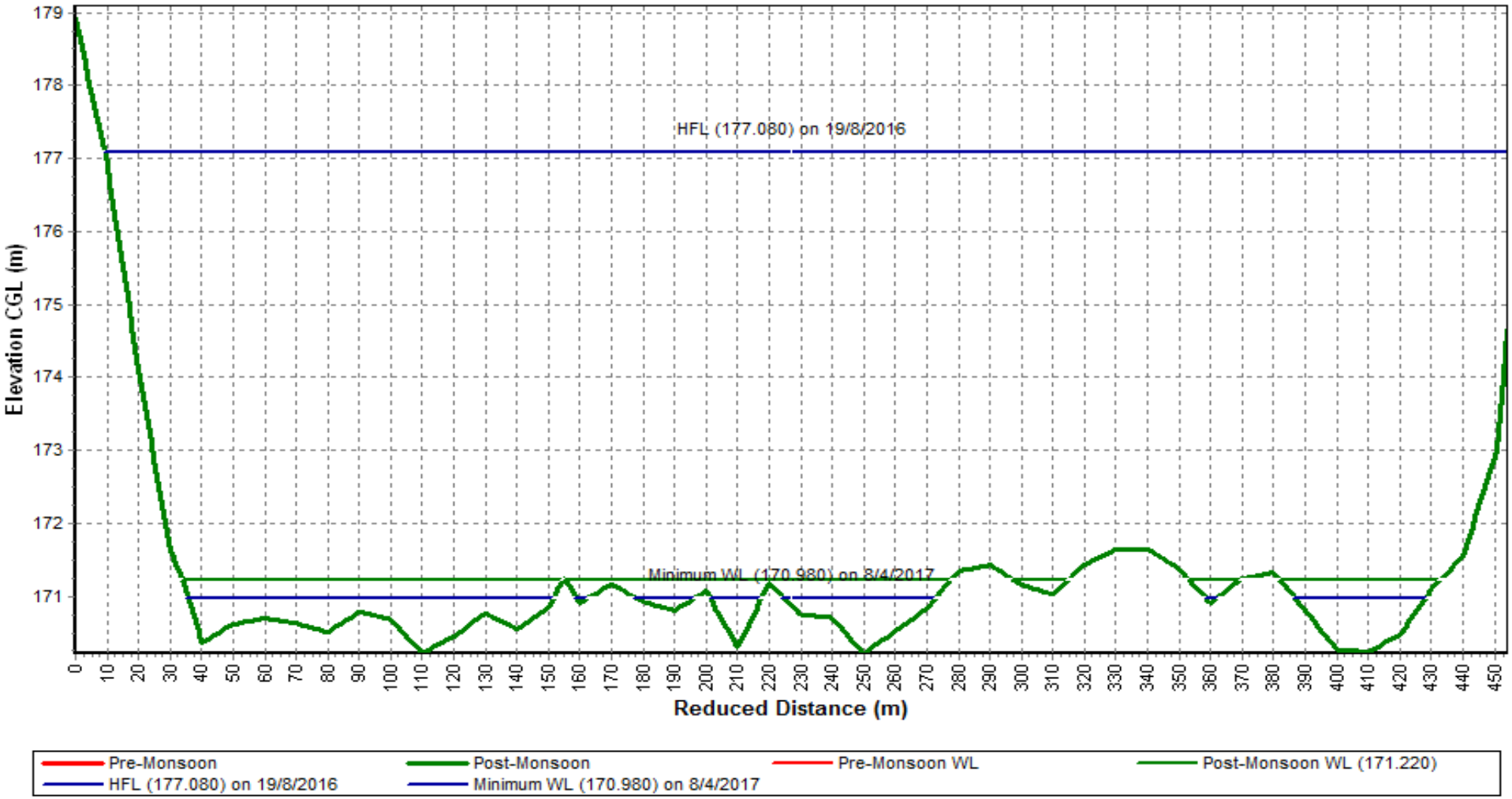
Local River : Brahmni **Sub-Division : Rourkela**



Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

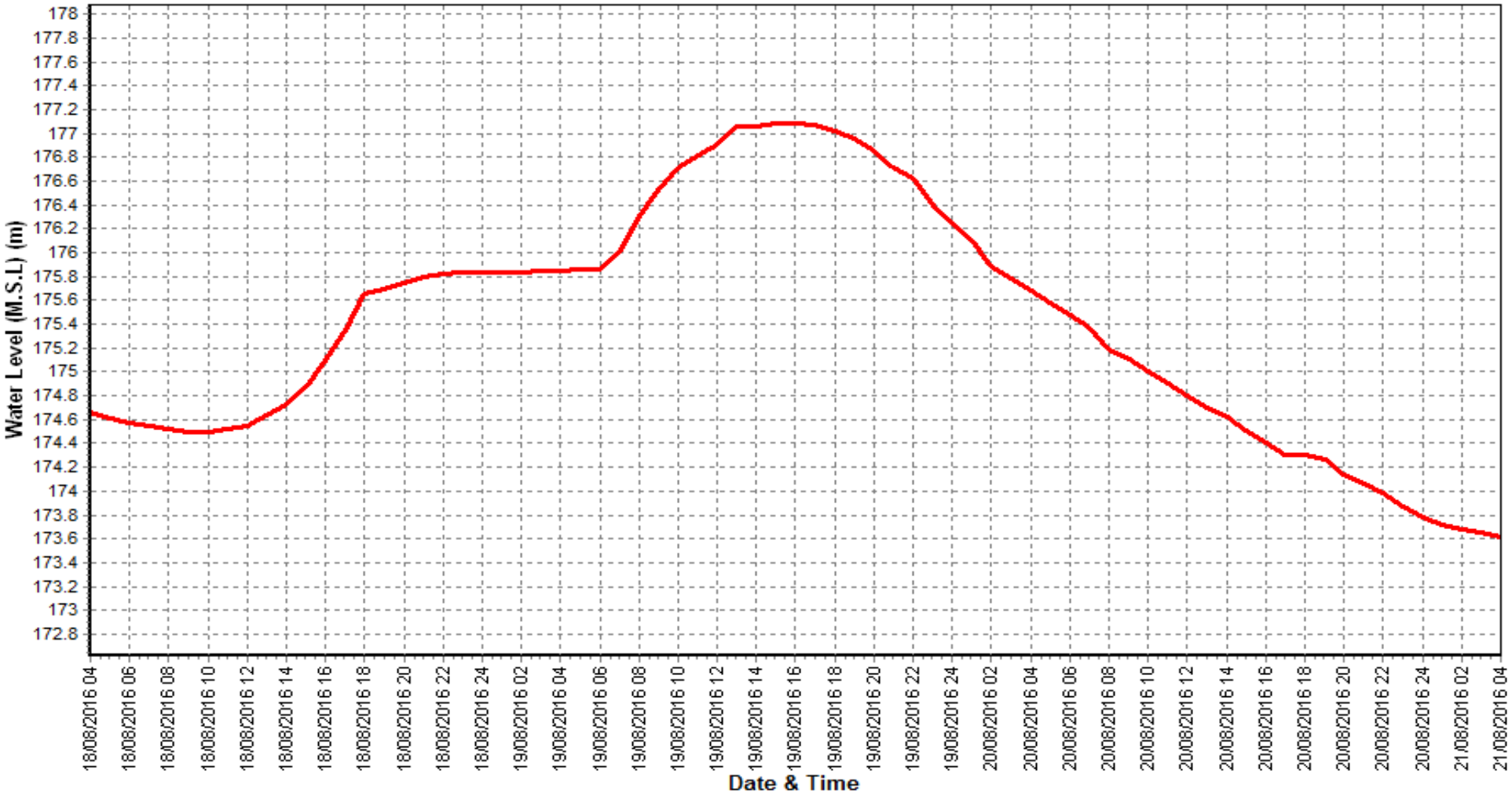
Local River : Brahmni **Sub-Division : Rourkela**



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

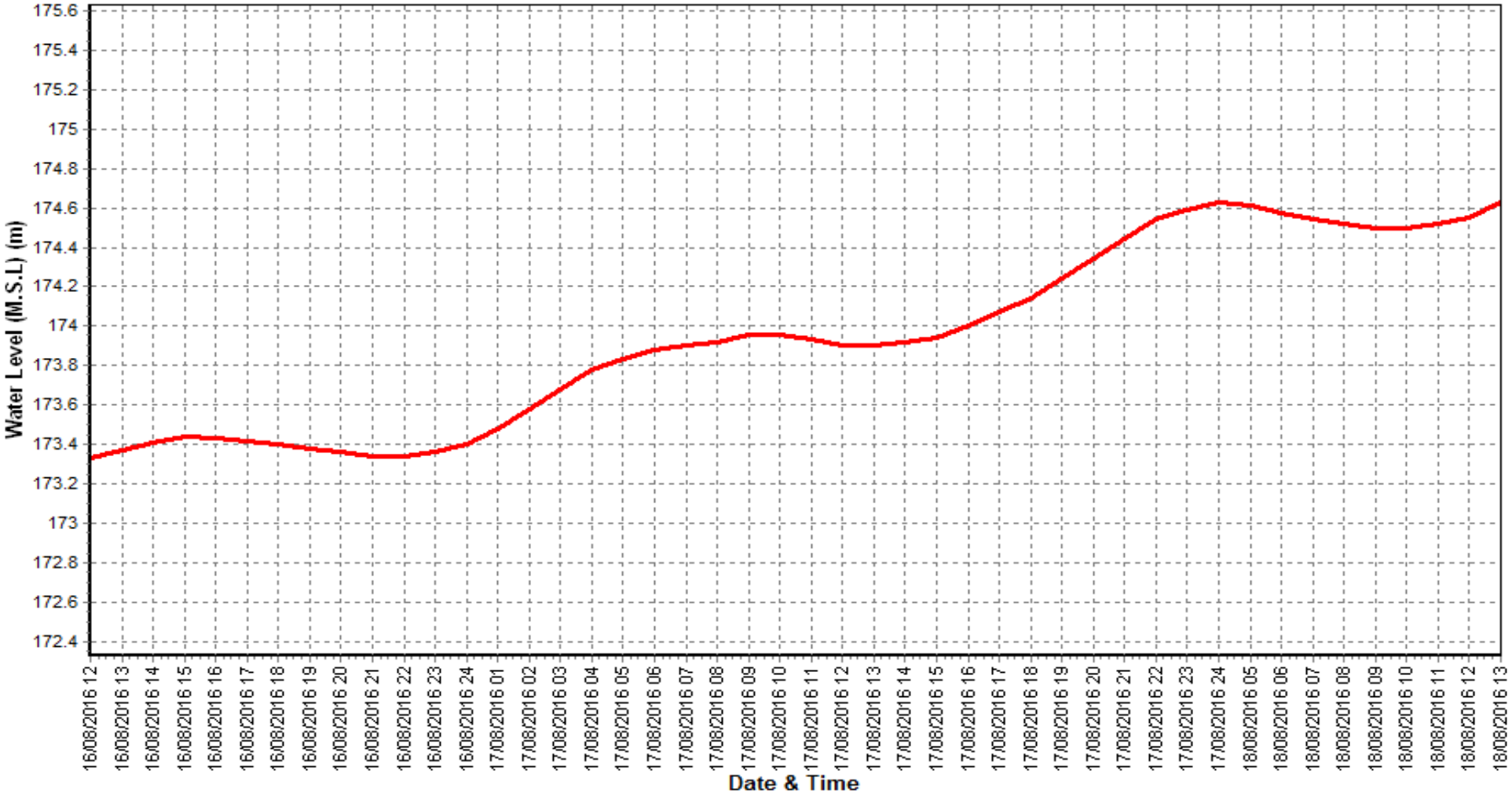


Time Span: 72 Hrs

Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

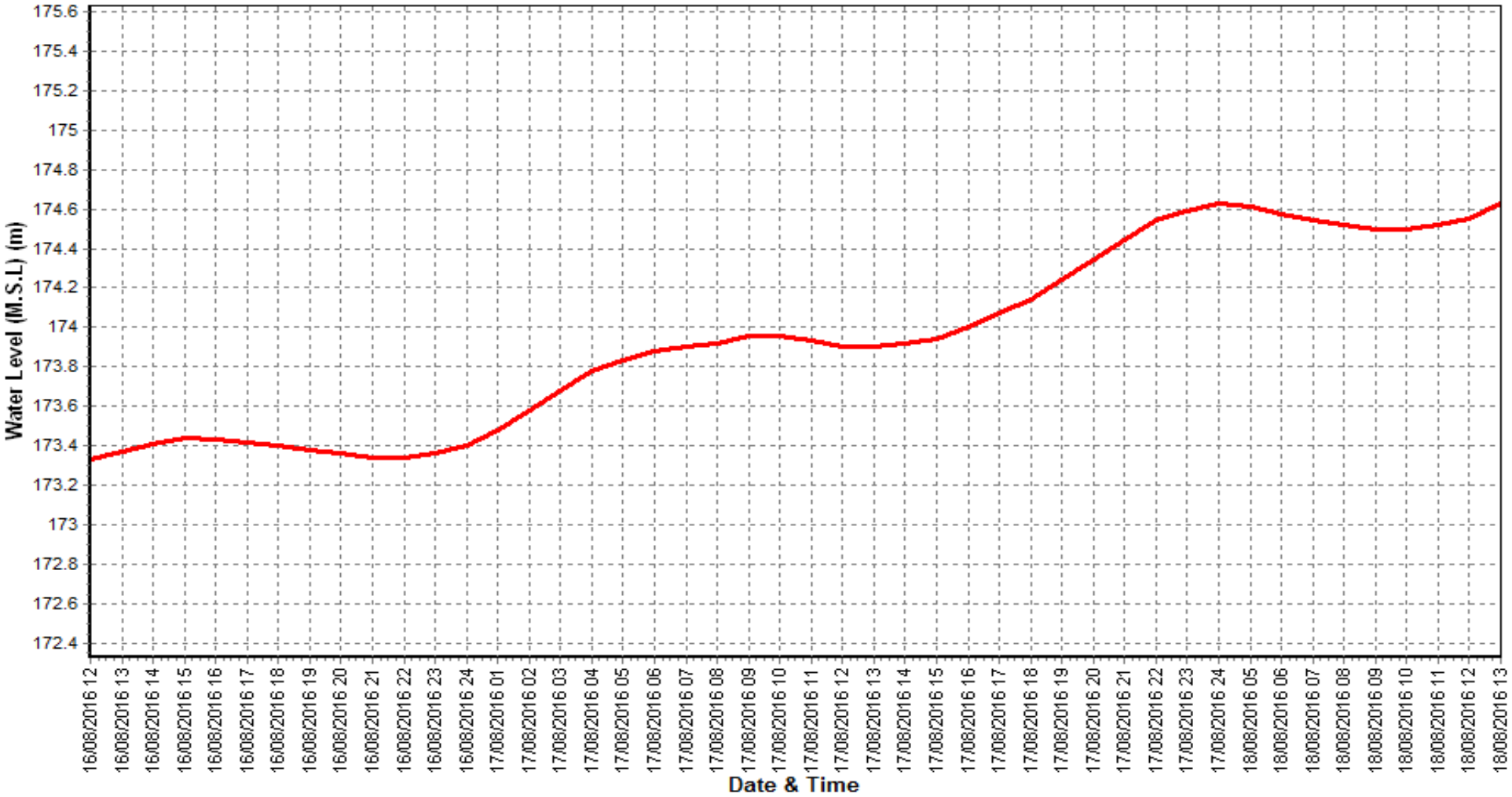


Time Span: 72 Hrs

Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**



Time Span: 72 Hrs

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	12.21	0.000	0.000	0.046	0.046	49	29.02	0.000	0.000	0.066	0.066	164	415.2	0.027	0.021	0.296	0.344	12334
2	14.35	0.000	0.000	0.060	0.060	74	30.33	0.000	0.000	0.134	0.134	352	568.6	0.030	0.023	0.403	0.456	22415
3	14.53	0.000	0.000	0.076	0.076	95	48.30	0.000	0.000	0.000	0.000	0	931.1	0.027	0.020	0.511	0.558	44890
4	10.36	0.000	0.000	0.081	0.081	73	194.4	0.008	0.005	0.657	0.670	11247	823.6	0.031	0.022	0.519	0.571	40632
5	10.30	0.000	0.000	0.081	0.081	72	310.2	0.009	0.006	0.476	0.491	13160	757.8	0.022	0.028	0.365	0.415	27173
6	10.10	0.000	0.000	0.350	0.350	306	588.5	0.010	0.008	0.570	0.588	29899	609.0	0.029	0.024	0.259	0.312	16426
7	8.252	0.000	0.000	0.252	0.252	180	588.5	0.000	0.000	0.000	0.000	0	1077	0.000	0.000	0.000	0.000	0
8	8.848	0.000	0.000	0.054	0.054	41	703.5	0.013	0.010	0.359	0.381	23171	725.8	0.030	0.021	0.225	0.276	17300
9	11.48	0.000	0.000	0.037	0.037	37	325.3	0.015	0.012	0.458	0.485	13616	768.6	0.033	0.026	0.312	0.371	24618
10	10.33	0.000	0.000	0.030	0.030	26	291.9	0.000	0.000	0.000	0.000	0	723.9	0.030	0.024	0.277	0.331	20707
11	11.29	0.000	0.000	0.035	0.035	34	241.8	0.014	0.011	0.357	0.382	7984	804.4	0.026	0.021	0.491	0.538	37393
12	15.58	0.000	0.000	0.035	0.035	47	194.7	0.013	0.009	0.228	0.250	4211	1266	0.027	0.022	0.727	0.777	84943
13	20.02	0.000	0.000	0.076	0.076	131	358.8	0.018	0.015	0.378	0.411	12732	1316	0.029	0.025	0.512	0.566	64294
14	15.48	0.000	0.000	0.043	0.043	58	402.6	0.021	0.017	0.358	0.396	13769	1160	0.000	0.000	0.000	0.000	0
15	18.12	0.000	0.000	0.055	0.055	85	362.2	0.022	0.016	0.293	0.330	10336	696.5	0.000	0.000	0.000	0.000	0
16	16.42	0.000	0.000	0.038	0.038	53	975.8	0.031	0.025	0.488	0.543	45814	838.6	0.032	0.026	0.409	0.467	33799
17	18.46	0.000	0.000	0.038	0.038	60	1047	0.000	0.000	0.000	0.000	0	1620	0.030	0.025	0.392	0.447	62533
18	15.56	0.000	0.000	0.049	0.049	65	975.8	0.033	0.030	0.516	0.580	48875	2630	0.028	0.025	0.702	0.755	171585
19	19.65	0.000	0.000	0.049	0.049	83	1044	0.034	0.031	0.317	0.381	34380	4843	0.032	0.029	2.886	2.947	1233072
20	19.01	0.000	0.000	0.044	0.044	73	547.6	0.030	0.030	0.198	0.259	12240	2789	0.033	0.032	0.133	0.198	47729
21	17.94	0.000	0.000	0.048	0.048	74	779.5	0.030	0.029	0.286	0.345	23222	1732	0.000	0.000	0.000	0.000	0
22	18.18	0.000	0.000	0.045	0.045	71	807.4	0.027	0.026	0.379	0.432	30122	888.5	0.026	0.022	0.340	0.388	29787
23	16.77	0.000	0.000	0.043	0.043	62	869.4	0.032	0.027	0.524	0.582	43727	806.7	0.024	0.020	0.514	0.559	38925
24	16.20	0.000	0.000	0.050	0.050	70	635.0	0.000	0.000	0.000	0.000	0	802.2	0.023	0.019	0.481	0.523	36234
25	65.38	0.000	0.000	0.154	0.154	868	508.2	0.034	0.028	0.301	0.363	15930	1563	0.031	0.026	0.337	0.395	53347
26	40.01	0.000	0.000	0.154	0.154	531	472.7	0.023	0.019	0.234	0.276	11280	1584	0.033	0.029	0.232	0.295	40393
27	15.39	0.000	0.000	0.185	0.185	246	503.6	0.030	0.027	0.443	0.500	21757	1704	0.037	0.033	0.283	0.353	51982
28	19.06	0.000	0.000	0.156	0.156	257	859.5	0.032	0.028	0.525	0.585	43441	926.6	0.000	0.000	0.000	0.000	0
29	18.44	0.000	0.000	0.111	0.111	177	539.2	0.030	0.025	0.511	0.565	26335	594.4	0.030	0.026	0.138	0.194	9953
30	17.82	0.000	0.000	0.196	0.196	302	507.2	0.029	0.024	0.040	0.092	4051	481.3	0.028	0.024	0.136	0.188	7806
31							400.5	0.000	0.000	0.000	0.000	0	469.2	0.028	0.021	0.076	0.125	5055
Ten Daily Mean																		
Ten Daily I	11.08	0.000	0.000	0.107	0.107	95	311.0	0.005	0.004	0.272	0.281	9161	740.1	0.026	0.021	0.317	0.363	22650
Ten Daily II	16.96	0.000	0.000	0.046	0.046	69	615.0	0.022	0.018	0.313	0.353	19034	1796	0.024	0.021	0.625	0.669	173535
Ten Daily III	24.52	0.000	0.000	0.114	0.114	266	625.7	0.024	0.021	0.295	0.340	19988	1050	0.024	0.020	0.231	0.274	24862
Monthly																		
Total						4300						501817						2235327

Annual Sediment Load (Metric Tonnes) : 3477196

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	731.6	0.030	0.025	0.109	0.164	10378	536.1	0.026	0.022	0.172	0.220	10190	106.9	0.005	0.003	0.026	0.034	316
2	871.0	0.028	0.025	0.181	0.234	17601	513.9	0.000	0.000	0.000	0.000	0	98.97	0.004	0.002	0.026	0.032	276
3	581.7	0.026	0.024	0.349	0.399	20043	504.1	0.027	0.023	0.109	0.159	6938	96.86	0.003	0.002	0.028	0.033	275
4	748.9	0.000	0.000	0.000	0.000	0	488.8	0.028	0.026	0.009	0.062	2635	95.59	0.002	0.000	0.029	0.031	254
5	1455	0.034	0.029	0.406	0.469	58946	462.6	0.028	0.024	0.035	0.087	3481	90.76	0.000	0.000	0.031	0.031	241
6	903.7	0.033	0.031	0.386	0.449	35073	448.0	0.028	0.023	0.068	0.119	4594	64.65	0.000	0.000	0.000	0.000	0
7	839.2	0.030	0.027	0.188	0.245	17779	471.3	0.030	0.025	0.059	0.114	4626	51.43	0.000	0.000	0.032	0.032	144
8	552.8	0.026	0.022	0.102	0.150	7155	510.6	0.030	0.026	0.201	0.257	11338	50.62	0.000	0.000	0.035	0.035	152
9	909.9	0.032	0.027	0.115	0.173	13632	501.9	0.000	0.000	0.000	0.000	0	49.14	0.000	0.000	0.035	0.035	148
10	759.6	0.027	0.024	0.557	0.608	39872	550.3	0.000	0.000	0.000	0.000	0	46.66	0.000	0.000	0.032	0.032	130
11	849.5	0.000	0.000	0.000	0.000	0	594.3	0.000	0.000	0.000	0.000	0	45.02	0.000	0.000	0.029	0.029	112
12	1671	0.035	0.031	0.546	0.611	88274	598.7	0.000	0.000	0.000	0.000	0	42.24	0.000	0.000	0.028	0.028	101
13	1388	0.000	0.000	0.000	0.000	0	507.4	0.027	0.025	0.157	0.209	9141	42.18	0.000	0.000	0.000	0.000	0
14	753.9	0.030	0.024	0.191	0.244	15900	263.8	0.028	0.026	0.093	0.147	3343	42.00	0.000	0.000	0.000	0.000	0
15	1775	0.025	0.022	0.157	0.204	31281	266.6	0.026	0.023	0.074	0.123	2824	41.78	0.000	0.000	0.029	0.029	104
16	728.5	0.024	0.022	0.063	0.109	6848	263.6	0.000	0.000	0.000	0.000	0	44.71	0.000	0.000	0.028	0.028	107
17	504.0	1.032	0.024	0.127	1.182	51492	259.7	0.023	0.021	0.058	0.102	2293	41.45	0.000	0.000	0.025	0.025	91
18	488.6	0.000	0.000	0.000	0.000	0	158.1	0.032	0.027	0.048	0.107	1461	41.92	0.000	0.000	0.023	0.023	84
19	475.8	0.025	0.023	0.058	0.106	4370	154.7	0.027	0.022	0.047	0.096	1286	42.60	0.000	0.000	0.023	0.023	85
20	352.1	0.026	0.023	0.070	0.119	3629	134.5	0.023	0.019	0.043	0.084	977	41.59	0.000	0.000	0.000	0.000	0
21	476.7	0.026	0.024	0.235	0.286	11779	143.1	0.019	0.015	0.043	0.076	945	40.47	0.000	0.000	0.020	0.020	71
22	583.6	0.027	0.025	0.218	0.270	13630	137.9	0.016	0.014	0.041	0.071	841	42.81	0.000	0.000	0.016	0.016	59
23	620.4	0.025	0.022	0.202	0.249	13364	123.4	0.000	0.000	0.000	0.000	0	39.45	0.000	0.000	0.017	0.017	57
24	588.6	0.026	0.023	0.171	0.219	11147	132.6	0.015	0.012	0.042	0.069	785	40.94	0.000	0.000	0.019	0.019	66
25	518.5	0.000	0.000	0.000	0.000	0	97.00	0.013	0.011	0.026	0.050	416	42.80	0.000	0.000	0.016	0.016	57
26	449.7	0.028	0.024	0.075	0.127	4931	104.6	0.010	0.008	0.028	0.046	411	42.56	0.000	0.000	0.014	0.014	53
27	425.6	0.026	0.023	0.133	0.182	6688	108.4	0.008	0.007	0.030	0.044	415	42.54	0.000	0.000	0.000	0.000	0
28	527.4	0.031	0.028	0.152	0.211	9619	115.6	0.010	0.006	0.028	0.044	436	44.38	0.000	0.000	0.015	0.015	58
29	542.2	0.025	0.022	0.288	0.335	15683	113.7	0.007	0.005	0.027	0.039	384	39.65	0.000	0.000	0.015	0.015	52
30	573.7	0.026	0.023	0.202	0.251	12437	113.6	0.000	0.000	0.000	0.000	0	43.23	0.000	0.000	0.013	0.013	48
31							117.4	0.007	0.005	0.027	0.039	397						
Ten Daily Mean																		
Ten Daily I	835.3	0.027	0.023	0.239	0.289	22048	498.8	0.020	0.017	0.065	0.102	4380	75.16	0.001	0.001	0.027	0.030	194
Ten Daily II	898.6	0.120	0.017	0.121	0.258	20179	320.1	0.018	0.016	0.052	0.087	2133	42.55	0.000	0.000	0.018	0.018	68
Ten Daily III	530.6	0.024	0.021	0.168	0.213	9928	118.8	0.009	0.007	0.027	0.043	457	41.88	0.000	0.000	0.014	0.014	52
Monthly																		
Total						521549						70157						3141

Annual Sediment Load (Metric Tonnes) : 3477196

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	41.35						19.38						12.12					
2	34.22						17.59	0.000	0.000	0.011	0.011	17	12.60					
3	29.32						20.65						12.02					
4	33.07						19.48						12.39					
5	27.68	0.000	0.000	0.014	0.014	34	16.34						12.40					
6	28.43						17.45						12.25	0.000	0.000	0.012	0.012	13
7	31.95						18.48						11.98					
8	24.87						19.82						10.77					
9	26.70						14.86	0.000	0.000	0.012	0.012	15	9.732					
10	25.69						18.88						9.253					
11	25.18						15.92						8.820					
12	25.96						18.97						12.57					
13	24.65						16.75						13.10	0.000	0.000	0.013	0.013	14
14	23.64						14.94						11.50					
15	23.13						14.95						10.78					
16	21.91						14.87	0.000	0.000	0.013	0.013	16	10.26					
17	21.82						14.77						8.820					
18	19.36						14.82						8.681					
19	20.03	0.000	0.000	0.017	0.017	29	15.62						10.47					
20	19.55						14.88						10.45	0.000	0.000	0.016	0.016	15
21	19.38						14.21						10.24					
22	18.08						14.20						10.29					
23	18.11						13.64	0.000	0.000	0.014	0.014	16	12.16					
24	15.18						13.46						12.17					
25	15.47						13.37						12.05					
26	15.47	0.000	0.000	0.014	0.014	19	13.43						12.80					
27	15.26						12.53						11.80	0.000	0.000	138.000	138.000	140636
28	15.61						12.48						10.76					
29	20.28						12.42											
30	20.53						12.30	0.000	0.000	0.013	0.013	14						
31	20.57						12.11											
Ten Daily Mean																		
Ten Daily I	30.33	0.000	0.000	0.014	0.014	34	18.29	0.000	0.000	0.011	0.011	16	11.55	0.000	0.000	0.012	0.012	13
Ten Daily II	22.52	0.000	0.000	0.017	0.017	29	15.65	0.000	0.000	0.013	0.013	16	10.54	0.000	0.000	0.014	0.014	14
Ten Daily III	17.63	0.000	0.000	0.014	0.014	19	13.10	0.000	0.000	0.013	0.013	15	11.53	0.000	0.000	138.000	138.000	140636
Monthly																		
Total						81						78						140678

Annual Sediment Load (Metric Tonnes) : 3477196

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	10.62						9.682						10.89	0.000	0.000	0.005	0.005	4
2	10.14						9.645						10.28					
3	9.949						9.839	0.000	0.000	0.006	0.006	5	10.03					
4	9.485						8.979						9.471					
5	9.266						8.788						8.268					
6	8.436	0.000	0.000	0.011	0.011	8	7.756						7.782					
7	8.347						7.116						7.780					
8	8.248						6.823						7.515	0.000	0.000	0.005	0.005	3
9	8.300						7.941						6.285					
10	7.808						8.771	0.000	0.000	0.008	0.008	6	6.285					
11	8.076						8.764						6.254					
12	8.120						7.964						6.608					
13	8.120						9.265						6.638					
14	14.42						9.151						6.603					
15	14.09						9.696						6.462	0.000	0.000	0.007	0.007	4
16	11.47						9.645						6.929					
17	11.26						9.508	0.000	0.000	0.006	0.006	5	7.114					
18	11.25						9.339						9.551					
19	11.08						9.221						9.629					
20	11.42	0.000	0.000	0.009	0.009	9	9.358						11.65					
21	10.87						9.035						11.33					
22	10.98						9.015						10.65	0.000	0.000	0.003	0.003	3
23	10.24						8.066						9.676					
24	10.10						11.87	0.000	0.000	0.005	0.005	5	9.257					
25	9.233						10.85						9.262					
26	9.117						10.46						14.93					
27	7.648	0.000	0.000	0.009	0.009	6	11.36						15.26					
28	7.568						11.63						18.51					
29	9.012						10.69						21.17	0.000	0.000	0.005	0.005	8
30	9.406						10.50						24.88					
31	9.087												22.82					
Ten Daily Mean																		
Ten Daily I	9.060	0.000	0.000	0.011	0.011	8	8.534	0.000	0.000	0.007	0.007	6	8.459	0.000	0.000	0.005	0.005	4
Ten Daily II	10.93	0.000	0.000	0.009	0.009	9	9.191	0.000	0.000	0.006	0.006	5	7.744	0.000	0.000	0.007	0.007	4
Ten Daily III	9.388	0.000	0.000	0.009	0.009	6	10.35	0.000	0.000	0.005	0.005	5	15.25	0.000	0.000	0.004	0.004	5
Monthly																		
Total						23						21						23

Annual Sediment Load (Metric Tonnes) : 3477196

Annual Sediment Load for period : 1997-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

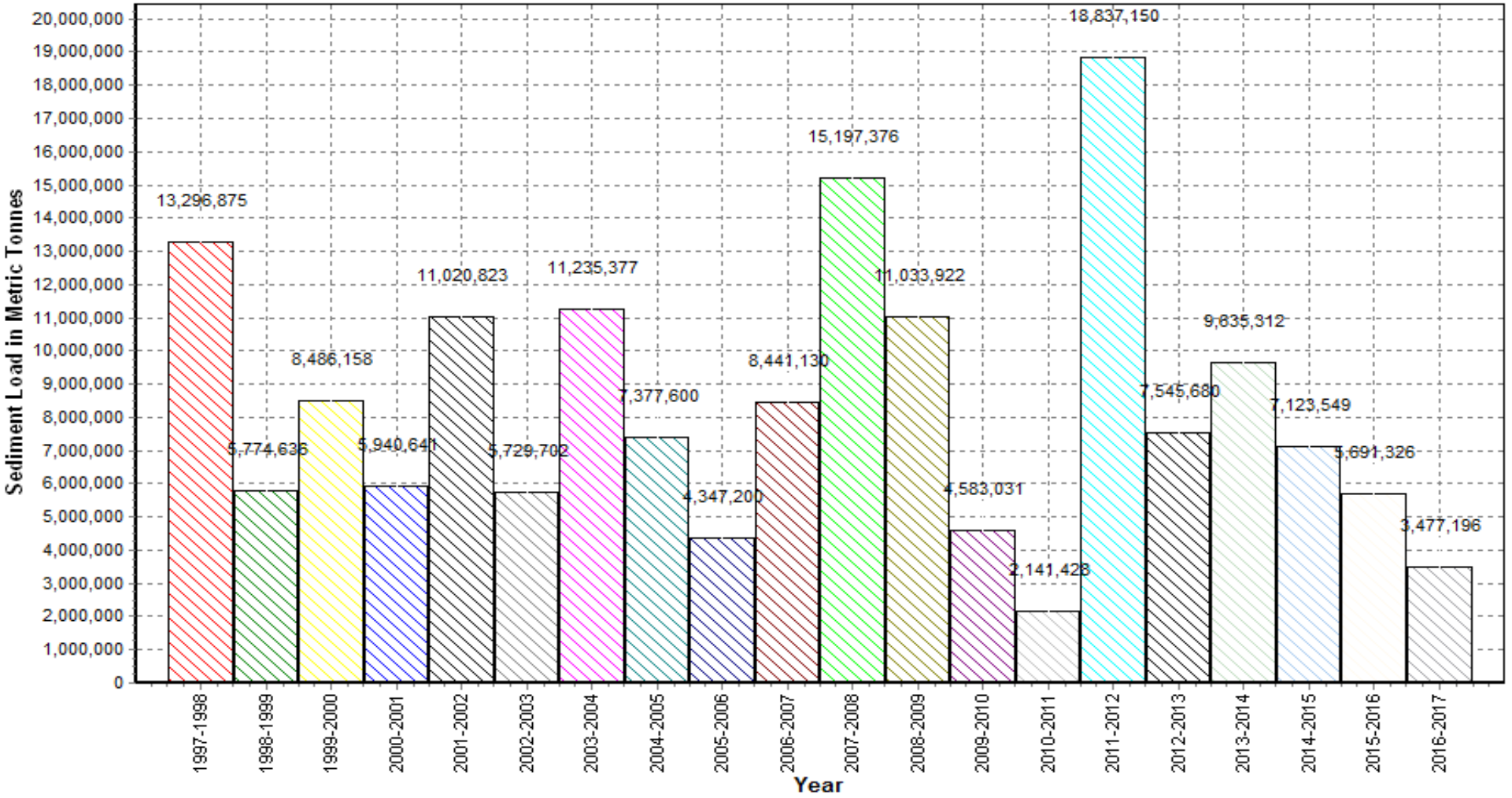
Local River : Brahmni **Sub-Division : Rourkela**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1997-1998	13082732	214143	13296875	14251
1998-1999	5740493	34142	5774636	11260
1999-2000	8468080	18078	8486158	13123
2000-2001	5933566	7075	5940641	6700
2001-2002	11015435	5388	11020823	13621
2002-2003	5722434	7268	5729702	7804
2003-2004	11211416	23962	11235377	9519
2004-2005	7359200	18401	7377600	7598
2005-2006	4310272	36928	4347200	7083
2006-2007	8427091	14039	8441130	9856
2007-2008	15178560	18817	15197376	13580
2008-2009	11014979	18943	11033922	12114
2009-2010	4573405	9626	4583031	6612
2010-2011	2130446	10981	2141428	3198
2011-2012	18822863	14287	18837150	18194
2012-2013	7530170	15510	7545680	10154
2013-2014	9597843	37469	9635312	11708
2014-2015	7116756	6792	7123549	8521
2015-2016	5683606	7720	5691326	6111
2016-2017	3336292	140904	3477196	7755

Annual Sediment Load for the period: 1997-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**



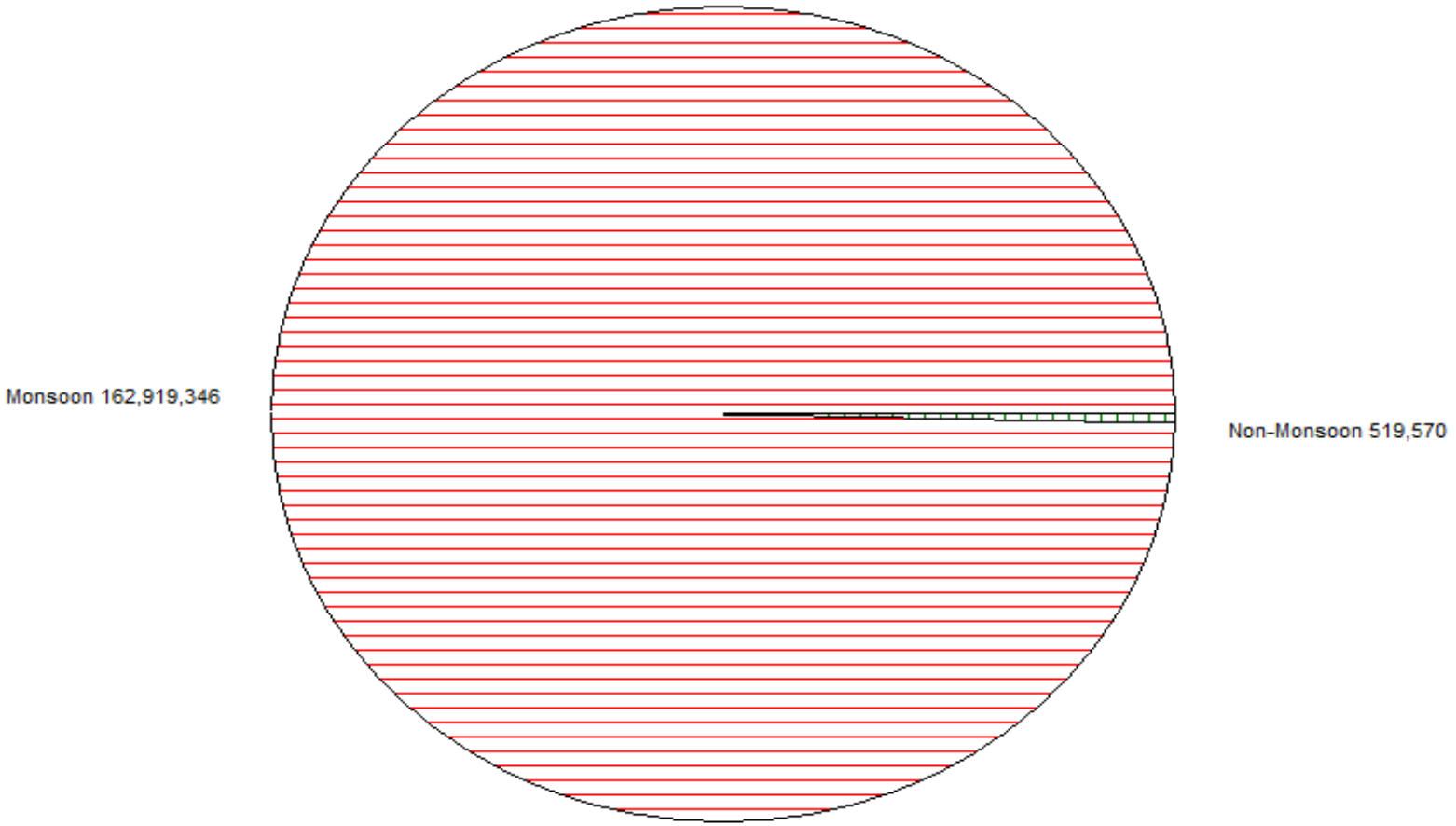
Seasonal Sediment Load for the period : 1997-2016

Station Name : PANPOSH (EB000H6)

Local River : Brahmni

Division : E.E., Bhubaneswar

Sub-Division : Rourkela



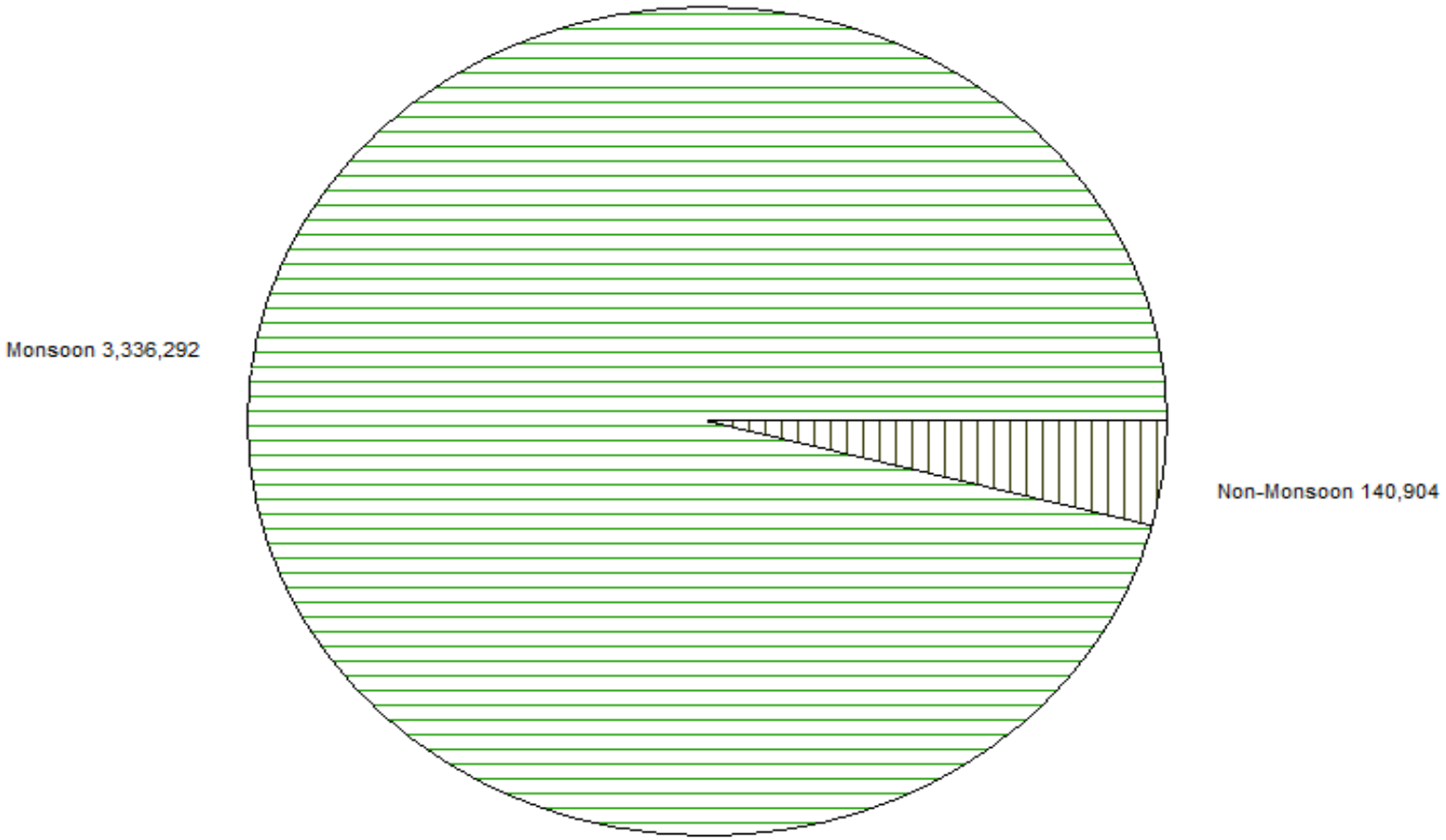
Seasonal Sediment Load for the Year: 2016-2017

Station Name : PANPOSH (EB000H6)

Local River : Brahmni

Division : E.E., Bhubaneswar

Sub-Division : Rourkela



Water Quality Datasheet for the period : 2016-2017

Station Name : PANPOSH (EB000H6) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water Analysis** | **Sub-Division : Rourkela**

S.No	Parameters	01.06.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	165	171	97	105	136	459	465	241	221	207	188	183
4	EC_GEN (µmho/cm)	168	176	99	109	141	466	470	243	228	209	190	189
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.5	7.6	7.1	7.5	7.7	8.0	8.1	8.1	7.7	7.7	7.4	7.3
7	pH_GEN (pH units)	7.5	7.7	7.2	7.6	7.9	8.1	8.2	8.2	7.8	7.8	7.4	7.3
8	Temp (deg C)	31.0	29.0	27.0	27.0	28.0	27.0	20.0	18.0	19.0	20.0	24.0	27.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	106	79	60	55	51	51	51	55	12	88	60	65
3	B (mg/L)	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02
4	Ca (mg/L)	40	35	45	42	21	37	38	35	40	22	38	21
5	Cl (mg/L)	39.5	15.1	13.2	9.4	9.4	13.2	15.1	13.2	15.1	13.2	9.4	18.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.7	0.2	0.4	0.1	0.5	0.7	0.1	0.2	0.4	0.5	0.6	0.5
9	HCO3 (mg/L)	130	96	73	68	62	62	62	68	15	107	73	79
10	K (mg/L)	2.5	10.6	7.7	7.6	5.0	7.8	8.2	0.7	9.1	9.6	10.0	9.2
11	Mg (mg/L)	15.6	16.5	13.6	14.6	12.6	12.6	13.6	12.6	13.6	12.6	12.6	10.7
12	Na (mg/L)	8.6	21.6	14.8	15.0	16.1	21.8	22.3	11.6	60.1	60.6	60.2	25.2
13	NO2+NO3 (mg N/L)	1.08	0.74	1.32	0.80	0.81	0.78	0.85	1.12	1.09	1.19	1.11	1.12
14	NO2-N (mgN/L)	0.00	0.07	0.00	0.03	0.07	0.00	0.03	0.03	0.01	0.00	0.01	0.00
15	NO3-N (mgN/L)	1.08	0.67	1.32	0.77	0.74	0.78	0.83	1.09	1.08	1.19	1.09	1.12
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	6.0	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	8.0
18	SO4 (mg/L)	5.0	5.1	5.2	5.2	2.8	3.6	3.6	3.0	4.0	2.9	3.0	2.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.2	0.8	1.0	1.6	0.4	1.2	1.6	2.0	2.0	3.8	1.8	1.0
2	DO (mg/L)	3.4	8.3	5.8	7.6	8.7	7.8	10.5	10.9	9.1	9.5	4.2	5.0
3	DO_SAT% (%)	45	108	72	95	112	97	116	115	99	105	50	62
4	FCol-MPN (MPN/100mL)						90	70	20	60	170	80	130
5	Tcol-MPN (MPN/100mL)						330	140	40	70	340	170	230
	TRACE & TOXIC												
1	Al (mg/L)												0.00
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	100	88	112	104	52	92	96	88	100	56	96	52
2	HAR_Total (mgCaCO3/L)	165	157	169	165	105	145	153	141	157	109	149	97
3	Na% (%)	10	22	15	16	24	24	23	15	44	52	45	34
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.8	0.5	0.5	0.7	0.8	0.8	0.4	2.1	2.5	2.2	1.1
	PESTICIDES												

Water Quality Summary for the period : 2016-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmani **Sub-Division : Rourkela**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	465	97	220
3	EC_GEN (µmho/cm)	12	470	99	224
4	pH_FLD (pH units)	12	8.1	7.1	7.7
5	pH_GEN (pH units)	12	8.2	7.2	7.7
6	Temp (deg C)	12	31.0	18.0	24.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	106	12	61
3	B (mg/L)	12	0.03	0.01	0.02
4	Ca (mg/L)	12	45	21	35
5	Cl (mg/L)	12	39.5	9.4	15.4
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.7	0.1	0.4
9	HCO3 (mg/L)	12	130	15	75
10	K (mg/L)	12	10.6	0.7	7.3
11	Mg (mg/L)	12	16.5	10.7	13.4
12	Na (mg/L)	12	60.6	8.6	28.2
13	NO2+NO3 (mg N/L)	12	1.32	0.74	1
14	NO2-N (mgN/L)	12	0.07	0.00	0.02
15	NO3-N (mgN/L)	12	1.32	0.67	0.98
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	8.0	6.0	6.7
18	SO4 (mg/L)	12	5.2	2.6	3.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	3.8	0.4	1.6
2	DO (mg/L)	12	10.9	3.4	7.6
3	DO_SAT% (%)	12	116	45	90
4	FCol-MPN (MPN/100mL)	7	170	20	89
5	Tcol-MPN (MPN/100mL)	7	340	40	189
	TRACE & TOXIC				
1	Al (mg/L)	1	0.00	0.00	0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	112	52	87
2	HAR_Total (mgCaCO3/L)	12	169	97	143
3	Na% (%)	12	52	10	27
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	2.5	0.3	1.1
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : PANPOSH (EB000H6) **Division : E.E., Bhubaneswar**

Local River : Brahmani **River Water** **Sub-Division : Rourkela**

S.No	Parameters	Flood																			
		Jun - Oct																			
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	146	121	154	152	147	165	149	173	171	135	159	179	172	280	135	173	204	184	223	210	186
3	EC_GEN (µmho/cm)	147	122	165	150	143	158	149	173	175	135	159	179	172	276	139	174	204	188	218	205	178
4	pH_FLD (pH units)	7.8	7.6	7.7	7.7	7.5	7.9	7.4	7.5	7.7	8.0	7.5	7.3	7.6	7.2	7.5	7.6	7.7	8.0	7.6	8.3	8.0
5	pH_GEN (pH units)	7.7	7.5	7.5	7.8	7.5	8.0	7.4	7.5	7.7	8.0	7.5	7.3	7.6	7.3	7.6	7.6	7.7	7.9	7.6	8.3	8.0
6	Temp (deg C)	28.8	28.8	29.2	30.2	30.8	29.0	29.0	29.8	30.7	30.2	27.6	25.8	28.2	27.8	28.4	22.9	23.2	22.5	23.0	22.8	21.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)						0.0	0.0	0.0	0.0	1.8				0.0	0.0					0.0	0.0
2	ALK-TOT (mgCaCO3/L)						85	46	57	64	65				62	70					71	117
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	14	9	16	15	14	16	14	16	14	17	17	13	17	20	37	17	17	21	21	21	17
5	Cl (mg/L)	10.5	9.4	15.8	13.6	14.8	12.3	14.5	11.3	11.2	17.7	17.0	11.1	17.7	14.0	17.3	12.2	12.2	24.0	13.6	15.6	12.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.22	0.09	0.44	0.09	0.18	0.11	0.05	0.15	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.01	0.00	0.50	0.00	0.00	0.00
8	Fe (mg/L)			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.9	0.0	0.3	0.3	0.4			0.1	0.1	0.1	0.2
9	HCO3 (mg/L)	62	41	81	54	59	69	49	61	71	74	67	77	74	76	86	78	66	102	86	81	77
10	K (mg/L)	1.9	1.3	2.1	2.7	2.5	2.1	2.2	2.2	2.4	1.8	1.9	1.6	1.8	2.0	6.7	2.4	1.5	1.5	2.8	2.6	2.7
11	Mg (mg/L)	4.9	3.0	7.3	4.0	4.1	4.9	4.7	6.3	7.6	4.5	3.9	4.7	4.5	10.9	14.6	4.9	3.5	8.3	7.8	4.7	4.5
12	Na (mg/L)	7.4	6.0	10.7	8.8	9.4	7.6	9.2	7.6	6.6	4.6	3.9	8.3	4.6	3.9	15.2	8.4	7.9	15.9	9.1	10.3	8.3
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	0.31	0.34	0.22	0.52	0.27	0.39	0.45	0.36	0.34	0.36	0.71	0.98	1.23	1.08	0.95	0.55	0.40	0.12	1.82	0.85	0.28
15	NO2-N (mgN/L)	0.02	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.07	0.00	0.00	0.08	0.02	0.03	0.01	0.00	0.00	0.01	0.02	0.00
16	NO3-N (mgN/L)	0.29	0.34	0.22	0.52	0.27	0.34	0.45	0.36	0.34	0.29	0.71	0.98	1.15	1.06	0.92	0.54	0.40	0.12	1.80	0.83	0.28
17	o-PO4-P (mg P/L)	0.072		0.000	0.000	0.004	0.000		0.000											0.000	0.026	0.000
18	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.005	0.001	0.001	0.002	0.001	0.010	0.001	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.027	0.001
19	SiO2 (mg/L)	15.2	8.8	21.1	23.8	9.6	14.6	8.7	7.1	9.4	11.0	14.5	11.3	5.8	5.6	6.2	14.4	11.6	20.0	19.0	15.4	11.7
20	SO4 (mg/L)	4.4	1.2	6.5	9.1	9.5	4.2	9.6	12.6	7.1	8.7	27.0	10.8	8.7	3.4	4.7	3.2	0.9	8.9	8.2	11.3	2.9
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.5	1.0	1.1	0.7	0.9	1.5	1.2	1.1	1.5	1.4	0.6	0.8	0.6	1.2	1.2	1.2	1.0	1.0	1.1	1.2	1.5
2	DO (mg/L)	6.6	5.8	6.0	6.2	6.5	6.6	6.9	7.0	6.8	6.5	5.8	6.4	6.2	5.5	6.8	7.3	8.2	7.4	7.8	7.1	8.0
3	DO_SAT% (%)	85	75	78	82	87	86	90	92	91	86	73	79	80	70	87	85	95	86	91	82	90
4	FCol-MPN (MPN/100mL)																					
5	Tcol-MPN (MPN/100mL)																					
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	34	22	40	36	34	39	34	40	35	42	43	33	42	51	91	42	42	52	53	53	43
2	HAR_Total (mgCaCO3/L)	55	35	66	53	51	61	66	66	67	61	59	52	61	96	152	62	56	87	85	73	62
3	Na% (%)	24	29	25	25	27	21	29	20	17	14	12	25	14	7	17	22	24	29	18	23	22
4	RSC (-)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.2	0.0	0.2	0.0	0.1	0.0
5	SAR (-)	0.5	0.5	0.6	0.5	0.6	0.4	0.6	0.4	0.4	0.3	0.2	0.5	0.3	0.2	0.5	0.5	0.5	0.8	0.4	0.6	0.5
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : PANPOSH (EB000H6) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water** | **Sub-Division : Rourkela**

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	219	202	235	183	204	165	273	433	347	163	208	259	282	243	202	229	177	250	190	225	220
3	EC_GEN (µmho/cm)	219	202	235	183	204	165	273	436	352	161	207	259	277	240	201	229	177	250	190	225	220
4	pH_FLD (pH units)	7.6	7.5	7.5	7.6	7.3	7.8	7.5	7.4	8.0	8.1	7.9	7.9	7.7	8.1	8.1	7.7	7.9	8.1	7.4	7.8	7.7
5	pH_GEN (pH units)	7.6	7.5	7.5	7.6	7.3	7.8	7.5	7.4	8.1	8.1	7.9	7.8	7.7	8.1	8.0	7.7	7.9	8.1	7.4	7.8	7.7
6	Temp (deg C)	22.3	20.3	21.8	22.4	19.5	19.5	20.8	20.8	21.0	27.2	28.3	28.0	28.0	27.7	26.3	27.0	26.7	26.3	32.2	23.7	25.7
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0			0.0	0.0					0.0	0.0	0.0	0.0	3.9	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	66	45	71	80	65			58	42					102	49	68	64	94	62		60
3	B (mg/L)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.00
4	Ca (mg/L)	19	19	21	21	21	15	19	20	38	17	21	23	27	26	18	21	15	23	30	19	19
5	Cl (mg/L)	16.6	15.1	17.0	19.8	15.1	12.0	19.3	16.0	14.1	9.7	12.3	28.9	13.9	13.3	8.1	14.9	12.2	16.3	13.8	16.5	14.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0
7	F (mg/L)	0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.31	0.00	0.00	0.08	0.10	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.1	0.1	0.0	1.9	0.0	0.2	0.5	0.3	0.2		0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	1.9	0.0
9	HCO3 (mg/L)	80	54	100	97	72	63	99	70	52	62	91	103	111	124	60	75	78	105	75	94	77
10	K (mg/L)	1.9	1.3	2.3	1.5	1.7	1.9	1.4	1.6	6.5	2.6	1.9	2.3	2.3	2.6	1.4	1.6	1.5	2.6	1.7	2.0	2.2
11	Mg (mg/L)	8.3	8.7	9.2	8.0	5.1	4.5	5.3	9.2	13.1	4.9	6.6	7.8	10.5	8.2	3.2	9.4	7.8	9.7	5.2	9.1	4.7
12	Na (mg/L)	10.8	8.6	9.7	6.8	6.4	10.1	6.1	6.1	28.9	6.9	8.3	18.2	9.9	8.7	5.6	9.3	7.3	10.1	7.2	8.8	10.5
13	NH3-N (mg N/L)															0.05						
14	NO2+NO3 (mg N/L)	0.39	0.46	0.49	0.39	0.71	1.02	0.82	1.01	0.96	1.86	0.33	0.21	3.96	0.59	0.35	0.29	0.21	0.37	0.41	0.71	1.19
15	NO2-N (mgN/L)	0.00	0.00	0.08	0.07	0.00	0.00	0.01	0.03	0.02	0.04	0.07	0.00	0.02	0.10	0.00	0.00	0.00	0.00	0.07	0.00	0.00
16	NO3-N (mgN/L)	0.39	0.46	0.41	0.33	0.71	1.02	0.80	0.98	0.95	1.83	0.25	0.21	3.94	0.49	0.35	0.29	0.21	0.37	0.34	0.71	1.19
17	o-PO4-P (mg P/L)	0.093	0.002										0.103	0.000	0.017	0.050	0.103	0.000				
18	P-Tot (mgP/L)	0.025	0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.010	0.001	0.001	0.001	0.001	0.018	0.050	0.001	0.003	0.001	0.010	0.001	0.001
19	SiO2 (mg/L)	9.3	8.5	4.8	10.5	13.0	14.0	5.1	5.8	6.8	13.5	15.4	21.3	25.6	11.0	12.4	5.9	7.2	11.2	10.3	13.0	14.3
20	SO4 (mg/L)	10.7	13.9	6.6	3.0	5.5	13.7	3.1	3.0	3.5	3.1	2.8	5.6	14.5	3.4	4.7	19.7	3.8	3.1	2.3	19.3	23.6
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.3	1.7	1.4	2.0	0.4	0.3	0.8	1.0	1.7	0.9	1.1	0.9	0.9	1.5	1.3	1.5	1.8	1.9	1.3	0.8	0.7
2	DO (mg/L)	7.4	8.5	7.4	8.0	8.1	7.5	8.8	6.8	9.6	6.4	6.9	6.1	7.0	6.8	6.6	5.9	7.0	6.5	6.8	7.3	7.5
3	DO_SAT% (%)	85	94	84	92	87	81	98	76	107	80	88	77	89	87	82	75	88	81	93	85	91
4	FCol-MPN (MPN/100mL)									60												
5	Tcol-MPN (MPN/100mL)									145												
	TRACE & TOXIC																					
1	Al (mg/L)														3.29							
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	47	47	52	54	53	37	48	51	94	41	52	57	68	64	45	52	37	57	76	47	47
2	HAR_Total (mgCaCO3/L)	82	84	91	87	74	56	70	90	149	62	80	90	112	98	58	91	70	98	98	85	66
3	Na% (%)	25	18	19	15	19	28	16	13	26	20	18	33	17	16	17	19	18	18	15	18	26
4	RSC (-)	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
5	SAR (-)	0.6	0.4	0.4	0.3	0.4	0.6	0.3	0.3	1.0	0.4	0.4	0.9	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.6
	PESTICIDES																					

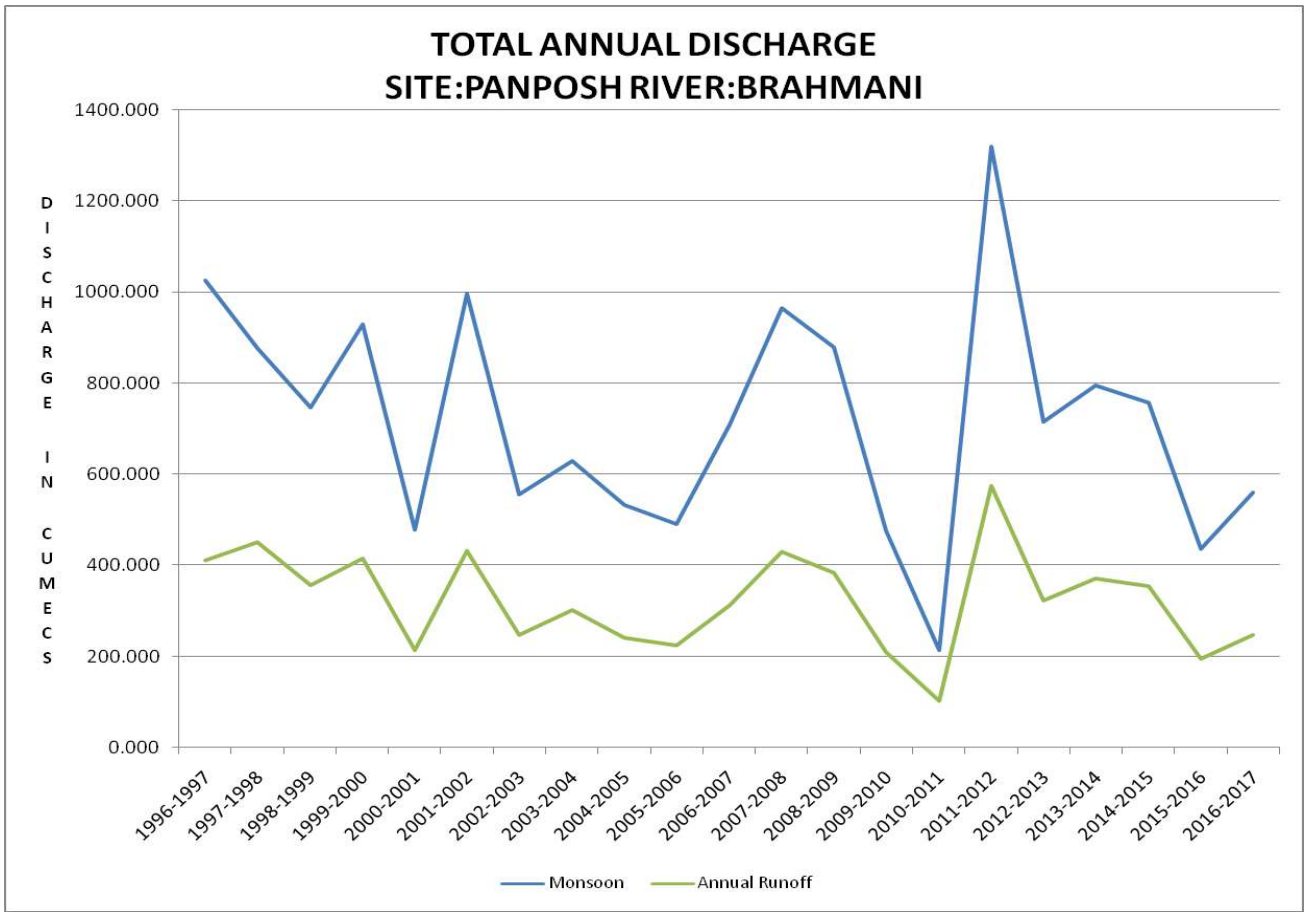
Water Quality Seasonal Average for the period: 2002-2017

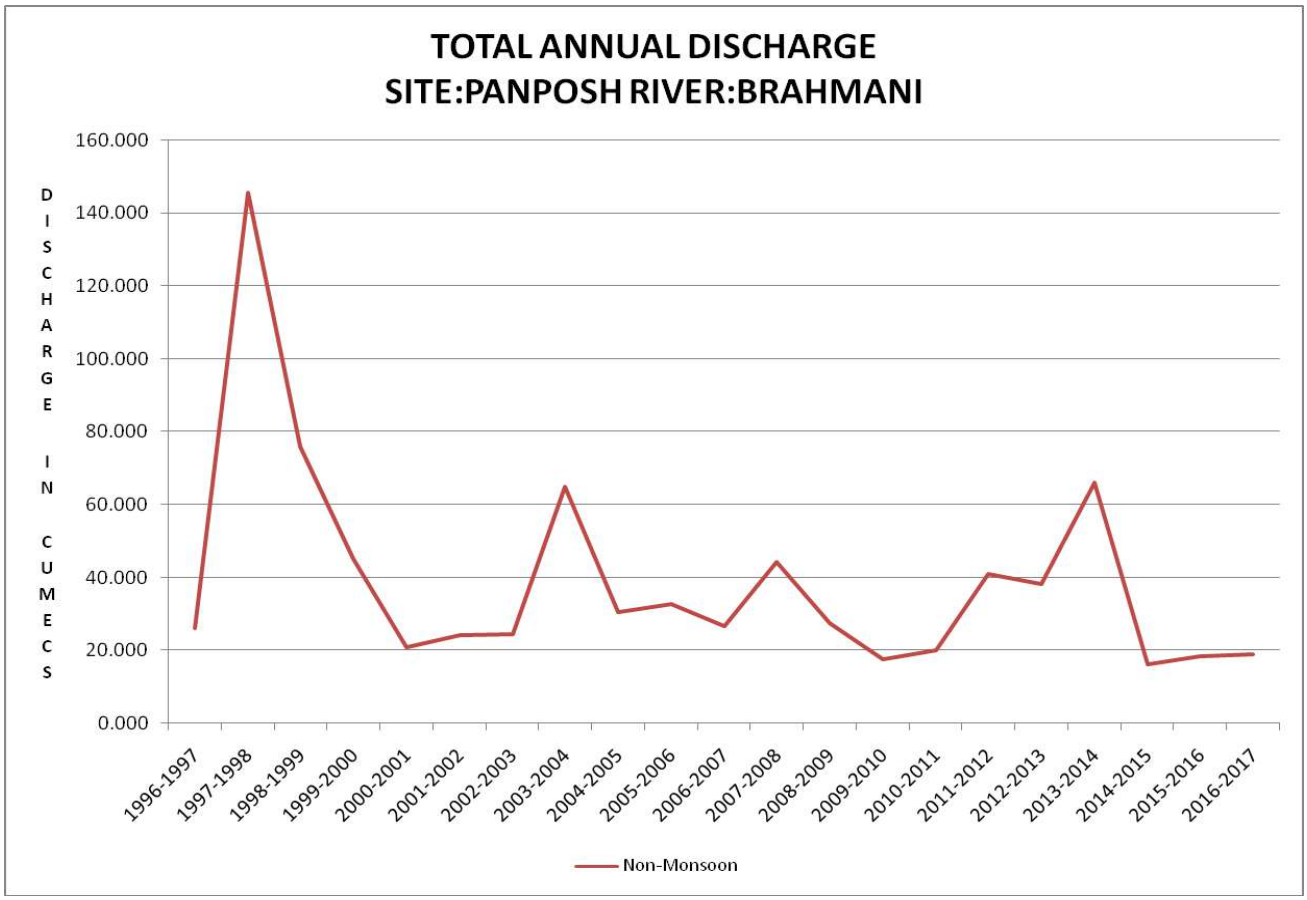
Station Name : PANPOSH (EB000H6)
Local River : Brahmani

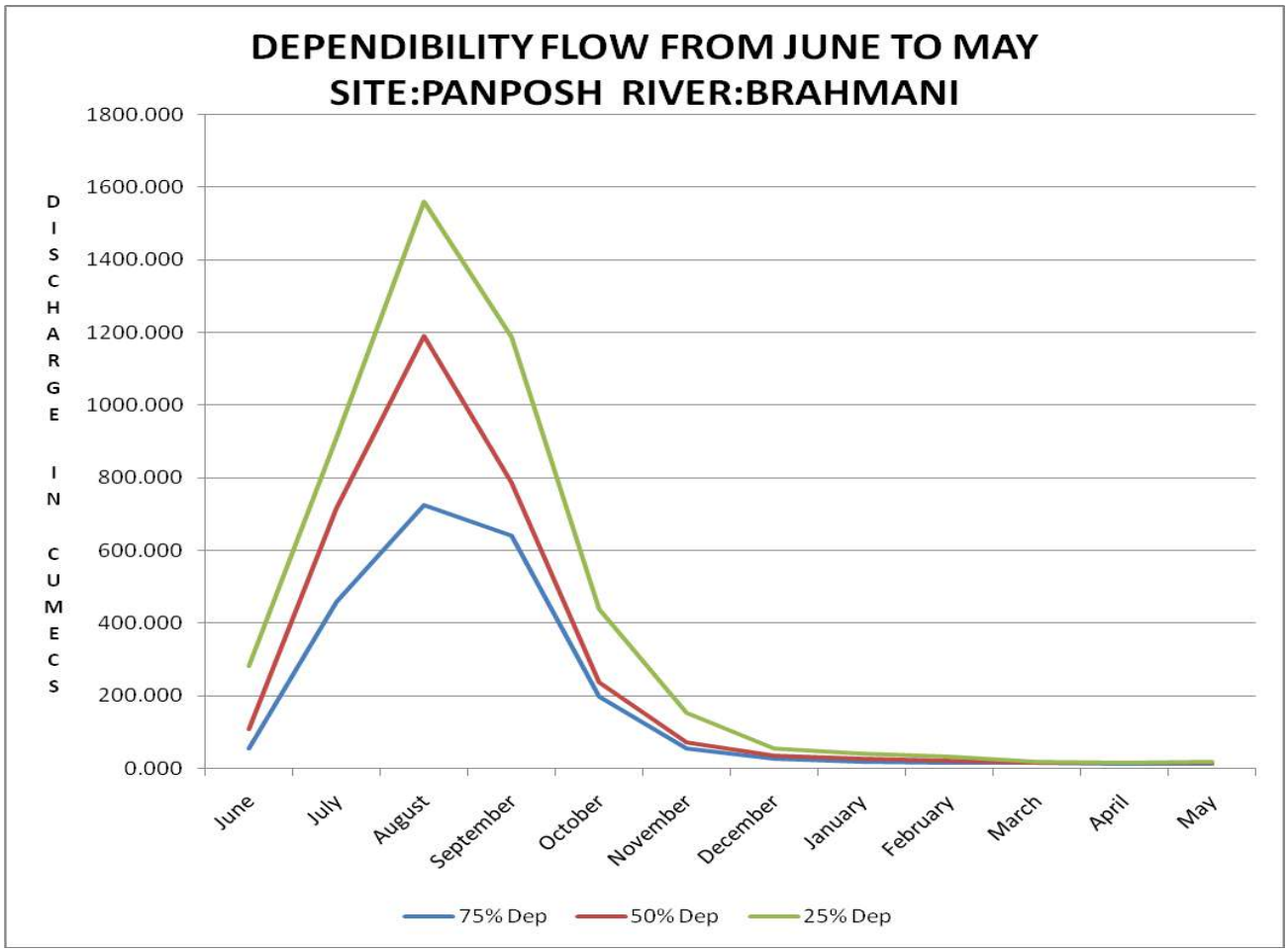
Division : E.E., Bhubaneswar
Sub-Division : Rourkela

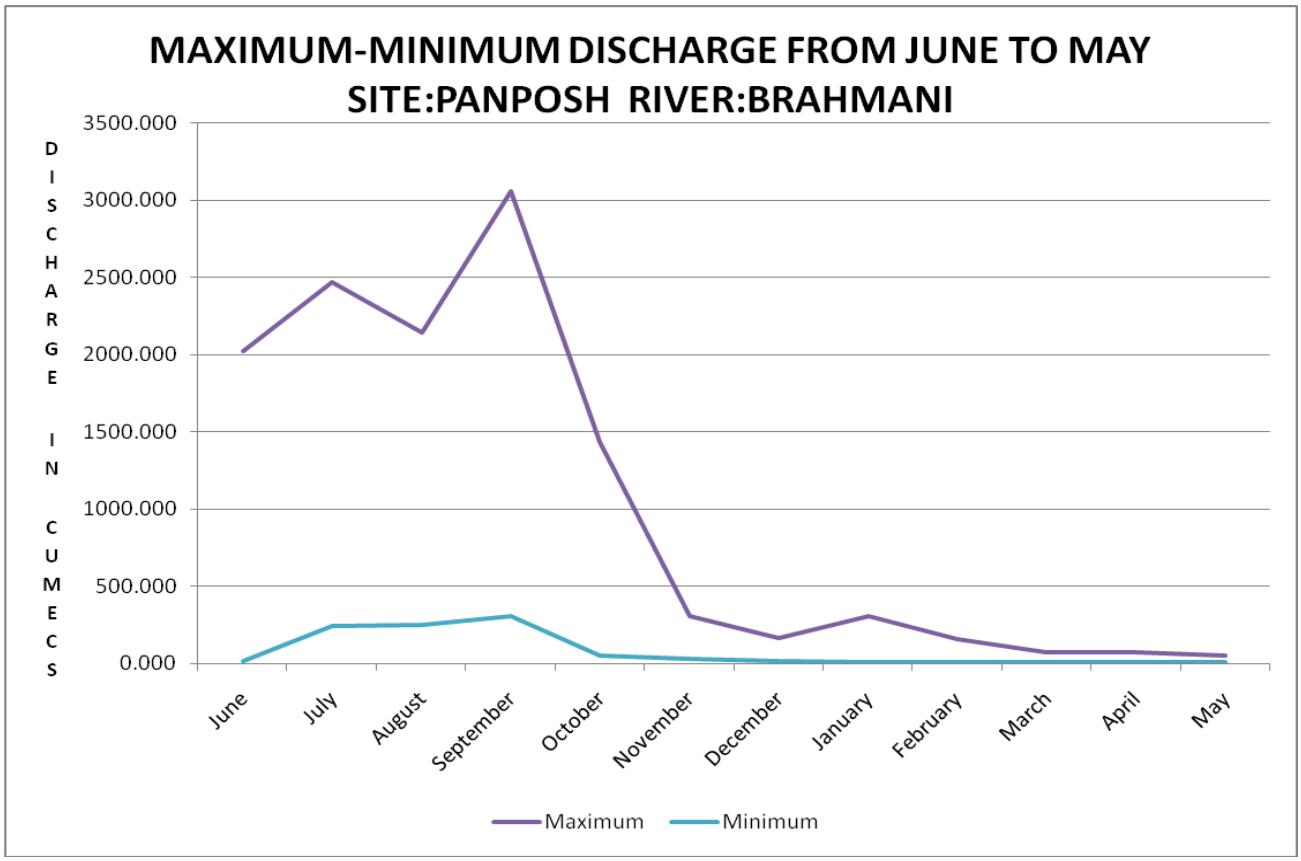
River Water

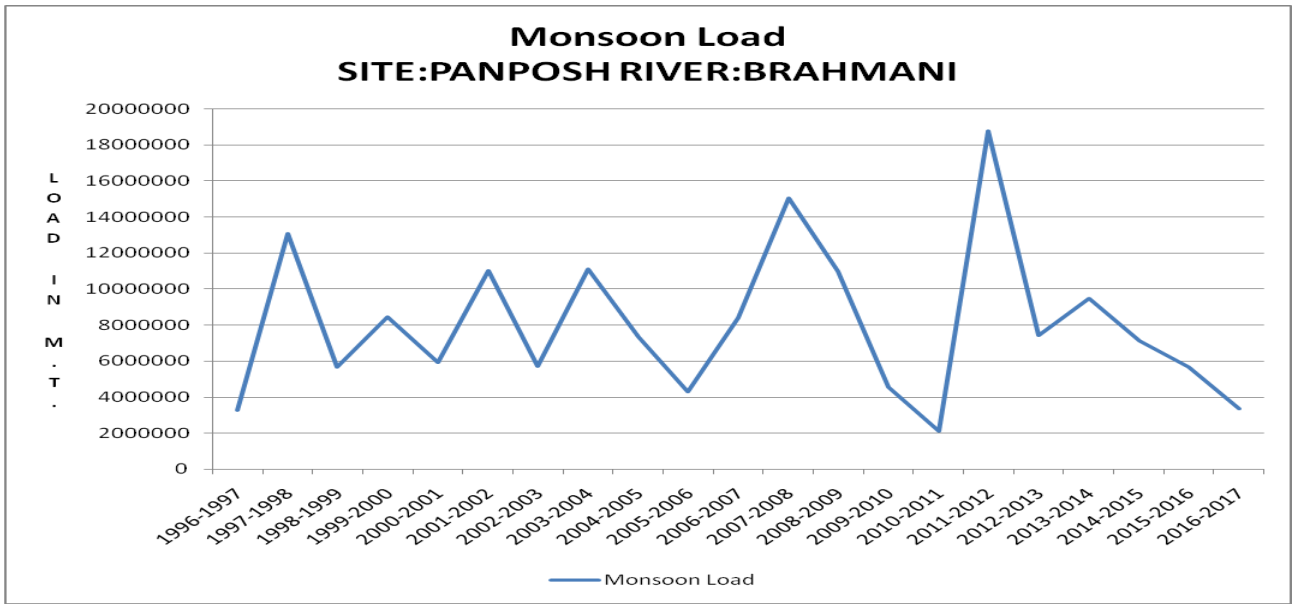
S.No	Parameters			
		2015	2016	2017
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	291	292	193
3	EC_GEN (µmho/cm)	291	292	196
4	pH_FLD (pH units)	7.6	7.5	7.4
5	pH_GEN (pH units)	7.6	7.5	7.5
6	Temp (deg C)	27.0	26.3	23.7
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		0.0	0.0
2	ALK-TOT (mgCaCO3/L)		65	71
3	B (mg/L)	0.00	0.01	0.01
4	Ca (mg/L)	20	29	27
5	Cl (mg/L)	12.0	13.8	13.8
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.3	0.5	0.5
9	HCO3 (mg/L)	53	79	86
10	K (mg/L)	1.3	1.4	9.6
11	Mg (mg/L)	7.7	12.0	12.0
12	Na (mg/L)	6.5	8.9	48.7
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	0.74	0.86	1.14
15	NO2-N (mgN/L)	0.00	0.00	0.00
16	NO3-N (mgN/L)	0.74	0.85	1.13
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.001	0.010	0.010
19	SiO2 (mg/L)	5.8	5.3	7.3
20	SO4 (mg/L)	2.1	3.0	2.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.0	0.9	2.2
2	DO (mg/L)	4.3	4.4	6.2
3	DO_SAT% (%)	54	56	72
4	FCol-MPN (MPN/100mL)			127
5	Tcol-MPN (MPN/100mL)			247
	TRACE & TOXIC			
1	Al (mg/L)			0.00
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	49	72	68
2	HAR_Total (mgCaCO3/L)	81	122	118
3	Na% (%)	15	14	44
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	1.9
	PESTICIDES			

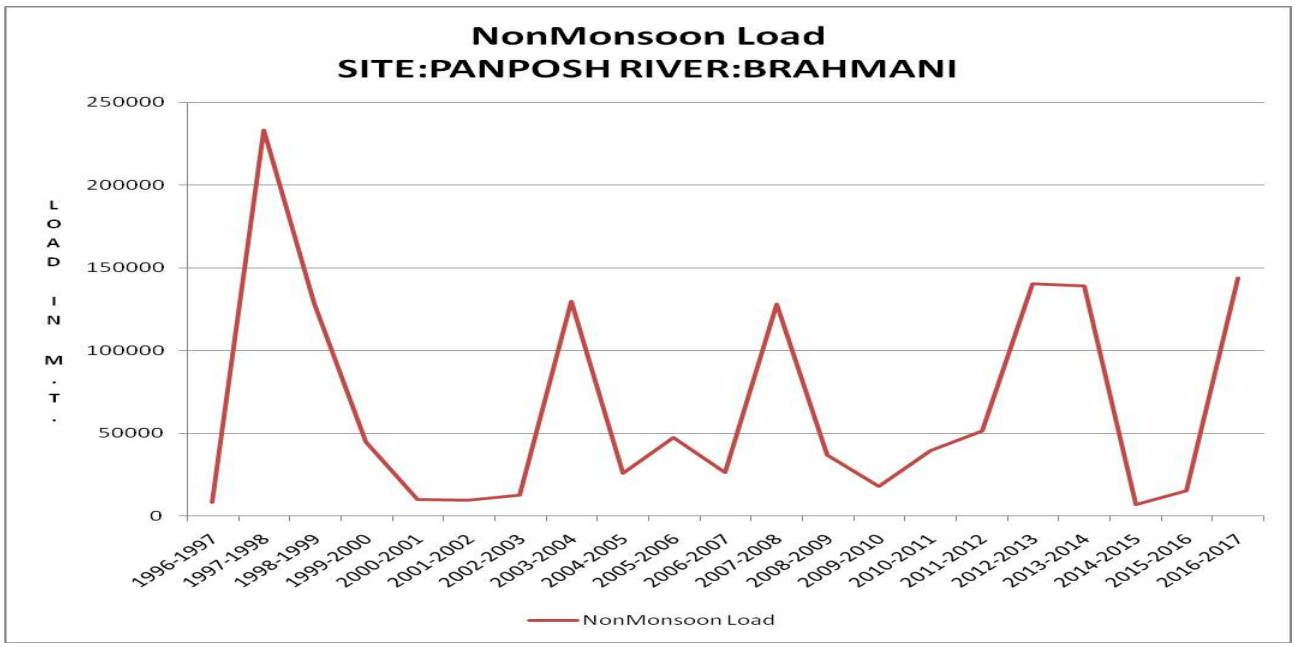

TOTAL ANNUAL DISCHARGE
SITE:PANPOSH RIVER:BRAHMANI
DISCHARGE IN CUMECS
1400.000
1200.000
1000.000
800.000
600.000
400.000
200.000
0.000
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon
Annual Runoff

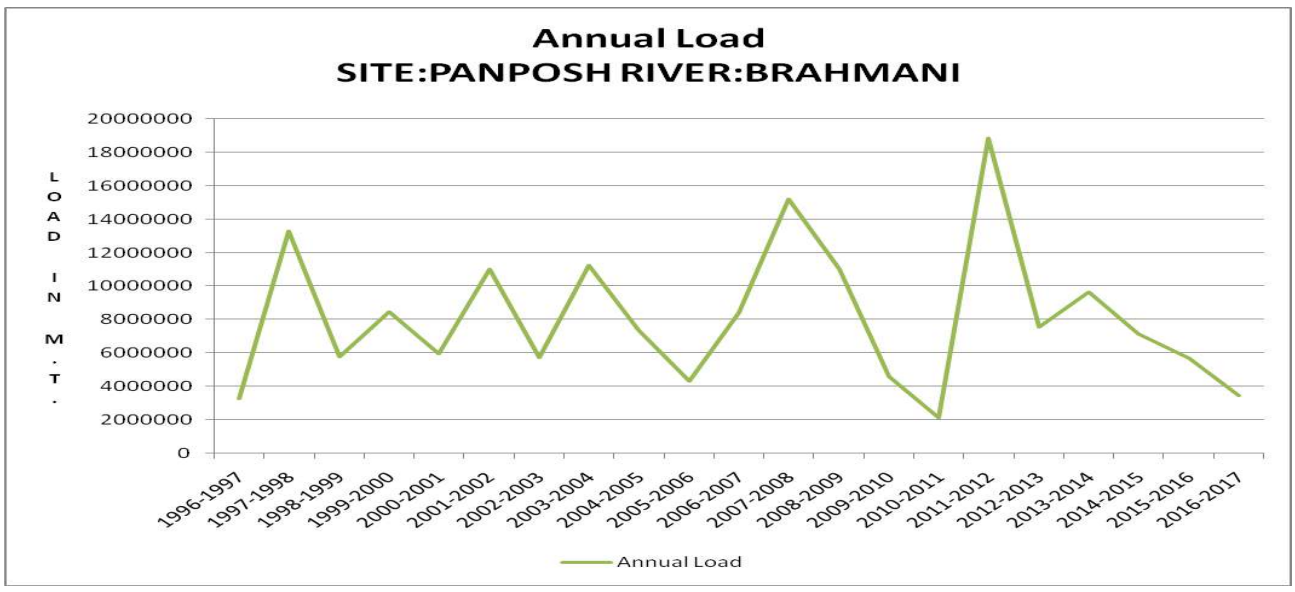

TOTAL ANNUAL DISCHARGE
SITE:PANPOSH RIVER:BRAHMANI
DISCHARGE IN CUMECS
160.000
140.000
120.000
100.000
80.000
60.000
40.000
20.000
0.000
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Non-Monsoon

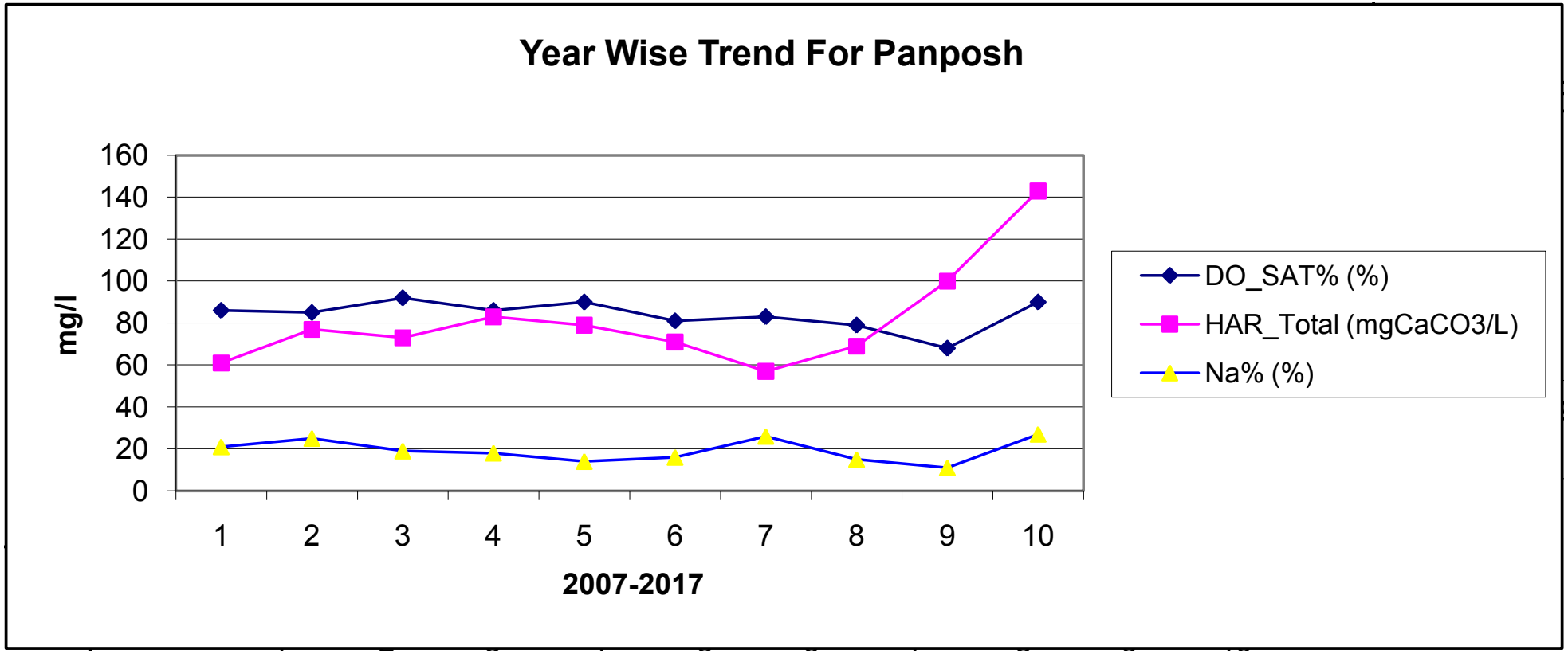

DEPENDIBILITY FLOW FROM JUNE TO MAY
SITE:PANPOSH RIVER:BRAHMANI
DISCHARGE IN CUMECS
1800.000
1600.000
1400.000
1200.000
1000.000
800.000
600.000
400.000
200.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
75% Dep
50% Dep
25% Dep

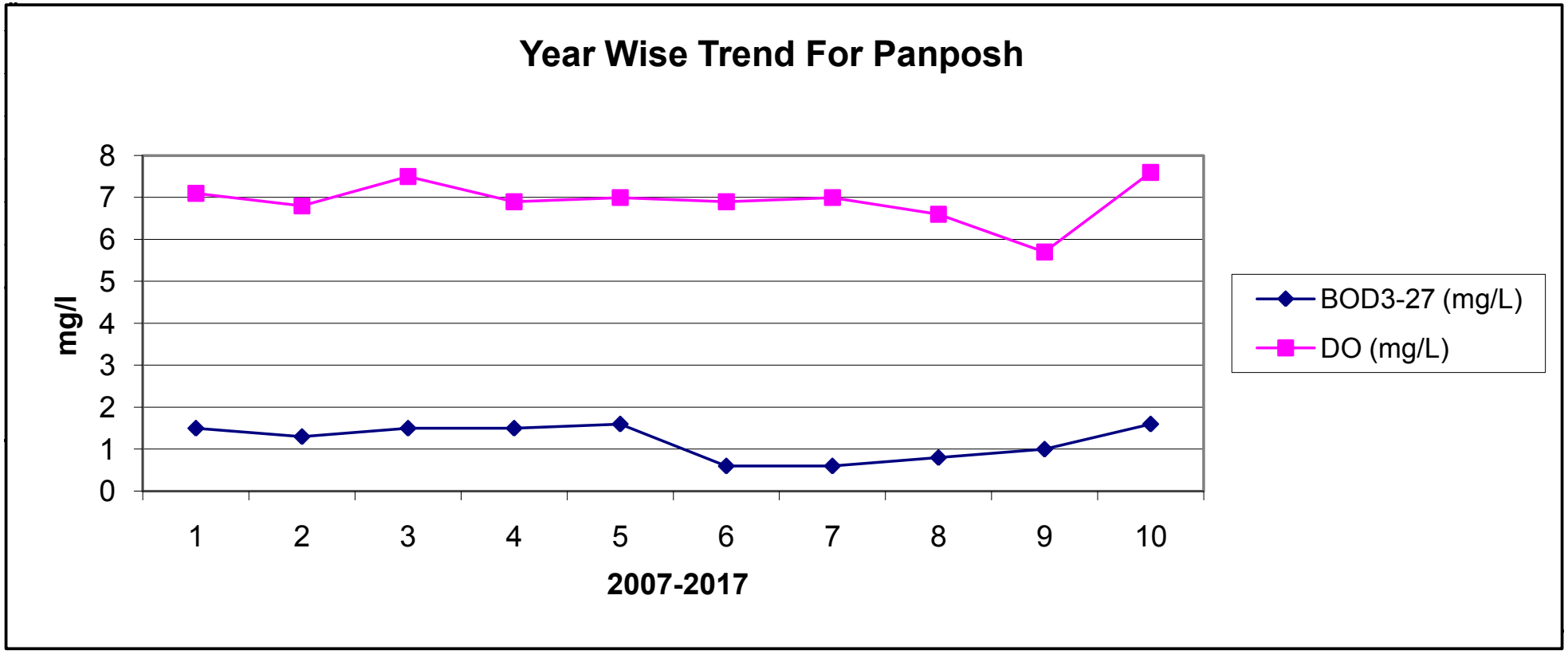

MAXIMUM-MINIMUM DISCHARGE FROM JUNE TO MAY
SITE:PANPOSH RIVER:BRAHMANI
DISCHARGE IN CUMECS
3500.000
3000.000
2500.000
2000.000
1500.000
1000.000
500.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
Maximum
Minimum

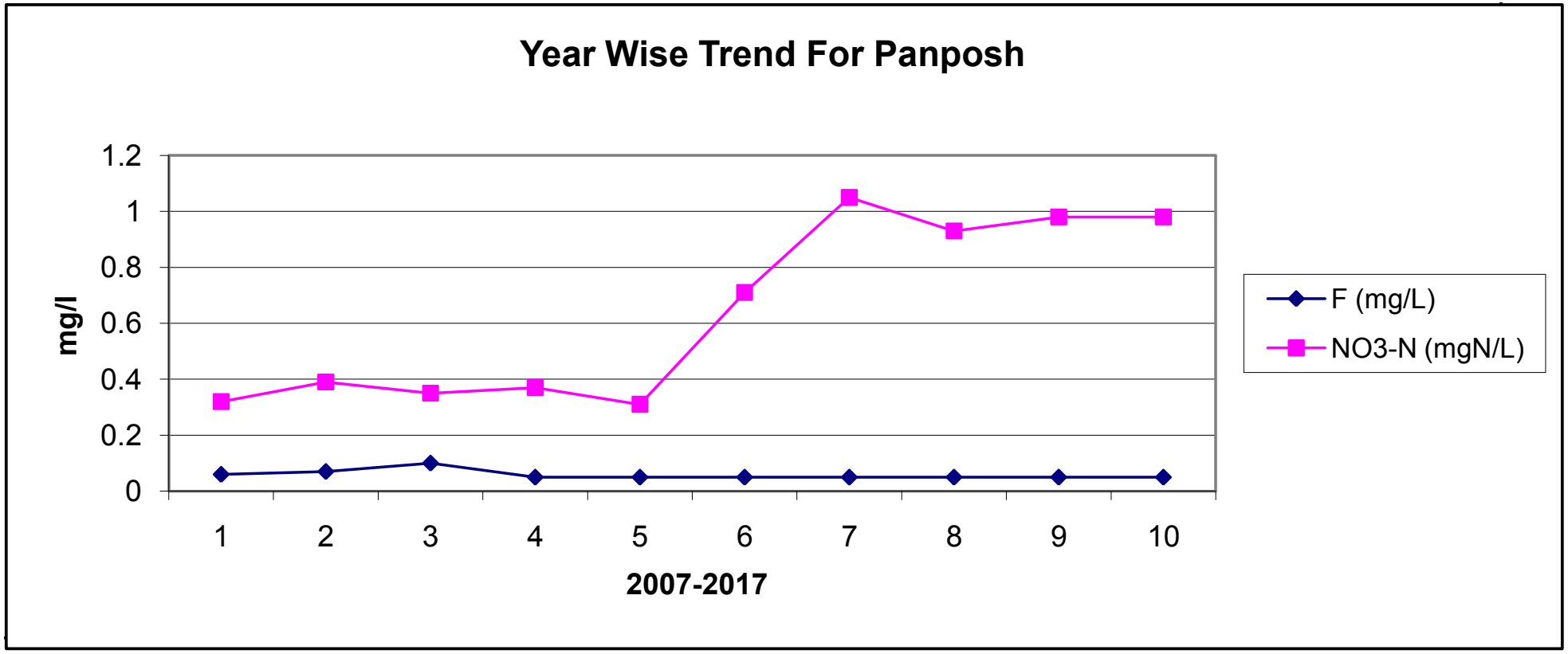

Monsoon Load
SITE:PANPOSH RIVER:BRAHMANI
LOAD IN M.T.
20000000
18000000
16000000
14000000
12000000
10000000
8000000
6000000
4000000
2000000
0
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon Load

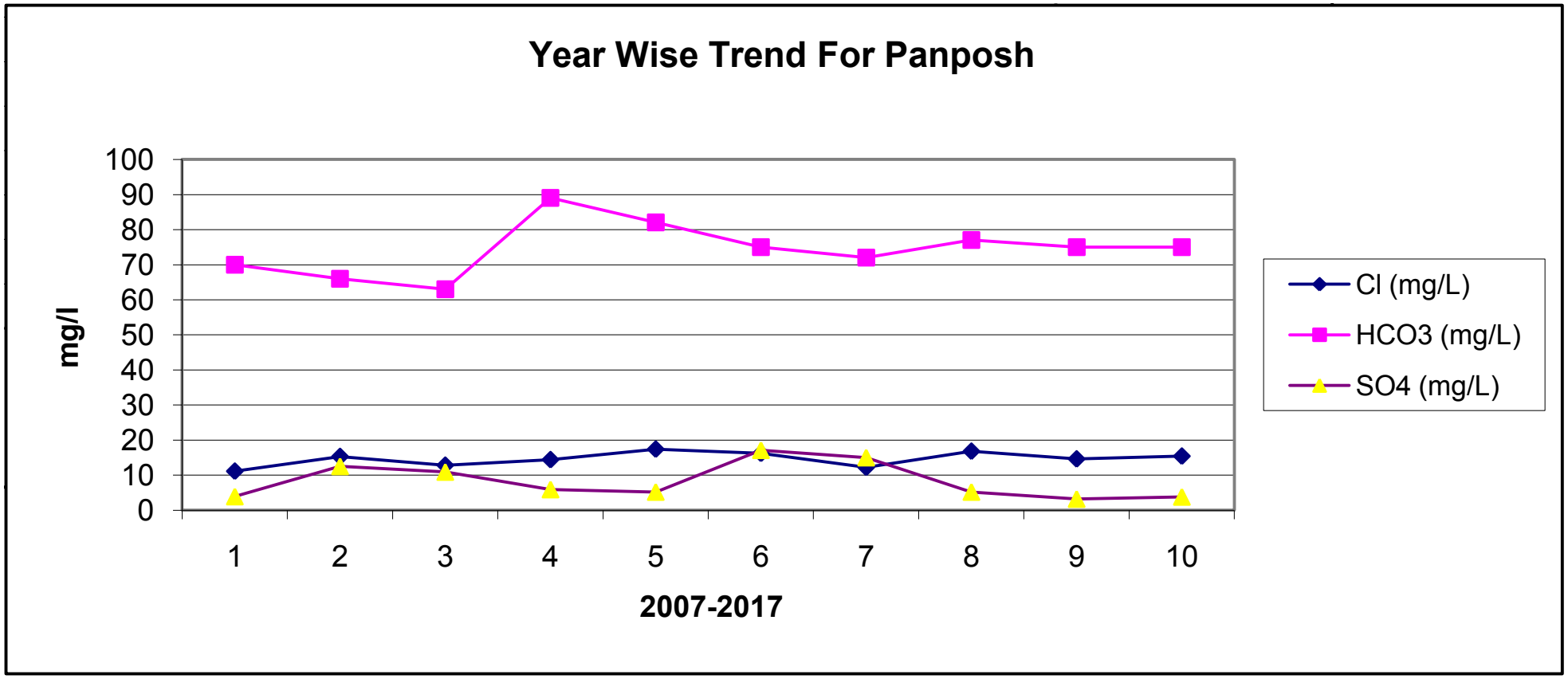

NonMonsoon Load
SITE:PANPOSH RIVER:BRAHMANI
LOAD IN M.T.
250000
200000
150000
100000
50000
0
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
NonMonsoon Load

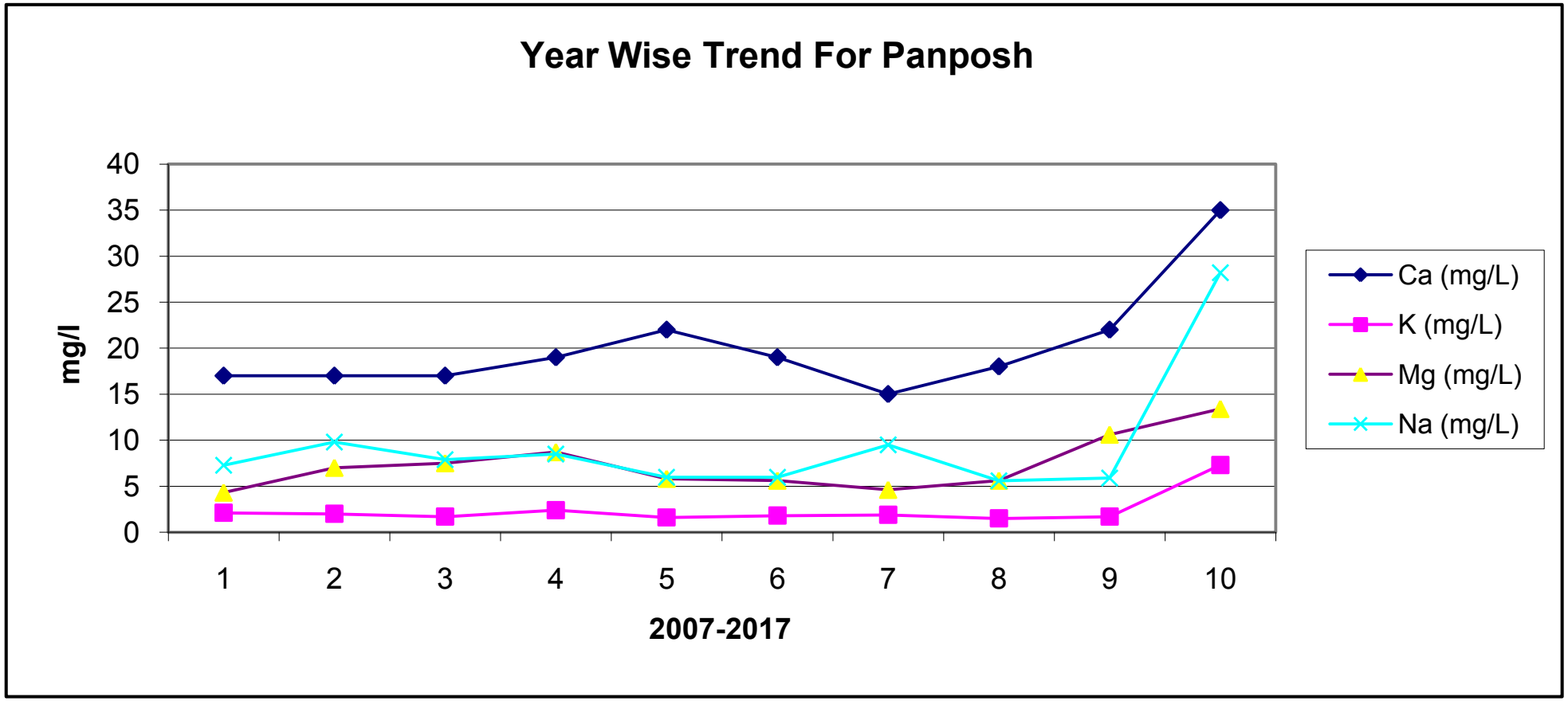

Annual Load
SITE:PANPOSH RIVER:BRAHMANI
LOAD IN M.T.
20000000
18000000
16000000
14000000
12000000
10000000
8000000
6000000
4000000
2000000
0
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Annual Load


Year Wise Trend For Panposh
160
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Panposh
mg/l
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Panposh
1.2
1
0.8
0.6
0.4
0.2
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Panposh
mg/l
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Panposh
mg/l
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**Gomlai**	**Code**	:	**EB000W3**
State	:	Orissa	District		Sundergarh
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:	Brahmni	Sub Tributary	:	Brahmni
Sub-Sub Tributary	:	Brahmni	Local River	:	Brahmni
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela
Drainage Area	:	21950 Sq. Km.	Bank	:	Left
Latitude	:	21°50'16"	Longitude	:	84°56'33"
Zero of Gauge (m)	:	135 (m.s.l)	01.01.1970	-	31.12.2025
		Opening Date	Closing Date		
Gauge	:	29.08.1977			
Discharge	:	21.01.1979			
Sediment	:	17.07.1980			
Water Quality	:	17.07.1980			

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1979-1980	1914	142.570	09.08.1979	6.337	138.450	28.04.1980
1980-1981	4555	144.010	20.06.1980	8.975	138.330	07.03.1981
1981-1982	1955	142.350	08.09.1981	1.110	138.500	17.05.1982
1982-1983	5002	144.480	21.08.1982	5.800	138.515	17.03.1983
1983-1984	4675	144.250	07.09.1983	7.100	138.535	23.04.1984
1984-1985	5570	144.830	14.08.1984	8.200	138.440	04.05.1985
1985-1986	4582	144.505	07.08.1985	9.200	138.540	30.03.1986
1986-1987	4176	143.975	28.07.1986	9.000	138.375	24.05.1987
1987-1988	10268	146.260	29.08.1987	9.800	138.540	27.05.1988
1988-1989	7766	145.500	04.08.1988	9.000	138.485	03.06.1988
1989-1990	5389	144.250	22.06.1989	10.33	138.645	23.04.1990
1990-1991	6852	145.190	15.07.1990	9.940	138.760	03.05.1991
1991-1992	5666	145.200	13.08.1991	1.350	138.765	11.04.1992
1992-1993	2279	142.030	19.08.1992	8.610	138.630	18.03.1993
1993-1994	2944	143.080	17.07.1993	8.655	138.395	09.05.1994
1994-1995	8433	146.100	09.07.1994	12.98	138.465	10.06.1994
1995-1996	4687	144.230	19.09.1995	10.45	138.620	20.05.1996
1996-1997	10652	146.390	26.07.1996	12.95	138.615	16.05.1997
1997-1998	9139	146.835	07.08.1997	12.65	138.610	06.06.1997
1998-1999	7072	145.960	11.09.1998	9.730	138.590	21.05.1999
1999-2000	6120	145.150	08.08.1999	8.669	138.695	27.04.2000
2000-2001	4506	144.380	27.07.2000	6.750	138.595	01.05.2001

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
2001-2002	10074	147.000	23.07.2001	8.165	138.300	15.05.2002
2002-2003	3289	143.005	13.09.2002	8.000	138.440	27.04.2003
2003-2004	5603	144.995	25.10.2003	9.474	138.475	12.06.2003
2004-2005	3692	143.160	15.08.2004	7.000	138.545	29.05.2005
2005-2006	3221	143.635	29.06.2005	5.300	138.510	16.04.2006
2006-2007	7397	144.915	31.07.2006	7.263	138.520	05.04.2007
2007-2008	10795	147.270	20.08.2007	8.755	138.580	18.05.2008
2008-2009	7521	144.425	08.07.2008	6.402	138.735	15.04.2009
2009-2010	3013	142.910	09.09.2009	6.480	138.415	27.04.2010
2010-2011	1119	140.800	19.09.2010	4.532	138.290	01.03.2011
2011-2012	10801	146.650	24.09.2011	6.339	138.555	06.05.2012
2012-2013	3428	143.150	12.08.2012	7.770	138.540	02.06.2012
2013-2014	4443	144.250	15.10.2013	3.640	138.640	06.04.2014
2014-2015	3866	142.645	11.08.2014	8.914	138.470	31.03.2015
2015-2016	6433	144.180	04.08.2015	6.825	138.280	05.05.2016
2016-2017	5751	144.080	20.08.2016	6.859	138.330	01.04.2017

Stage-Discharge Data for the period 2016 - 2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	138.380	12.50	138.705	34.16	140.045	566.4	140.330	702.7	140.215	571.7	139.060	133.3
2	138.350	11.34	138.690	33.66	140.280	770.0	140.740	1203	140.060	487.0 *	138.910	80.89
3	138.320	7.847	139.290	181.0 *	140.480	1089	140.460	951.3	139.890	373.4	138.890	79.86
4	138.330	8.208	139.290	180.9	140.740	1417	140.740	1203 *	139.765	349.5	138.850	70.00
5	138.400	12.00 *	139.590	235.9	140.580	1103	141.110	1535	139.710	293.6	138.880	74.20
6	138.380	9.704	140.045	386.7	140.495	957.9	141.130	1868	139.820	345.6	138.870	72.00 *
7	138.340	8.456	140.830	1350 *	140.250	760.0 *	140.870	1414	139.760	337.0	138.860	70.14
8	138.330	7.837	140.650	1065	140.450	1033	140.595	1206	140.110	527.7	138.760	52.52
9	138.540	19.15	140.295	804.7	140.420	943.7	141.550	2753	140.040	480.0 *	138.730	50.52
10	138.485	17.55	139.940	370.0 *	140.285	691.7	141.320	2685	140.020	475.0 *	138.700	51.84
11	138.480	17.36	139.660	278.0	140.465	966.6	141.180	1630 *	140.410	690.0 *	138.690	49.63
12	138.410	13.00 *	139.600	262.6	140.970	1733	141.070	1677	140.060	1101 *	138.690	49.20
13	138.380	10.99	139.755	367.8	141.130	1768	141.300	2460 *	140.125	529.7	138.680	40.00 *
14	138.545	21.21	140.215	774.7	141.270	1745 *	140.820	1363	139.920	444.4	138.680	41.00 *
15	138.605	26.24	139.880	403.7	140.990	1621 *	140.820	1362	139.630	284.6	138.690	43.89
16	138.590	24.97	139.880	401.0	140.735	1395	140.650	1194	139.370	271.0 *	138.680	38.86
17	138.620	26.67	140.700	1222 *	141.375	2707	140.480	992.7	139.250	177.0	138.710	42.10
18	138.650	29.56	140.885	1385	142.290	3775	140.320	700.0 *	139.185	153.1	138.700	40.81
19	138.620	24.00 *	141.190	1659	142.980	4433	140.120	472.7	139.120	143.4	138.710	41.36
20	138.675	31.15	140.700	1304	144.080	5751	139.915	353.3	139.060	135.8	138.700	39.00 *
21	138.630	26.06	140.595	1065	141.420	3797 *	140.285	785.0	138.980	94.47	138.690	37.77
22	138.620	25.81	140.475	986.6	140.740	1237	140.270	747.5	138.960	90.27	138.710	39.14
23	138.570	24.07	140.860	1364	140.630	1122	140.595	1055	138.960	90.00 *	138.670	35.85
24	138.660	30.48	140.460	810.0 *	140.900	1040	140.785	1270	138.965	76.51	138.670	36.16
25	138.540	22.11	140.160	762.9	141.120	1541	140.490	940.0 *	138.930	80.50	138.690	36.92
26	139.040	62.14 *	140.240	457.2	141.175	1629	140.110	583.7	138.870	76.04	138.640	34.25
27	138.845	42.35	140.030	484.7	141.530	2980	140.060	486.6	139.125	144.0	138.660	36.00 *
28	138.715	30.52	140.510	1294	141.020	1542 *	140.240	570.4	139.130	149.3	138.660	35.57
29	138.645	26.98	140.350	1102	140.490	892.5	140.365	660.6	139.180	156.2	138.690	36.54
30	138.610	23.01	140.185	860.2	140.220	709.3	140.345	652.8	139.170	150.2 *	138.680	38.16
31			139.990	410.0 *	140.155	582.2			139.140	142.9		
Ten-Daily Mean												
I Ten-Daily	138.385	11.46	139.732	464.2	140.402	933.2	140.884	1552	139.939	424.1	138.851	73.52
II Ten-Daily	138.558	22.51	140.246	805.8	141.628	2589	140.667	1221	139.613	393.0	138.693	42.58
III Ten-Daily	138.687	31.35	140.350	872.4	140.855	1552	140.354	775.2	139.037	113.7	138.676	36.64
Monthly												
Min.	138.320	7.837	138.690	33.66	140.045	566.4	139.915	353.3	138.870	76.04	138.640	34.25
Max.	139.040	62.14	141.190	1659	144.080	5751	141.550	2753	140.410	1101	139.060	133.3
Mean	138.544	21.78	140.118	719.2	140.958	1687	140.635	1183	139.514	303.9	138.740	50.91

Annual Runoff in MCM = 10699 Annual Runoff in mm = 487

Peak Observed Discharge = 5751 cumecs on 20/08/2016 Corres. Water Level :144.08 m

Lowest Observed Discharge = 6.859 cumecs on 01/04/2017 Corres. Water Level :138.33 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2016 - 2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	138.690	38.36	138.490	18.27	138.420	14.99	138.400	10.74	138.330	6.859	138.370	9.198
2	138.760	48.25	138.490	18.27	138.410	14.18	138.400	10.68	138.340	7.235	138.370	9.374
3	138.660	38.88	138.500	18.53	138.410	14.17	138.400	10.58	138.340	7.235	138.360	8.512
4	138.670		138.510	19.68	138.400	13.76	138.410	10.87	138.350	7.594	138.360	8.280
5	138.620	30.86	138.520	20.76					138.360	8.968	138.360	8.377
6	138.610	29.13	138.500	18.95	138.390	13.15	138.420	11.85	138.350	7.740	138.370	8.754
7	138.640	32.59	138.510	20.64	138.390	13.12	138.410	11.33	138.360	8.169		
8	138.610	29.57	138.490		138.390	13.20	138.410	11.31	138.360	8.076	138.360	7.863
9	138.620	30.50	138.710	38.36	138.390	12.73	138.410	11.20			138.370	8.581
10	138.610	29.69	138.690	34.95	138.390	11.74	138.400	10.98	138.360	7.975		
11	138.620		138.600	28.55	138.390	11.73	138.410	11.09	138.360	7.286	138.360	7.615
12	138.610		138.510	19.90					138.360	7.558	138.380	8.697
13	138.610	29.66	138.490	18.45	138.400	11.76			138.350	7.119	138.420	11.69
14	138.610	28.38	138.500	18.82	138.480	15.79	138.380	9.389				
15	138.560	22.10	138.490		138.430	12.25	138.380	9.341	138.350	7.307	138.380	8.758
16	138.550	21.49	138.490	17.58	138.410	11.65	138.390	10.13			138.380	8.705
17	138.550	21.42	138.480	17.35	138.410	11.84	138.400	10.27	138.350	7.147	138.380	8.495
18	138.550		138.480	17.14	138.410	11.78	138.400	10.23	138.350	7.093	138.380	8.840
19	138.540	21.46	138.480	16.44					138.350	7.160	138.410	10.92
20	138.530	20.92	138.470	15.94	138.400	11.59	138.370	9.134	138.350	7.480	138.390	9.526
21	138.520	19.71	138.470	15.75	138.400	10.41	138.360	9.022	138.360	8.089		
22	138.550	21.62	138.460		138.390	10.24	138.360	8.808	138.350	7.920	138.390	9.598
23	138.540	21.29	138.460	15.10	138.400	10.88	138.360	8.724			138.390	9.802
24	138.530	20.68	138.450	15.29			138.360	8.381	138.360	7.739	138.390	9.893
25	138.530		138.450	15.02	138.390	10.30	138.360	8.406	138.360	7.746	138.390	9.486
26	138.520	19.68	138.440						138.360	7.697	138.390	9.726
27	138.510	19.63	138.440	15.29	138.390	10.19	138.350	7.556	138.360	7.894	138.390	10.67
28	138.500	19.16	208.500	15.14	138.390	10.11	138.350	7.413	138.360	8.477		
29	138.480	17.06	138.430				138.350	7.443	138.360	8.684	138.390	10.45
30	138.520	19.96	138.420	14.72			138.340	7.164			138.460	15.36
31	138.490	18.02	138.420	14.52			138.340	7.127			138.670	27.35
Ten-Daily Mean												
I Ten-Daily	138.649	34.20	138.541	23.16	138.399	13.45	138.407	11.06	138.350	7.761	138.365	8.617
II Ten-Daily	138.573	23.63	138.499	18.91	138.416	12.30	138.390	9.941	138.352	7.269	138.387	9.250
III Ten-Daily	138.517	19.68	144.813	15.10	138.393	10.35	138.353	8.004	138.359	8.031	138.429	12.48
Monthly												
Min.	138.480	17.06	138.420	14.52	138.390	10.11	138.340	7.127	138.330	6.859	138.360	7.615
Max.	138.760	48.25	208.500	38.36	138.480	15.79	138.420	11.85	138.360	8.968	138.670	27.35
Mean	138.578	25.77	140.753	19.21	138.403	12.24	138.382	9.584	138.354	7.69	138.395	10.17

Peak Computed Discharge = 3797 cumecs on 21/08/2016 Corres. Water Level :141.42 m

Lowest Computed Discharge = 12.00 cumecs on 05/06/2016 Corres. Water Level :138.4 m

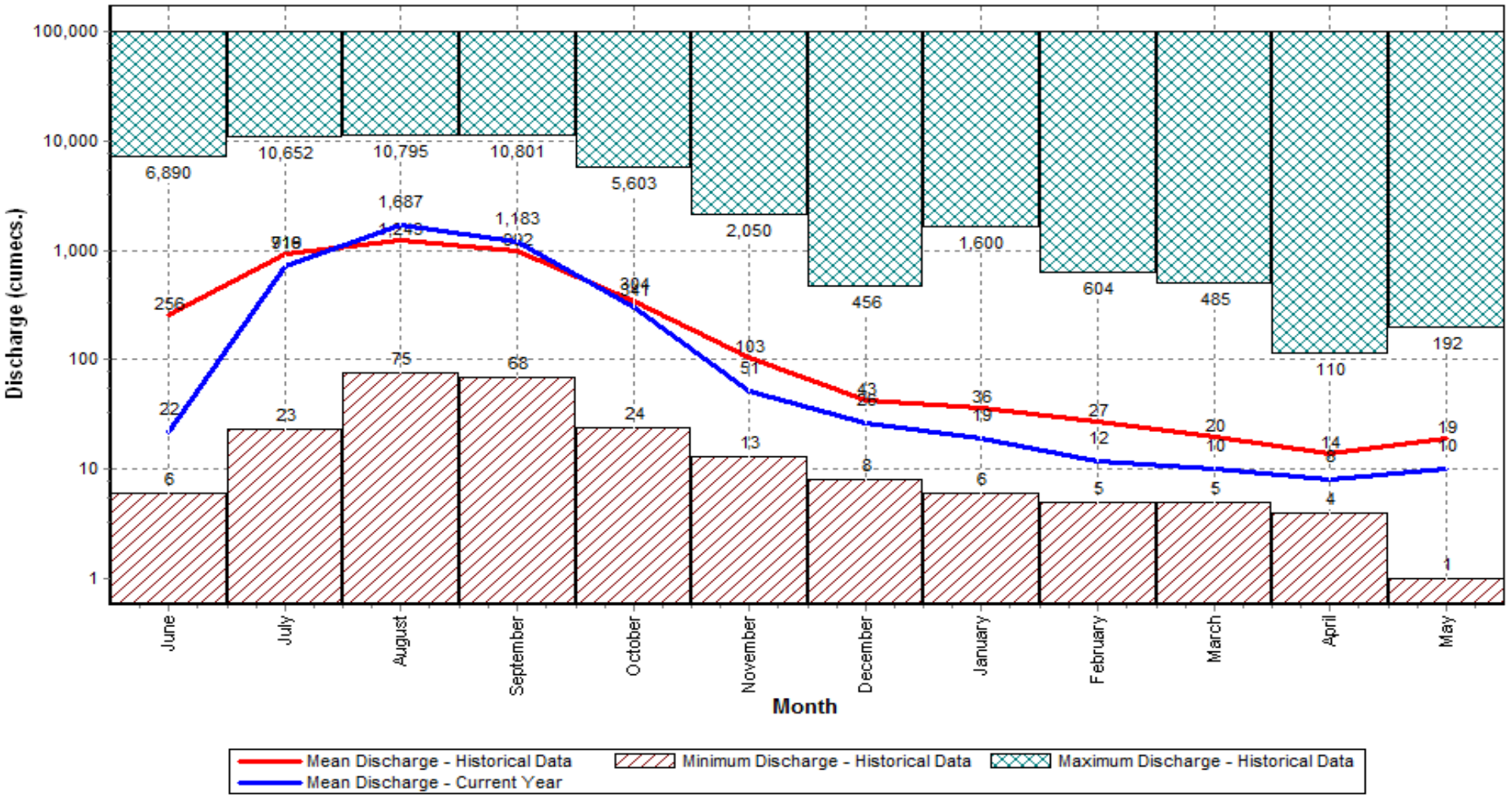
Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2016-2017

Station Name : Gomlai (EB000W3) **Data considered : 1979-2017** **Division : E.E., Bhubaneswar**

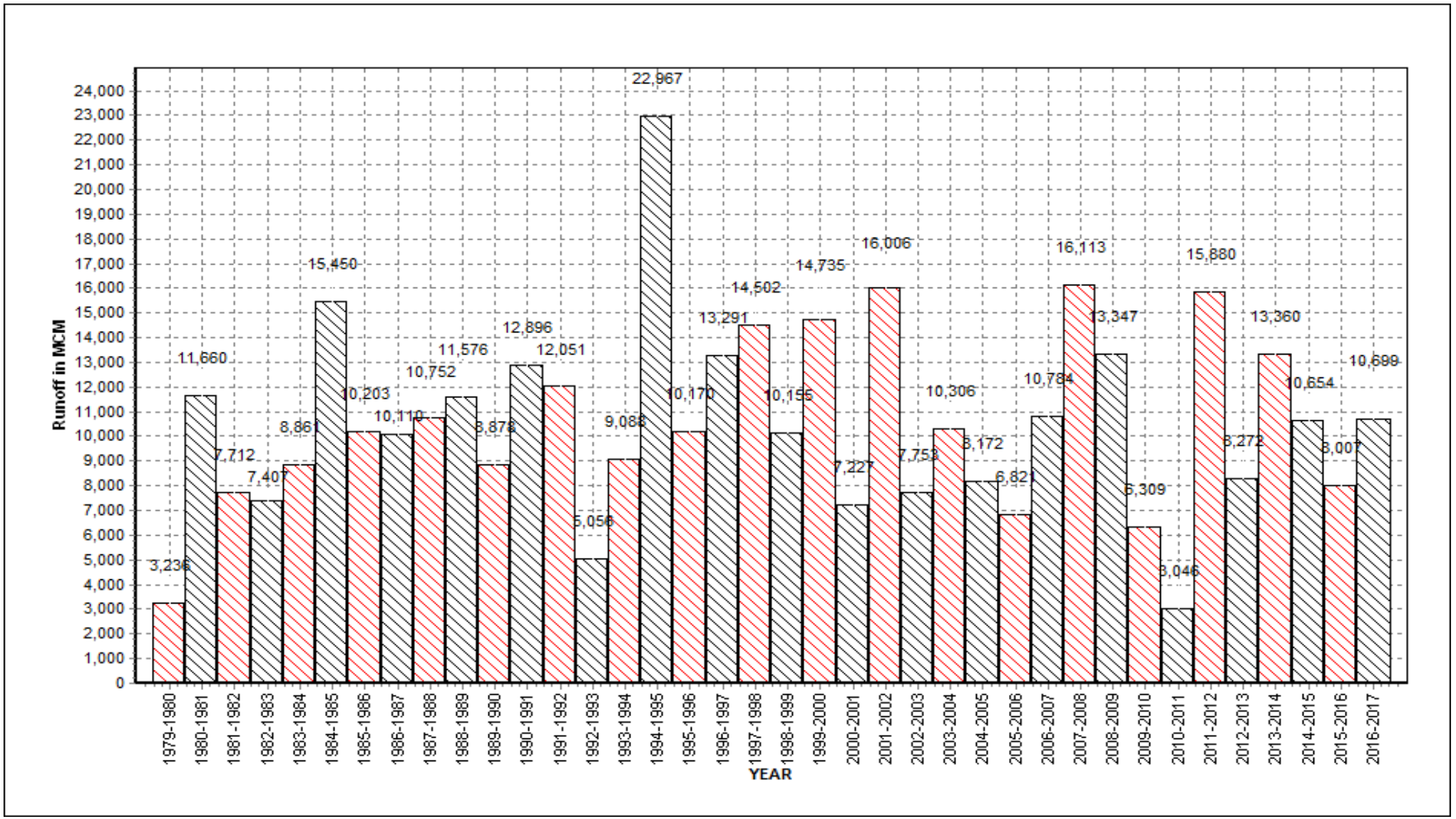
Local River : Brahmni **Sub-Division : Rourkela**



Annual Runoff Values for the period: 1979 - 2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

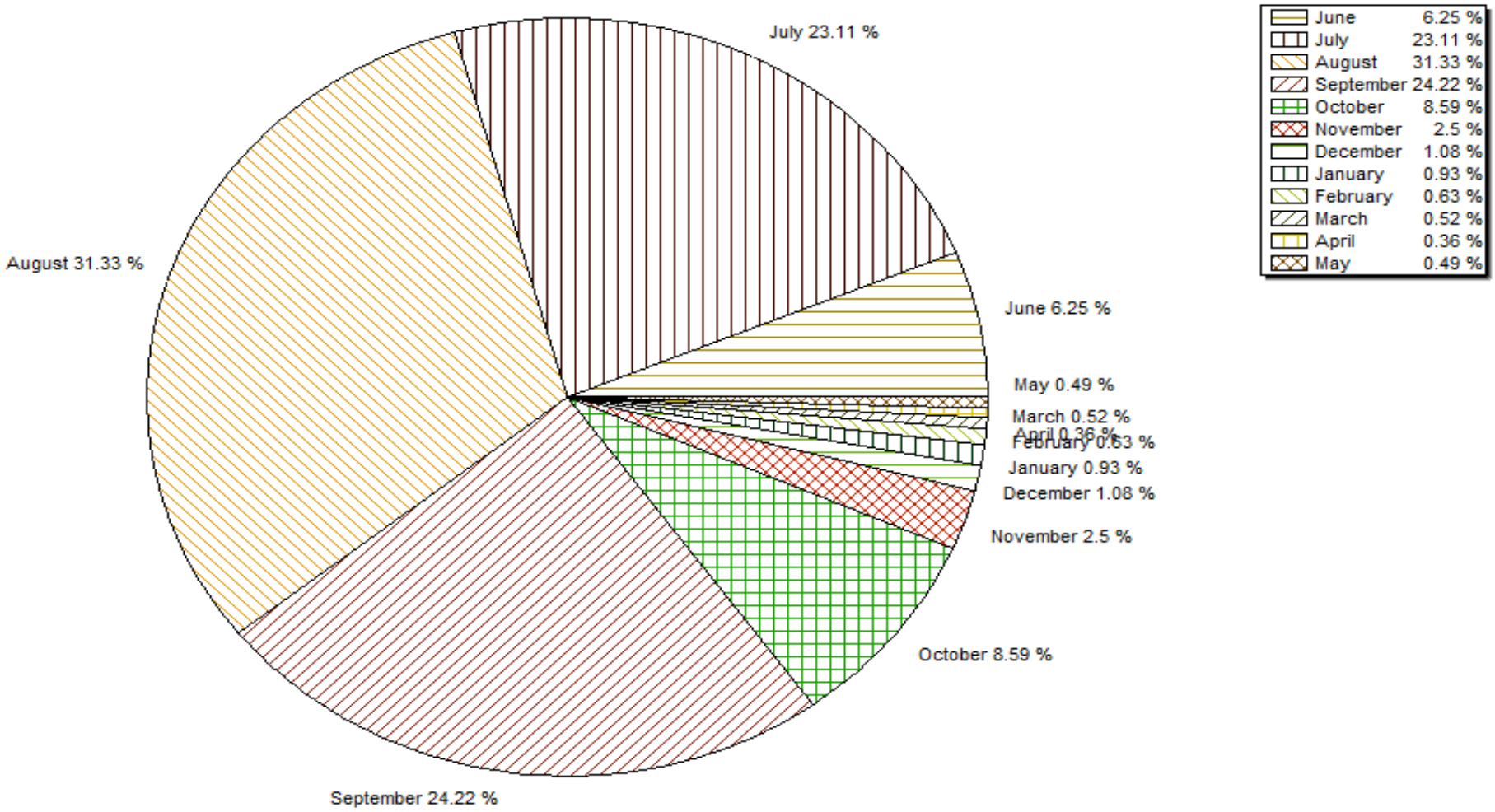


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1979-2016

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

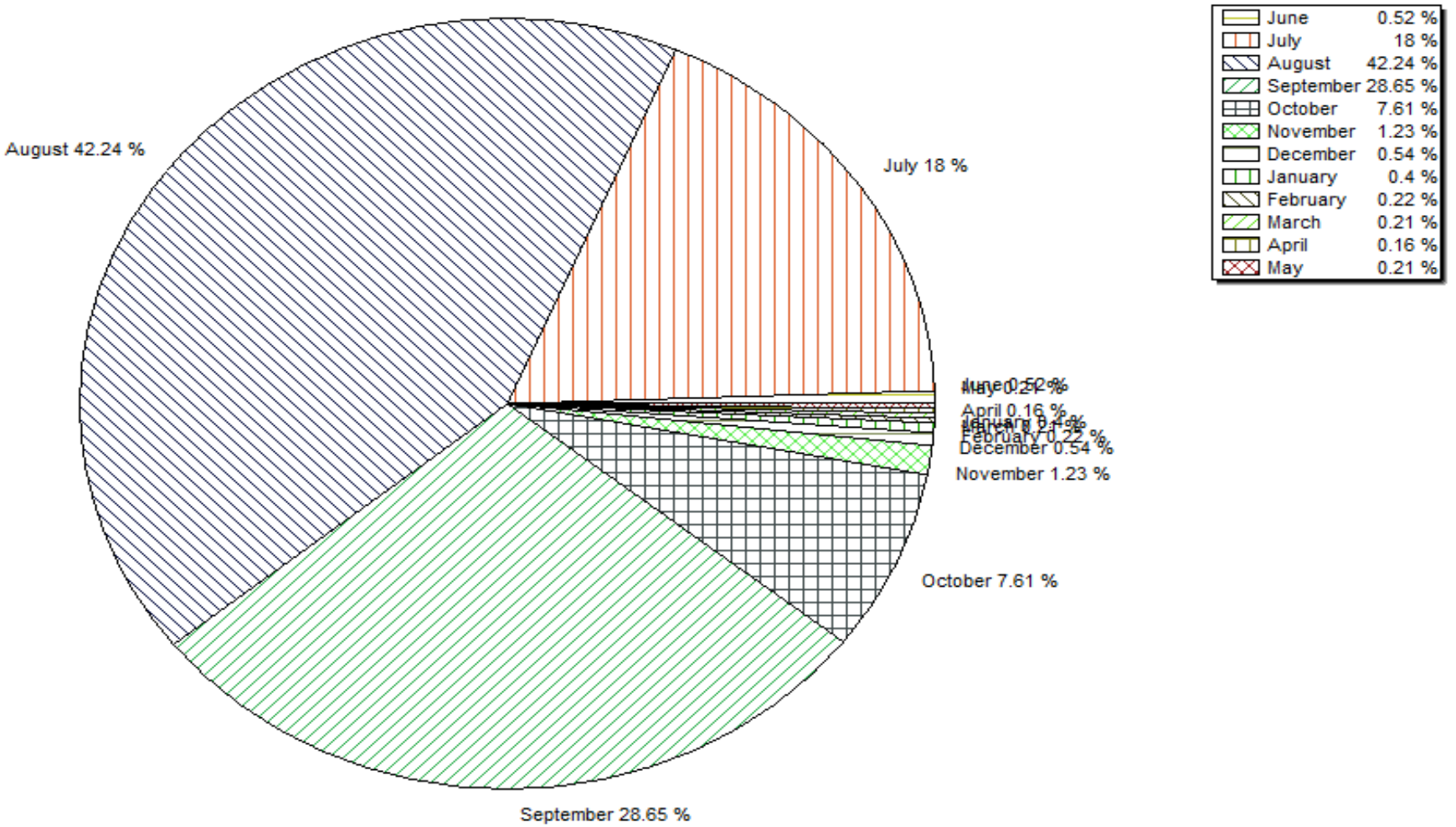
Local River : Brahmni **Sub-Division : Rourkela**



Monthly Runoff for the Year : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

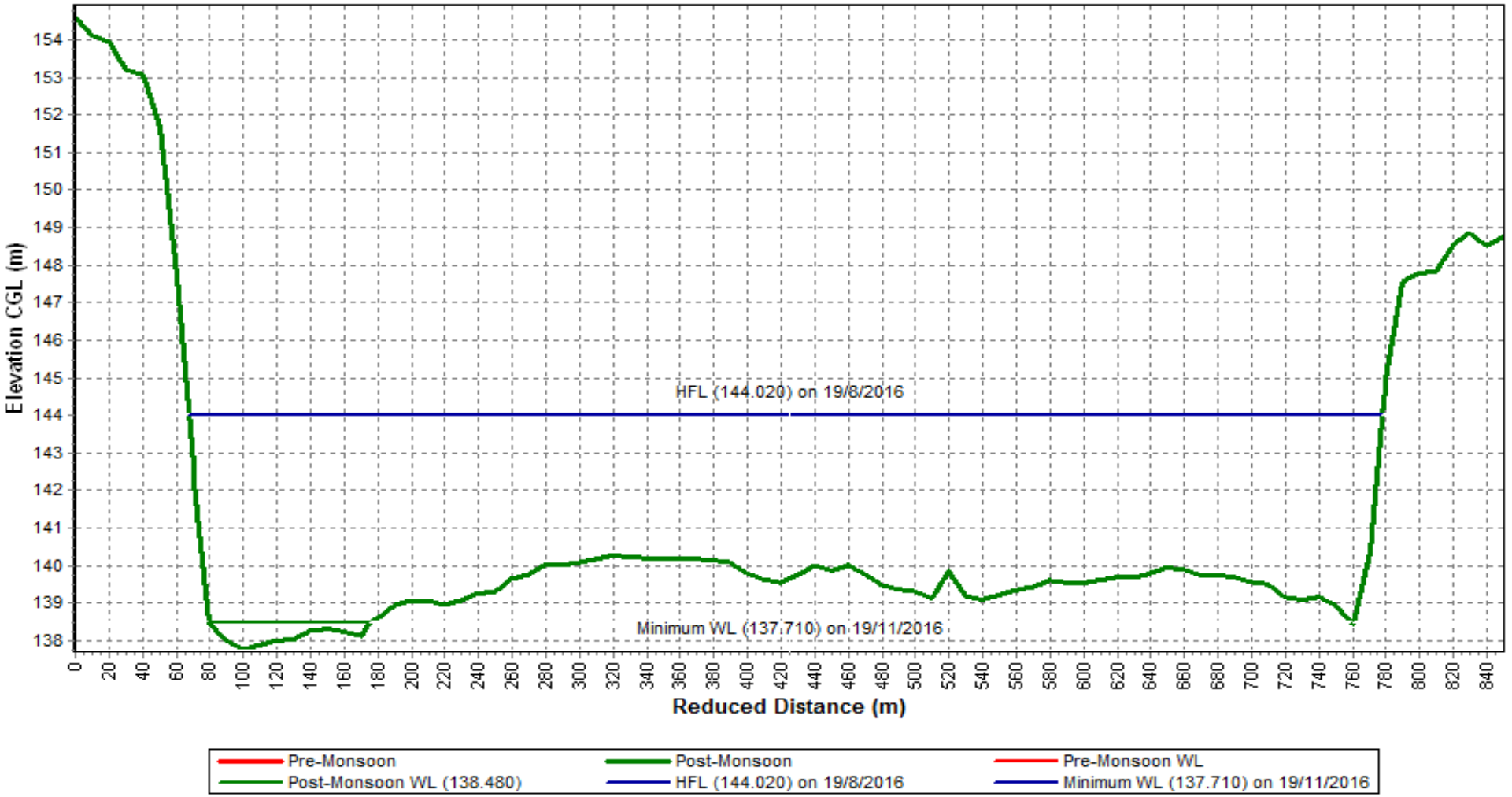
Local River : Brahmni **Sub-Division : Rourkela**



Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

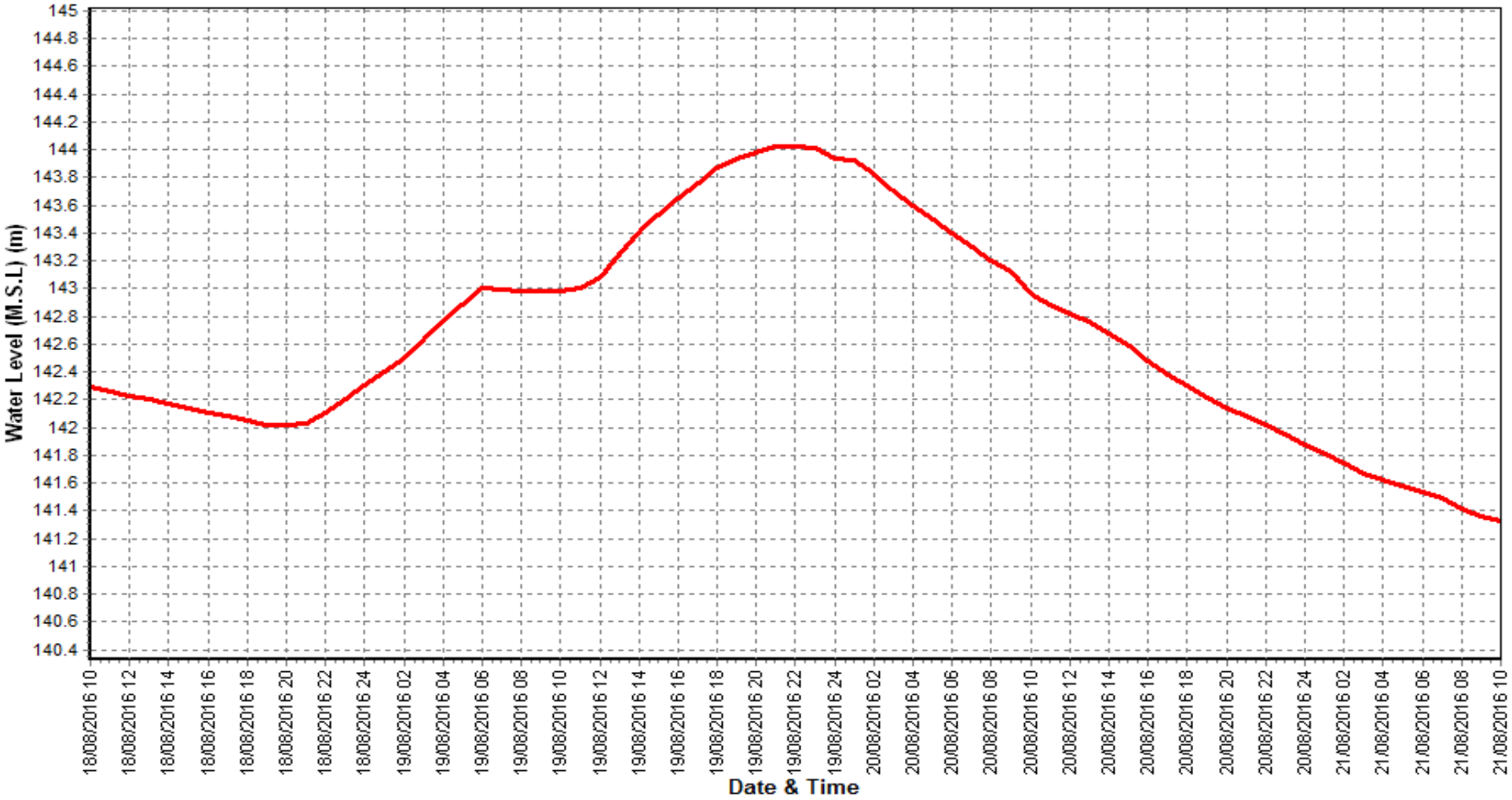
Local River : Brahmni **Sub-Division : Rourkela**



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

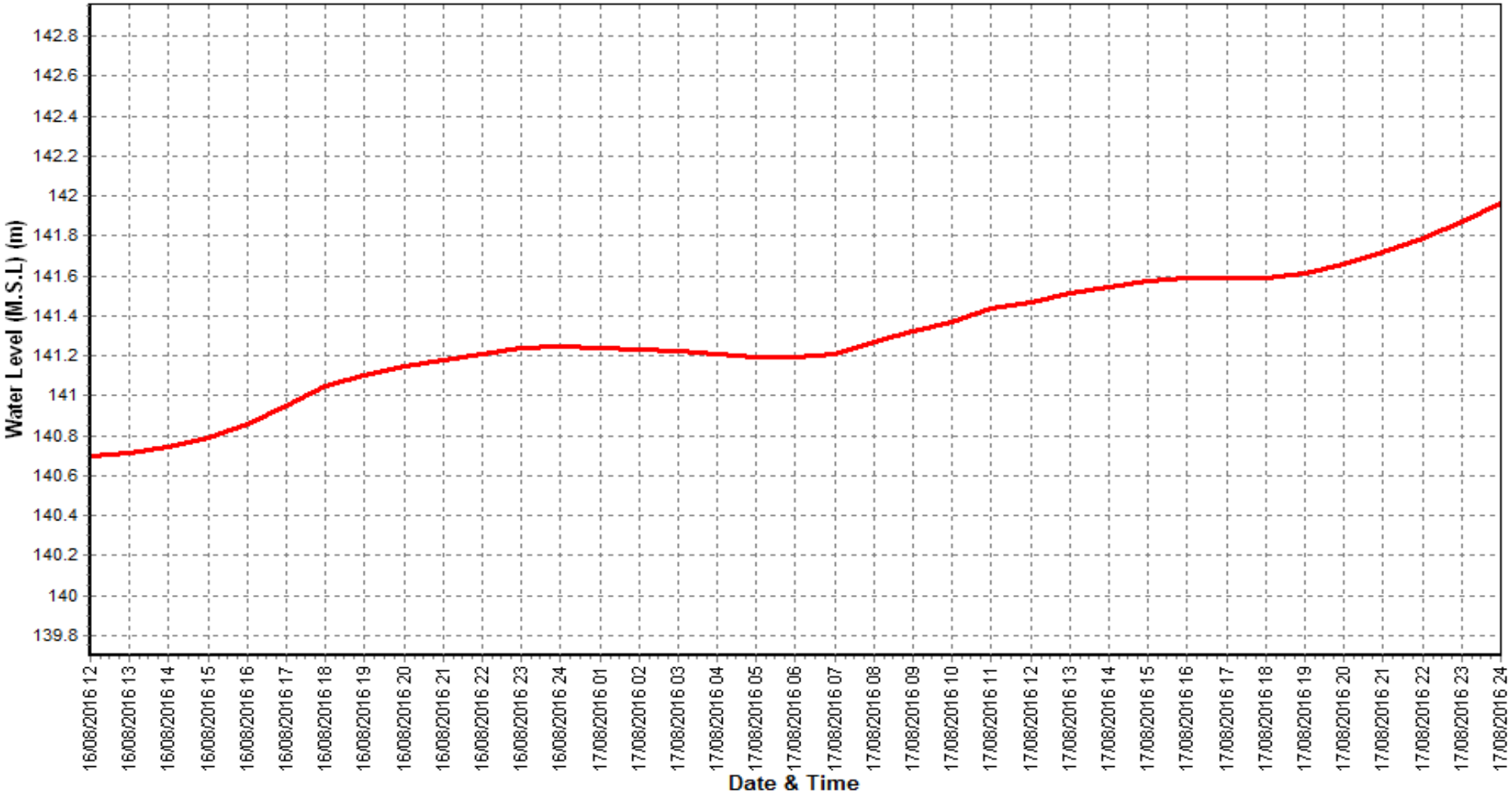


Time Span: 72 Hrs

Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

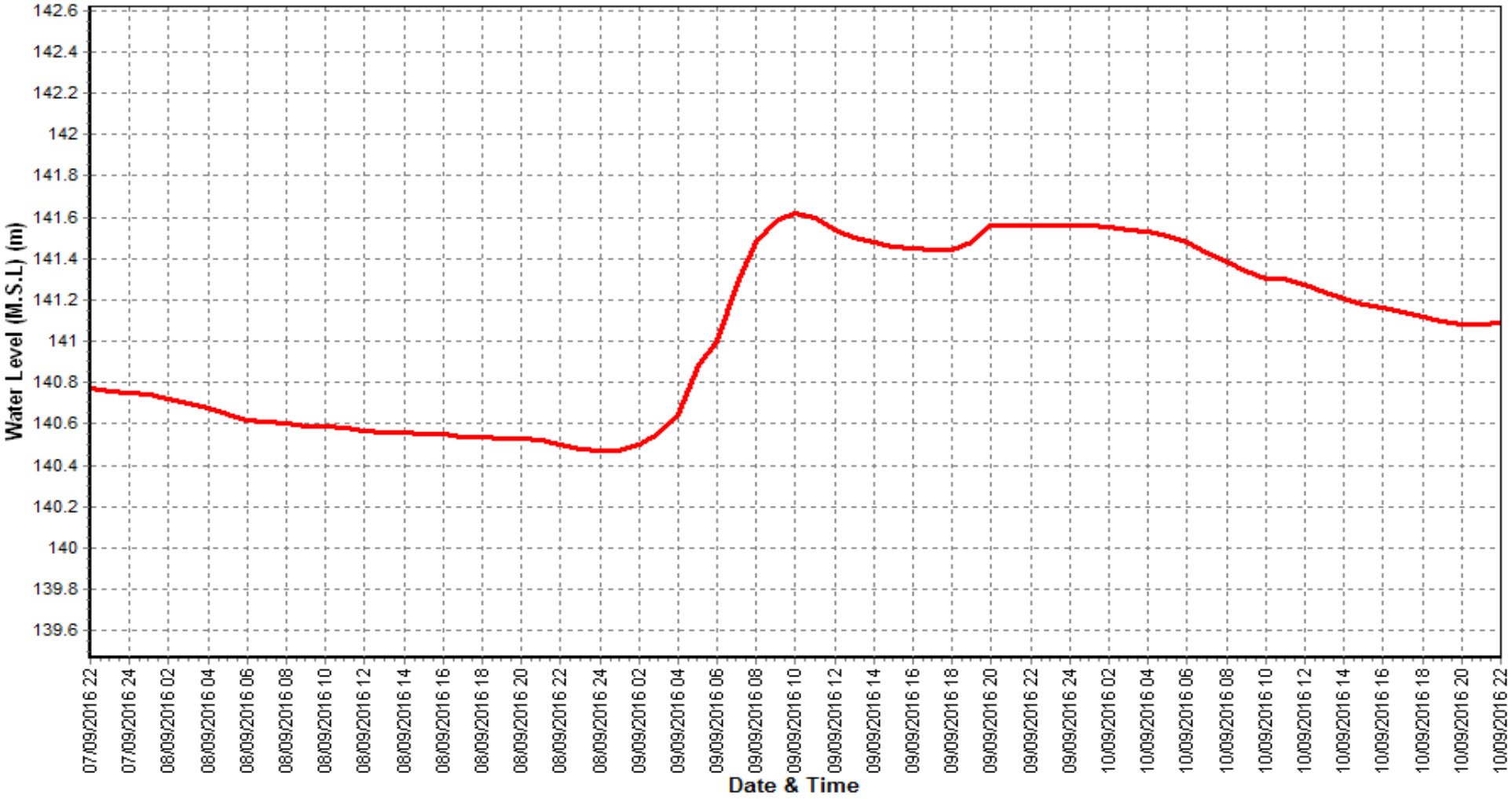


Time Span: 72 Hrs

Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**



Time Span: 72 Hrs

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	12.50	0.000	0.000	0.008	0.008	9	34.16	0.002	0.002	0.054	0.058	171	566.4	0.003	0.003	0.314	0.320	15660
2	11.34	0.000	0.000	0.007	0.007	7	33.66	0.002	0.001	0.034	0.037	108	770.0	0.005	0.005	0.423	0.433	28806
3	7.847	0.000	0.000	0.006	0.006	4	181.0	0.000	0.000	0.000	0.000	0	1089	0.005	0.005	0.432	0.442	41596
4	8.208	0.000	0.000	0.007	0.007	5	180.9	0.003	0.002	0.183	0.188	2939	1417	0.006	0.006	0.462	0.474	58032
5	12.00	0.000	0.000	0.007	0.007	7	235.9	0.003	0.002	0.204	0.209	4259	1103	0.005	0.005	0.407	0.417	39742
6	9.704	0.000	0.000	0.007	0.007	6	386.7	0.004	0.003	0.853	0.860	28735	957.9	0.005	0.005	0.292	0.302	24995
7	8.456	0.000	0.000	0.008	0.008	6	1350	0.000	0.000	0.000	0.000	0	760.0	0.000	0.000	0.000	0.000	0
8	7.837	0.000	0.000	0.008	0.008	5	1065	0.004	0.003	0.570	0.577	53089	1033	0.005	0.005	0.303	0.313	27928
9	19.15	0.000	0.000	0.009	0.009	15	804.7	0.004	0.003	0.391	0.398	27672	943.7	0.005	0.005	0.282	0.292	23809
10	17.55	0.000	0.000	0.009	0.009	14	370.0	0.000	0.000	0.000	0.000	0	691.7	0.005	0.005	0.285	0.295	17629
11	17.36	0.000	0.000	0.009	0.009	13	278.0	0.003	0.002	0.205	0.210	5044	966.6	0.006	0.006	0.295	0.307	25638
12	13.00	0.000	0.000	0.009	0.009	10	262.6	0.002	0.002	0.147	0.151	3426	1733	0.006	0.006	0.412	0.424	63474
13	10.99	0.000	0.000	0.009	0.009	9	367.8	0.004	0.004	0.188	0.196	6228	1768	0.006	0.006	0.590	0.602	91983
14	21.21	0.000	0.000	0.011	0.011	20	774.7	0.005	0.005	0.682	0.692	46316	1745	0.000	0.000	0.000	0.000	0
15	26.24	0.000	0.000	0.022	0.022	50	403.7	0.005	0.005	0.454	0.464	16184	1621	0.000	0.000	0.000	0.000	0
16	24.97	0.000	0.000	0.022	0.022	47	401.0	0.005	0.005	0.297	0.307	10636	1395	0.007	0.007	0.311	0.325	39174
17	26.67	0.000	0.000	0.026	0.026	60	1222	0.000	0.000	0.000	0.000	0	2707	0.007	0.006	0.994	1.007	235532
18	29.56	0.000	0.000	0.023	0.023	59	1385	0.006	0.005	0.613	0.624	74649	3775	0.007	0.006	0.951	0.964	314442
19	24.00	0.000	0.000	0.023	0.023	48	1659	0.006	0.006	0.562	0.574	82274	4433	0.007	0.006	1.258	1.271	486792
20	31.15	0.000	0.000	0.024	0.024	65	1304	0.005	0.005	0.366	0.376	42378	5751	0.007	0.006	0.933	0.946	470050
21	26.06	0.000	0.000	0.041	0.041	92	1065	0.005	0.005	0.394	0.404	37185	3797	0.000	0.000	0.000	0.000	0
22	25.81	0.000	0.000	0.055	0.055	123	986.6	0.005	0.004	0.346	0.355	30260	1237	0.007	0.007	0.467	0.481	51391
23	24.07	0.000	0.000	0.063	0.063	131	1364	0.005	0.005	0.497	0.507	59732	1122	0.007	0.007	0.283	0.297	28783
24	30.48	0.001	0.001	0.083	0.085	224	810.0	0.000	0.000	0.000	0.000	0	1040	0.007	0.007	0.379	0.393	35303
25	22.11	0.001	0.001	0.092	0.094	180	762.9	0.005	0.004	0.499	0.508	33486	1541	0.007	0.007	0.308	0.322	42872
26	62.14	0.001	0.001	0.092	0.094	505	457.2	0.003	0.003	0.269	0.275	10863	1629	0.007	0.007	0.334	0.348	48980
27	42.35	0.002	0.002	0.176	0.180	659	484.7	0.003	0.003	0.282	0.288	12061	2980	0.007	0.007	0.331	0.345	88829
28	30.52	0.002	0.002	0.165	0.169	446	1294	0.005	0.005	0.537	0.547	61136	1542	0.000	0.000	0.000	0.000	0
29	26.98	0.002	0.002	0.132	0.136	317	1102	0.005	0.005	0.487	0.497	47339	892.5	0.007	0.007	0.164	0.178	13725
30	23.01	0.002	0.002	0.118	0.122	243	860.2	0.005	0.005	0.372	0.382	28389	709.3	0.007	0.006	0.172	0.185	11337
31							410.0	0.000	0.000	0.000	0.000	0	582.2	0.006	0.006	0.136	0.148	7444
Ten Daily Mean																		
Ten Daily I	11.46	0.000	0.000	0.008	0.008	8	464.2	0.002	0.002	0.229	0.233	11697	933.2	0.004	0.004	0.320	0.329	27820
Ten Daily II	22.51	0.000	0.000	0.018	0.018	38	805.8	0.004	0.004	0.351	0.359	28713	2589	0.005	0.005	0.574	0.585	172708
Ten Daily III	31.35	0.001	0.001	0.102	0.104	292	872.4	0.004	0.004	0.335	0.342	29132	1552	0.006	0.006	0.234	0.245	29879
Monthly																		
Total						3376						724560						2333945

Annual Sediment Load (Metric Tonnes) : 4056766

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	702.7	0.006	0.006	0.124	0.136	8257	571.7	0.007	0.007	0.186	0.200	9879	133.3	0.004	0.004	0.035	0.043	495
2	1203	0.007	0.007	0.202	0.216	22454	487.0	0.000	0.000	0.000	0.000	0	80.89	0.000	0.000	0.045	0.045	315
3	951.3	0.006	0.006	0.199	0.211	17343	373.4	0.006	0.006	0.125	0.137	4419	79.86	0.000	0.000	0.038	0.038	262
4	1203	0.000	0.000	0.000	0.000	0	349.5	0.006	0.006	0.092	0.104	3140	70.00	0.000	0.000	0.033	0.033	200
5	1535	0.007	0.006	0.253	0.266	35289	293.6	0.005	0.006	0.079	0.090	2283	74.20	0.000	0.000	0.035	0.035	224
6	1868	0.007	0.007	0.385	0.399	64399	345.6	0.005	0.006	0.079	0.090	2688	72.00	0.000	0.000	0.000	0.000	0
7	1414	0.006	0.006	0.226	0.238	29067	337.0	0.005	0.006	0.079	0.090	2621	70.14	0.000	0.000	0.035	0.035	212
8	1206	0.006	0.006	0.139	0.151	15737	527.7	0.007	0.007	0.119	0.133	6064	52.52	0.000	0.000	0.035	0.035	159
9	2753	0.007	0.007	0.638	0.652	155097	480.0	0.000	0.000	0.000	0.000	0	50.52	0.000	0.000	0.025	0.025	109
10	2685	0.007	0.007	0.819	0.833	193218	475.0	0.000	0.000	0.000	0.000	0	51.84	0.000	0.000	0.025	0.025	112
11	1630	0.000	0.000	0.000	0.000	0	690.0	0.000	0.000	0.000	0.000	0	49.63	0.000	0.000	0.020	0.020	86
12	1677	0.006	0.006	0.774	0.786	113878	1101	0.000	0.000	0.000	0.000	0	49.20	0.000	0.000	0.019	0.019	81
13	2460	0.000	0.000	0.000	0.000	0	529.7	0.006	0.006	0.197	0.209	9565	40.00	0.000	0.000	0.000	0.000	0
14	1363	0.006	0.006	0.439	0.451	53110	444.4	0.007	0.007	0.173	0.187	7180	41.00	0.000	0.000	0.000	0.000	0
15	1362	0.006	0.006	0.439	0.451	53083	284.6	0.005	0.006	0.090	0.101	2484	43.89	0.000	0.000	0.034	0.034	129
16	1194	0.006	0.006	0.134	0.146	15064	271.0	0.000	0.000	0.000	0.000	0	38.86	0.000	0.000	0.032	0.032	107
17	992.7	0.006	0.005	0.116	0.127	10892	177.0	0.006	0.006	0.049	0.061	933	42.10	0.000	0.000	0.027	0.027	98
18	700.0	0.000	0.000	0.000	0.000	0	153.1	0.006	0.006	0.063	0.075	992	40.81	0.000	0.000	0.025	0.025	88
19	472.7	0.005	0.005	0.081	0.091	3716	143.4	0.006	0.006	0.059	0.071	880	41.36	0.000	0.000	0.019	0.019	68
20	353.3	0.005	0.005	0.084	0.094	2870	135.8	0.006	0.006	0.041	0.053	622	39.00	0.000	0.000	0.019	0.019	64
21	785.0	0.006	0.006	0.147	0.159	10785	94.47	0.007	0.007	0.038	0.052	424	37.77	0.000	0.000	0.018	0.018	59
22	747.5	0.006	0.006	0.198	0.210	13563	90.27	0.007	0.007	0.031	0.045	351	39.14	0.000	0.000	0.015	0.015	51
23	1055	0.006	0.006	0.234	0.246	22432	90.00	0.000	0.000	0.000	0.000	0	35.85	0.000	0.000	0.015	0.015	46
24	1270	0.006	0.006	0.292	0.304	33363	76.51	0.007	0.007	0.078	0.092	608	36.16	0.000	0.000	0.013	0.013	41
25	940.0	0.000	0.000	0.000	0.000	0	80.50	0.007	0.007	0.057	0.071	494	36.92	0.000	0.000	0.013	0.013	41
26	583.7	0.007	0.007	0.158	0.172	8674	76.04	0.007	0.007	0.060	0.074	486	34.25	0.000	0.000	0.013	0.013	38
27	486.6	0.005	0.006	0.126	0.137	5759	144.0	0.005	0.005	0.052	0.062	772	36.00	0.000	0.000	0.013	0.013	40
28	570.4	0.006	0.007	0.273	0.286	14096	149.3	0.005	0.005	0.051	0.061	787	35.57	0.000	0.000	0.013	0.013	40
29	660.6	0.006	0.006	0.252	0.264	15069	156.2	0.004	0.005	0.051	0.060	810	36.54	0.000	0.000	0.013	0.013	41
30	652.8	0.006	0.006	0.260	0.272	15341	150.2	0.000	0.000	0.000	0.000	0	38.16	0.000	0.000	0.011	0.011	36
31							142.9	0.004	0.004	0.041	0.049	605						
Ten Daily Mean																		
Ten Daily I	1552	0.006	0.006	0.299	0.310	54086	424.1	0.004	0.004	0.076	0.084	3109	73.52	0.000	0.000	0.031	0.031	209
Ten Daily II	1221	0.004	0.004	0.207	0.215	25261	393.0	0.004	0.004	0.067	0.076	2266	42.58	0.000	0.000	0.020	0.020	72
Ten Daily III	775.2	0.005	0.006	0.194	0.205	13908	113.7	0.005	0.005	0.042	0.051	485	36.64	0.000	0.000	0.014	0.014	43
Monthly																		
Total						932556						59085						3243

Annual Sediment Load (Metric Tonnes) : 4056766

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	38.36	0.000	0.000	0.013	0.013		18.27	0.000	0.000	0.015	0.015		14.99	0.000	0.000	0.008	0.008	
2	48.25	0.000	0.000	0.013	0.013		18.27	0.000	0.000	0.014	0.014		14.18	0.000	0.000	0.008	0.008	
3	38.88	0.000	0.000	0.013	0.013		18.53	0.000	0.000	0.014	0.014		14.17	0.000	0.000	0.008	0.008	
4		0.000	0.000	0.013	0.013		19.68	0.000	0.000	0.014	0.014		13.76	0.000	0.000	0.008	0.008	
5	30.86	0.000	0.000	0.010	0.010		20.76	0.000	0.000	0.014	0.014			0.000	0.000	0.008	0.008	
6	29.13	0.000	0.000	0.010	0.010		18.95	0.000	0.000	0.014	0.014		13.15	0.000	0.000	0.008	0.008	
7	32.59	0.000	0.000	0.010	0.010		20.64	0.000	0.000	0.014	0.014		13.12	0.000	0.000	0.008	0.008	
8	29.57	0.000	0.000	0.010	0.010			0.000	0.000	0.014	0.014		13.20	0.000	0.000	0.008	0.008	
9	30.50	0.000	0.000	0.010	0.010		38.36	0.000	0.000	0.006	0.006		12.73	0.000	0.000	0.008	0.008	
10	29.69	0.000	0.000	0.010	0.010		34.95	0.000	0.000	0.006	0.006		11.74	0.000	0.000	0.008	0.008	
11		0.000	0.000	0.010	0.010		28.55	0.000	0.000	0.006	0.006		11.73	0.000	0.000	0.008	0.008	
12		0.000	0.000	0.010	0.010		19.90	0.000	0.000	0.006	0.006			0.000	0.000	0.008	0.008	
13	29.66	0.000	0.000	0.010	0.010		18.45	0.000	0.000	0.006	0.006		11.76	0.000	0.000	0.007	0.007	
14	28.38	0.000	0.000	0.010	0.010		18.82	0.000	0.000	0.006	0.006		15.79	0.000	0.000	0.007	0.007	
15	22.10	0.000	0.000	0.010	0.010			0.000	0.000	0.006	0.006		12.25	0.000	0.000	0.007	0.007	
16	21.49	0.000	0.000	0.010	0.010		17.58	0.000	0.000	0.009	0.009		11.65	0.000	0.000	0.007	0.007	
17	21.42	0.000	0.000	0.010	0.010		17.35	0.000	0.000	0.009	0.009		11.84	0.000	0.000	0.007	0.007	
18		0.000	0.000	0.010	0.010		17.14	0.000	0.000	0.009	0.009		11.78	0.000	0.000	0.007	0.007	
19	21.46	0.000	0.000	0.012	0.012		16.44	0.000	0.000	0.009	0.009			0.000	0.000	0.007	0.007	
20	20.92	0.000	0.000	0.012	0.012		15.94	0.000	0.000	0.009	0.009		11.59	0.000	0.000	0.006	0.006	
21	19.71	0.000	0.000	0.012	0.012		15.75	0.000	0.000	0.009	0.009		10.41	0.000	0.000	0.006	0.006	
22	21.62	0.000	0.000	0.012	0.012			0.000	0.000	0.009	0.009		10.24	0.000	0.000	0.006	0.006	
23	21.29	0.000	0.000	0.012	0.012		15.10	0.000	0.000	0.008	0.008		10.88	0.000	0.000	0.006	0.006	
24	20.68	0.000	0.000	0.012	0.012		15.29	0.000	0.000	0.008	0.008			0.000	0.000	0.006	0.006	
25		0.000	0.000	0.012	0.012		15.02	0.000	0.000	0.008	0.008		10.30	0.000	0.000	0.006	0.006	
26	19.68	0.000	0.000	0.015	0.015			0.000	0.000	0.008	0.008			0.000	0.000	0.006	0.006	
27	19.63	0.000	0.000	0.015	0.015		15.29	0.000	0.000	0.008	0.008		10.19	0.000	0.000	0.006	0.006	
28	19.16	0.000	0.000	0.015	0.015		15.14	0.000	0.000	0.008	0.008		10.11	0.000	0.000	0.006	0.006	
29	17.06	0.000	0.000	0.015	0.015			0.000	0.000	0.008	0.008							
30	19.96	0.000	0.000	0.015	0.015		14.72	0.000	0.000	0.008	0.008							
31	18.02	0.000	0.000	0.015	0.015		14.52	0.000	0.000	0.008	0.008							
Ten Daily Mean																		
Ten Daily I	34.20	0.000	0.000	0.011	0.011		23.16	0.000	0.000	0.013	0.013		13.45	0.000	0.000	0.008	0.008	
Ten Daily II	23.63	0.000	0.000	0.010	0.010		18.91	0.000	0.000	0.008	0.008		12.30	0.000	0.000	0.007	0.007	
Ten Daily III	19.68	0.000	0.000	0.014	0.014		15.10	0.000	0.000	0.008	0.008		10.35	0.000	0.000	0.006	0.006	
Monthly Total																		

Annual Sediment Load (Metric Tonnes) : 4056766

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	10.74	0.000	0.000	0.006	0.006		6.859	0.000	0.000	0.005	0.005		9.198	0.000	0.000	0.004	0.004	
2	10.68	0.000	0.000	0.006	0.006		7.235	0.000	0.000	0.005	0.005		9.374	0.000	0.000	0.004	0.004	
3	10.58	0.000	0.000	0.006	0.006		7.235	0.000	0.000	0.004	0.004		8.512	0.000	0.000	0.004	0.004	
4	10.87	0.000	0.000	0.006	0.006		7.594	0.000	0.000	0.004	0.004		8.280	0.000	0.000	0.004	0.004	
5		0.000	0.000	0.006	0.006		8.968	0.000	0.000	0.004	0.004		8.377	0.000	0.000	0.004	0.004	
6	11.85	0.000	0.000	0.007	0.007		7.740	0.000	0.000	0.004	0.004		8.754	0.000	0.000	0.004	0.004	
7	11.33	0.000	0.000	0.007	0.007		8.169	0.000	0.000	0.004	0.004			0.000	0.000	0.004	0.004	
8	11.31	0.000	0.000	0.007	0.007		8.076	0.000	0.000	0.004	0.004		7.863	0.000	0.000	0.004	0.004	
9	11.20	0.000	0.000	0.007	0.007			0.000	0.000	0.004	0.004		8.581	0.000	0.000	0.004	0.004	
10	10.98	0.000	0.000	0.007	0.007		7.975	0.000	0.000	0.004	0.004			0.000	0.000	0.004	0.004	
11	11.09	0.000	0.000	0.007	0.007		7.286	0.000	0.000	0.004	0.004		7.615	0.000	0.000	0.004	0.004	
12		0.000	0.000	0.007	0.007		7.558	0.000	0.000	0.004	0.004		8.697	0.000	0.000	0.004	0.004	
13		0.000	0.000	0.006	0.006		7.119	0.000	0.000	0.004	0.004		11.69	0.000	0.000	0.004	0.004	
14	9.389	0.000	0.000	0.006	0.006			0.000	0.000	0.004	0.004			0.000	0.000	0.004	0.004	
15	9.341	0.000	0.000	0.006	0.006		7.307	0.000	0.000	0.004	0.004		8.758	0.000	0.000	0.004	0.004	
16	10.13	0.000	0.000	0.006	0.006			0.000	0.000	0.004	0.004		8.705	0.000	0.000	0.004	0.004	
17	10.27	0.000	0.000	0.006	0.006		7.147	0.000	0.000	0.004	0.004		8.495	0.000	0.000	0.004	0.004	
18	10.23	0.000	0.000	0.006	0.006		7.093	0.000	0.000	0.004	0.004		8.840	0.000	0.000	0.004	0.004	
19		0.000	0.000	0.006	0.006		7.160	0.000	0.000	0.004	0.004		10.92	0.000	0.000	0.004	0.004	
20	9.134	0.000	0.000	0.005	0.005		7.480	0.000	0.000	0.004	0.004		9.526	0.000	0.000	0.004	0.004	
21	9.022	0.000	0.000	0.005	0.005		8.089	0.000	0.000	0.004	0.004			0.000	0.000	0.004	0.004	
22	8.808	0.000	0.000	0.005	0.005		7.920	0.000	0.000	0.004	0.004		9.598	0.000	0.000	0.004	0.004	
23	8.724	0.000	0.000	0.005	0.005			0.000	0.000	0.004	0.004		9.802	0.000	0.000	0.004	0.004	
24	8.381	0.000	0.000	0.005	0.005		7.739	0.000	0.000	0.004	0.004		9.893	0.000	0.000	0.004	0.004	
25	8.406	0.000	0.000	0.005	0.005		7.746	0.000	0.000	0.004	0.004		9.486	0.000	0.000	0.004	0.004	
26		0.000	0.000	0.005	0.005		7.697	0.000	0.000	0.004	0.004		9.726	0.000	0.000	0.004	0.004	
27	7.556	0.000	0.000	0.005	0.005		7.894	0.000	0.000	0.004	0.004		10.67	0.000	0.000	0.004	0.004	
28	7.413	0.000	0.000	0.005	0.005		8.477	0.000	0.000	0.004	0.004			0.000	0.000	0.004	0.004	
29	7.443	0.000	0.000	0.005	0.005		8.684	0.000	0.000	0.004	0.004		10.45	0.000	0.000	0.005	0.005	
30	7.164	0.000	0.000	0.005	0.005			0.000	0.000	0.004	0.004		15.36	0.000	0.000	0.005	0.005	
31	7.127	0.000	0.000	0.005	0.005								27.35	0.000	0.000	0.005	0.005	
Ten Daily Mean																		
Ten Daily I	11.06	0.000	0.000	0.007	0.007		7.761	0.000	0.000	0.004	0.004		8.617	0.000	0.000	0.004	0.004	
Ten Daily II	9.941	0.000	0.000	0.006	0.006		7.269	0.000	0.000	0.004	0.004		9.250	0.000	0.000	0.004	0.004	
Ten Daily III	8.004	0.000	0.000	0.005	0.005		8.031	0.000	0.000	0.004	0.004		12.48	0.000	0.000	0.004	0.004	
Monthly																		
Total						0												

Annual Sediment Load (Metric Tonnes) : 4056766

Annual Sediment Load for period : 1981-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

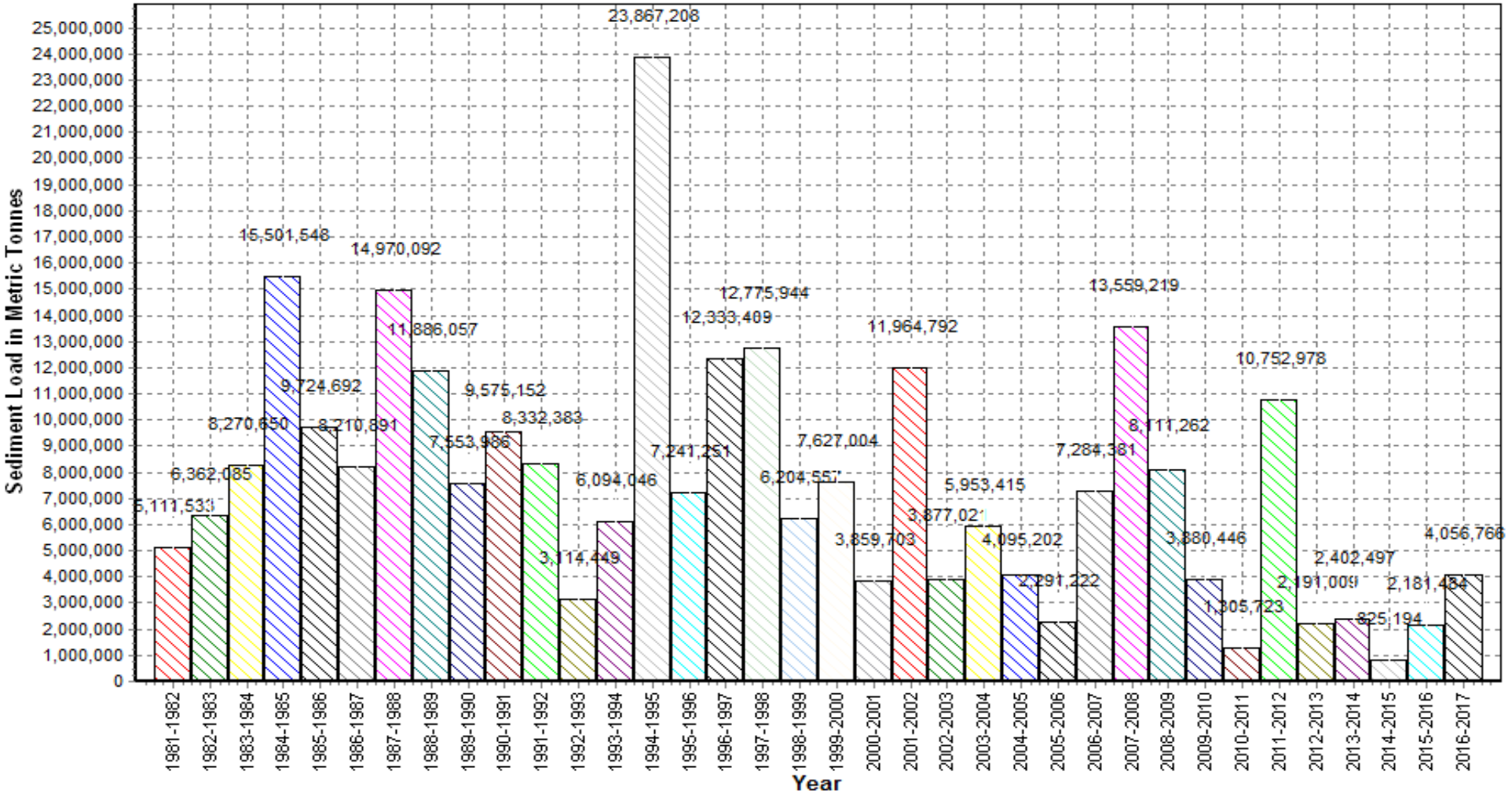
Local River : Brahmni **Sub-Division : Rourkela**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1981-1982	5097467	14066	5111533	7712
1982-1983	6285626	76459	6362085	7407
1983-1984	8267114	3536	8270650	8861
1984-1985	15497373	4175	15501548	15450
1985-1986	9721444	3247	9724692	10203
1986-1987	8191659	19232	8210891	10110
1987-1988	14950091	20001	14970092	10752
1988-1989	11882814	3243	11886057	11576
1989-1990	7459501	94485	7553986	8878
1990-1991	9542221	32930	9575152	12896
1991-1992	8299839	32544	8332383	12051
1992-1993	3109937	4512	3114449	5056
1993-1994	6086939	7107	6094046	9088
1994-1995	23858486	8722	23867208	22967
1995-1996	7222350	18901	7241251	10170
1996-1997	12327625	5784	12333409	13291
1997-1998	12371036	404909	12775944	14502
1998-1999	6184487	20071	6204557	10155
1999-2000	7614833	12171	7627004	14735
2000-2001	3855282	4421	3859703	7227
2001-2002	11960636	4156	11964792	16006
2002-2003	3871634	5386	3877021	7735
2003-2004	5947177	6237	5953415	10306
2004-2005	4089879	5322	4095202	8169
2005-2006	2279216	12006	2291222	6821
2006-2007	7278047	6334	7284381	10784
2007-2008	13552621	6599	13559219	16113
2008-2009	8104533	6729	8111262	13347
2009-2010	3876418	4028	3880446	6309
2010-2011	1301819	3904	1305723	3046
2011-2012	10747050	5928	10752978	15880
2012-2013	2184651	6358	2191009	8270
2013-2014	2399652	2844	2402497	13360
2014-2015	823808	1386	825194	10654
2015-2016	2179683	1800	2181484	8007
2016-2017	4056766	0	4056766	10699

Annual Sediment Load for the period: 1981-2017

Station Name : Gomlai (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**



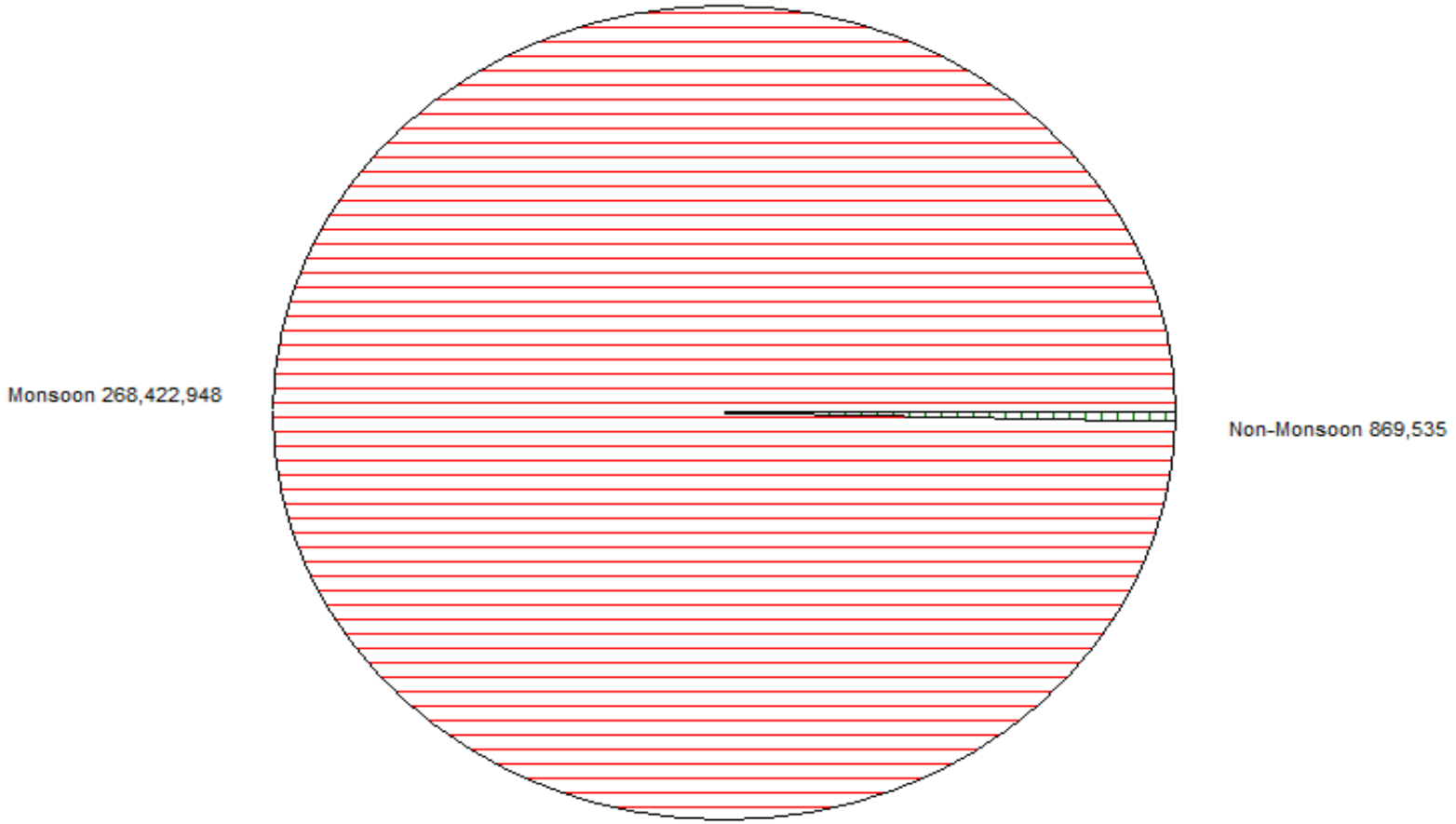
Seasonal Sediment Load for the period : 1981-2016

Station Name : Gomlai (EB000W3)

Local River : Brahmni

Division : E.E., Bhubaneswar

Sub-Division : Rourkela



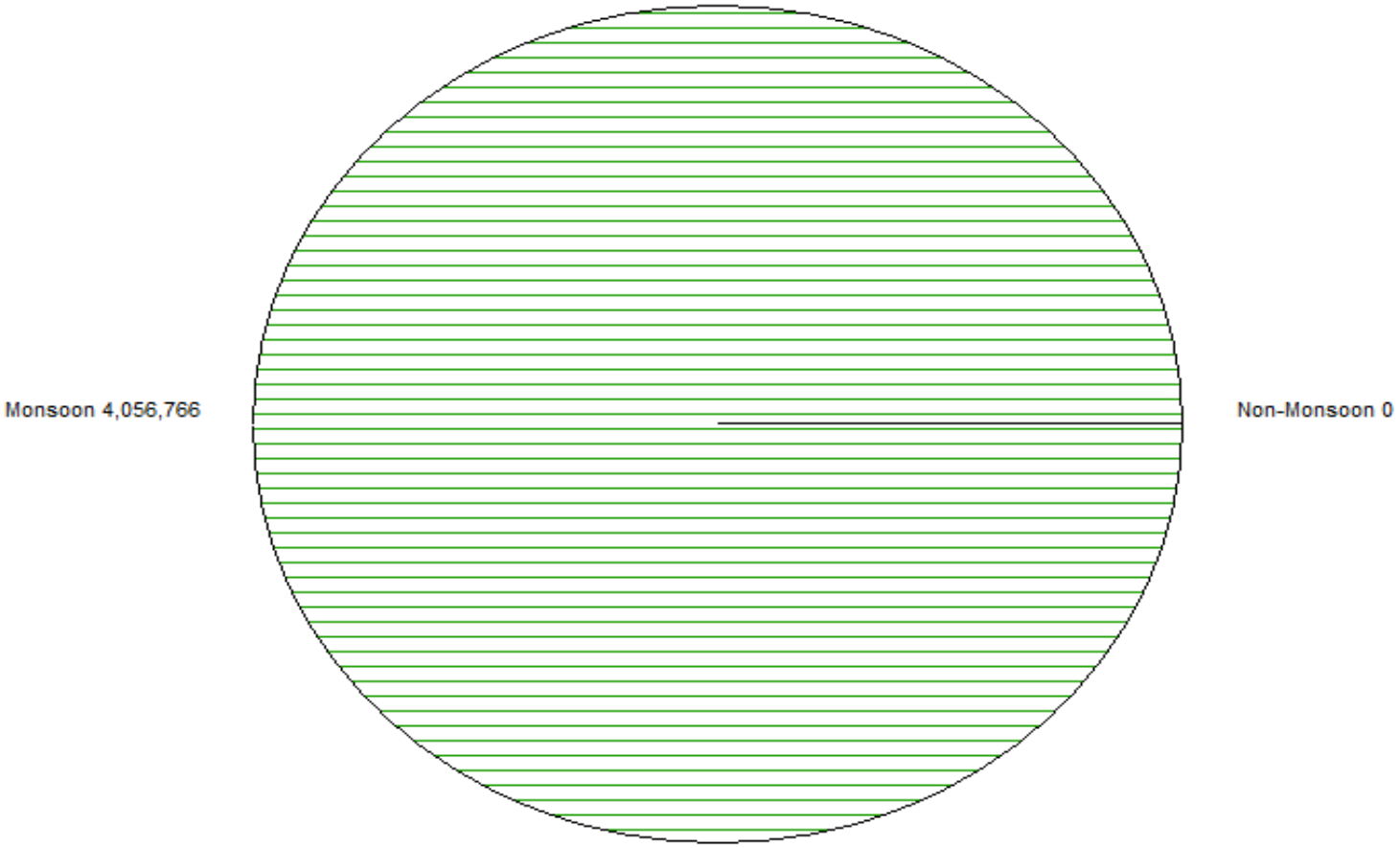
Seasonal Sediment Load for the Year: 2016-2017

Station Name : Gomlai (EB000W3)

Local River : Brahmni

Division : E.E., Bhubaneswar

Sub-Division : Rourkela



Water Quality Datasheet for the period : 2016-2017

Station Name : GOMLAI (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmani **Sub-Division : Rourkela**

River Water Analysis

S.No	Parameters	01.06.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	A	A	A	A	A	A	A	A	A	B
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	236	213	141	220	152	371	570	262	270	294	305	282
4	EC_GEN (µmho/cm)	240	216	145	224	158	373	573	264	274	299	308	291
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	8.1	7.9	7.3	7.8	7.6	7.9	8.0	7.8	7.8	7.9	7.9	7.6
7	pH_GEN (pH units)	8.1	8.0	7.4	7.9	7.7	8.0	8.1	7.9	7.8	8.0	7.9	7.5
8	Temp (deg C)	29.0	29.0	27.0	29.5	28.0	24.5	19.0	17.0	17.0	20.5	28.5	27.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	69	55	97	97	46	55	46	51	60	69	60	51
3	B (mg/L)	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01
4	Ca (mg/L)	46	50	50	48	37	35	38	38	37	35	37	37
5	Cl (mg/L)	17.0	13.2	18.9	15.1	7.5	9.4	11.3	22.6	13.2	41.5	26.4	22.6
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.5	0.4	0.3	0.6	0.6	0.2	0.3	0.4	0.4	0.7	0.4	0.4
9	HCO3 (mg/L)	85	68	118	118	56	68	56	62	73	85	73	62
10	K (mg/L)	5.5	8.3	7.4	7.5	5.8	18.6	19.1	25.1	42.7	43.1	43.1	45.0
11	Mg (mg/L)	14.6	17.5	14.6	13.6	18.5	18.5	17.5	17.5	18.5	27.3	17.5	13.6
12	Na (mg/L)	9.1	21.8	14.5	14.6	17.3	30.1	35.4	90.2	84.9	86.0	85.0	89.0
13	NO2+NO3 (mg N/L)	0.97	0.78	1.11	1.33	1.04	0.83	0.85	1.21	1.15	1.25	1.25	1.19
14	NO2-N (mgN/L)	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.03	0.03	0.00	0.01
15	NO3-N (mgN/L)	0.95	0.78	1.09	1.33	1.02	0.83	0.83	1.21	1.12	1.22	1.25	1.18
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	8.0	7.0	6.0	7.0	6.0	6.0	6.0	6.0	8.0	8.0	7.5	7.7
18	SO4 (mg/L)	12.4	30.8	31.2	31.3	7.0	6.9	7.0	7.2	7.6	31.3	31.6	29.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	1.6	1.0	0.4	0.2	1.2	0.2	1.6	1.2	1.2	1.0	0.6
2	DO (mg/L)	7.9	8.1	6.0	7.4	7.8	7.0	8.1	9.3	10.7	7.6	7.8	6.2
3	DO_SAT% (%)	103	106	75	96	99	83	88	97	111	83	99	77
4	FCol-MPN (MPN/100mL)					7	90	90	60	40	70	90	70
5	Tcol-MPN (MPN/100mL)					11	170	140	90	170	120	140	110
	TRACE & TOXIC												
1	Al (mg/L)												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	116	124	124	120	92	88	96	96	92	88	92	92
2	HAR_Total (mgCaCO3/L)	177	197	185	177	169	165	169	169	169	202	165	149
3	Na% (%)	10	19	14	15	18	26	29	50	45	42	46	48
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.7	0.5	0.5	0.6	1.0	1.2	3.0	2.8	2.6	2.9	3.2
	PESTICIDES												

Water Quality Summary for the period : 2016-2017

Station Name : GOMLAI (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmani **Sub-Division : Rourkela**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	570	141	276
3	EC_GEN (µmho/cm)	12	573	145	280
4	pH_FLD (pH units)	12	8.1	7.3	7.8
5	pH_GEN (pH units)	12	8.1	7.4	7.8
6	Temp (deg C)	12	29.5	17.0	24.7
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	97	46	63
3	B (mg/L)	12	0.02	0.01	0.01
4	Ca (mg/L)	12	50	35	41
5	Cl (mg/L)	12	41.5	7.5	18.2
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.7	0.2	0.4
9	HCO3 (mg/L)	12	118	56	77
10	K (mg/L)	12	45.0	5.5	22.6
11	Mg (mg/L)	12	27.3	13.6	17.4
12	Na (mg/L)	12	90.2	9.1	48.2
13	NO2+NO3 (mg N/L)	12	1.33	0.78	1.08
14	NO2-N (mgN/L)	12	0.03	0.00	0.01
15	NO3-N (mgN/L)	12	1.33	0.78	1.07
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	8.0	6.0	6.9
18	SO4 (mg/L)	12	31.6	6.9	19.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	1.6	0.2	0.9
2	DO (mg/L)	12	10.7	6.0	7.8
3	DO_SAT% (%)	12	111	75	93
4	FCol-MPN (MPN/100mL)	8	90	7	65
5	Tcol-MPN (MPN/100mL)	8	170	11	119
	TRACE & TOXIC				
1	Al (mg/L)	1	0.00	0.00	0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	124	88	102
2	HAR_Total (mgCaCO3/L)	12	202	149	174
3	Na% (%)	12	50	10	30
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	3.2	0.3	1.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : GOMLAI (EB000W3) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water** | **Sub-Division : Rourkela**

S.No	Parameters	Flood																			
		Jun - Oct																			
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	259	139	181	133	232	139	142	131	147	147	150	117	172	253	192	200	157	181	180	198	188
3	EC_GEN (µmho/cm)	258	138	199	129	228	134	142	131	147	147	150	117	172	254	197	197	157	172	178	198	179
4	pH_FLD (pH units)	7.7	7.6	7.8	7.7	7.8	7.8	7.7	7.7	7.9	8.2	7.5	7.6	7.8	7.6	7.8	7.6	7.5	7.9	7.9	8.3	7.8
5	pH_GEN (pH units)	7.7	7.6	7.8	7.8	7.8	7.8	7.7	7.7	7.9	8.2	7.5	7.6	7.8	7.4	7.8	7.6	7.5	7.9	7.9	8.3	7.9
6	TDS (mg/L)								87	97												
7	Temp (deg C)	29.6	30.6	28.6	29.4	29.1	29.6	29.2	30.6	30.4	29.3	29.9	29.2	28.8	27.6	28.5	23.0	22.3	21.6	21.3	22.6	21.3
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)						0.0	0.0	0.0	0.0	9.1				0.0	0.0						0.0
2	ALK-TOT (mgCaCO3/L)						41	41	30	26	63				56	73						50
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	22	10	12	12	23	13	13	12	15	13	16	17	13	17	46	19	14	16	15	19	17
5	Cl (mg/L)	15.9	8.5	23.1	9.1	21.7	11.2	12.6	8.2	14.1	15.8	16.6	15.8	15.8	13.3	14.3	14.1	10.7	13.8	15.1	12.7	16.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.18	0.03	0.53	0.10	0.11	0.06	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.03	0.46	0.04	0.00	0.09
8	Fe (mg/L)			0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	1.5	0.0	0.2	0.3	0.5			0.1	0.1	0.1	0.2
9	HCO3 (mg/L)	72	49	57	41	86	50	44	43	38	54	48	79	54	69	89	76	71	78	55	66	61
10	K (mg/L)	2.2	1.4	2.7	1.9	2.3	1.8	2.5	2.2	2.3	1.8	2.0	2.1	1.8	2.0	6.9	2.1	1.8	1.6	3.2	3.3	3.3
11	Mg (mg/L)	5.8	4.0	5.2	4.0	5.9	4.6	4.1	5.6	3.7	5.2	6.2	4.3	5.2	7.1	15.7	6.3	5.7	5.8	4.6	6.1	5.4
12	Na (mg/L)	9.0	5.9	14.9	5.7	13.9	7.7	7.7	5.0	8.4	6.4	4.8	10.4	6.4	5.3	15.5	9.5	7.2	8.6	10.0	8.7	11.4
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	4.21	0.21	0.27	3.26	1.07	1.62	0.72	2.63	2.25	0.38	0.61	1.27	1.71	1.07	1.05	1.03	0.26	0.15	0.34	0.38	2.67
15	NO2-N (mgN/L)	0.03	0.00	0.00	0.04	0.02	0.03	0.00	0.00	0.00	0.07	0.00	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.04	0.03	0.00
16	NO3-N (mgN/L)	4.18	0.21	0.27	3.22	1.05	1.59	0.72	2.63	2.25	0.31	0.61	1.27	1.70	1.06	1.04	1.01	0.26	0.15	0.30	0.35	2.67
17	o-PO4-P (mg P/L)				0.000	0.021	0.000		0.002											0.000	0.034	0.000
18	P-Tot (mgP/L)			0.001	0.001	0.021	0.001	0.002	0.004	0.001	0.010	0.001	0.001	0.001	0.001	0.010			0.001	0.001	0.027	0.001
19	SiO2 (mg/L)	13.3	12.0	20.5	19.1	17.1	9.2	9.9	8.9	7.8	9.8	13.4	13.1	6.0	6.0	6.8	14.6	17.0	21.7	21.2	20.4	14.2
20	SO4 (mg/L)	5.3	1.7	8.7	4.5	13.9	5.5	10.6	10.9	11.3	12.7	26.9	15.0	12.7	9.4	22.5	6.7	3.3	4.0	16.4	23.6	7.2
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.1	0.6	0.8	0.7	0.7	1.0	1.1	1.0	1.1	1.1	0.7	0.7	0.7	1.0	0.8	0.8	0.7	1.0	0.7	0.9	0.9
2	DO (mg/L)	6.6	6.0	6.6	6.3	6.8	6.8	6.8	6.6	6.7	6.7	6.6	6.8	5.8	6.3	7.4	7.2	8.1	7.7	7.7	7.6	7.3
3	DO_SAT% (%)	86	80	85	82	89	89	89	88	89	87	88	89	76	80	96	84	92	87	86	87	81
4	FCol-MPN (MPN/100mL)															7						
5	Tcol-MPN (MPN/100mL)															11						
	TRACE & TOXIC																					
1	Al (mg/L)																				0.90	
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	54	25	30	31	57	32	32	30	38	33	39	42	31	42	115	47	36	39	38	47	41
2	HAR_Total (mgCaCO3/L)	79	41	52	47	82	51	49	54	53	55	65	59	53	72	181	73	60	62	57	73	64
3	Na% (%)	21	25	37	22	23	25	25	16	26	20	13	28	20	15	15	22	21	22	26	20	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.9	0.4	0.6	0.5	0.5	0.3	0.5	0.4	0.3	0.6	0.4	0.3	0.5	0.5	0.4	0.5	0.6	0.4	0.6
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : GOMLAI (EB000W3) **Division : E.E., Bhubaneswar**

Local River : Brahmani **River Water** **Sub-Division : Rourkela**

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	275	192	260	168	199	153	268	522	368	222	210	210	236	230	228	247	207	363	223	267	207
3	EC_GEN (µmho/cm)	275	192	260	168	199	153	268	519	371	220	209	203	233	227	233	247	207	363	223	267	207
4	pH_FLD (pH units)	8.0	7.8	7.4	7.7	7.5	8.1	7.9	7.8	7.9	7.9	7.8	7.8	7.6	8.1	8.1	8.0	7.9	8.1	7.6	7.8	7.8
5	pH_GEN (pH units)	8.0	7.8	7.5	7.7	7.5	8.1	7.9	7.8	7.9	7.9	7.9	7.9	7.6	8.1	8.1	8.0	7.9	8.1	7.6	7.9	7.8
6	TDS (mg/L)		127	166														140	238			
7	Temp (deg C)	22.6	20.6	20.8	21.8	22.9	21.0	19.4	20.5	19.4	28.5	27.6	25.8	26.8	25.7	26.0	27.5	23.3	24.2	29.8	27.0	26.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0			0.0	11.5	0.0					0.0	0.0	0.0	0.0	3.9	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	89	51	71	55			65	83	53					131	79	76	49	73	68		68
3	B (mg/L)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
4	Ca (mg/L)	28	17	25	18	20	18	15	19	37	22	18	15	23	24	24	22	17	32	23	19	19
5	Cl (mg/L)	13.7	12.6	17.4	12.7	20.3	19.0	11.3	16.0	14.1	16.2	11.0	12.3	15.3	14.4	14.7	16.2	18.6	25.8	22.6	15.8	13.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.18	0.00	0.34	0.06	0.08	0.05	0.05	0.03	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.3	0.2	0.1	0.1	1.9	0.0	0.3	0.3	0.3			0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	1.9	0.1
9	HCO3 (mg/L)	108	62	91	68	92	82	70	73	65	63	86	81	89	93	97	93	60	79	83	88	93
10	K (mg/L)	1.7	1.3	2.8	1.7	2.1	1.8	1.6	2.4	26.4	3.5	2.5	1.8	3.0	3.0	1.4	2.7	2.6	3.7	2.4	2.7	1.4
11	Mg (mg/L)	10.4	8.7	9.7	5.3	14.3	5.1	5.6	7.5	18.0	7.1	7.5	4.3	9.0	8.7	9.1	9.4	9.1	14.6	5.2	11.9	4.3
12	Na (mg/L)	9.0	7.5	10.1	7.0	8.0	11.0	6.3	8.0	60.2	10.5	7.6	9.4	9.3	12.7	10.4	10.6	10.1	15.6	9.4	11.3	8.3
13	NH3-N (mg N/L)															0.05						
14	NO2+NO3 (mg N/L)	1.07	4.82	2.47	0.41	0.70	1.45	0.93	1.01	1.01	4.85	0.32	0.23	4.02	4.95	0.57	2.07	3.21	6.01	0.42	0.71	1.48
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.07	0.00	0.00	0.02	0.02	0.01	0.02	0.06	0.01	0.06	0.04	0.00	0.00	0.00	1.75	0.07	0.00	0.01
16	NO3-N (mgN/L)	1.07	4.82	2.47	0.34	0.70	1.45	0.91	0.98	0.99	4.83	0.26	0.22	3.96	4.91	0.57	2.07	3.21	4.26	0.35	0.71	1.47
17	o-PO4-P (mg P/L)		0.000										0.010	0.000	0.000			0.000				
18	P-Tot (mgP/L)	0.002	0.002	0.001	0.010	0.001	0.001	0.001	0.010	0.010			0.001	0.001	0.001	0.050	0.005	0.001	0.001	0.010	0.001	0.001
19	SiO2 (mg/L)	9.0	9.9	4.1	14.3	13.3	12.8	4.4	5.8	6.5	12.3	15.6	20.4	22.4	15.3	10.1	9.0	8.7	2.9	17.3	13.7	13.3
20	SO4 (mg/L)	15.9	7.6	18.3	5.5	10.7	18.5	5.6	9.7	7.2	20.0	1.7	3.2	11.2	10.7	10.8	12.6	15.4	34.7	11.0	20.1	14.3
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.1	1.5	1.4	1.3	0.4	0.4	1.6	1.1	1.0	0.8	0.9	0.7	0.9	1.0	1.1	1.2	1.2	1.2	1.1	0.6	1.0
2	DO (mg/L)	8.1	8.3	7.4	7.8	7.6	7.9	9.5	7.3	8.8	6.1	7.3	6.8	7.4	7.0	6.8	7.1	7.0	6.7	6.5	6.4	7.3
3	DO_SAT% (%)	94	92	83	88	88	88	102	82	94	78	93	84	91	86	83	90	82	79	84	79	90
4	FCol-MPN (MPN/100mL)									70												
5	Tcol-MPN (MPN/100mL)									143												
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	70	43	63	45	50	46	37	47	93	56	45	36	58	60	60	56	41	80	57	47	48
2	HAR_Total (mgCaCO3/L)	114	80	104	67	110	67	60	78	168	86	76	54	95	96	97	95	79	141	79	97	66
3	Na% (%)	15	17	17	18	14	26	18	18	37	20	17	26	17	21	19	20	21	19	20	20	22
4	RSC (-)	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
5	SAR (-)	0.4	0.4	0.4	0.4	0.3	0.6	0.4	0.4	2.0	0.5	0.4	0.6	0.4	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.5
	PESTICIDES																					

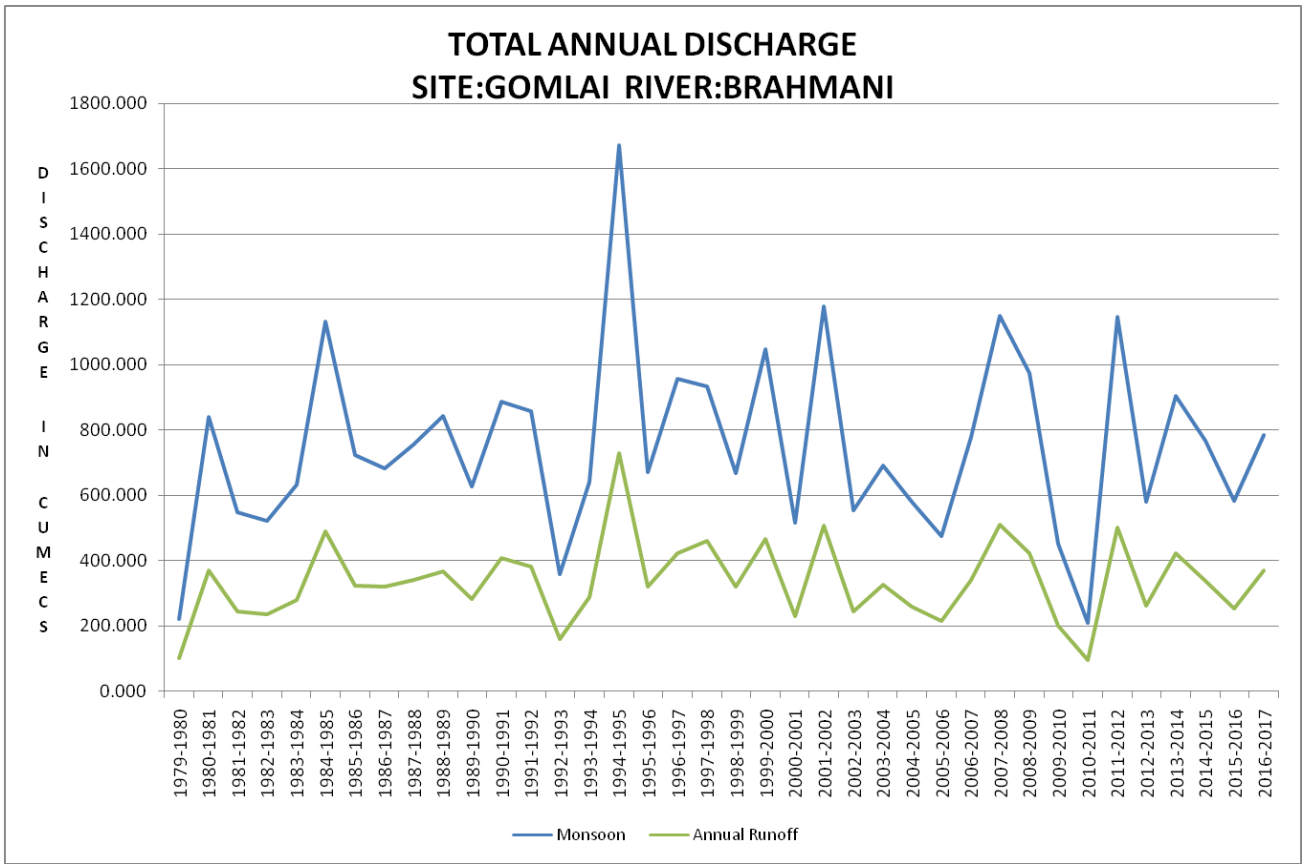
Water Quality Seasonal Average for the period: 2002-2017

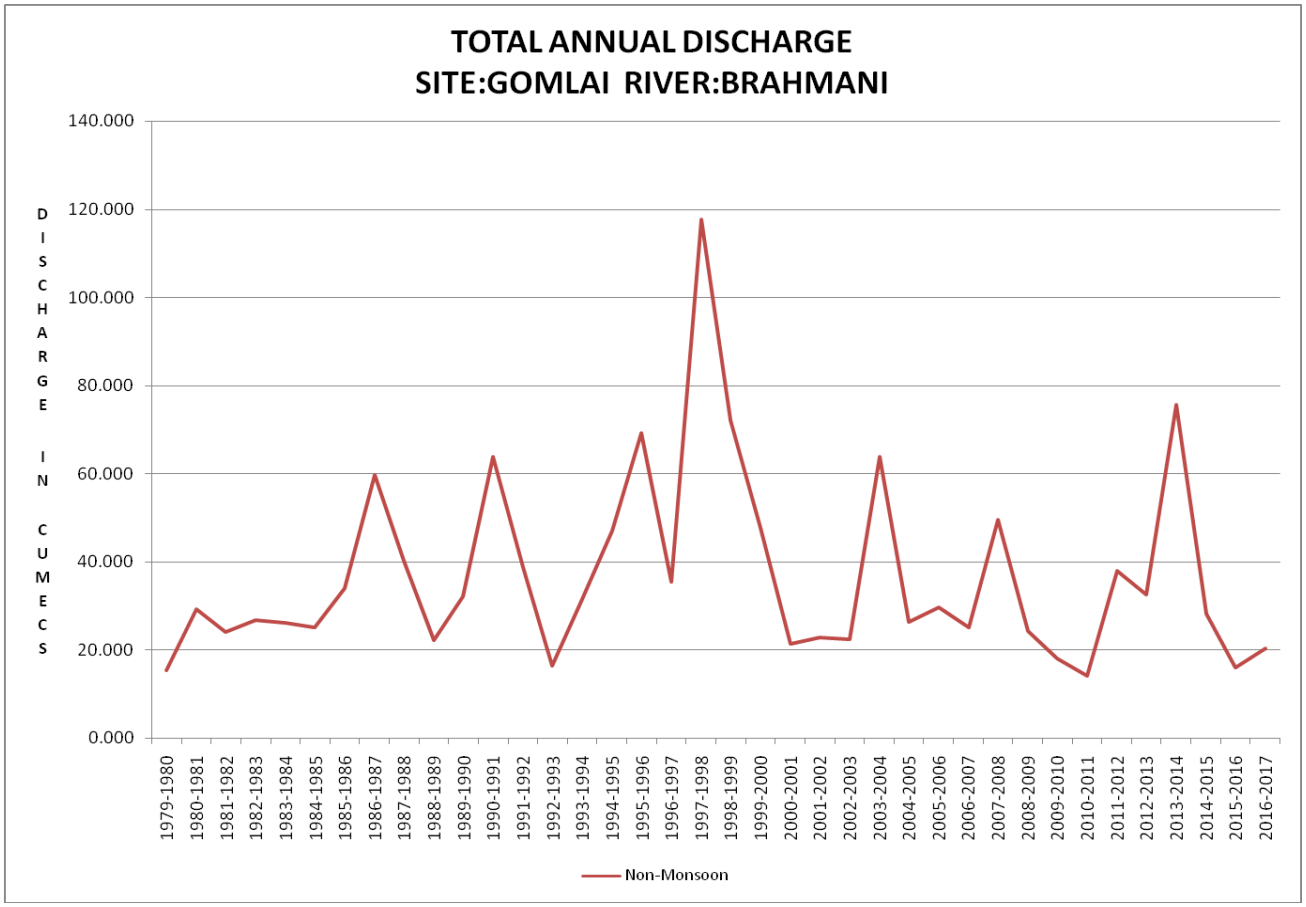
Station Name : GOMLAI (EB000W3)
Local River : Brahmani

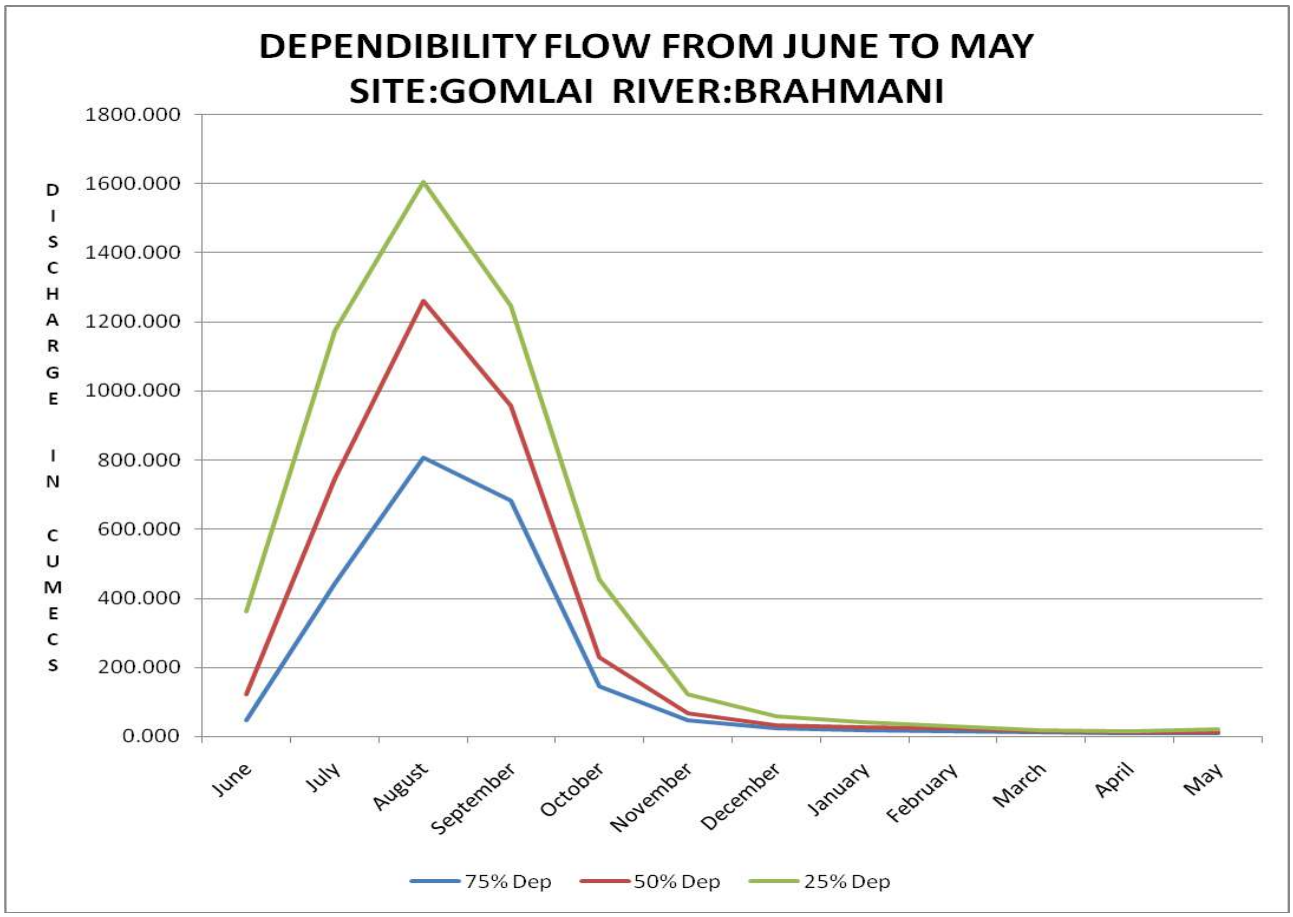
Division : E.E., Bhubaneswar
Sub-Division : Rourkela

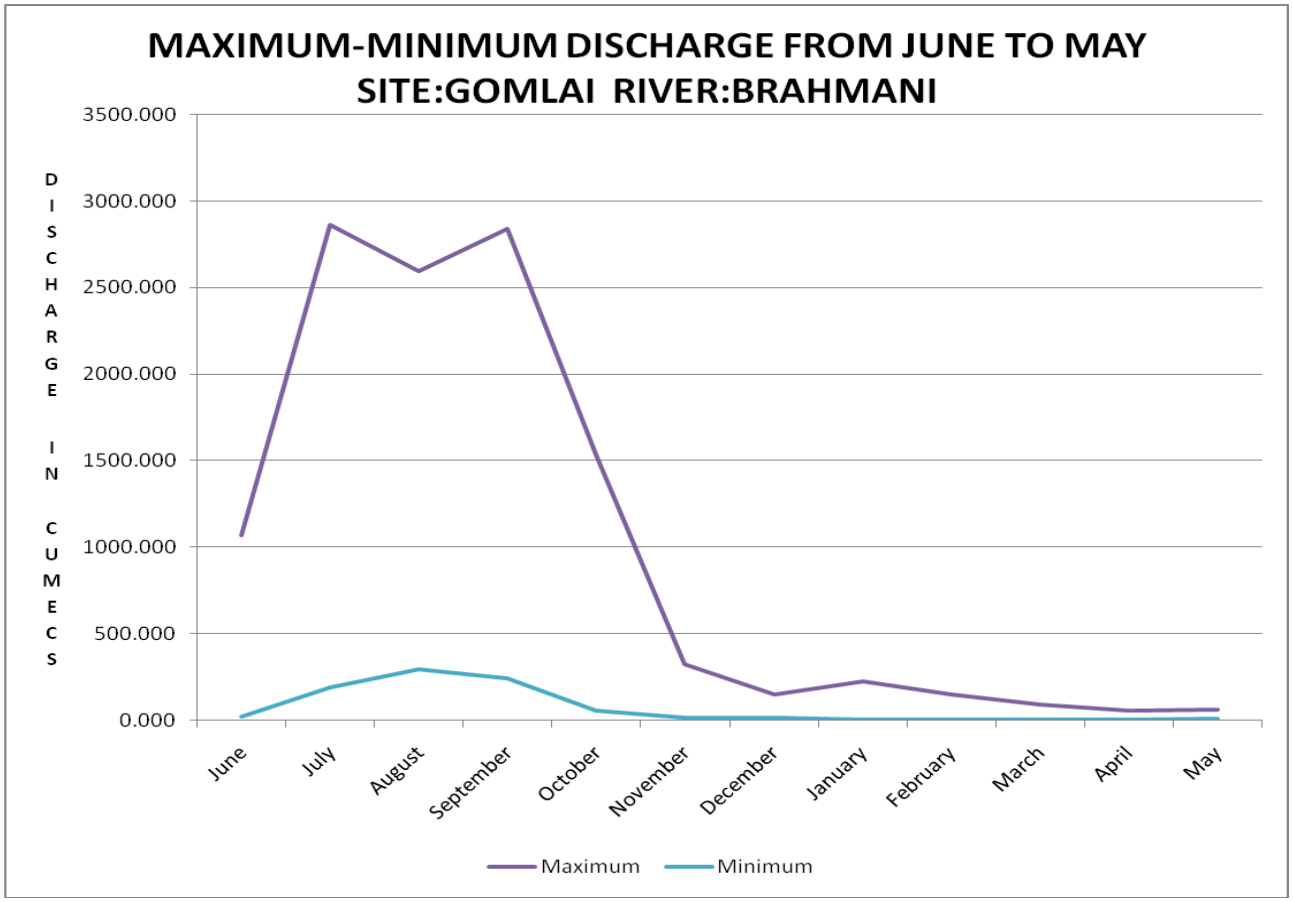
River Water

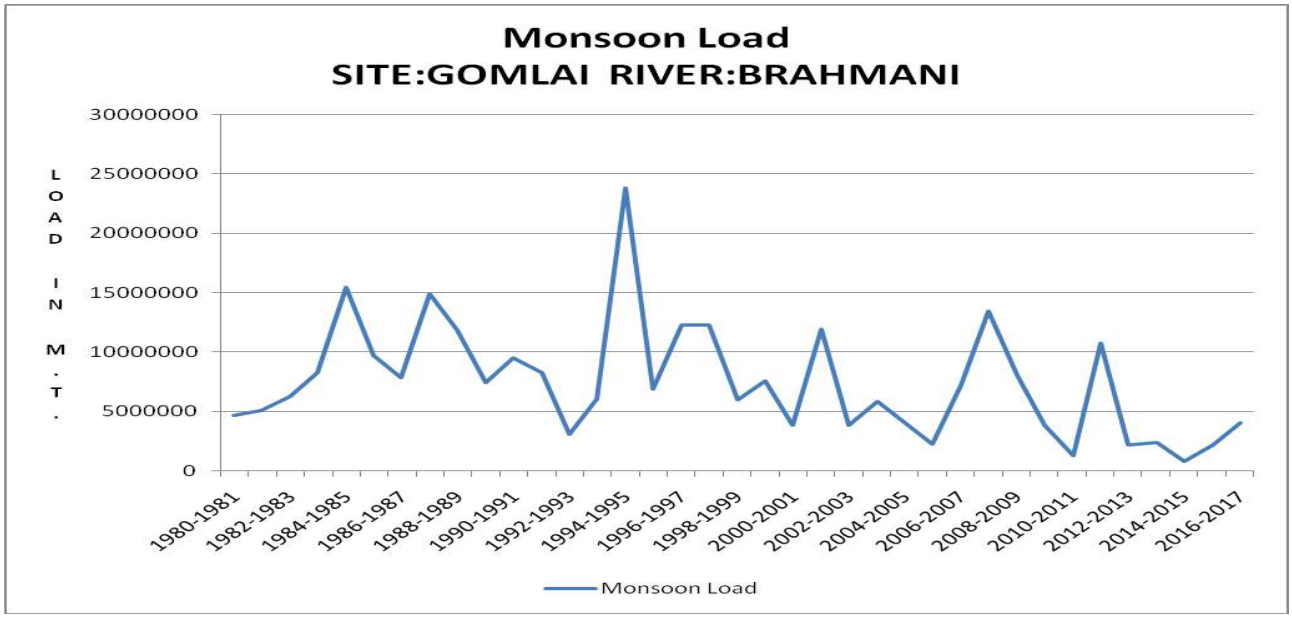
S.No	Parameters			
		2015	2016	2017
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	228	426	294
3	EC_GEN (µmho/cm)	228	432	299
4	pH_FLD (pH units)	7.8	7.9	7.8
5	pH_GEN (pH units)	7.8	7.7	7.8
6	TDS (mg/L)			
7	Temp (deg C)	25.3	25.3	25.3
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)		4.6	0.0
2	ALK-TOT (mgCaCO3/L)		66	60
3	B (mg/L)	0.00	0.01	0.01
4	Ca (mg/L)	18	34	36
5	Cl (mg/L)	16.4	23.3	30.2
6	CO3 (mg/L)	0.0	5.5	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.3	0.4	0.5
9	HCO3 (mg/L)	57	70	73
10	K (mg/L)	1.7	2.8	43.7
11	Mg (mg/L)	6.5	13.0	19.5
12	Na (mg/L)	5.7	12.8	86.7
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	0.70	0.89	1.23
15	NO2-N (mgN/L)	0.00	0.01	0.01
16	NO3-N (mgN/L)	0.70	0.88	1.21
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.001	0.010	0.010
19	SiO2 (mg/L)	4.3	5.0	7.7
20	SO4 (mg/L)	6.2	15.0	30.9
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.9	0.9	0.9
2	DO (mg/L)	6.1	6.2	7.2
3	DO_SAT% (%)	74	76	87
4	FCol-MPN (MPN/100mL)			77
5	Tcol-MPN (MPN/100mL)			123
	TRACE & TOXIC			
1	Al (mg/L)			0.00
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	44	84	91
2	HAR_Total (mgCaCO3/L)	71	138	172
3	Na% (%)	14	17	46
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	2.9
	PESTICIDES			

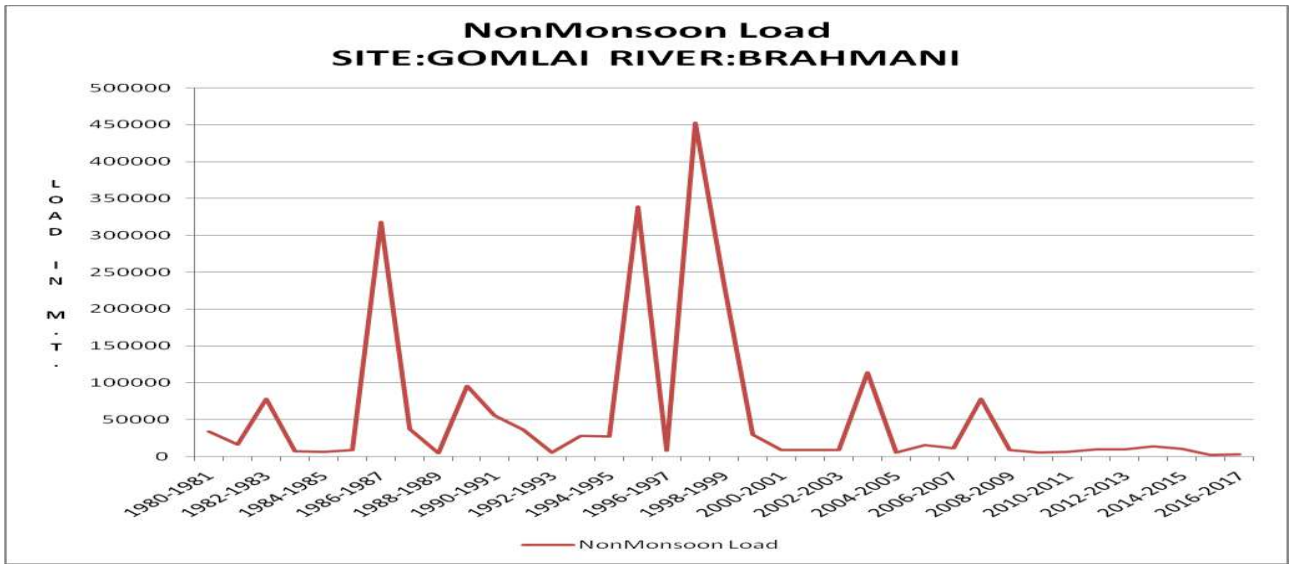

TOTAL ANNUAL DISCHARGE
SITE:GOMLAI RIVER:BRAHMANI
DISCHARGE IN CUMECS
1800.000
1600.000
1400.000
1200.000
1000.000
800.000
600.000
400.000
200.000
0.000
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon
Annual Runoff

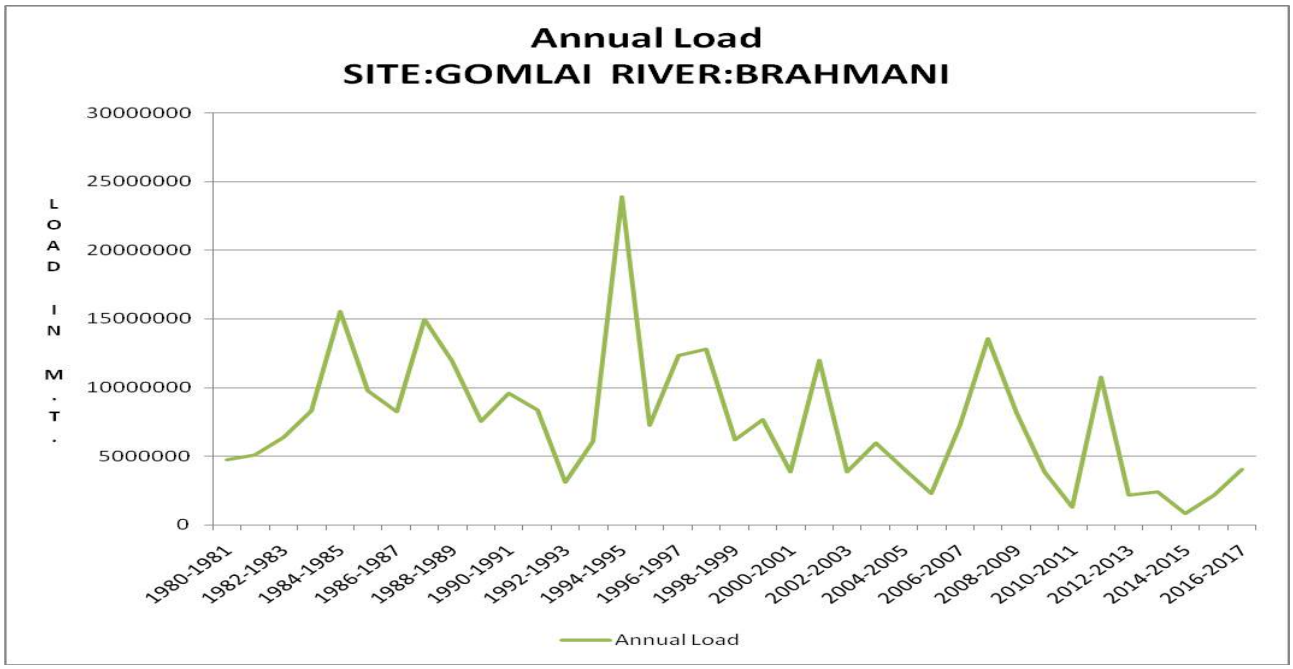

TOTAL ANNUAL DISCHARGE
SITE:GOMLAI RIVER:BRAHMANI
DISCHARGE IN CUMECS
140.000
120.000
100.000
80.000
60.000
40.000
20.000
0.000
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Non-Monsoon

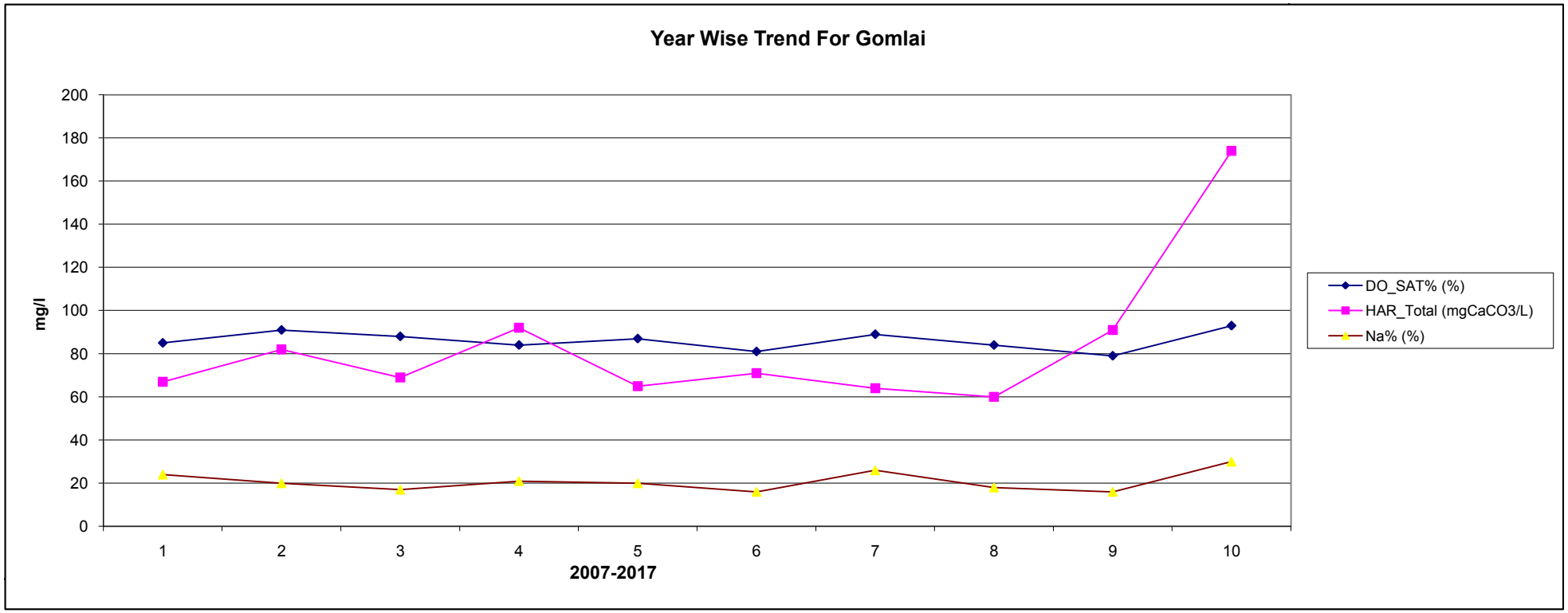

DEPENDIBILITY FLOW FROM JUNE TO MAY
SITE:GOMLAI RIVER:BRAHMANI
DISCHARGE IN CUMECS
1800.000
1600.000
1400.000
1200.000
1000.000
800.000
600.000
400.000
200.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
75% Dep
50% Dep
25% Dep

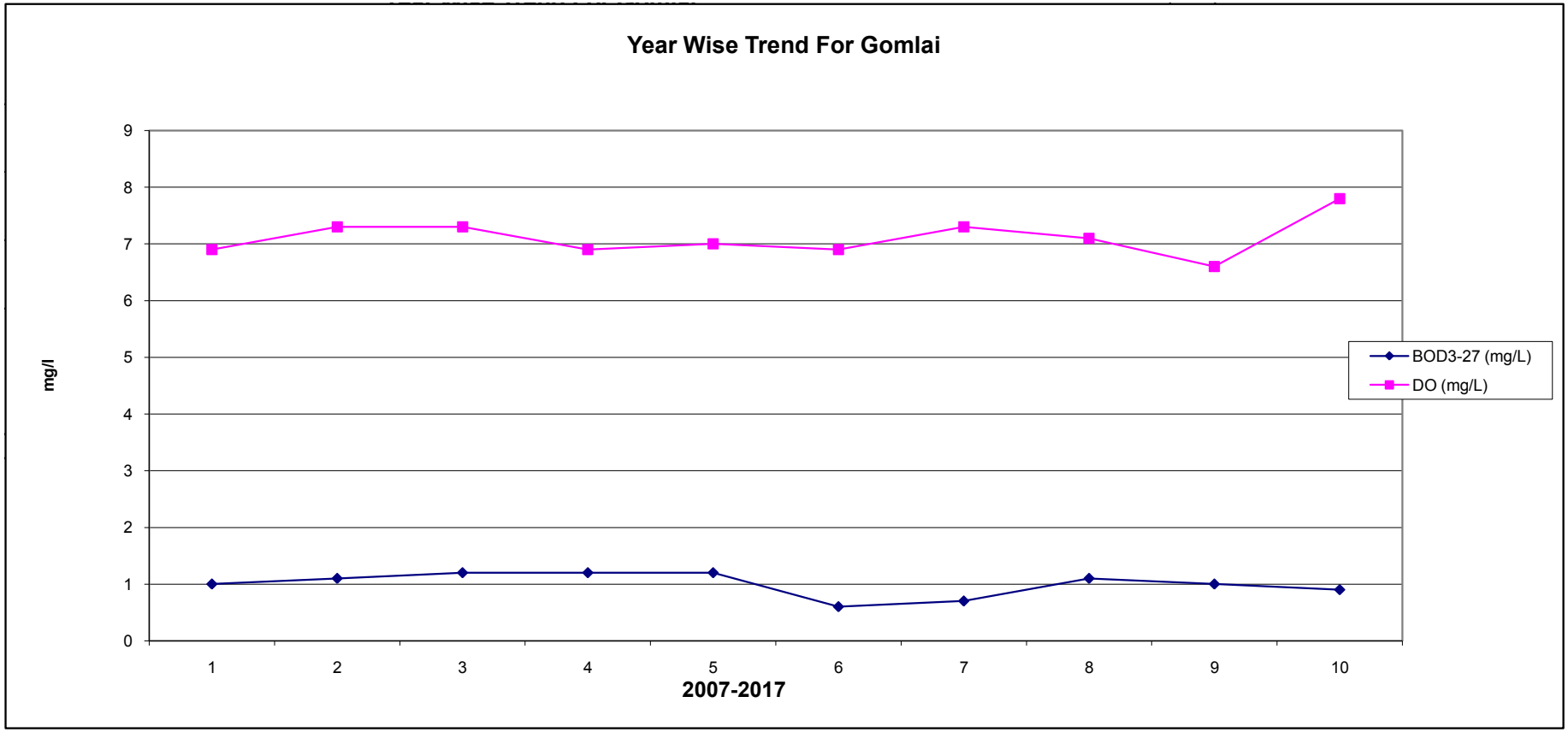

MAXIMUM-MINIMUM DISCHARGE FROM JUNE TO MAY
SITE:GOMLAI RIVER:BRAHMANI
DISCHARGE IN CUMECS
3500.000
3000.000
2500.000
2000.000
1500.000
1000.000
500.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
Maximum
Minimum

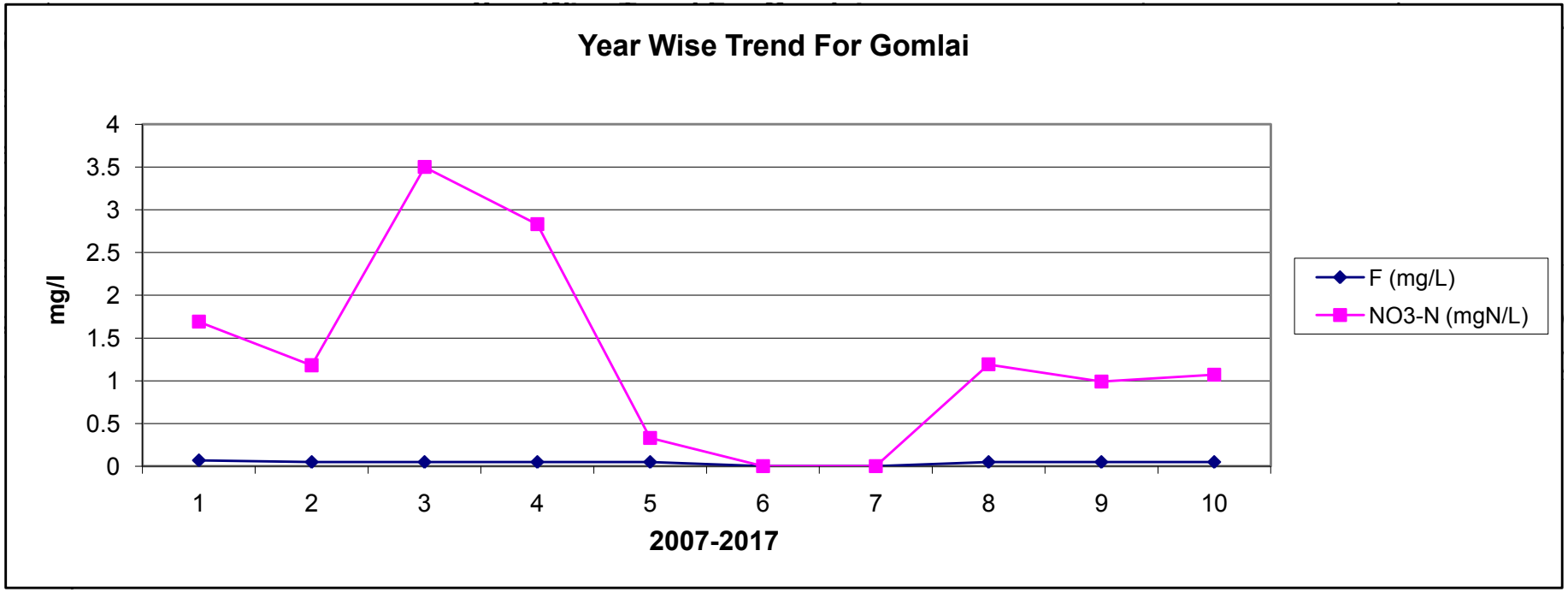

Monsoon Load
SITE:GOMLAI RIVER:BRAHMANI
LOAD IN M.T.
30000000
25000000
20000000
15000000
10000000
5000000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Monsoon Load

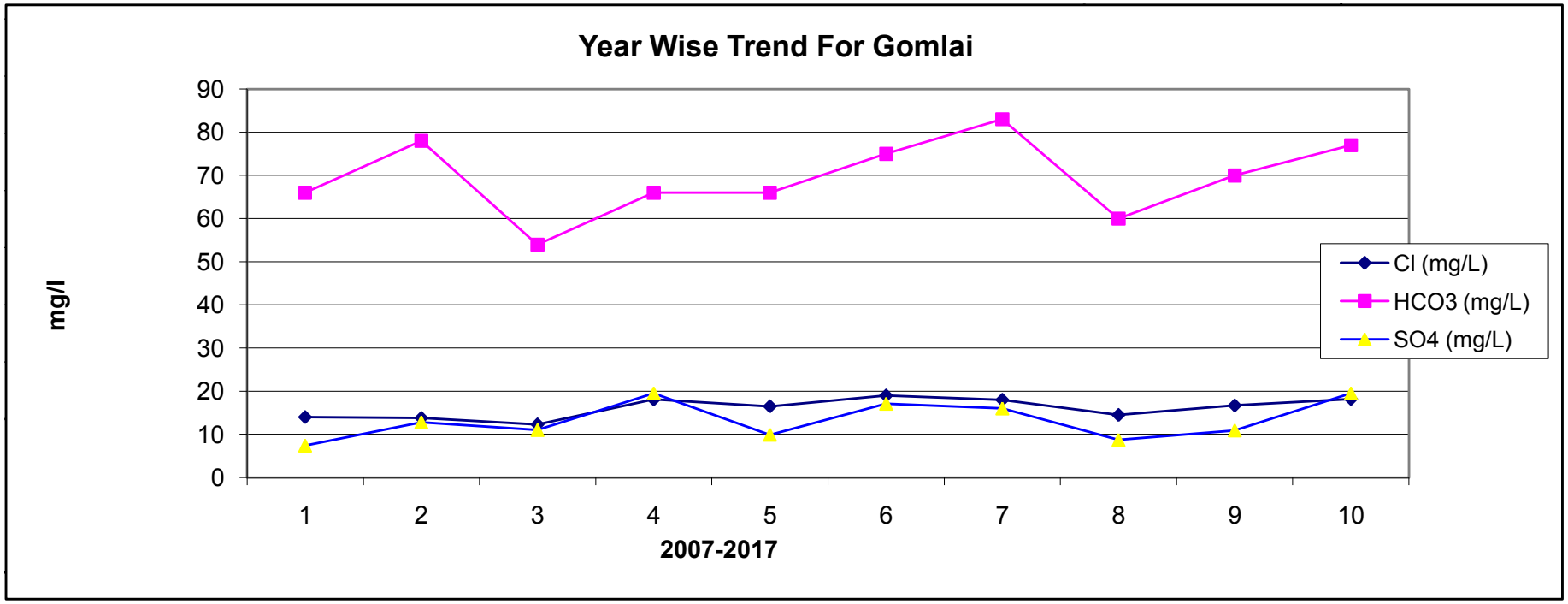

NonMonsoon Load
SITE:GOMLAI RIVER:BRAHMANI
LOAD IN M.T.
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
NonMonsoon Load

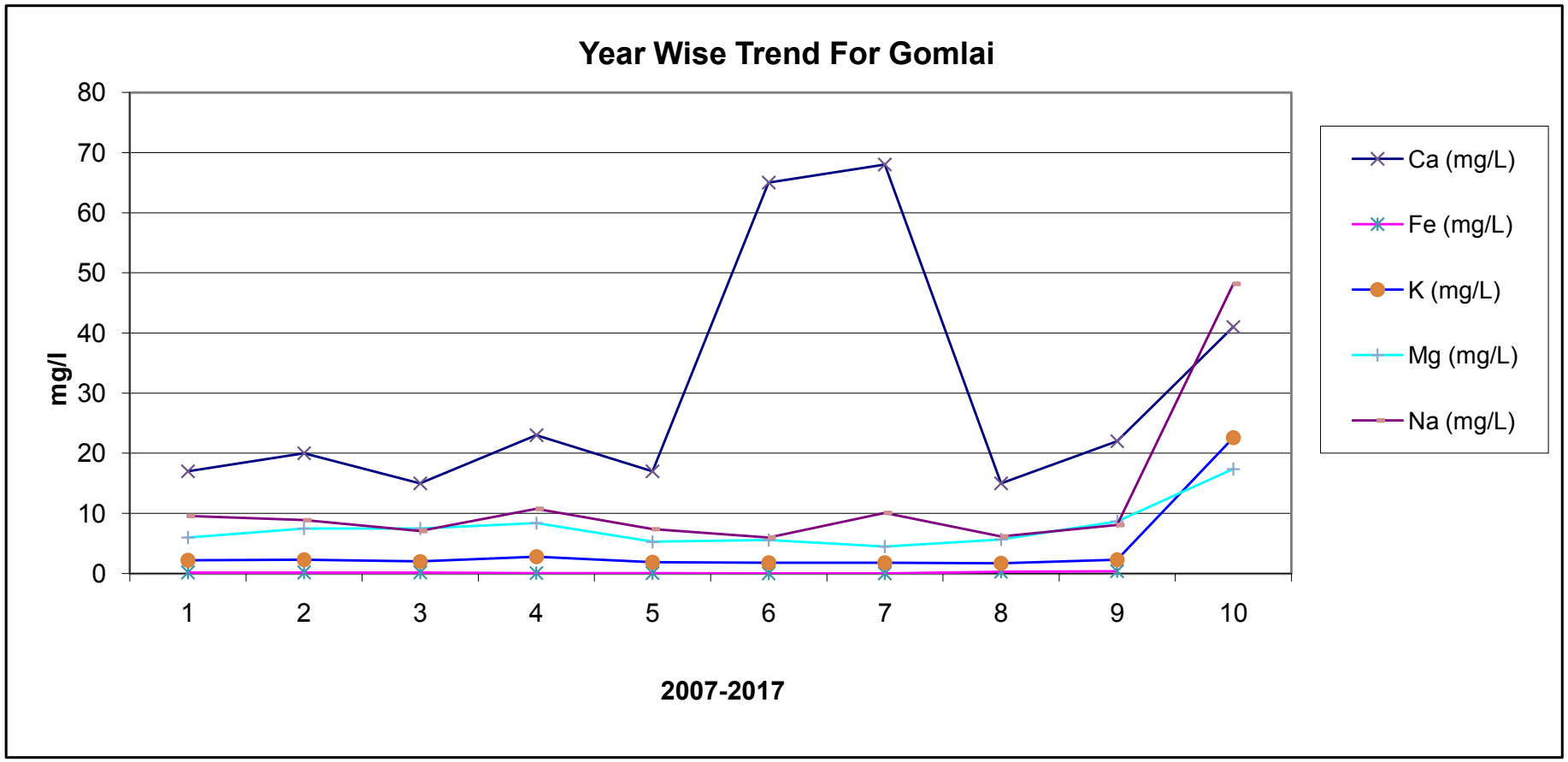

Annual Load
SITE:GOMLAI RIVER:BRAHMANI
LOAD IN M.T.
30000000
25000000
20000000
15000000
10000000
5000000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Annual Load


Year Wise Trend For Gomlai
200
180
160
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Gomlai
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Gomlai
mg/l
4
3.5
3
2.5
2
1.5
1
0.5
0
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Gomlai
mg/l
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Gomlai
mg/l
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
Fe (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**Jenapur**	**Code**	:	**EB000G6**
State	:	Orissa	District		Jajpur
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:	Brahmni	Sub Tributary	:	Brahmni
Sub-Sub Tributary	:	Brahmni	Local River	:	Brahmni
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela
Drainage Area	:	33955 Sq. Km.	Bank	:	Right
Latitude	:	20°53'23"	Longitude	:	86°00'51"
Zero of Gauge (m)	:	13 (m.s.l)	01.01.1975	-	31.12.2025
		Opening Date	Closing Date		
Gauge	:	09.07.1977			
Discharge	:	20.07.1979			
Sediment	:	09.07.1980			
Water Quality	:	01.03.1980			

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1980-1981	3036	21.210	09.09.1980	18.52	16.365	23.03.1981
1981-1982	2805	20.800	17.08.1981	14.96	16.745	21.05.1982
1982-1983	4660	22.210	23.08.1982	6.465	16.630	16.04.1983
1983-1984	8506	22.960	07.09.1983	5.120	16.810	21.05.1984
1984-1985	9702	23.475	18.08.1984	8.500	16.870	03.06.1984
1985-1986	7485	22.360	29.08.1985	6.995	16.870	14.06.1985
1986-1987	5057	22.200	23.07.1986	91.10	17.500	13.06.1986
1987-1988	4738	21.550	31.08.1987	82.17	17.355	13.05.1988
1988-1989	6217	22.175	04.08.1988	77.70	17.580	31.05.1989
1989-1990	4312	21.395	28.07.1989	78.90	17.490	05.04.1990
1990-1991	4595	21.673	15.10.1990	41.00	17.190	02.05.1991
1991-1992	9151	22.880	14.08.1991	45.77	17.170	26.04.1992
1992-1993	4892	21.680	29.07.1992	20.99	16.790	03.04.1993
1993-1994	3346	20.630	30.09.1993	26.75	17.080	23.04.1994
1994-1995	8952	22.860	19.09.1994	65.00	17.200	12.06.1994
1995-1996	3823	21.410	21.09.1995	82.06	17.750	24.01.1996
1996-1997	4652	21.680	23.06.1996	57.68	17.440	28.02.1997
1997-1998	7135	22.560	06.08.1997	75.60	17.860	14.01.1998
1998-1999	5173	22.040	14.09.1998	85.80	17.880	31.03.1999
1999-2000	8053	22.640	31.10.1999	110.0	17.680	28.05.2000
2000-2001	3545	21.320	30.07.2000	37.00	17.270	07.05.2001
2001-2002	10077	23.360	25.07.2001	49.62	17.570	30.05.2002

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
2002-2003	2002	20.220	09.09.2002	49.59	17.450	08.06.2002
2003-2004	5622	22.140	27.10.2003	61.01	17.600	06.04.2004
2004-2005	3906	21.380	23.08.2004	56.53	17.660	23.06.2004
2005-2006	10314	23.060	31.07.2005	45.00	17.540	23.04.2006
2006-2007	9804	23.110	24.08.2006	41.51	17.260	28.05.2007
2007-2008	7568	22.590	28.09.2007	40.28	17.260	12.03.2008
2008-2009	7489	22.240	19.09.2008	48.19	17.120	09.04.2009
2009-2010	6466	22.290	22.07.2009	34.55	17.060	05.02.2010
2010-2011	952.9	19.230	07.08.2010	52.00	17.300	20.02.2011
2011-2012	10372	23.730	26.09.2011	27.60	17.280	05.06.2011
2012-2013	3234	20.920	27.08.2012	23.59	19.120	17.10.2012
2013-2014	4059	21.650	14.10.2013	40.46	17.440	10.02.2014
2014-2015	7963	22.740	06.08.2014	17.56	17.560	08.03.2015
2015-2016	3916	21.130	06.08.2015	21.19	17.600	07.02.2016
2016-2017	3315	21.110	05.08.2016	26.90	18.540	23.05.2017

Stage-Discharge Data for the period 2016 - 2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	18.140	164.7	17.600	32.78	18.820	568.4	19.000	749.9	18.880	707.1	17.820	
2	18.180	197.9	17.620	35.73	18.610	422.6	19.120	836.4	19.080	85.97 *	17.820	
3	18.240	220.9	17.860	45.90 *	18.920	714.4	18.940	699.1	18.940	772.1	17.800	
4	18.280	243.7	17.840	89.66	19.800	1476	18.900	439.6 *	18.790	603.2	17.840	
5	18.100	154.7 *	17.780	79.31	21.110	3315	19.020	807.2	18.910	725.1	17.880	
6	17.940	118.7	17.820	93.59	20.010	1835	18.980	712.4	18.710	503.6	17.880	
7	17.920	102.8	17.840	89.03 *	19.740	1180 *	19.160	977.6	18.650	472.1	17.820	
8	17.920	101.5	17.800	86.11	19.900	1629	19.140	934.9	18.650	473.9	17.820	
9	17.920	123.9	18.020	127.2	19.240	965.3	19.140	961.1	18.840	480.5 *	17.780	
10	17.860	113.5	18.000	121.4 *	19.240	955.4	19.020	789.9	18.540	366.1 *	17.780	
11	17.840	88.48	18.220	234.8	19.200	936.5	19.040	701.3 *	18.600	381.3 *	17.740	
12	17.840	79.73 *	18.510	398.4	19.340	1022	19.080	859.5	18.600	404.2 *	17.700	
13	17.820	82.85	18.420	370.1	19.140	908.5	19.220	855.8 *	18.500	407.4	17.680	
14	17.940	108.1	18.540	417.9	18.800	447.1 *	20.100	2077	18.520	413.7	17.640	
15	17.940	129.1	18.490	352.1	19.220	873.8 *	20.140	2134	18.940	812.0	17.620	
16	18.340	287.0	18.500	352.6	18.980	727.9	19.280	1064	18.580	481.0 *	17.600	
17	18.140	176.7	18.500	292.2 *	19.910	1665	19.080	851.0	18.200	284.2	17.600	
18	17.940	138.9	18.700	468.3	19.460	1176	18.960	618.8 *	18.060	182.9	17.580	
19	17.800	86.48 *	18.680	463.7	19.340	1037	18.920	671.9	17.940	119.1	17.560	
20	17.760	64.37	18.660	446.9	19.020	864.1	19.000	752.2	17.920	104.3	17.540	
21	17.740	59.38	18.560	374.0	20.420	2084 *	18.900	646.8	17.900	93.37	17.540	
22	17.660	42.17	18.720	446.6	20.420	2011	18.920	665.3	17.900	95.86	17.520	
23	17.640	37.75	19.150	856.0	19.300	1003	19.040	855.6	17.920	79.32 *	17.520	
24	17.620	34.63	19.120	727.0 *	19.220	952.9	18.940	690.3	17.880	102.5	17.520	
25	17.660	42.29	18.980	1031	19.140	852.0	19.100	845.7 *	17.860	91.76	17.540	
26	17.640	36.07 *	18.580	407.4	19.170	885.3	19.020	821.0	17.860	93.98	17.540	
27	17.620	35.66	19.000	726.7	19.220	942.1	18.900	662.5	17.840	86.88	17.540	
28	17.600	33.11	18.870	587.4	19.120	766.0 *	18.920	678.2	17.840	197.9	17.520	
29	17.600	33.26	18.580	409.8	19.030	850.4	18.940	694.0	17.840	103.8	17.780	
30	17.620	35.92	18.680	408.0	18.980	720.3	19.010	900.1	17.840	78.66 *	17.820	
31			18.540	296.1 *	19.020	807.2			17.840	90.36		
Ten-Daily Mean												
I Ten-Daily	18.050	154.2	17.818	80.07	19.539	1306	19.042	790.8	18.799	519.0	17.824	
II Ten-Daily	17.936	124.2	18.522	379.7	19.241	965.8	19.282	1058	18.386	359.0	17.626	
III Ten-Daily	17.640	39.02	18.798	570.0	19.367	1079	18.969	746.0	17.865	101.3	17.584	
Monthly												
Min.	17.600	33.11	17.600	32.78	18.610	422.6	18.900	439.6	17.840	78.66	17.520	
Max.	18.340	287.0	19.150	1031	21.110	3315	20.140	2134	19.080	812.0	17.880	
Mean	17.875	105.8	18.393	350.6	19.382	1116	19.098	865.1	18.335	319.2	17.678	

Annual Runoff in MCM = 8931 Annual Runoff in mm = 263

Peak Observed Discharge = 3315 cumecs on 05/08/2016 Corres. Water Level :21.11 m

Lowest Observed Discharge = -782.229 cumecs on 01/05/2017 Corres. Water Level :18.1 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2016 - 2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	17.800	76.95	17.600		17.520	30.36	17.500	34.98	17.800	106.0	18.100	-782.229
2	17.800	74.85	17.640	38.47	17.520	30.19	17.520	39.87			18.120	341.0
3	17.700	67.58	17.640	47.77	17.520	30.14	17.520	34.33	17.700	88.04	18.060	286.1
4	17.680		17.620	45.42	17.500	28.03	17.480	27.40	17.680	83.19	18.100	306.6
5	17.660	61.12	17.620	37.62					17.660	76.67	18.460	555.5
6	17.640	59.29	17.600	40.19	17.500	28.98	17.560	43.87	17.680	81.01	18.540	602.4
7	17.640	56.50	17.640	46.94	17.520	29.69	17.620	66.35	17.640	71.20		
8	17.620	53.94	17.700		17.520	29.41	17.680	87.09	17.620	66.40	18.500	550.9
9	17.620	49.19	17.760	84.57	17.540	42.82	17.720	93.77			18.220	361.3
10	17.620	49.96	17.740	80.98	17.540	44.01	17.720	82.08	17.740	90.04		
11	17.620		17.700	64.12	17.540	43.67	17.720	94.98	17.720	85.16	18.640	621.0
12	17.640		17.720	65.87					17.720	87.10	18.400	460.8
13	17.640	50.61	17.680	61.78	17.560	51.18			17.720	85.53	18.440	486.3
14	17.640	48.85	17.620	48.70	17.560	51.84	17.560	51.74				
15	17.620	46.16	17.600		17.540	45.37	17.500	35.63	17.700	81.23	18.600	578.1
16	17.620	45.13	17.540	35.19	17.520	32.38	17.480	50.65			38.500	493.4
17	17.640	47.79	17.520	30.47	17.520	40.41	17.480	54.19	17.680	76.09	18.280	394.8
18	17.640		17.520	30.04	17.500	35.75	17.500	56.61	17.780	167.5	18.300	408.9
19	17.600	37.95	17.520	29.94					17.780	168.3	18.520	582.4
20	17.600	37.48	17.540	31.30	17.480	31.73	17.500	56.22	17.780	167.5	18.540	42.02
21	17.600	38.88	17.560	36.18	17.480	31.73	17.520	70.08	17.800	177.9		
22	17.600	37.43	17.540		17.500	34.77	17.540	79.18	17.820	199.2	18.580	50.44
23	17.580	36.34	17.560	35.08	17.500	35.26	17.580	80.18			18.540	26.90
24	17.580	36.04	17.560	34.21			17.580	80.59	17.780	176.5	18.640	633.2
25	17.580		17.540	33.48	17.480	31.65	17.640	94.25	17.780	178.9	18.640	641.5
26	17.560	57.82	17.540						17.760	172.9	18.700	624.3
27	17.540	33.33	17.560	35.07	17.480	27.65	17.700	107.3	17.780	177.2	18.700	620.5
28	17.540	32.91	17.540	33.69	17.480	31.05	17.820	111.5	17.820	197.7		
29	17.560	35.74	17.540				17.780	99.28	17.900	234.0	18.720	704.5
30	17.560	34.38	17.560	34.91			17.780	102.2			18.540	575.0
31	17.600	44.99	17.560	34.84			17.820	111.2			18.640	618.6
Ten-Daily Mean												
I Ten-Daily	17.678	61.04	17.656	52.74	17.520	32.63	17.591	56.64	17.690	82.82	18.262	277.7
II Ten-Daily	17.626	44.85	17.596	44.16	17.528	41.54	17.534	57.15	17.735	114.8	20.691	452.0
III Ten-Daily	17.573	38.79	17.551	34.68	17.487	32.02	17.676	93.58	17.805	189.3	18.633	499.4
Monthly												
Min.	17.540	32.91	17.520	29.94	17.480	27.65	17.480	27.40	17.620	66.40	18.060	-782.229
Max.	17.800	76.95	17.760	84.57	17.560	51.84	17.820	111.5	17.900	234.0	38.500	704.5
Mean	17.624	48.12	17.599	43.87	17.514	35.57	17.608	70.98	17.743	129	19.232	414.8

Peak Computed Discharge = 2084 cumecs on 21/08/2016 Corres. Water Level :20.42 m

Lowest Computed Discharge = 36.07 cumecs on 26/06/2016 Corres. Water Level :17.64 m

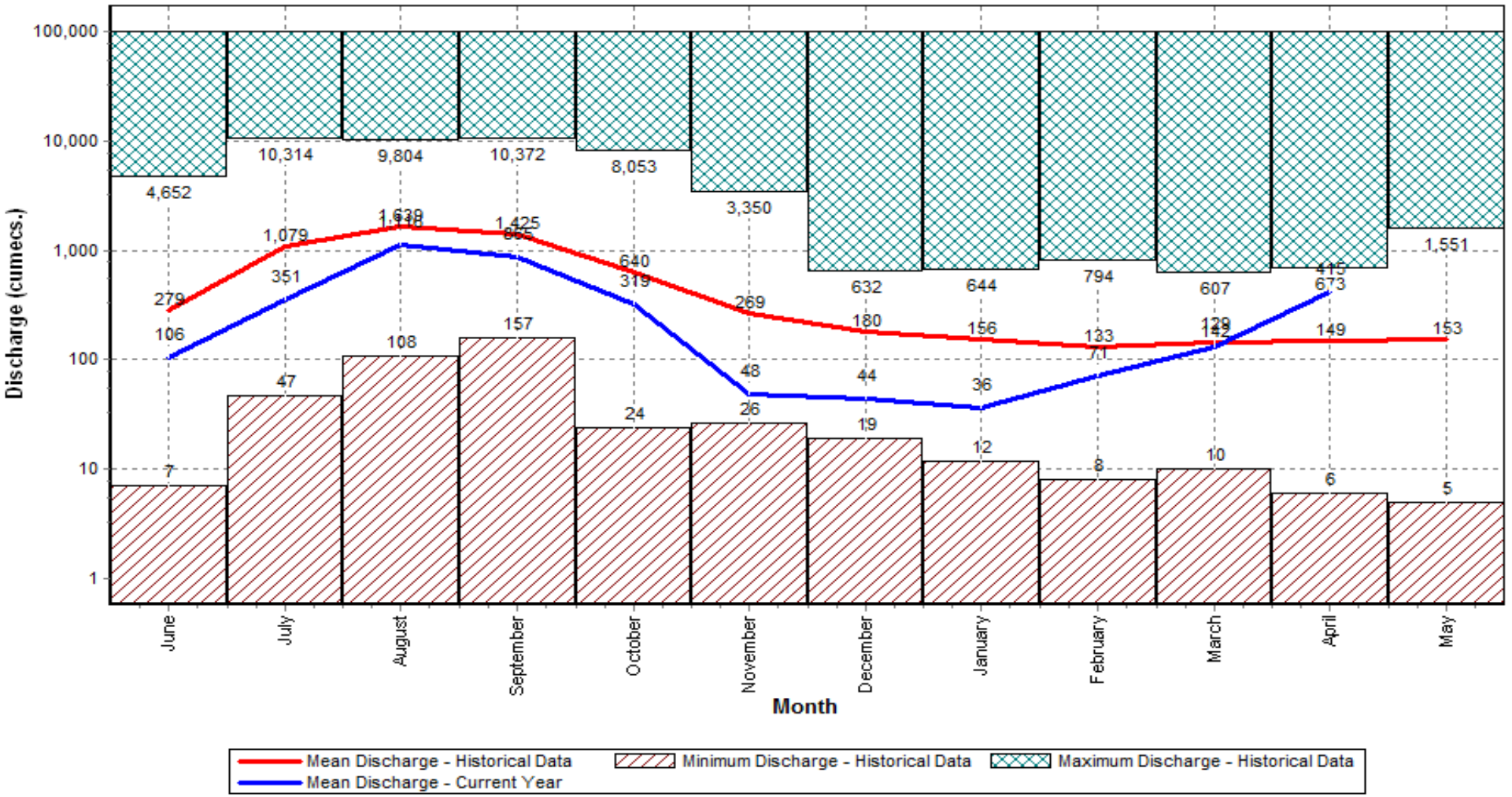
Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2016-2017

Station Name : Jenapur (EB000G6) **Data considered : 1980-2017** **Division : E.E., Bhubaneswar**

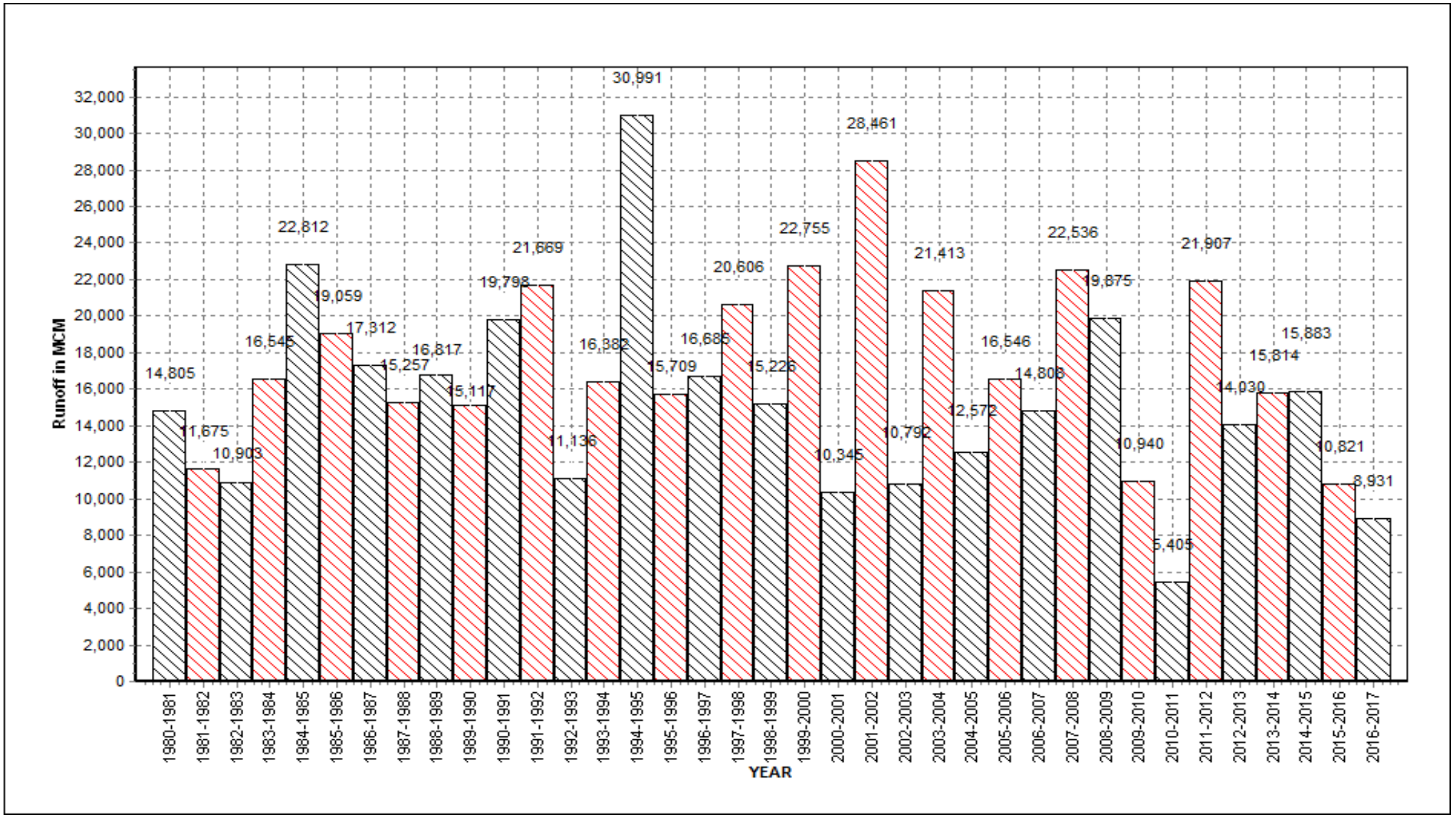
Local River : Brahmni **Sub-Division : Rourkela**



Annual Runoff Values for the period: 1980 - 2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

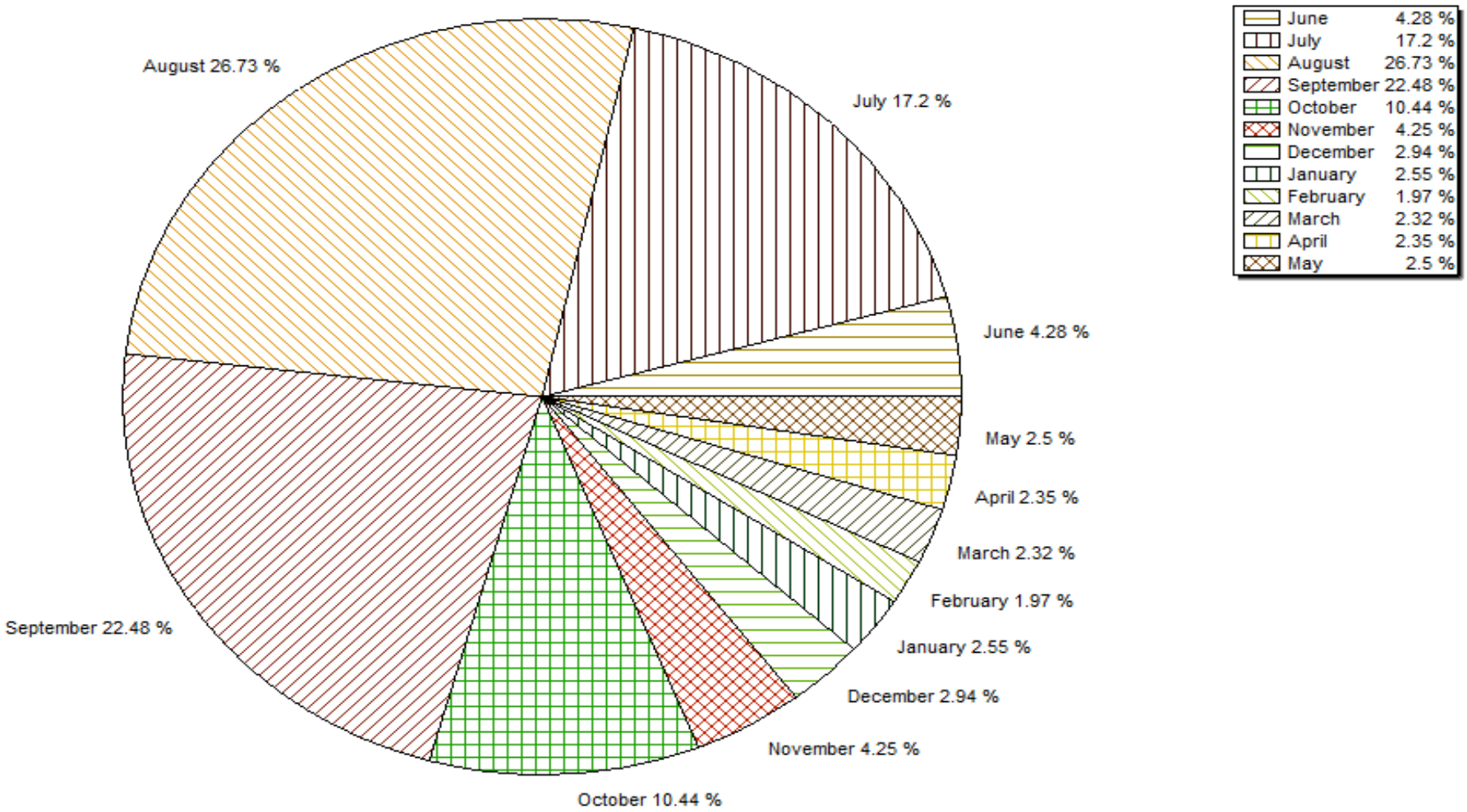


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1980-2016

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

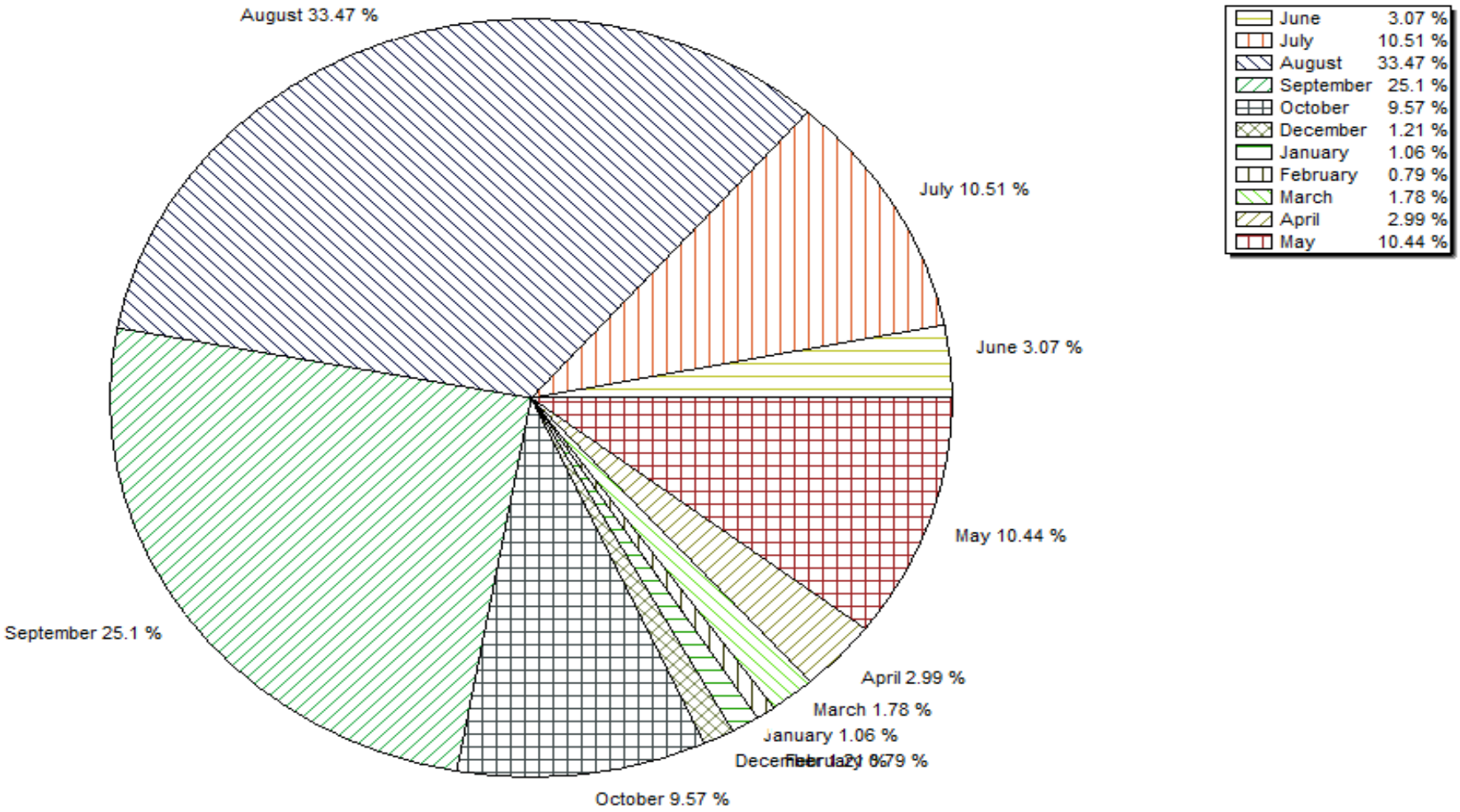
Local River : Brahmni **Sub-Division : Rourkela**



Monthly Runoff for the Year : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

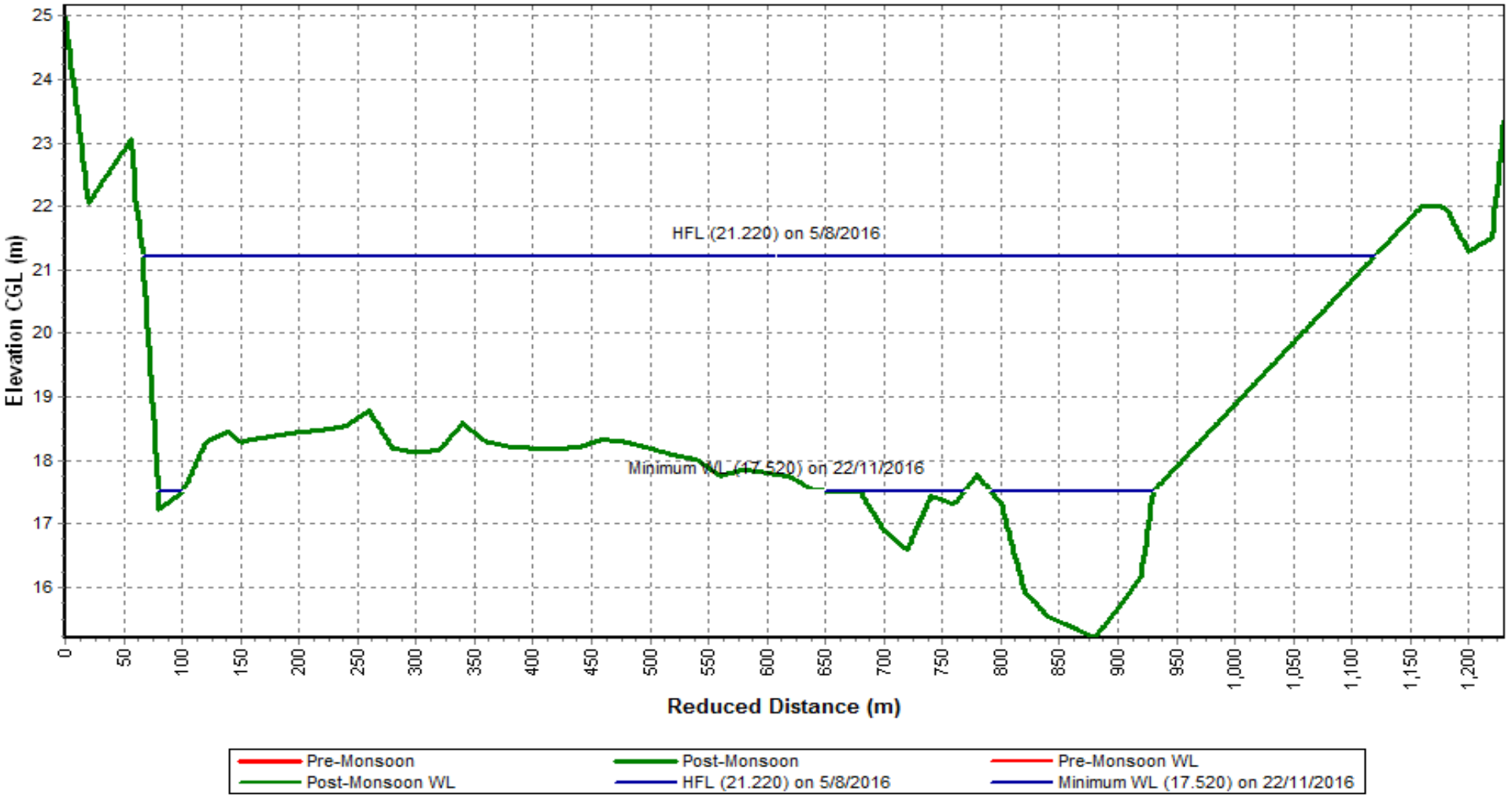
Local River : Brahmni **Sub-Division : Rourkela**



Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

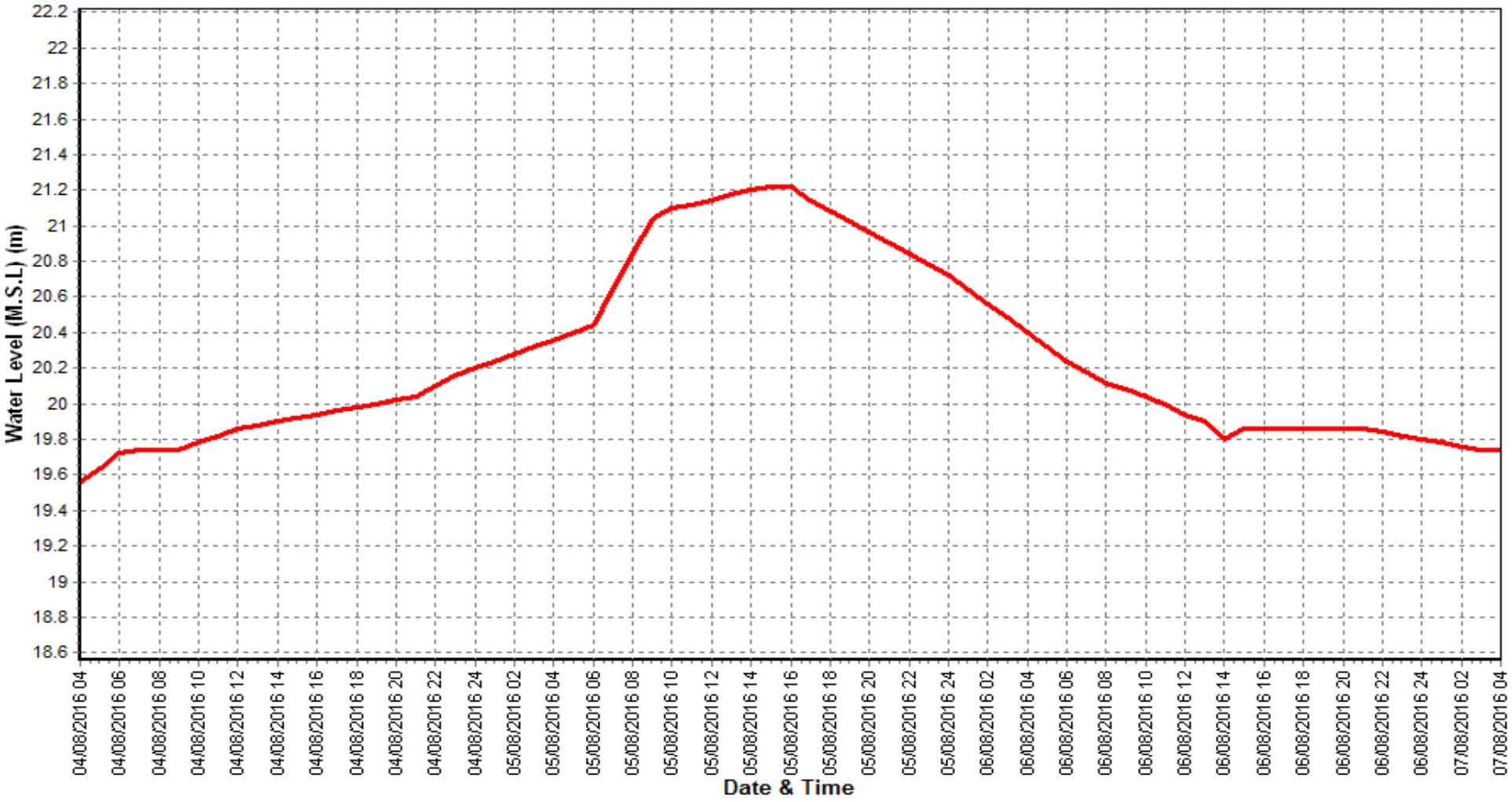
Local River : Brahmni **Sub-Division : Rourkela**



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

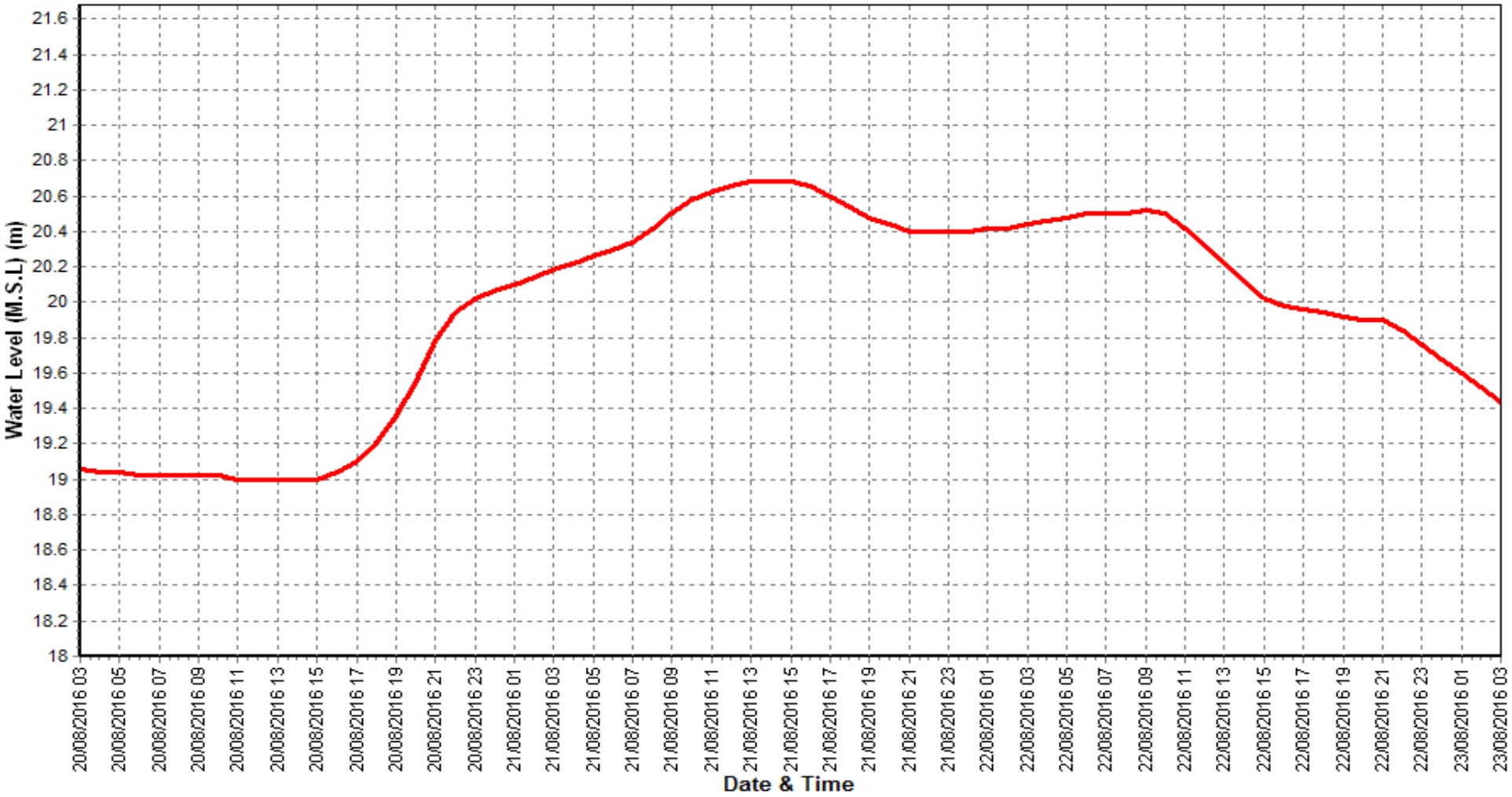


Time Span: 72 Hrs

Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

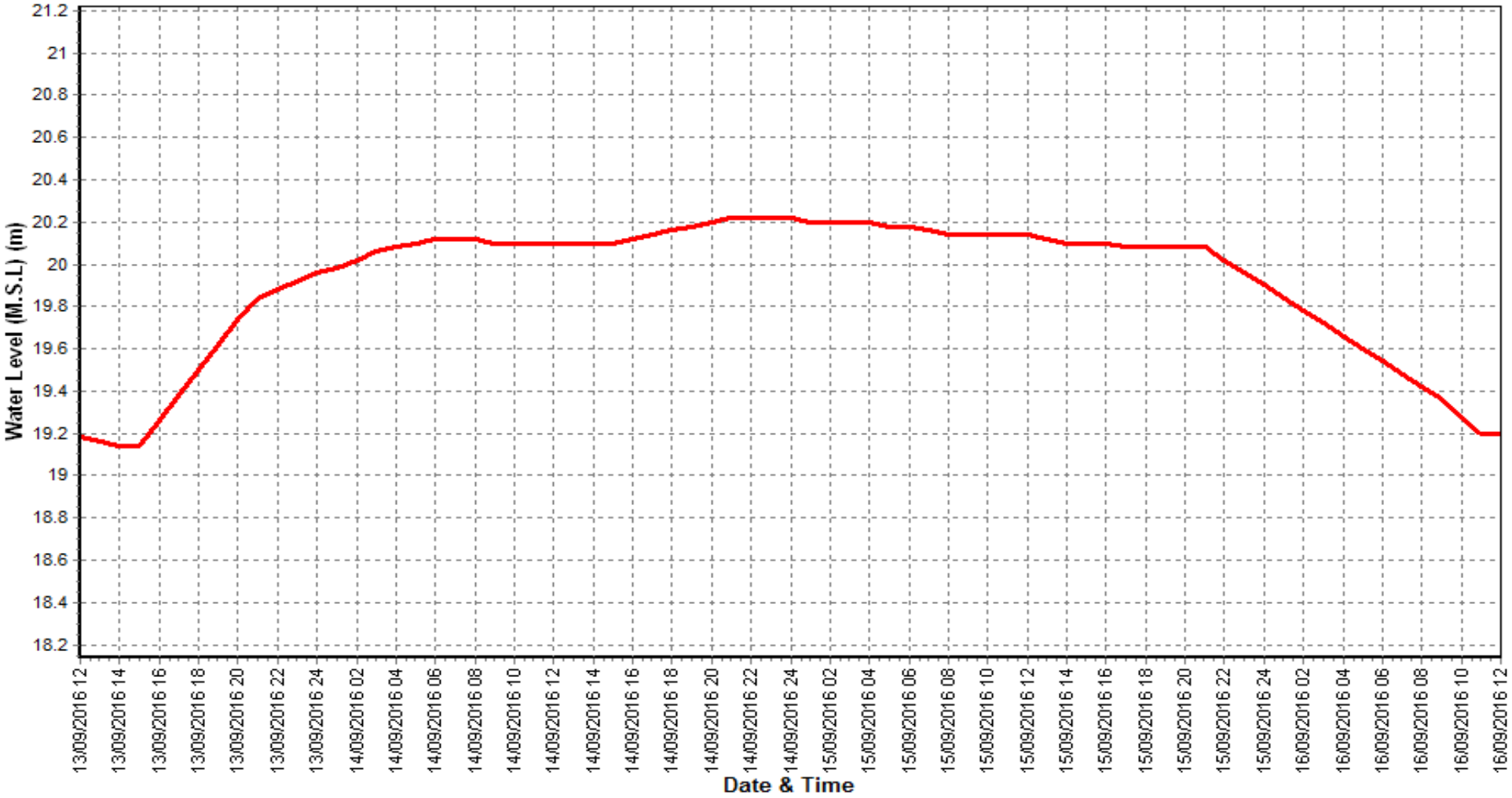


Time Span: 72 Hrs

Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**



Time Span: 72 Hrs

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	164.7	0.000	0.000	0.046	0.046	655	32.78	0.000	0.000	0.053	0.053	150	568.4	0.000	0.000	0.084	0.084	4125
2	197.9	0.000	0.000	0.052	0.052	889	35.73	0.000	0.000	0.068	0.068	210	422.6	0.000	0.000	0.176	0.176	6426
3	220.9	0.000	0.000	0.056	0.056	1069	45.90	0.000	0.000	0.000	0.000	0	714.4	0.000	0.000	0.169	0.169	10431
4	243.7	0.000	0.000	0.054	0.054	1137	89.66	0.000	0.000	0.064	0.064	496	1476	0.000	0.000	0.216	0.216	27550
5	154.7	0.000	0.000	0.054	0.054	722	79.31	0.000	0.000	0.069	0.069	473	3315	0.000	0.000	0.538	0.538	154084
6	118.7	0.000	0.000	0.054	0.054	554	93.59	0.000	0.000	0.059	0.059	477	1835	0.000	0.000	0.507	0.507	80375
7	102.8	0.000	0.000	0.560	0.560	4974	89.03	0.000	0.000	0.000	0.000	0	1180	0.000	0.000	0.000	0.000	0
8	101.5	0.000	0.000	0.062	0.062	544	86.11	0.000	0.000	0.066	0.066	491	1629	0.000	0.000	0.558	0.558	78553
9	123.9	0.000	0.000	0.090	0.090	963	127.2	0.000	0.000	0.041	0.041	450	965.3	0.000	0.000	0.375	0.375	31277
10	113.5	0.000	0.000	0.041	0.041	402	121.4	0.000	0.000	0.000	0.000	0	955.4	0.000	0.000	0.132	0.132	10896
11	88.48	0.000	0.000	0.041	0.041	313	234.8	0.000	0.000	0.057	0.057	1156	936.5	0.000	0.000	0.206	0.206	16668
12	79.73	0.000	0.000	0.041	0.041	282	398.4	0.000	0.000	0.073	0.073	2513	1022	0.000	0.000	0.162	0.162	14305
13	82.85	0.000	0.000	0.042	0.042	301	370.1	0.000	0.000	0.072	0.072	2303	908.5	0.000	0.000	0.170	0.170	13345
14	108.1	0.000	0.000	0.038	0.038	355	417.9	0.000	0.000	0.060	0.060	2166	447.1	0.000	0.000	0.000	0.000	0
15	129.1	0.000	0.000	0.041	0.041	457	352.1	0.000	0.000	0.060	0.060	1825	873.8	0.000	0.000	0.000	0.000	0
16	287.0	0.000	0.000	0.046	0.046	1141	352.6	0.000	0.000	0.066	0.066	2010	727.9	0.000	0.000	0.171	0.171	10754
17	176.7	0.000	0.000	0.056	0.056	855	292.2	0.000	0.000	0.000	0.000	0	1665	0.000	0.000	0.172	0.172	24745
18	138.9	0.000	0.000	0.051	0.051	612	468.3	0.000	0.000	0.098	0.098	3965	1176	0.000	0.000	0.138	0.138	14017
19	86.48	0.000	0.000	0.051	0.051	381	463.7	0.000	0.000	0.095	0.095	3806	1037	0.000	0.000	0.080	0.080	7170
20	64.37	0.000	0.000	0.052	0.052	289	446.9	0.000	0.000	0.091	0.091	3513	864.1	0.000	0.000	0.164	0.164	12244
21	59.38	0.000	0.000	0.038	0.038	195	374.0	0.000	0.000	0.072	0.072	2327	2084	0.000	0.000	0.000	0.000	0
22	42.17	0.000	0.000	0.047	0.047	171	446.6	0.000	0.000	0.069	0.069	2663	2011	0.000	0.000	0.153	0.153	26583
23	37.75	0.000	0.000	0.068	0.068	222	856.0	0.000	0.000	0.086	0.086	6361	1003	0.000	0.000	0.164	0.164	14209
24	34.63	0.000	0.000	0.059	0.059	177	727.0	0.000	0.000	0.000	0.000	0	952.9	0.000	0.000	0.173	0.173	14243
25	42.29	0.000	0.000	0.053	0.053	194	1031	0.000	0.000	0.078	0.078	6949	852.0	0.000	0.000	0.116	0.116	8540
26	36.07	0.000	0.000	0.053	0.053	165	407.4	0.000	0.000	0.061	0.061	2147	885.3	0.000	0.000	0.118	0.118	9025
27	35.66	0.000	0.000	0.057	0.057	176	726.7	0.000	0.000	0.110	0.110	6907	942.1	0.000	0.000	0.066	0.066	5373
28	33.11	0.000	0.000	0.062	0.062	177	587.4	0.000	0.000	0.071	0.071	3603	766.0	0.000	0.000	0.066	0.066	4368
29	33.26	0.000	0.000	0.064	0.064	184	409.8	0.000	0.000	0.070	0.070	2479	850.4	0.000	0.000	0.059	0.059	4335
30	35.92	0.000	0.000	0.063	0.063	196	408.0	0.000	0.000	0.091	0.091	3208	720.3	0.000	0.000	0.052	0.052	3236
31							296.1	0.000	0.000	0.000	0.000	0	807.2	0.000	0.000	0.067	0.067	4673
Ten Daily Mean																		
Ten Daily I	154.2	0.000	0.000	0.107	0.107	1191	80.07	0.000	0.000	0.042	0.042	275	1306	0.000	0.000	0.276	0.276	40372
Ten Daily II	124.2	0.000	0.000	0.046	0.046	499	379.7	0.000	0.000	0.067	0.067	2326	965.8	0.000	0.000	0.126	0.126	11325
Ten Daily III	39.02	0.000	0.000	0.056	0.056	186	570.0	0.000	0.000	0.064	0.064	3331	1079	0.000	0.000	0.094	0.094	8599
Monthly																		
Total						18750						62648						611549

Annual Sediment Load (Metric Tonnes) : 966035

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	749.9	0.000	0.000	0.120	0.120	7775	707.1	0.000	0.000	0.060	0.060	3666		0.000	0.000	0.071	0.071	
2	836.4	0.000	0.000	0.123	0.123	8888	85.97	0.000	0.000	0.000	0.000	0		0.000	0.000	0.071	0.071	
3	699.1	0.000	0.000	0.071	0.071	4289	772.1	0.000	0.000	0.113	0.113	7538		0.000	0.000	0.066	0.066	
4	439.6	0.000	0.000	0.000	0.000	0	603.2	0.000	0.000	0.051	0.051	2658		0.000	0.000	0.068	0.068	
5	807.2	0.000	0.000	0.104	0.104	7253	725.1	0.000	0.000	0.114	0.114	7142		0.000	0.000	0.072	0.072	
6	712.4	0.000	0.000	0.163	0.163	10032	503.6	0.000	0.000	0.063	0.063	2741		0.000	0.000	0.000	0.000	
7	977.6	0.000	0.000	0.156	0.156	13176	472.1	0.000	0.000	0.100	0.100	4079		0.000	0.000	0.069	0.069	
8	934.9	0.000	0.000	0.147	0.147	11874	473.9	0.000	0.000	0.057	0.057	2334		0.000	0.000	0.071	0.071	
9	961.1	0.000	0.000	0.165	0.165	13701	480.5	0.000	0.000	0.000	0.000	0		0.000	0.000	0.069	0.069	
10	789.9	0.000	0.000	0.159	0.159	10851	366.1	0.000	0.000	0.000	0.000	0		0.000	0.000	0.066	0.066	
11	701.3	0.000	0.000	0.000	0.000	0	381.3	0.000	0.000	0.000	0.000	0		0.000	0.000	0.057	0.057	
12	859.5	0.000	0.000	0.144	0.144	10694	404.2	0.000	0.000	0.000	0.000	0		0.000	0.000	0.065	0.065	
13	855.8	0.000	0.000	0.000	0.000	0	407.4	0.000	0.000	0.038	0.038	1337		0.000	0.000	0.000	0.000	
14	2077	0.000	0.000	0.122	0.122	21894	413.7	0.000	0.000	0.064	0.064	2288		0.000	0.000	0.000	0.000	
15	2134	0.000	0.000	0.168	0.168	30972	812.0	0.000	0.000	0.067	0.067	4701		0.000	0.000	0.060	0.060	
16	1064	0.000	0.000	0.068	0.068	6249	481.0	0.000	0.000	0.067	0.067	2784		0.000	0.000	0.061	0.061	
17	851.0	0.000	0.000	0.071	0.071	5220	284.2	0.000	0.000	0.044	0.044	1081		0.000	0.000	0.058	0.058	
18	618.8	0.000	0.000	0.000	0.000	0	182.9	0.000	0.000	0.038	0.038	601		0.000	0.000	0.059	0.059	
19	671.9	0.000	0.000	0.041	0.041	2380	119.1	0.000	0.000	0.093	0.093	957		0.000	0.000	0.053	0.053	
20	752.2	0.000	0.000	0.096	0.096	6239	104.3	0.000	0.000	0.060	0.060	541		0.000	0.000	0.000	0.000	
21	646.8	0.000	0.000	0.099	0.099	5532	93.37	0.000	0.000	0.057	0.057	460		0.000	0.000	0.053	0.053	
22	665.3	0.000	0.000	0.076	0.076	4369	95.86	0.000	0.000	0.054	0.054	447		0.000	0.000	0.052	0.052	
23	855.6	0.000	0.000	0.071	0.071	5249	79.32	0.000	0.000	0.000	0.000	0		0.000	0.000	0.051	0.051	
24	690.3	0.000	0.000	0.121	0.121	7217	102.5	0.000	0.000	0.052	0.052	461		0.000	0.000	0.049	0.049	
25	845.7	0.000	0.000	0.000	0.000	0	91.76	0.000	0.000	0.050	0.050	396		0.000	0.000	0.050	0.050	
26	821.0	0.000	0.000	0.099	0.099	7022	93.98	0.000	0.000	0.057	0.057	463		0.000	0.000	0.052	0.052	
27	662.5	0.000	0.000	0.070	0.070	4007	86.88	0.000	0.000	0.057	0.057	428		0.000	0.000	0.000	0.000	
28	678.2	0.000	0.000	0.118	0.118	6914	197.9	0.000	0.000	0.063	0.063	1077		0.000	0.000	0.049	0.049	
29	694.0	0.000	0.000	0.094	0.094	5637	103.8	0.000	0.000	0.065	0.065	583		0.000	0.000	0.066	0.066	
30	900.1	0.000	0.000	0.083	0.083	6455	78.66	0.000	0.000	0.000	0.000	0		0.000	0.000	0.067	0.067	
31							90.36	0.000	0.000	0.056	0.056	437						
Ten Daily Mean																		
Ten Daily I	790.8	0.000	0.000	0.121	0.121	8784	519.0	0.000	0.000	0.056	0.056	3016		0.000	0.000	0.062	0.062	
Ten Daily II	1058	0.000	0.000	0.071	0.071	8365	359.0	0.000	0.000	0.047	0.047	1429		0.000	0.000	0.041	0.041	
Ten Daily III	746.0	0.000	0.000	0.083	0.083	5240	101.3	0.000	0.000	0.046	0.046	432		0.000	0.000	0.049	0.049	
Monthly																		
Total						223890						49199						0

Annual Sediment Load (Metric Tonnes) : 966035

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1		0.000	0.000	0.067	0.067			0.000	0.000	0.044	0.044			0.000	0.000	0.044	0.044	
2		0.000	0.000	0.067	0.067			0.000	0.000	0.048	0.048			0.000	0.000	0.044	0.044	
3		0.000	0.000	0.067	0.067			0.000	0.000	0.048	0.048			0.000	0.000	0.044	0.044	
4		0.000	0.000	0.067	0.067			0.000	0.000	0.048	0.048			0.000	0.000	0.044	0.044	
5		0.000	0.000	0.058	0.058			0.000	0.000	0.048	0.048			0.000	0.000	0.044	0.044	
6		0.000	0.000	0.058	0.058			0.000	0.000	0.048	0.048			0.000	0.000	0.040	0.040	
7		0.000	0.000	0.058	0.058			0.000	0.000	0.048	0.048			0.000	0.000	0.040	0.040	
8		0.000	0.000	0.058	0.058			0.000	0.000	0.048	0.048			0.000	0.000	0.040	0.040	
9		0.000	0.000	0.058	0.058			0.000	0.000	0.051	0.051			0.000	0.000	0.040	0.040	
10		0.000	0.000	0.058	0.058			0.000	0.000	0.051	0.051			0.000	0.000	0.040	0.040	
11		0.000	0.000	0.058	0.058			0.000	0.000	0.051	0.051			0.000	0.000	0.040	0.040	
12		0.000	0.000	0.058	0.058			0.000	0.000	0.051	0.051			0.000	0.000	0.040	0.040	
13		0.000	0.000	0.050	0.050			0.000	0.000	0.051	0.051			0.000	0.000	0.044	0.044	
14		0.000	0.000	0.050	0.050			0.000	0.000	0.051	0.051			0.000	0.000	0.044	0.044	
15		0.000	0.000	0.050	0.050			0.000	0.000	0.051	0.051			0.000	0.000	0.044	0.044	
16		0.000	0.000	0.050	0.050			0.000	0.000	0.046	0.046			0.000	0.000	0.044	0.044	
17		0.000	0.000	0.050	0.050			0.000	0.000	0.046	0.046			0.000	0.000	0.044	0.044	
18		0.000	0.000	0.050	0.050			0.000	0.000	0.046	0.046			0.000	0.000	0.044	0.044	
19		0.000	0.000	0.046	0.046			0.000	0.000	0.046	0.046			0.000	0.000	0.044	0.044	
20		0.000	0.000	0.046	0.046			0.000	0.000	0.046	0.046			0.000	0.000	0.036	0.036	
21		0.000	0.000	0.046	0.046			0.000	0.000	0.046	0.046			0.000	0.000	0.036	0.036	
22		0.000	0.000	0.046	0.046			0.000	0.000	0.046	0.046			0.000	0.000	0.036	0.036	
23		0.000	0.000	0.046	0.046			0.000	0.000	0.040	0.040			0.000	0.000	0.036	0.036	
24		0.000	0.000	0.046	0.046			0.000	0.000	0.040	0.040			0.000	0.000	0.036	0.036	
25		0.000	0.000	0.046	0.046			0.000	0.000	0.040	0.040			0.000	0.000	0.036	0.036	
26		0.000	0.000	0.044	0.044			0.000	0.000	0.040	0.040			0.000	0.000	0.036	0.036	
27		0.000	0.000	0.044	0.044			0.000	0.000	0.040	0.040			0.000	0.000	0.048	0.048	
28		0.000	0.000	0.044	0.044			0.000	0.000	0.040	0.040			0.000	0.000	0.048	0.048	
29		0.000	0.000	0.044	0.044			0.000	0.000	0.040	0.040							
30		0.000	0.000	0.044	0.044			0.000	0.000	0.044	0.044							
31		0.000	0.000	0.044	0.044			0.000	0.000	0.044	0.044							
Ten Daily Mean																		
Ten Daily I		0.000	0.000	0.062	0.062			0.000	0.000	0.048	0.048			0.000	0.000	0.042	0.042	
Ten Daily II		0.000	0.000	0.051	0.051			0.000	0.000	0.049	0.049			0.000	0.000	0.042	0.042	
Ten Daily III		0.000	0.000	0.045	0.045			0.000	0.000	0.042	0.042			0.000	0.000	0.039	0.039	
Monthly Total																		

Annual Sediment Load (Metric Tonnes) : 966035

Daily Observed Sediment Datasheet for period : 2016-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1		0.000	0.000	0.048	0.048			0.000	0.000	0.068	0.068			0.000	0.000	0.037	0.037	
2		0.000	0.000	0.048	0.048			0.000	0.000	0.068	0.068			0.000	0.000	0.037	0.037	
3		0.000	0.000	0.048	0.048			0.000	0.000	0.104	0.104			0.000	0.000	0.037	0.037	
4		0.000	0.000	0.048	0.048			0.000	0.000	0.104	0.104			0.000	0.000	0.037	0.037	
5		0.000	0.000	0.048	0.048			0.000	0.000	0.104	0.104			0.000	0.000	0.037	0.037	
6		0.000	0.000	0.023	0.023			0.000	0.000	0.104	0.104			0.000	0.000	0.037	0.037	
7		0.000	0.000	0.023	0.023			0.000	0.000	0.104	0.104			0.000	0.000	0.037	0.037	
8		0.000	0.000	0.023	0.023			0.000	0.000	0.104	0.104			0.000	0.000	0.033	0.033	
9		0.000	0.000	0.023	0.023			0.000	0.000	0.104	0.104			0.000	0.000	0.033	0.033	
10		0.000	0.000	0.023	0.023			0.000	0.000	0.051	0.051			0.000	0.000	0.033	0.033	
11		0.000	0.000	0.023	0.023			0.000	0.000	0.051	0.051			0.000	0.000	0.033	0.033	
12		0.000	0.000	0.023	0.023			0.000	0.000	0.051	0.051			0.000	0.000	0.033	0.033	
13		0.000	0.000	0.022	0.022			0.000	0.000	0.051	0.051			0.000	0.000	0.033	0.033	
14		0.000	0.000	0.022	0.022			0.000	0.000	0.051	0.051			0.000	0.000	0.033	0.033	
15		0.000	0.000	0.022	0.022			0.000	0.000	0.051	0.051			0.000	0.000	0.070	0.070	
16		0.000	0.000	0.022	0.022			0.000	0.000	0.051	0.051			0.000	0.000	0.070	0.070	
17		0.000	0.000	0.022	0.022			0.000	0.000	0.056	0.056			0.000	0.000	0.070	0.070	
18		0.000	0.000	0.022	0.022			0.000	0.000	0.056	0.056			0.000	0.000	0.070	0.070	
19		0.000	0.000	0.022	0.022			0.000	0.000	0.056	0.056			0.000	0.000	0.070	0.070	
20		0.000	0.000	0.068	0.068			0.000	0.000	0.056	0.056			0.000	0.000	0.070	0.070	
21		0.000	0.000	0.068	0.068			0.000	0.000	0.056	0.056			0.000	0.000	0.070	0.070	
22		0.000	0.000	0.068	0.068			0.000	0.000	0.056	0.056			0.000	0.000	0.062	0.062	
23		0.000	0.000	0.068	0.068			0.000	0.000	0.056	0.056			0.000	0.000	0.062	0.062	
24		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.062	0.062	
25		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.062	0.062	
26		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.062	0.062	
27		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.062	0.062	
28		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.062	0.062	
29		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.063	0.063	
30		0.000	0.000	0.068	0.068			0.000	0.000	0.035	0.035			0.000	0.000	0.063	0.063	
31		0.000	0.000	0.068	0.068									0.000	0.000	0.063	0.063	
Ten Daily Mean																		
Ten Daily I		0.000	0.000	0.036	0.036			0.000	0.000	0.092	0.092			0.000	0.000	0.036	0.036	
Ten Daily II		0.000	0.000	0.027	0.027			0.000	0.000	0.053	0.053			0.000	0.000	0.055	0.055	
Ten Daily III		0.000	0.000	0.068	0.068			0.000	0.000	0.041	0.041			0.000	0.000	0.063	0.063	
Monthly																		
Total						0												

Annual Sediment Load (Metric Tonnes) : 966035

Annual Sediment Load for period : 1981-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

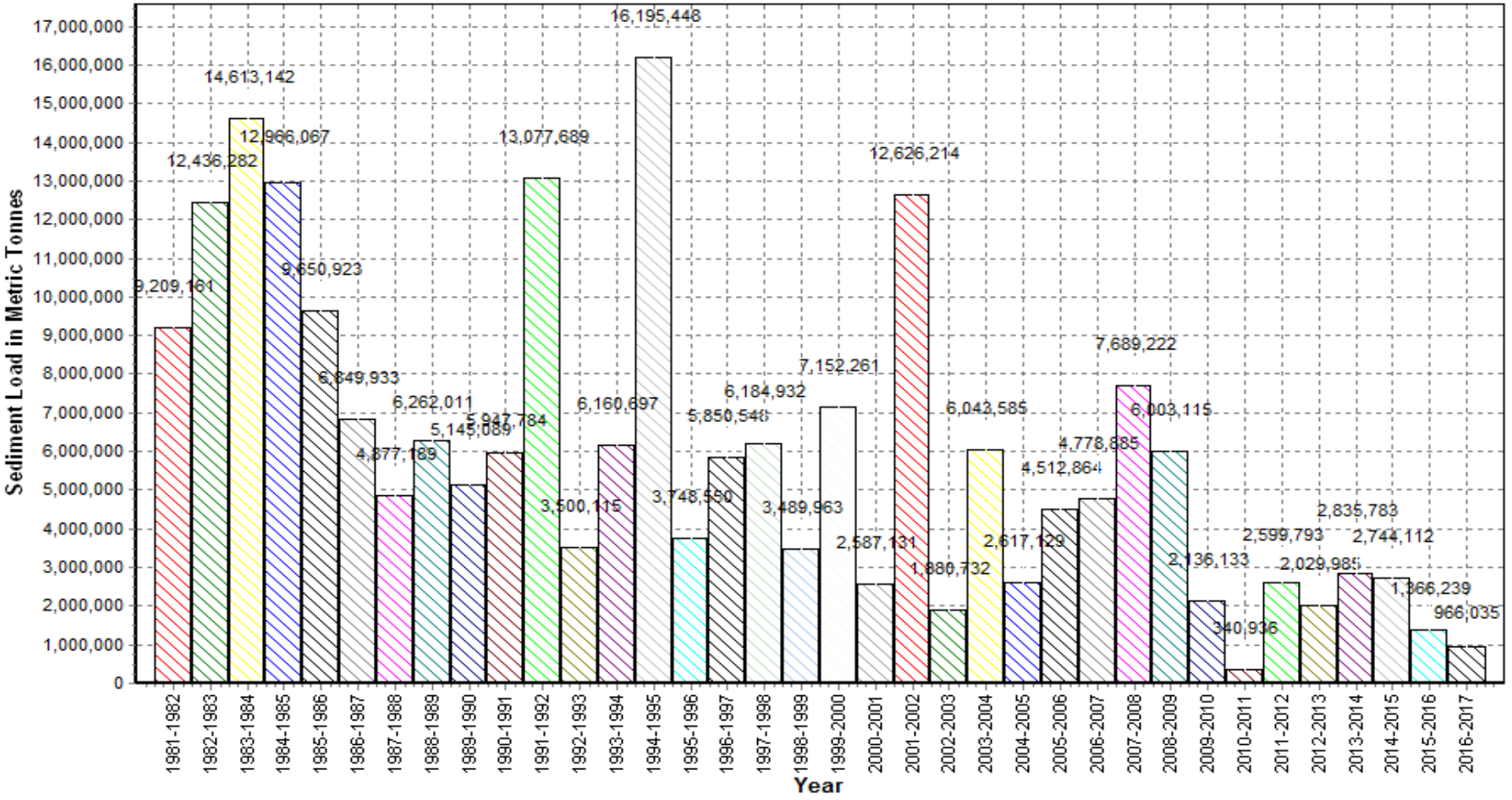
Local River : Brahmni **Sub-Division : Rourkela**

Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)
1981-1982	9166586	42575	9209161	11675
1982-1983	12422941	13341	12436282	10903
1983-1984	14604846	8296	14613142	16545
1984-1985	12924990	41078	12966067	22812
1985-1986	9577008	73915	9650923	19059
1986-1987	6728612	121321	6849933	17312
1987-1988	4663043	214147	4877189	15257
1988-1989	6234143	27868	6262011	16817
1989-1990	4940638	204451	5145089	15117
1990-1991	5819871	127913	5947784	19798
1991-1992	12933609	144081	13077689	21669
1992-1993	3450830	49285	3500115	11136
1993-1994	5934153	226545	6160697	16382
1994-1995	15355732	839715	16195448	30991
1995-1996	3591112	157438	3748550	15709
1996-1997	5684669	165879	5850548	16685
1997-1998	5957430	227503	6184932	20606
1998-1999	3422796	67168	3489963	15226
1999-2000	7101132	51129	7152261	22755
2000-2001	2493260	93872	2587131	10345
2001-2002	12566894	59321	12626214	28461
2002-2003	1868745	11986	1880732	10785
2003-2004	6004276	39309	6043585	21413
2004-2005	2576281	40848	2617129	12544
2005-2006	4466743	46121	4512864	16546
2006-2007	4726357	52528	4778885	14808
2007-2008	7670521	18701	7689222	22536
2008-2009	5978111	25004	6003115	19875
2009-2010	2120268	15864	2136133	10940
2010-2011	301296	39640	340936	5405
2011-2012	2329808	269985	2599793	21907
2012-2013	1860984	169002	2029985	14030
2013-2014	2638430	197353	2835783	15814
2014-2015	2642842	101270	2744112	15883
2015-2016	1322092	44148	1366239	10821
2016-2017	966035	0	966035	8931

Annual Sediment Load for the period: 1981-2017

Station Name : Jenapur (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Rourkela**



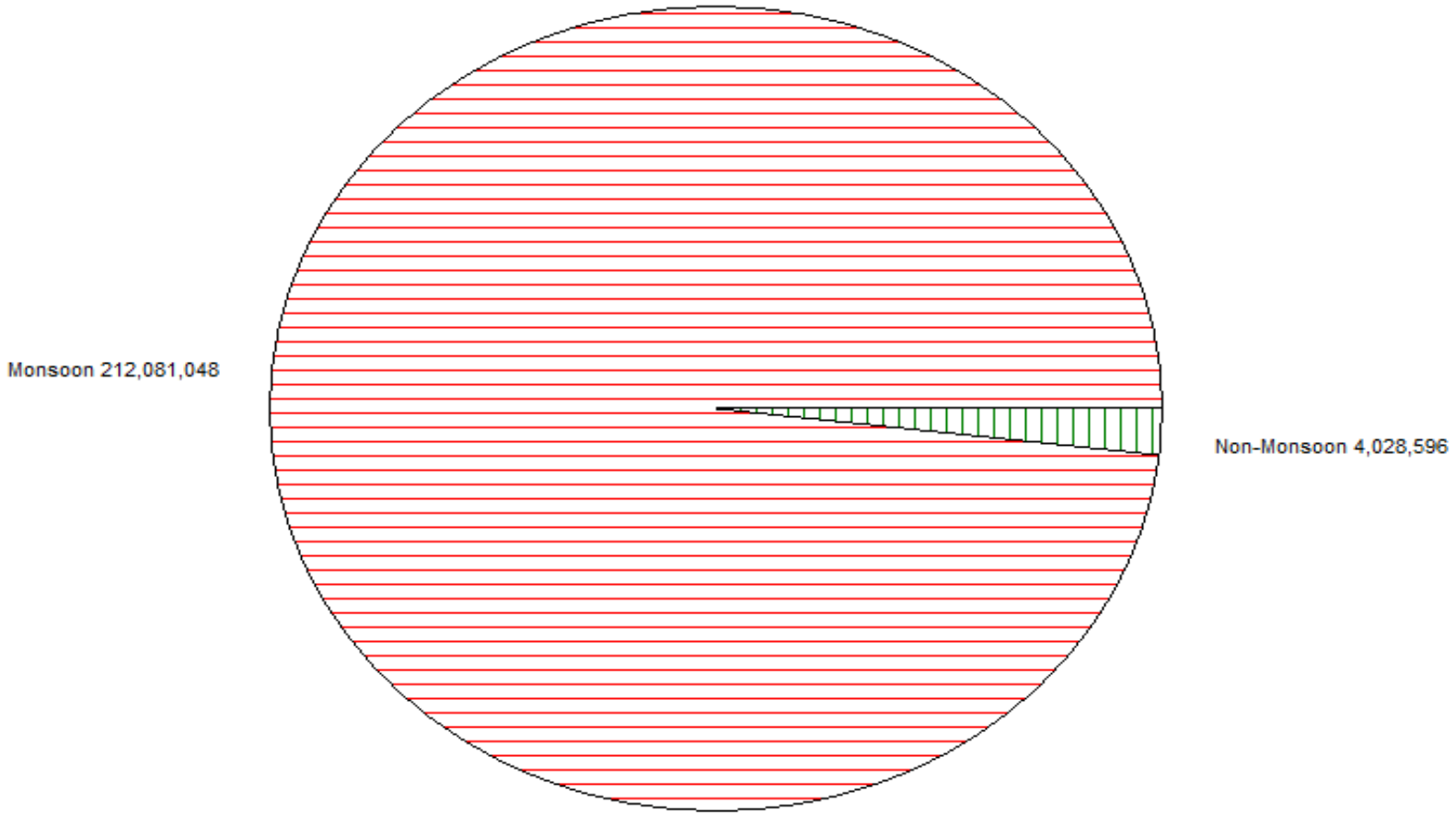
Seasonal Sediment Load for the period : 1981-2016

Station Name : Jenapur (EB000G6)

Local River : Brahmni

Division : E.E., Bhubaneswar

Sub-Division : Rourkela



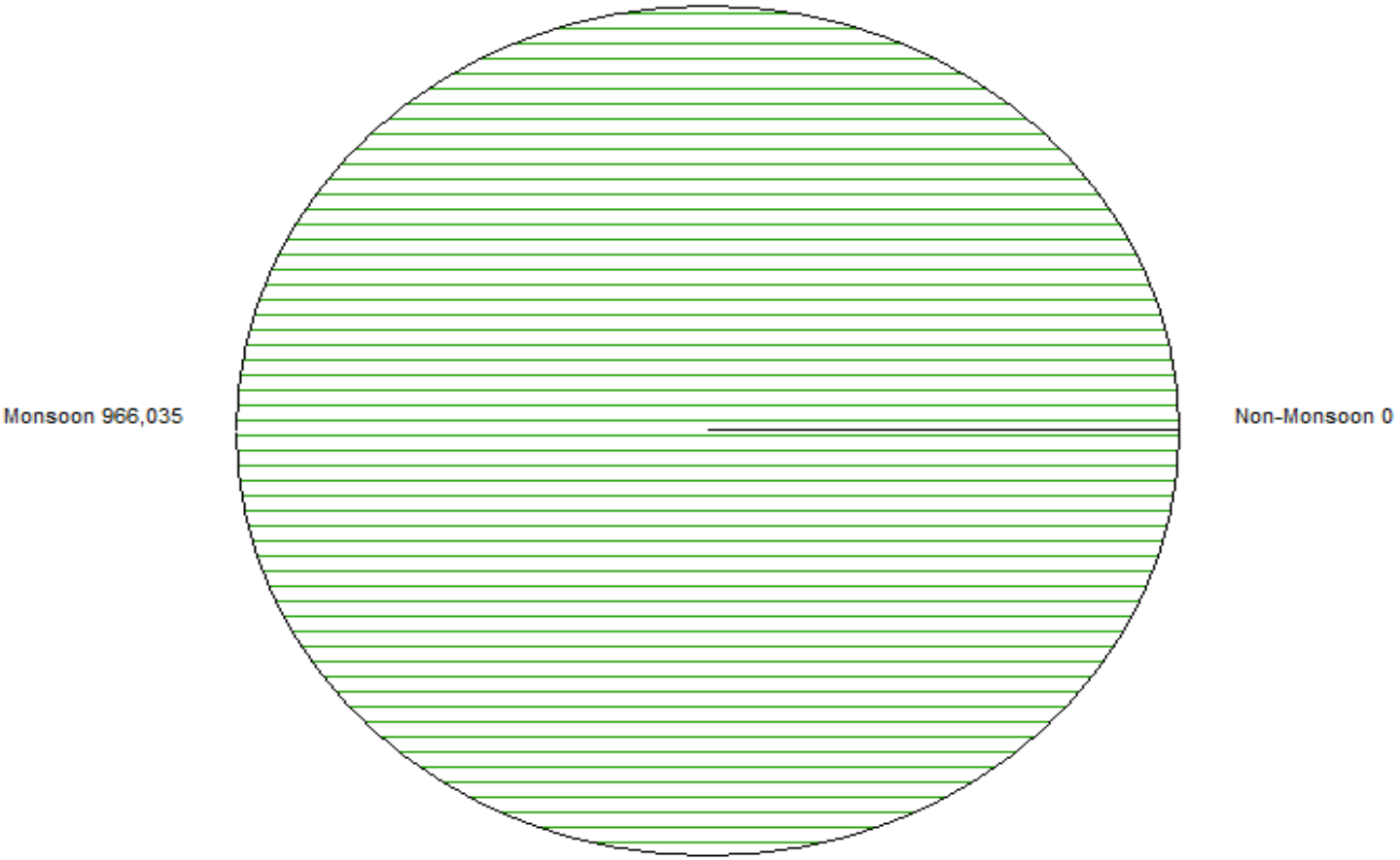
Seasonal Sediment Load for the Year: 2016-2017

Station Name : Jenapur (EB000G6)

Division : E.E., Bhubaneswar

Local River : Brahmni

Sub-Division : Rourkela



Water Quality Datasheet for the period : 2016-2017

Station Name : JENAPUR (EB000G6) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water Analysis** | **Sub-Division : Rourkela**

S.No	Parameters	01.06.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	A	A	A	A	A	A	A	A	A	B
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	152	190	109	100	127	430	513	129	160	140	130	154
4	EC_GEN (µmho/cm)	158	195	111	101	131	433	515	133	165	142	145	161
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.3	8.0	6.9	7.8	7.7	8.0	8.1	7.5	7.8	7.9	7.6	8.0
7	pH_GEN (pH units)	7.4	8.0	7.1	7.9	7.8	8.1	8.2	7.6	7.9	7.9	7.5	7.9
8	Temp (deg C)	31.0	31.0	30.0	29.0	26.0	28.0	22.0	21.5	21.5	25.0	29.0	30.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	97	60	102	65	51	83	46	42	83	51	83	65
3	B (mg/L)	0.02	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.03	0.01
4	Ca (mg/L)	55	24	26	27	30	32	32	37	34	35	37	40
5	Cl (mg/L)	43.4	13.2	45.3	43.4	7.5	11.3	13.2	22.6	24.5	15.1	11.3	11.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.6	0.4	0.1	0.1	0.2	0.2	0.8	0.8	0.6	0.6	0.5	0.5
9	HCO3 (mg/L)	118	73	124	79	62	101	56	51	101	62	101	79
10	K (mg/L)	5.0	7.0	6.1	6.3	7.8	13.3	4.0	26.6	12.4	13.0	13.0	13.9
11	Mg (mg/L)	18.5	8.8	9.7	10.7	11.7	12.6	12.6	13.6	12.6	13.6	14.6	15.6
12	Na (mg/L)	32.0	24.3	16.1	16.3	22.7	57.8	36.2	59.0	41.9	43.1	42.0	44.2
13	NO2+NO3 (mg N/L)	1.05	0.71	0.84	0.85	1.26	1.01	1.23	1.23	1.26	1.26	1.23	1.27
14	NO2-N (mgN/L)	0.01	0.01	0.01	0.07	0.03	0.00	0.00	0.00	0.01	0.01	0.03	0.03
15	NO3-N (mgN/L)	1.04	0.70	0.83	0.78	1.23	1.01	1.23	1.23	1.25	1.25	1.21	1.25
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	7.0	7.0	6.0	7.0	6.0	7.0	6.0	6.0	8.0	7.0	8.0	7.0
18	SO4 (mg/L)	57.5	60.2	7.9	65.2	10.6	11.0	11.2	12.0	12.4	10.6	10.8	8.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.4	1.4	1.8	0.6	1.2	1.0	0.6	0.2	1.4	1.4	0.8	0.8
2	DO (mg/L)	4.8	8.9	5.4	7.4	9.1	7.4	8.5	7.6	11.3	7.8	6.0	7.0
3	DO_SAT% (%)	64	120	71	96	113	94	98	85	127	94	77	92
4	FCol-MPN (MPN/100mL)						60	90	90	70	60	120	80
5	Tcol-MPN (MPN/100mL)						120	170	170	170	120	170	140
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	136	60	64	68	76	80	80	92	84	88	92	100
2	HAR_Total (mgCaCO3/L)	213	97	105	113	125	133	133	149	137	145	153	165
3	Na% (%)	24	33	24	23	27	46	36	41	38	37	35	35
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	1.0	1.1	0.7	0.7	0.9	2.2	1.4	2.1	1.6	1.6	1.5	1.5
	PESTICIDES												

Water Quality Summary for the period : 2016-2017

Station Name : JENAPUR (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmani **Sub-Division : Rourkela**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	513	100	195
3	EC_GEN (µmho/cm)	12	515	101	199
4	pH_FLD (pH units)	12	8.1	6.9	7.7
5	pH_GEN (pH units)	12	8.2	7.1	7.8
6	Temp (deg C)	12	31.0	21.5	27
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	102	42	69
3	B (mg/L)	12	0.03	0.01	0.02
4	Ca (mg/L)	12	55	24	34
5	Cl (mg/L)	12	45.3	7.5	21.8
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.8	0.1	0.4
9	HCO3 (mg/L)	12	124	51	84
10	K (mg/L)	12	26.6	4.0	10.7
11	Mg (mg/L)	12	18.5	8.8	12.9
12	Na (mg/L)	12	59.0	16.1	36.3
13	NO2+NO3 (mg N/L)	12	1.27	0.71	1.1
14	NO2-N (mgN/L)	12	0.07	0.00	0.02
15	NO3-N (mgN/L)	12	1.25	0.70	1.08
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	8.0	6.0	6.8
18	SO4 (mg/L)	12	65.2	7.9	23.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.4	0.2	1.1
2	DO (mg/L)	12	11.3	4.8	7.6
3	DO_SAT% (%)	12	127	64	94
4	FCol-MPN (MPN/100mL)	7	120	60	81
5	Tcol-MPN (MPN/100mL)	7	170	120	151
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	136	60	85
2	HAR_Total (mgCaCO3/L)	12	213	97	139
3	Na% (%)	12	46	23	33
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	2.2	0.7	1.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : JENAPUR (EB000G6) **Division : E.E., Bhubaneswar**

Local River : Brahmani **River Water** **Sub-Division : Rourkela**

S.No	Parameters	Flood																			
		Jun - Oct																			
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)	652.8	985.9	545.8	2102	839.8	1066	1141	446.7	271.8	681.6	617.8	852.4	923.7			125.8	471.6	181.7	174.4	114.4	357.4
2	EC_FLD (µmho/cm)	157	122	122	104	143	144	143	132	165	129	139	119	144	250	136	112	114	113	133	134	111
3	EC_GEN (µmho/cm)	158	122	122	103	139	139	143	132	166	129	139	119	144	247	139	113	116	118	130	129	105
4	pH_FLD (pH units)	7.9	7.6	7.5	7.8	7.9	7.9	7.8	7.8	8.1	8.2	7.6	7.5	7.8	7.6	7.5	7.5	7.6	7.9	7.8	8.0	8.0
5	pH_GEN (pH units)	7.8	7.6	7.5	7.9	7.9	8.0	7.8	7.7	8.1	8.2	7.6	7.5	7.8	7.5	7.6	7.6	7.6	7.8	7.9	8.0	8.1
6	Temp (deg C)	29.4	27.0	27.8	28.6	29.4	29.4	29.0	28.4	29.8	28.7	28.5	28.2	29.2	26.9	29.4	23.9	23.5	23.8	21.9	23.3	21.0
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)					0.0	0.0	0.0	0.0	1.0	0.0	0.0			0.0	0.0					0.0	0.0
2	ALK-TOT (mgCaCO3/L)					59	76	31	28	49	54	44			65	75					69	34
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	17	11	11	12	16	14	13	11	14	15	17	16	15	24	32	11	14	12	13	13	12
5	Cl (mg/L)	13.2	8.9	18.6	8.5	10.7	10.4	12.9	13.2	13.4	15.5	13.2	12.5	15.5	13.2	30.6	8.2	11.2	9.0	11.1	11.2	9.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.00	0.00	0.31	0.00	0.08	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.42	0.00	0.00	0.00
8	Fe (mg/L)			1.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	1.9	0.1	0.5	0.3	0.3			0.1	0.1	0.1	0.2
9	HCO3 (mg/L)	59	38	48	44	58	53	43	30	57	62	51	40	62	79	91	39	46	55	50	43	42
10	K (mg/L)	1.6	1.1	2.1	1.2	1.8	1.7	1.7	1.7	3.3	1.5	3.6	1.3	1.5	1.7	6.4	1.4	1.3	1.5	2.1	1.7	1.3
11	Mg (mg/L)	3.5	2.6	3.9	2.4	2.9	4.0	5.1	4.9	6.6	6.0	6.2	4.4	6.0	9.5	11.9	2.6	3.3	3.9	3.6	2.4	2.6
12	Na (mg/L)	8.5	6.0	12.0	5.7	7.5	7.0	8.9	8.0	8.5	4.4	5.9	6.6	4.3	5.6	22.3	6.2	6.7	5.9	7.3	7.3	6.5
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	1.14	1.40	1.05	1.28	1.85	1.65	1.54	1.55	1.22	0.30	0.71	0.55	1.47	1.02	0.94	1.43	1.47	0.77	1.50	2.04	1.36
15	NO2-N (mgN/L)	0.04	0.00	0.06	0.03	0.00	0.02	0.00	0.00	0.04	0.02	0.00	0.01	0.01	0.04	0.03	0.01	0.00	0.00	0.01	0.01	0.04
16	NO3-N (mgN/L)	1.09	1.40	0.99	1.25	1.85	1.63	1.54	1.55	1.17	0.29	0.71	0.54	1.47	0.98	0.92	1.42	1.47	0.77	1.50	2.03	1.32
17	o-PO4-P (mg P/L)	0.000		0.000	0.000	0.000	0.000	0.015	0.000											0.000	0.013	0.000
18	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.002	0.002	0.005	0.001	0.007	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.013	0.001
19	SiO2 (mg/L)	13.8	8.6	20.2	22.5	14.9	11.7	9.0	8.7	6.7	10.0	27.6	18.6	9.4	6.0	6.6	8.3	8.5	21.0	19.9	17.2	9.2
20	SO4 (mg/L)	2.2	1.7	3.0	2.0	3.0	4.8	12.8	12.9	9.9	10.2	25.2	10.3	10.2	13.2	40.3	0.9	1.8	5.8	2.4	2.3	2.4
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	0.8	1.0	0.9	0.7	1.0	1.0	1.1	1.2	1.3	1.1	0.7	0.5	0.7	0.7	1.5	0.6	0.8	0.9	1.2	0.9	1.1
2	DO (mg/L)	7.1	6.7	7.1	6.8	7.1	7.0	6.9	7.2	7.1	7.0	6.8	6.8	5.9	6.6	7.1	7.7	8.1	8.0	8.4	7.8	8.1
3	DO_SAT% (%)	93	84	90	88	93	91	90	93	94	90	87	87	77	82	93	91	95	94	95	90	90
4	FCol-MPN (MPN/100mL)					11	40	11	7	146		19									17	42
5	Tcol-MPN (MPN/100mL)					14	54	15	7	295		26									22	72
	TRACE & TOXIC																					
1	Al (mg/L)			0.00	2.26																2.70	
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	42	27	26	29	41	36	33	27	34	38	42	40	38	61	81	26	34	30	32	33	29
2	HAR_Total (mgCaCO3/L)	56	38	43	39	53	53	54	48	62	64	68	59	64	101	130	37	48	46	47	43	40
3	Na% (%)	24	25	37	24	23	22	26	26	23	13	15	20	12	11	26	26	23	21	25	26	26
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.8	0.4	0.5	0.4	0.5	0.5	0.5	0.2	0.3	0.4	0.2	0.2	0.9	0.4	0.4	0.4	0.5	0.5	0.5
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : JENAPUR (EB000G6) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water** | **Sub-Division : Rourkela**

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)	154.8	101.7	82.82	290.5	148.8	353.3	130.5			252.8	111.7	183.6	90.38	156.0	121.0	131.6	133.1	147.8	141.1	396.0	259.7
2	EC_FLD (µmho/cm)	161	142	196	104	140	137	187	391	308	124	137	117	130	134	144	165	118	191	127	150	113
3	EC_GEN (µmho/cm)	160	142	196	104	140	137	187	395	312	123	138	115	125	128	143	166	118	191	127	150	113
4	pH_FLD (pH units)	7.9	7.8	7.6	7.8	7.5	7.9	7.9	7.7	7.9	7.9	7.9	7.8	7.6	8.1	8.1	8.0	8.0	8.3	7.6	7.7	7.7
5	pH_GEN (pH units)	7.9	7.8	7.6	7.8	7.5	7.9	7.9	7.8	8.0	7.8	7.9	7.8	7.6	8.1	8.2	8.0	8.0	8.3	7.6	7.7	7.7
6	Temp (deg C)	23.3	20.1	20.5	21.5	20.9	22.6	25.7	23.8	23.3	23.5	27.5	26.0	27.5	27.0	25.8	28.2	24.7	25.3	24.8	28.1	27.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0		0.0	5.8	0.0					0.0	0.0	0.0	1.3	5.9	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	41	38	65	49	46		60	75	64					70	44	49	35	63	51	85	43
3	B (mg/L)	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
4	Ca (mg/L)	15	12	17	12	20	12	11	25	34	13	12	10	13	12	14	14	12	15	16	16	13
5	Cl (mg/L)	14.2	14.6	12.3	22.6	15.1	12.5	23.1	17.0	17.9	9.7	9.1	10.3	9.5	10.0	11.7	14.3	11.2	12.6	16.3	10.7	14.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	7.1	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.28	0.04	0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.2	0.1	0.0	1.9	0.0	0.3	0.4	0.6			0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1.9	0.0
9	HCO3 (mg/L)	50	42	81	60	58	39	62	77	77	46	48	43	51	42	55	60	39	62	62	88	50
10	K (mg/L)	2.6	1.4	1.6	1.2	1.4	1.7	1.3	2.0	14.1	1.4	1.5	1.7	1.6	1.6	0.3	1.4	1.2	1.7	1.4	1.2	2.1
11	Mg (mg/L)	4.9	5.6	8.3	2.9	19.4	4.7	5.3	8.8	12.9	2.9	3.7	3.3	2.3	3.5	4.6	6.5	4.2	9.1	6.2	5.3	5.5
12	Na (mg/L)	8.4	8.5	7.7	3.5	6.1	7.8	3.8	28.3	48.7	6.3	6.8	6.9	6.2	6.8	8.0	9.7	7.3	7.5	5.0	4.4	8.9
13	NH3-N (mg N/L)										0.00					0.05	0.00					
14	NO2+NO3 (mg N/L)	1.11	1.41	0.81	0.41	0.71	1.02	1.21	1.11	1.18	1.21	1.57	1.51	0.80	2.12	0.96	1.38	1.46	1.52	0.41	0.71	0.92
15	NO2-N (mgN/L)	0.00	0.00	0.00	0.07	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.01
16	NO3-N (mgN/L)	1.11	1.41	0.81	0.34	0.71	1.02	1.20	1.10	1.18	1.21	1.57	1.51	0.80	2.12	0.96	1.38	1.46	1.52	0.34	0.71	0.91
17	o-PO4-P (mg P/L)		0.000								0.000	0.010	0.000	0.000	0.000			0.000				
18	P-Tot (mgP/L)	0.001	0.001	0.002	0.010	0.001	0.001	0.001	0.010	0.010	0.001	0.001	0.001	0.001	0.001	0.050	0.001	0.001	0.001	0.010	0.001	0.001
19	SiO2 (mg/L)	9.2	9.5	4.6	10.3	30.3	12.4	5.3	5.5	6.8	10.1	9.1	21.8	24.9	16.5	10.3	8.5	7.8	4.3	8.3	30.3	12.5
20	SO4 (mg/L)	11.5	8.1	8.6	6.3	8.5	9.2	5.3	10.5	11.6	3.4	2.0	3.1	3.7	2.9	6.8	9.3	5.8	6.2	4.7	6.4	9.8
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.1	1.2	1.2	1.5	0.3	0.3	0.5	1.2	0.8	0.6	0.9	1.0	0.8	1.1	0.9	1.1	1.4	1.5	1.4	0.9	0.5
2	DO (mg/L)	7.8	7.9	8.2	7.7	7.8	7.7	9.6	7.1	8.7	6.1	7.5	7.4	7.7	7.3	6.8	7.2	8.1	7.6	7.3	6.8	6.9
3	DO_SAT% (%)	91	87	91	87	87	89	117	85	101	72	94	90	97	91	83	92	96	92	88	86	88
4	FCol-MPN (MPN/100mL)	7	11	17		11				78					4	9	11	144	24		12	
5	Tcol-MPN (MPN/100mL)	7	15	21		27				158					9	11	144	179	25		13	
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	37	29	43	31	49	31	28	62	84	32	30	25	33	31	35	35	29	39	40	41	33
2	HAR_Total (mgCaCO3/L)	57	52	77	43	130	50	50	99	138	44	46	38	43	45	54	62	47	77	66	63	56
3	Na% (%)	23	27	18	15	10	25	14	26	40	23	24	27	23	24	24	24	25	17	15	13	25
4	RSC (-)	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
5	SAR (-)	0.5	0.5	0.4	0.2	0.2	0.5	0.2	1.2	1.8	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.3	0.2	0.5
	PESTICIDES																					

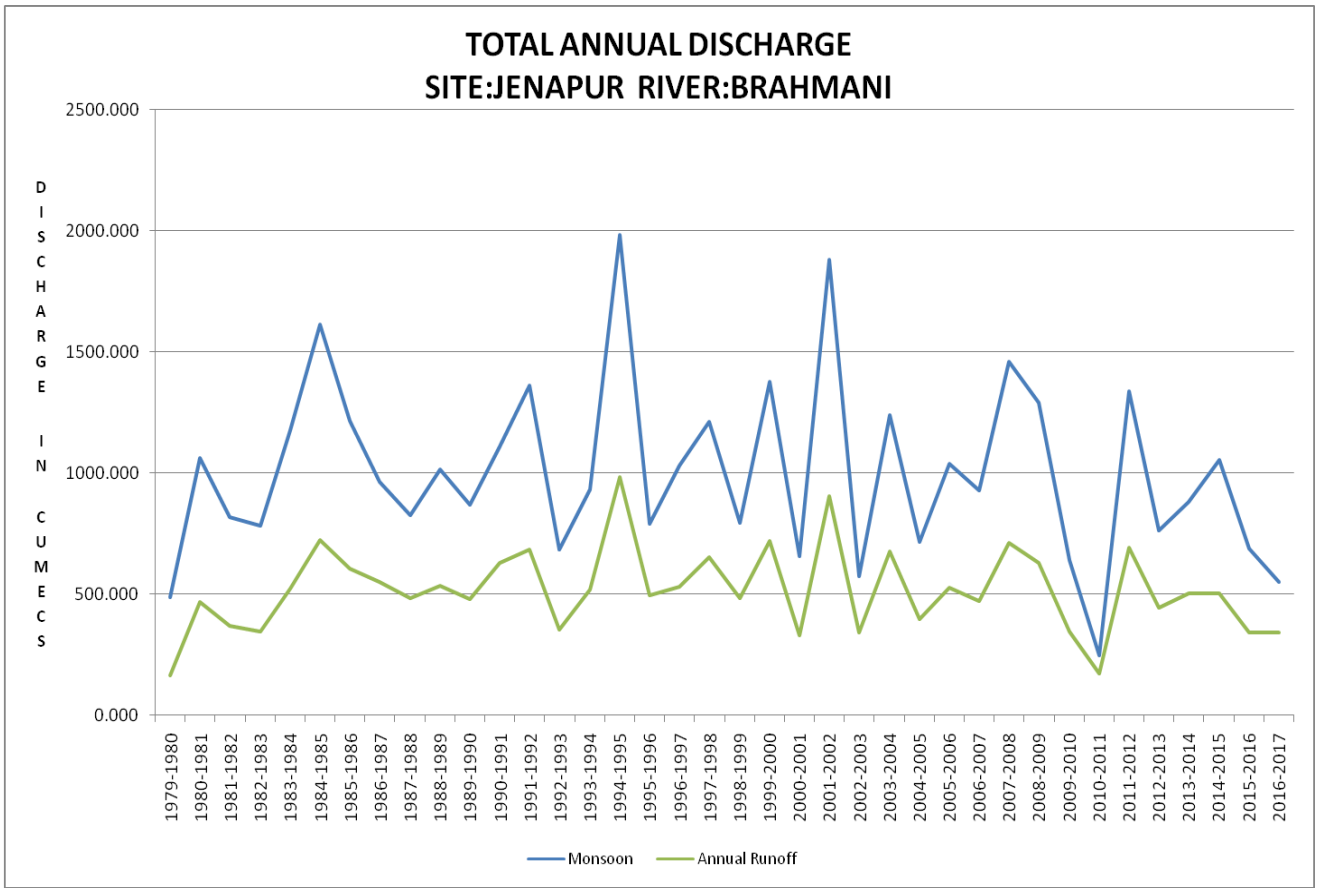
Water Quality Seasonal Average for the period: 2002-2017

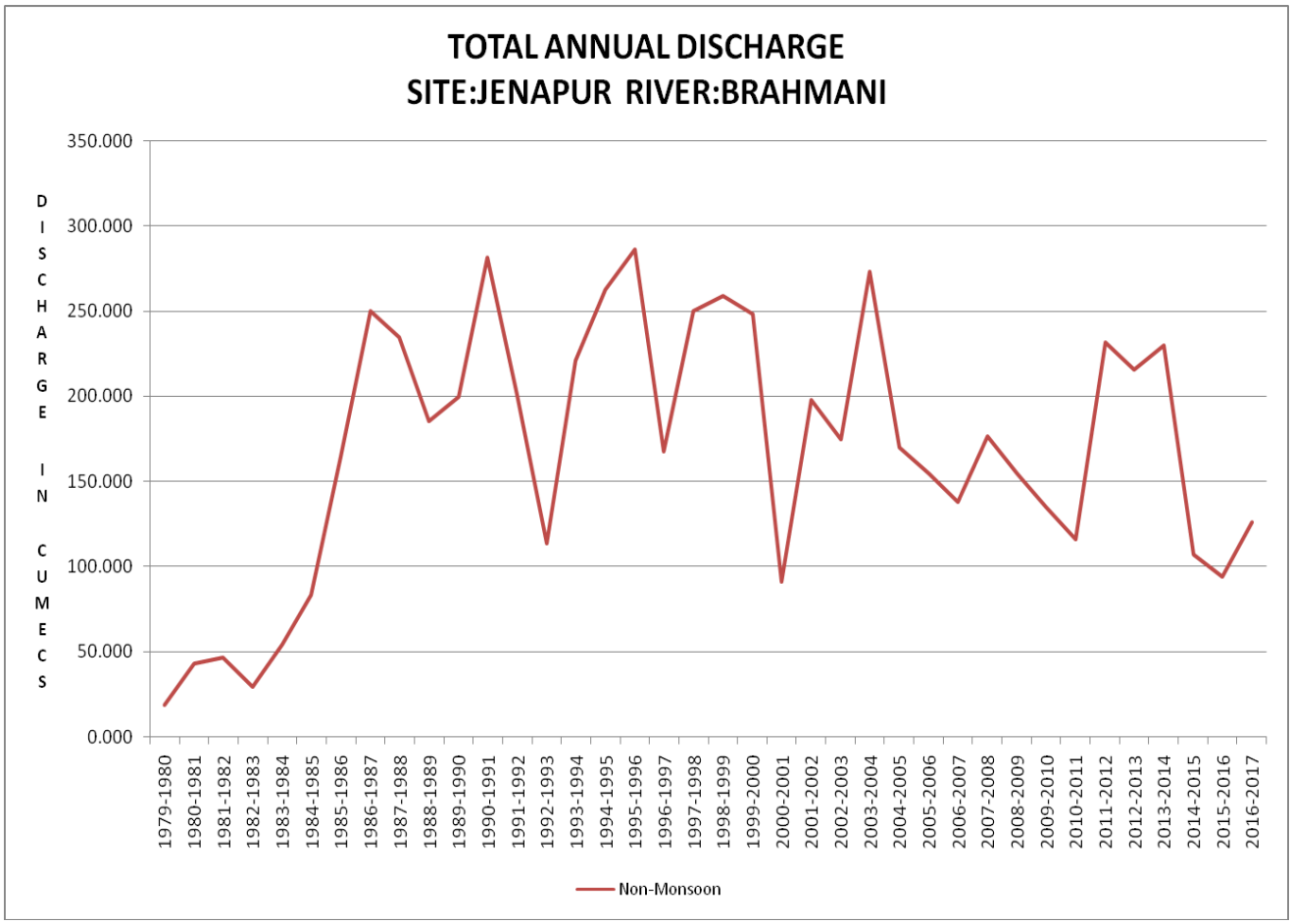
Station Name : JENAPUR (EB000G6)
Local River : Brahmani

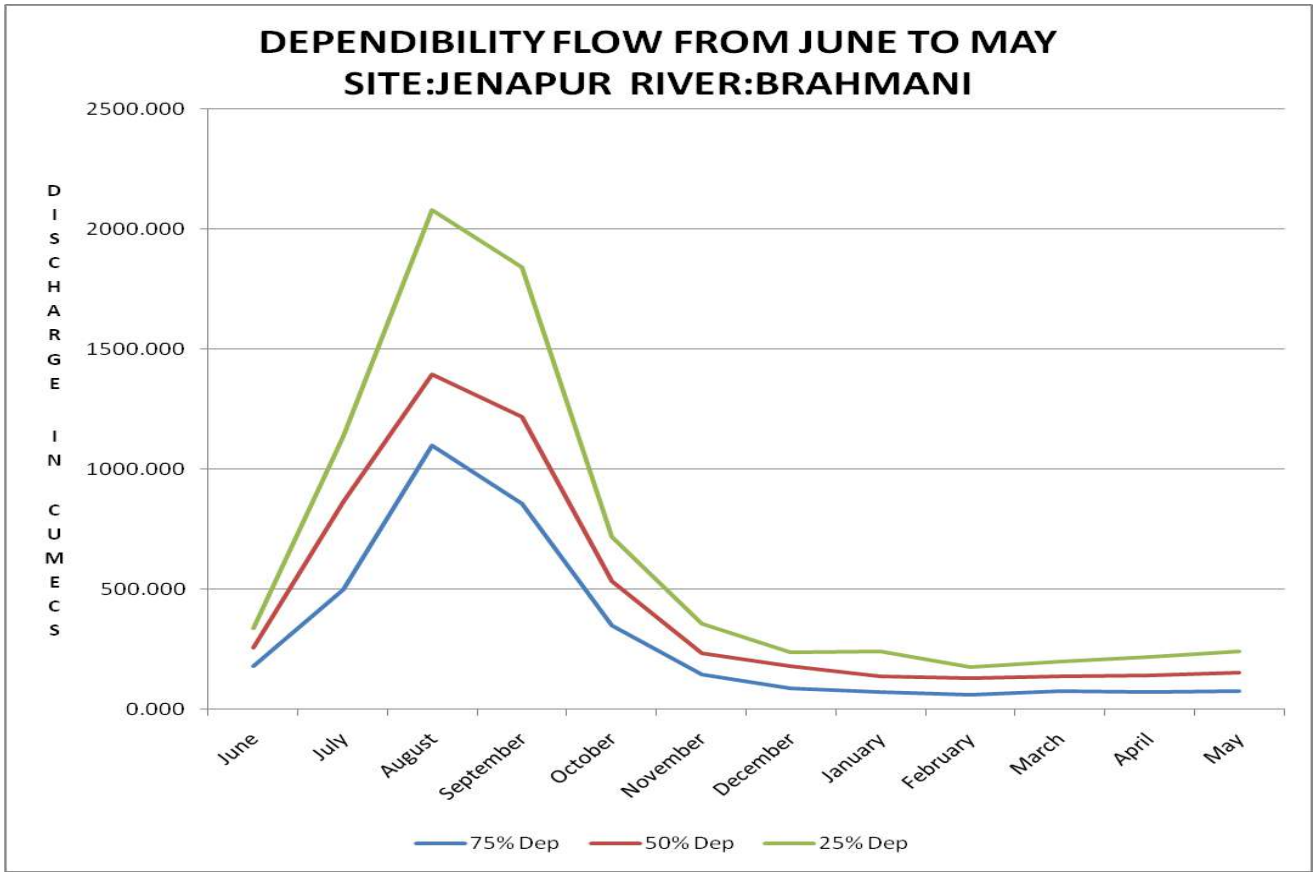
Division : E.E., Bhubaneswar
Sub-Division : Rourkela

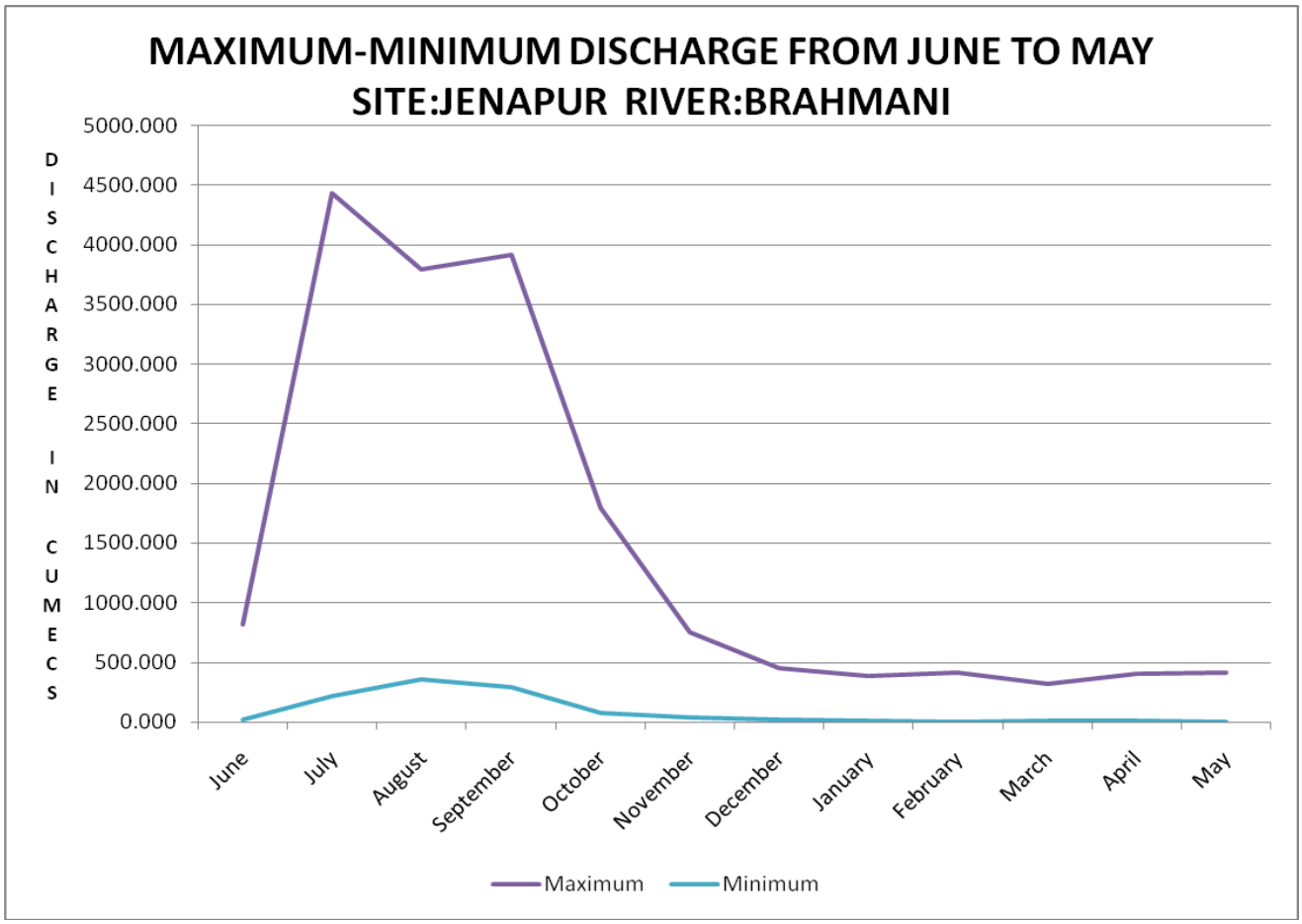
River Water

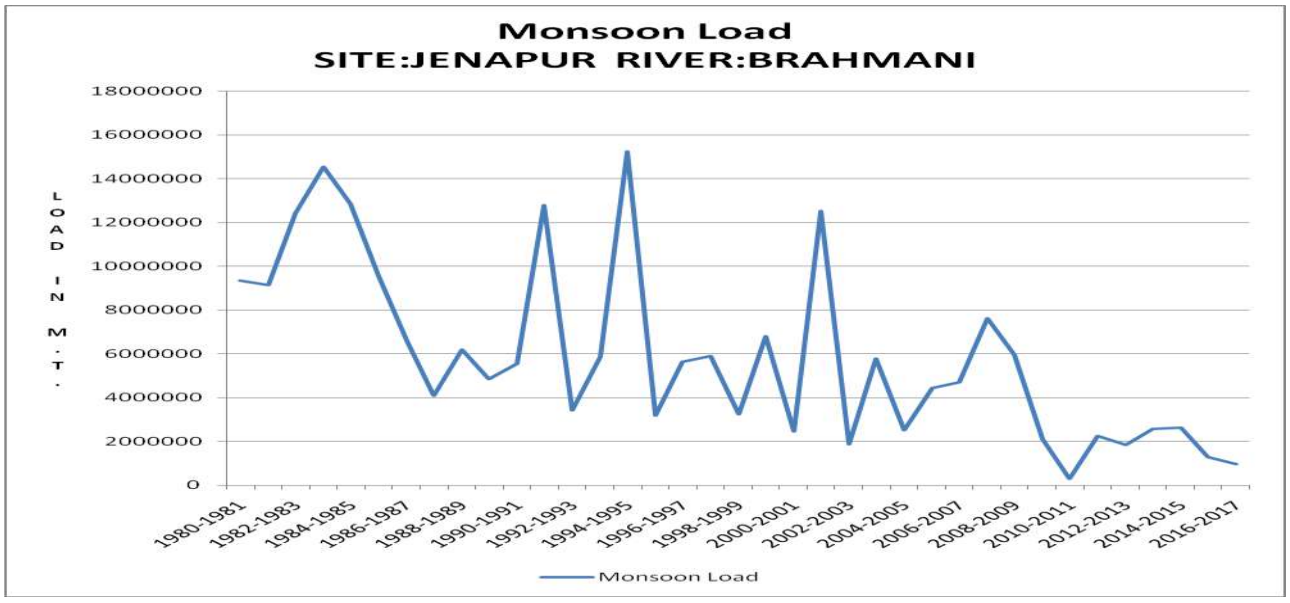
S.No	Parameters			
		2015	2016	2017
	PHYSICAL			
1	Q (cumec)	83.32		
2	EC_FLD (µmho/cm)	208	239	141
3	EC_GEN (µmho/cm)	208	244	149
4	pH_FLD (pH units)	7.9	7.8	7.8
5	pH_GEN (pH units)	7.9	7.9	7.7
6	Temp (deg C)	26.2	33.0	28.0
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	18.4	0.0
2	ALK-TOT (mgCaCO3/L)	24	91	66
3	B (mg/L)	0.00	0.01	0.02
4	Ca (mg/L)	17	39	37
5	Cl (mg/L)	15.2	34.6	12.6
6	CO3 (mg/L)	0.0	22.2	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.3	0.5
9	HCO3 (mg/L)	55	66	81
10	K (mg/L)	1.2	3.4	13.3
11	Mg (mg/L)	6.2	15.9	14.6
12	Na (mg/L)	5.2	38.4	43.1
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	1.07	0.96	1.26
15	NO2-N (mgN/L)	0.00	0.00	0.02
16	NO3-N (mgN/L)	1.07	0.95	1.23
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.001	0.010	0.010
19	SiO2 (mg/L)	5.3	5.7	7.3
20	SO4 (mg/L)	5.9	13.0	9.8
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.3	0.7	1.0
2	DO (mg/L)	5.9	6.4	6.9
3	DO_SAT% (%)	73	89	88
4	FCol-MPN (MPN/100mL)			87
5	Tcol-MPN (MPN/100mL)			143
	TRACE & TOXIC			
1	Al (mg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	43	98	94
2	HAR_Total (mgCaCO3/L)	68	164	154
3	Na% (%)	14	29	36
4	RSC (-)	0.0	0.3	0.0
5	SAR (-)	0.3	1.6	1.5
	PESTICIDES			

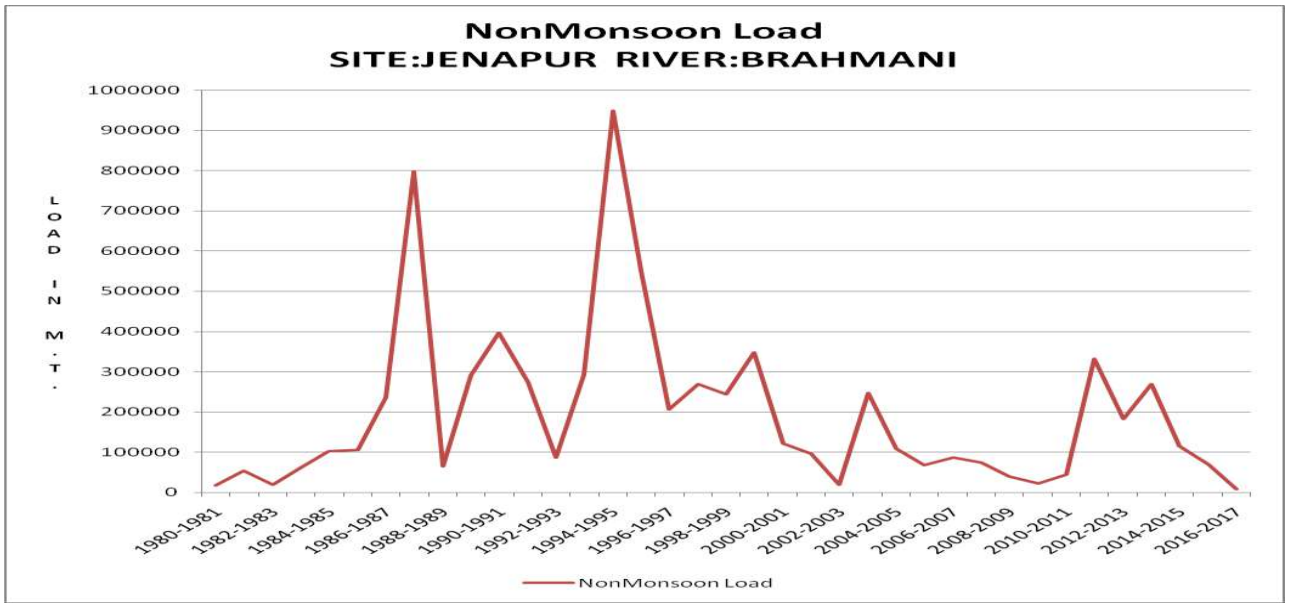

TOTAL ANNUAL DISCHARGE
SITE:JENAPUR RIVER:BRAHMANI
DISCHARGE IN CUMECS
2500.000
2000.000
1500.000
1000.000
500.000
0.000
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon
Annual Runoff

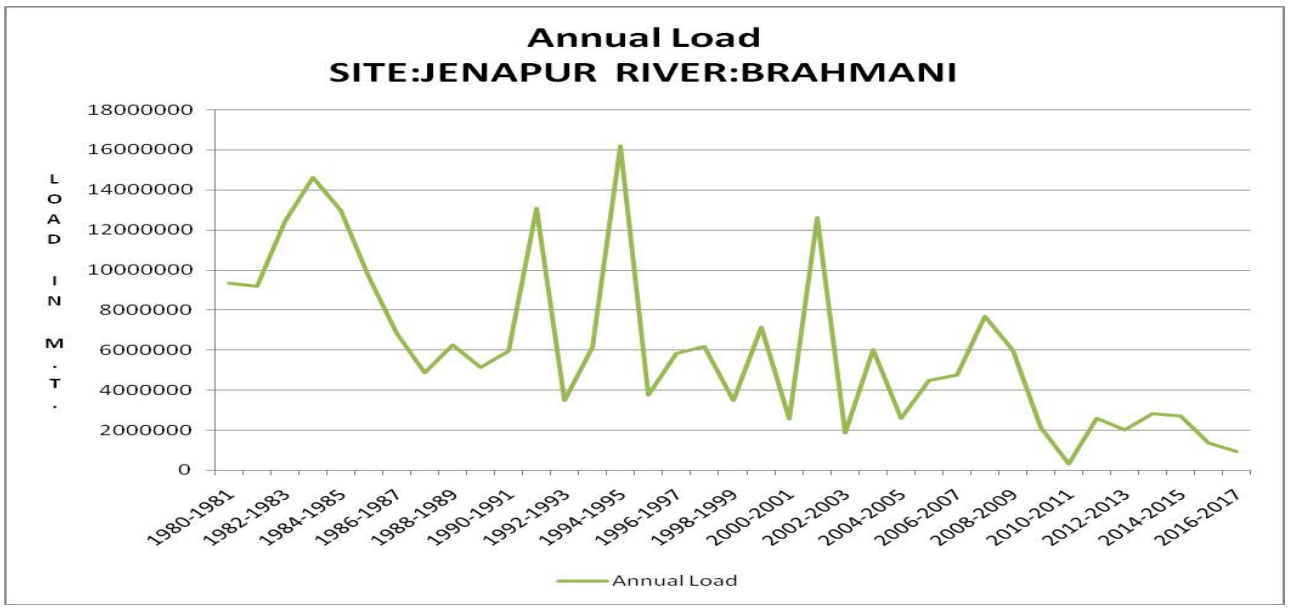

TOTAL ANNUAL DISCHARGE
SITE:JENAPUR RIVER:BRAHMANI
DISCHARGE IN CUMECS
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0.000
1979-1980
1980-1981
1981-1982
1982-1983
1983-1984
1984-1985
1985-1986
1986-1987
1987-1988
1988-1989
1989-1990
1990-1991
1991-1992
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Non-Monsoon

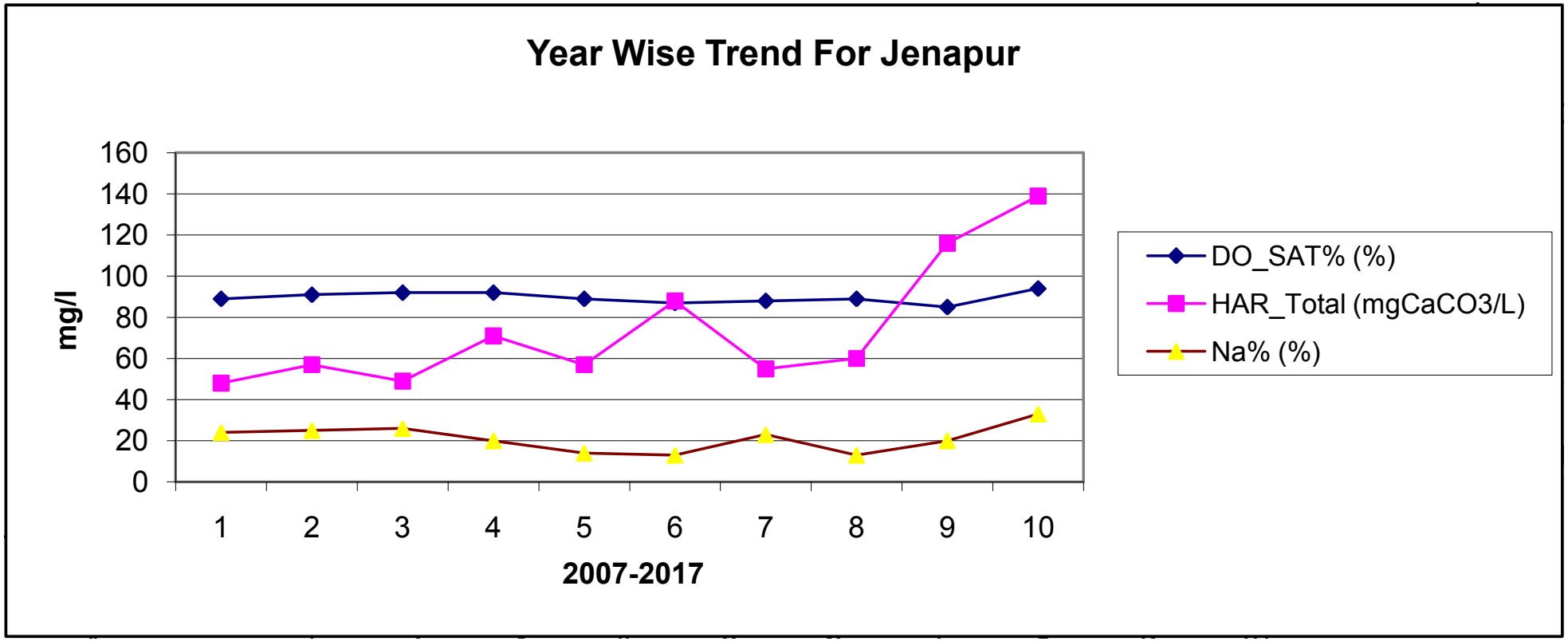

DEPENDIBILITY FLOW FROM JUNE TO MAY
SITE:JENAPUR RIVER:BRAHMANI
DISCHARGE IN CUMECS
2500.000
2000.000
1500.000
1000.000
500.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
75% Dep
50% Dep
25% Dep

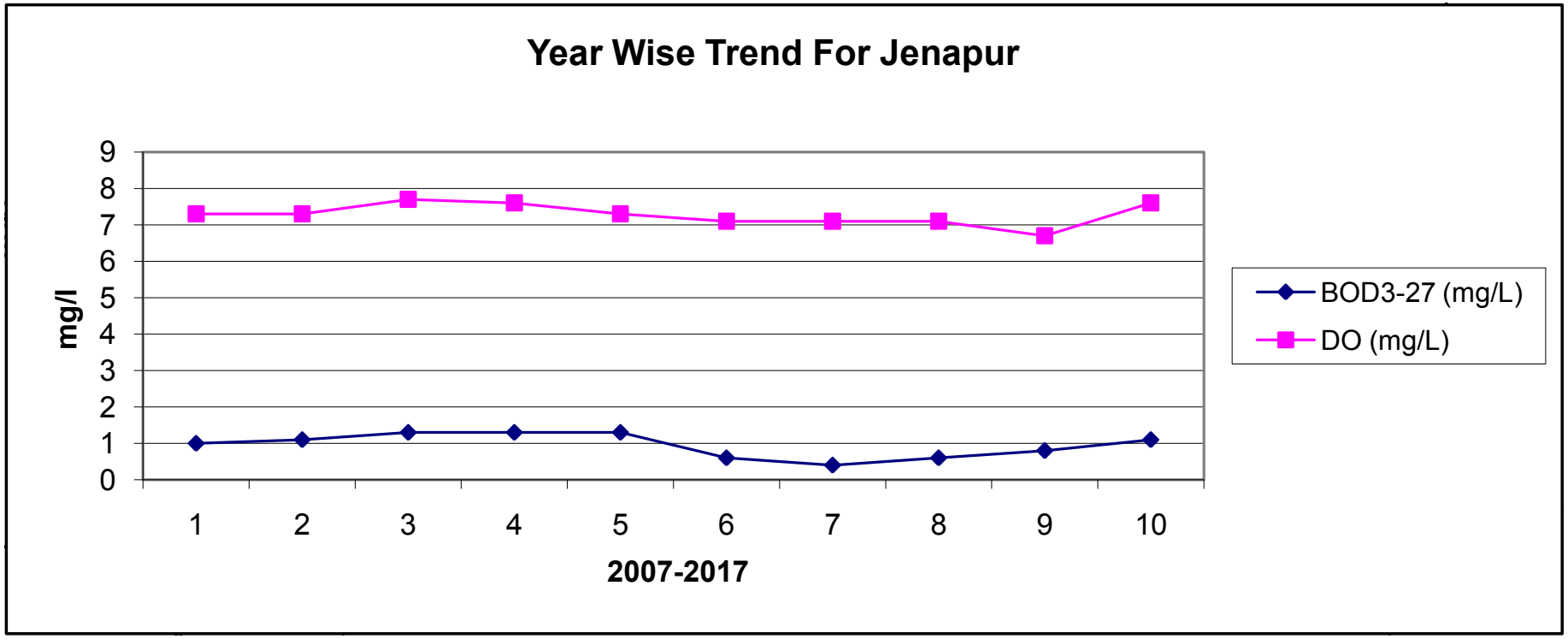

MAXIMUM-MINIMUM DISCHARGE FROM JUNE TO MAY
SITE:JENAPUR RIVER:BRAHMANI
DISCHARGE IN CUMECS
5000.000
4500.000
4000.000
3500.000
3000.000
2500.000
2000.000
1500.000
1000.000
500.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
Maximum
Minimum

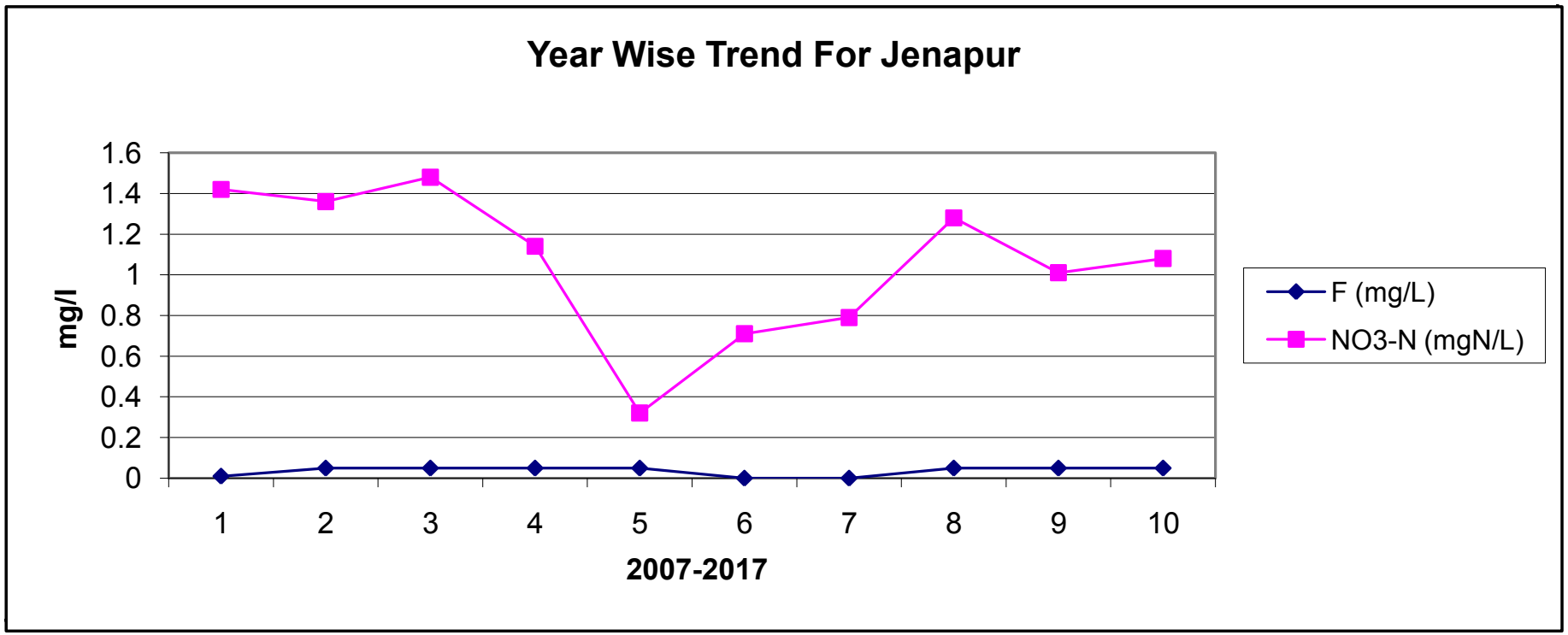

Monsoon Load
SITE:JENAPUR RIVER:BRAHMANI
LOAD IN M.T.
18000000
16000000
14000000
12000000
10000000
8000000
6000000
4000000
2000000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Monsoon Load

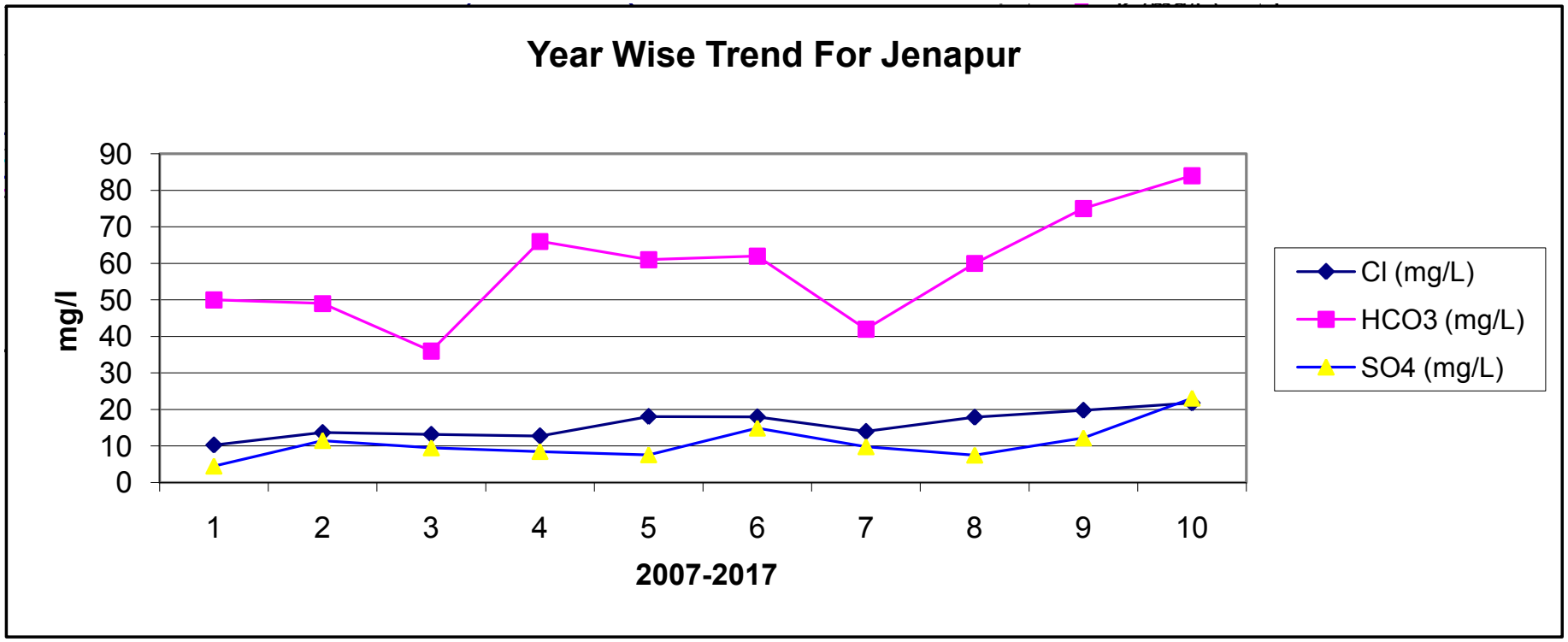

NonMonsoon Load
SITE:JENAPUR RIVER:BRAHMANI
LOAD IN M.T.
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
NonMonsoon Load

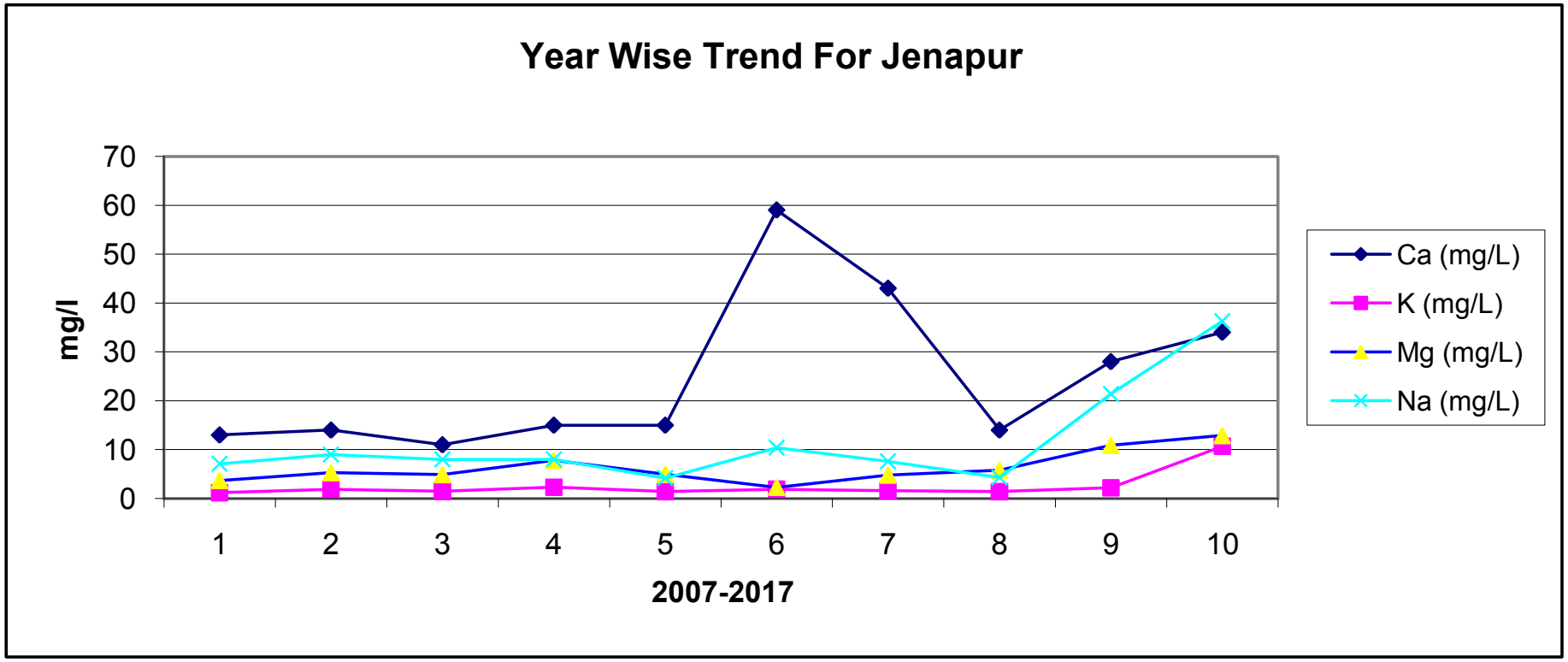

Annual Load
SITE:JENAPUR RIVER:BRAHMANI
LOAD IN M.T.
18000000
16000000
14000000
12000000
10000000
8000000
6000000
4000000
2000000
0
1980-1981
1982-1983
1984-1985
1986-1987
1988-1989
1990-1991
1992-1993
1994-1995
1996-1997
1998-1999
2000-2001
2002-2003
2004-2005
2006-2007
2008-2009
2010-2011
2012-2013
2014-2015
2016-2017
Annual Load


Year Wise Trend For Jenapur
160
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Jenapur
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Jenapur
mg/l
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Jenapur
90
80
70
60
50
40
30
20
10
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Jenapur
70
60
50
40
30
20
10
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**Altuma**	**Code**	:	**EBA00I3**
State	:	Orissa	District		Dhenkanal
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:	Ramyala	Sub Tributary	:	Ramyala
Sub-Sub Tributary	:	Ramyala	Local River	:	Ramyala
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela
Drainage Area	:	830 Sq. Km.	Bank	:	Left
Latitude	:	20°55'48"	Longitude	:	85°31'20"
Zero of Gauge (m)	:	44 (m.s.l)	08.06.1990	-	31.12.2020
		Opening Date	Closing Date		
Gauge	:	08.06.1990			
Discharge	:	25.07.1990			
Sediment	:				
Water Quality	:				

Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

	Maximum			Minimum		
Year	**Q (cumecs)**	**WL (m)**	**Date**	**Q (cumecs)**	**WL (m)**	**Date**
1993-1994	791.2	49.620	15.08.1993	0.500	46.300	09.06.1993
1994-1995	329.4	49.740	17.08.1994	0.600	46.280	02.06.1994
1995-1996	333.2	48.830	09.08.1995	0.780	46.160	31.05.1996
1996-1997	500.7	48.800	22.06.1996	0.620	46.145	20.06.1996
1997-1998	922.3	49.940	06.08.1997	0.550	46.180	17.06.1997
1998-1999	377.1	48.380	03.07.1998	0.590	46.260	02.06.1998
1999-2000	500.0	50.000	31.10.1999	1.530	46.290	10.06.1999
2000-2001	392.5	48.620	31.08.2000	0.370	46.200	23.05.2001
2001-2002	475.4	48.780	09.07.2001	0.485	46.160	29.06.2001
2002-2003	102.5	47.130	06.09.2002	0.796	46.125	10.06.2002
2003-2004	581.5	48.910	07.09.2003	1.000	46.185	18.01.2004
2004-2005	250.3	47.980	13.08.2004	0.963	46.130	28.06.2004
2005-2006	758.4	49.780	31.07.2005	0.159	45.985	25.06.2005
2006-2007	531.1	48.860	23.08.2006	1.054	45.990	31.05.2007
2007-2008	543.0	48.675	24.09.2007	0.674	45.960	14.06.2007
2008-2009	536.8	49.560	18.09.2008	0.785	45.920	03.06.2008
2009-2010	892.7	50.150	21.07.2009	1.124	45.910	09.06.2009
2010-2011	243.8	47.580	30.06.2010	0.584	45.855	06.06.2010
2011-2012	832.0	49.585	23.09.2011	1.069	45.820	01.06.2011
2012-2013	460.8	48.460	11.09.2012	0.000	46.200	16.08.2012
2013-2014	399.4	47.980	10.10.2013	0.792	45.650	07.06.2013
2014-2015	783.5	49.505	05.08.2014	0.621	45.540	30.06.2014
2015-2016	241.3	47.305	29.07.2015	0.552	45.360	20.05.2016
2016-2017	303.1	47.650	16.08.2016	0.000	45.640	21.06.2016

Q : Observed / Computed Discharge WL : Corresponding Water Level(m.s.l)

Stage-Discharge Data for the period 2016 - 2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

Local River : Ramyala **Sub-Division : Rourkela**

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	45.450	1.036	45.530	1.586	45.960	41.44	46.290	40.90	45.800	10.92	45.680	5.253
2	45.450	1.012	45.520	1.200	45.960	17.19	47.230	220.9	45.780	9.910 *	45.670	4.998
3	45.440	0.949	45.570	1.302 *	46.990	176.6	46.030	69.37	45.780	9.928	45.670	4.960
4	45.460	1.059	45.580	1.424	47.350	241.9	46.320	45.28 *	45.770	8.865	45.660	4.823
5	45.450		45.940	14.77	47.220	209.0	46.020	22.44	45.920	15.97	45.660	4.815
6	45.440	0.986	45.800	8.323	46.360	45.63	46.980	176.0	45.840	12.40	45.660	4.754 *
7	45.440	0.983	45.630	1.845 *	46.200	40.26 *	45.990	21.29	45.960	16.47	45.650	4.742
8	45.430	0.913	45.580	1.455	46.000	22.96	45.960	19.15	45.860	13.46	45.650	4.532
9	45.430	0.920	45.550	1.345	45.920	17.67	45.900	16.34	45.800	13.95 *	45.640	5.278
10	45.440	0.970	45.540	1.285 *	45.980	21.12	46.060	23.47	46.460	11.02 *	45.630	4.884
11	45.430	0.938	45.580	1.473	47.140	196.5	46.000	22.16 *	46.160	35.14 *	45.620	4.668
12	45.430		45.620	1.729	46.440	54.11	47.240	215.4	45.900	14.98 *	45.620	4.596
13	45.420	0.885	45.620	1.714	46.120	38.43	46.080	24.82 *	45.840	13.20	45.610	4.582 *
14	45.450	1.014	45.660	1.950	46.200	37.28 *	45.920	16.30	45.800	10.70	45.610	4.455 *
15	45.440	0.959	46.640	88.10	46.640	89.82 *	45.980	17.56	45.780	8.936	45.610	4.257
16	45.440	0.960	46.020	19.74	47.650	303.1	45.920	15.85	45.760	7.982 *	45.600	3.861
17	45.430	0.912	47.080	185.6 *	47.160	195.6	45.880	13.89	45.710	5.300	45.600	3.745
18	45.430	0.912	46.580	80.10	46.410	50.91	45.840	12.65 *	45.690	4.642	45.580	3.519
19	45.470		46.020	20.14	46.170	36.02	45.820	11.90	45.680	5.023	45.580	3.498
20	45.540	1.289	45.850	10.30	46.000	21.84	45.800	11.01	45.670	4.611	45.580	3.516 *
21	45.640	0.000	46.490	71.06	45.940	15.95 *	45.780	10.01	45.660	4.400	45.570	3.304
22	45.530	1.247	45.800	9.570	45.900	12.90	45.720	9.488	45.650	4.209	45.560	3.028
23	45.490	1.100	46.380	50.12	47.370	231.6	45.860	13.92	45.650	4.380 *	45.540	2.397
24	45.520	1.203	47.200	198.0 *	46.170	22.83	45.840	12.96	45.650	4.319	45.540	2.381
25	45.500	1.110	46.400	51.89	45.980	15.94	45.820	11.29 *	45.640	4.032	45.530	2.228
26	45.490		46.520	69.69	46.780	109.3	45.820	12.11	45.670	4.677	45.510	1.960
27	45.490	1.060	47.110	190.4	46.070	24.34	45.820	11.48	45.720	6.109	45.500	1.936 *
28	45.510	1.188	46.180	30.18	47.200	42.52 *	45.800	11.15	45.710	6.032	45.500	1.910
29	45.510	1.141	45.900	13.82	45.990	16.86	45.940	14.78	45.700	5.835	45.490	1.814
30	45.500	1.090	45.820	9.549	45.840	14.46	45.820	11.42	45.690	5.250 *	45.490	1.798
31			45.780	8.060 *	45.800	13.43			45.680	5.404		
Ten-Daily Mean												
I Ten-Daily	45.443	0.981	45.624	3.454	46.394	83.37	46.278	65.51	45.897	12.29	45.657	4.904
II Ten-Daily	45.448	0.984	46.067	41.08	46.593	102.4	46.048	36.15	45.799	11.05	45.601	4.070
III Ten-Daily	45.518	1.016	46.325	63.85	46.276	47.29	45.822	11.86	45.675	4.968	45.523	2.276
Monthly												
Min.	45.420	0.000	45.520	1.200	45.800	12.90	45.720	9.488	45.640	4.032	45.490	1.798
Max.	45.640	1.289	47.200	198.0	47.650	303.1	47.240	220.9	46.460	35.14	45.680	5.278
Mean	45.470	0.994	46.016	37.02	46.416	76.69	46.049	37.84	45.786	9.292	45.594	3.75

Annual Runoff in MCM = 454 Annual Runoff in mm = 547

Peak Observed Discharge = 303.1 cumecs on 16/08/2016 Corres. Water Level :47.65 m

Lowest Observed Discharge = 0.000 cumecs on 21/06/2016 Corres. Water Level :45.64 m

Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2016 - 2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

Local River : Ramyala **Sub-Division : Rourkela**

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	45.480	1.702	45.380	0.970 *	45.350	0.784	45.330	0.650	45.490	1.787	45.370	0.635
2	45.480	1.703	45.370	0.970	45.350	0.778	45.330	0.648	45.370	1.779 *	45.370	0.655
3	45.470	1.646	45.370	0.914	45.350	0.779	45.315	0.648	45.480	1.621	45.360	0.510
4	45.470	1.644 *	45.370	0.907	45.350	0.778	45.330	0.645	45.470	1.516	45.360	0.521
5	45.460	1.589	45.370	0.908	45.350	0.777 *	45.330	0.665 *	45.470	1.542	45.360	0.517
6	45.440	1.416	45.370	0.900	45.350	0.774	45.330	0.511	45.460	1.380	45.360	0.530
7	45.440	1.416	45.370	0.865	45.340	0.698	45.330	0.519	45.460	1.375	45.360	0.530 *
8	45.440	1.409	45.370	0.897 *	45.340	0.700	45.330	0.518	45.460	1.367	45.360	0.521
9	45.430	1.346	45.370	0.841	45.340	0.698	45.330	0.516	45.460	1.383 *	45.360	0.512
10	45.430	1.348	45.370	0.850	45.340	0.700	45.330	0.520	45.460	1.347	45.360	0.512 *
11	45.430	1.349 *	45.370	0.843	45.340	0.700	45.350	0.665	45.450	1.200	45.380	0.758
12	45.430	1.349 *	45.370	0.846	45.340	0.700 *	45.350	0.665 *	45.450	1.195	45.380	0.736
13	45.420	1.292	45.360	0.809	45.340	0.694	45.350	0.665 *	45.450	1.187	45.380	0.718
14	45.420	1.356	45.360	0.812	45.340	0.697	45.350	0.660	45.450	1.173 *	45.380	0.718 *
15	45.420	1.268	45.360	0.810 *	45.340	0.699	45.350	0.670	45.430	0.998	45.400	0.734
16	45.410	1.210	45.360	0.812	45.340	0.699	45.350	0.672	45.420	0.923 *	45.390	0.726
17	45.410	1.206	45.360	0.814	45.340	0.696	45.350	0.667	45.410	0.830	45.380	0.700
18	45.410	1.213 *	45.360	0.809	45.340	0.695	45.350	0.666	45.410	0.836	45.380	0.686
19	45.410	1.210	45.360	0.818	45.340	0.695 *	45.350	0.667 *	45.400	0.798	45.380	0.681
20	45.400	1.135	45.360	0.819	45.340	0.699	45.340	0.529	45.400	0.798	45.400	0.830
21	45.400	1.121	45.360	0.815	45.340	0.694	45.340	0.524	45.400	0.794	45.400	0.830 *
22	45.400	1.127	45.360	0.814 *	45.340	0.694	45.340	0.535	45.390	0.763	45.380	0.718
23	45.400	1.121	45.350	0.779	45.340	0.692	45.340	0.524	45.390	0.763 *	45.380	0.709
24	45.400	1.120	45.350	0.771	45.340	0.692 *	45.340	0.526	45.390	0.757	45.370	0.605
25	45.400	1.120 *	45.350	0.773	45.340	0.695	45.340	0.523	45.390	0.733	45.420	0.956
26	45.390	1.058	45.350	0.773 *	45.340	0.693 *	45.340	0.527 *	45.380	0.695	45.410	0.909
27	45.390	1.051	45.350	0.773	45.330	0.640	45.340	0.513	45.380	0.695	45.400	0.842
28	45.380	0.967	45.350	0.773	45.330	0.641	45.340	0.523	45.380	0.693	45.500	3.365 *
29	45.380	0.964	45.350	0.773 *			45.340	0.526	45.380	0.695	45.560	4.879
30	45.380	0.975	45.350	0.787			45.340	0.525	45.380	0.696 *	45.540	4.338
31	45.380	0.970	45.350	0.777			45.540	2.327			45.470	2.545
Ten-Daily Mean												
I Ten-Daily	45.454	1.522	45.371	0.902	45.346	0.747	45.329	0.584	45.458	1.510	45.362	0.544
II Ten-Daily	45.416	1.259	45.362	0.819	45.340	0.697	45.349	0.653	45.427	0.994	45.385	0.729
III Ten-Daily	45.391	1.054	45.352	0.783	45.338	0.680	45.358	0.688	45.386	0.728	45.439	1.881
Monthly												
Min.	45.380	0.964	45.350	0.771	45.330	0.640	45.315	0.511	45.370	0.693	45.360	0.510
Max.	45.480	1.703	45.380	0.970	45.350	0.784	45.540	2.327	45.490	1.787	45.560	4.879
Mean	45.419	1.271	45.361	0.833	45.341	0.71	45.346	0.643	45.424	1.077	45.397	1.078

Peak Computed Discharge = 198.0 cumecs on 24/07/2016 Corres. Water Level :47.2 m

Lowest Computed Discharge = 0.512 cumecs on 10/05/2017 Corres. Water Level :45.36 m

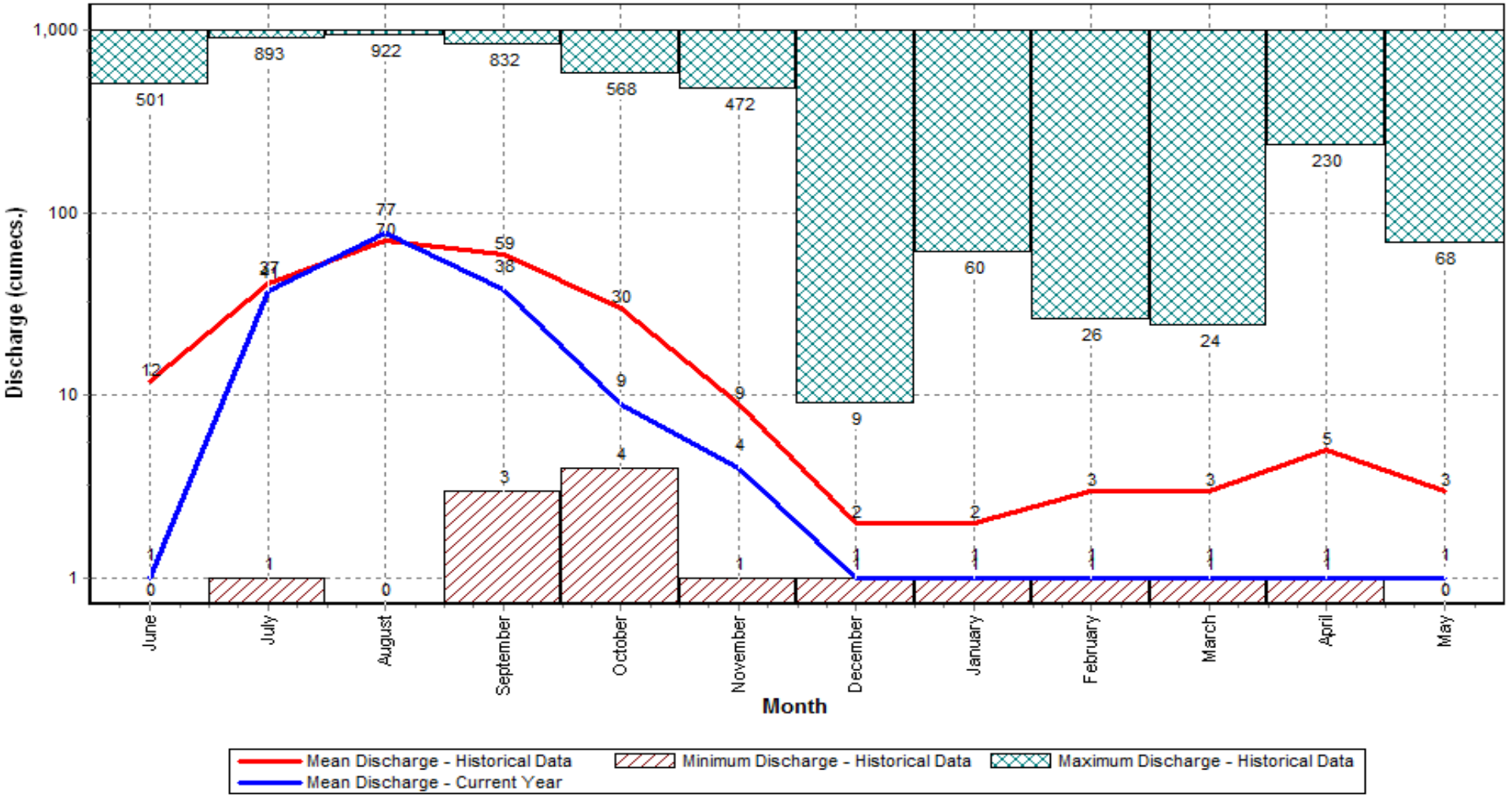
Q: Observed/Computed Discharge in cumecs WL:Corresponding Mean Water Level(m.s.l) in m *:Computed Discharge

Note:Missing values ignored while arriving at Annual Runoff

HISTOGRAM - HYDROGRAPH for Water Year : 2016-2017

Station Name : Altuma (EBA00I3) | **Data considered : 1993-2017** | **Division : E.E., Bhubaneswar**

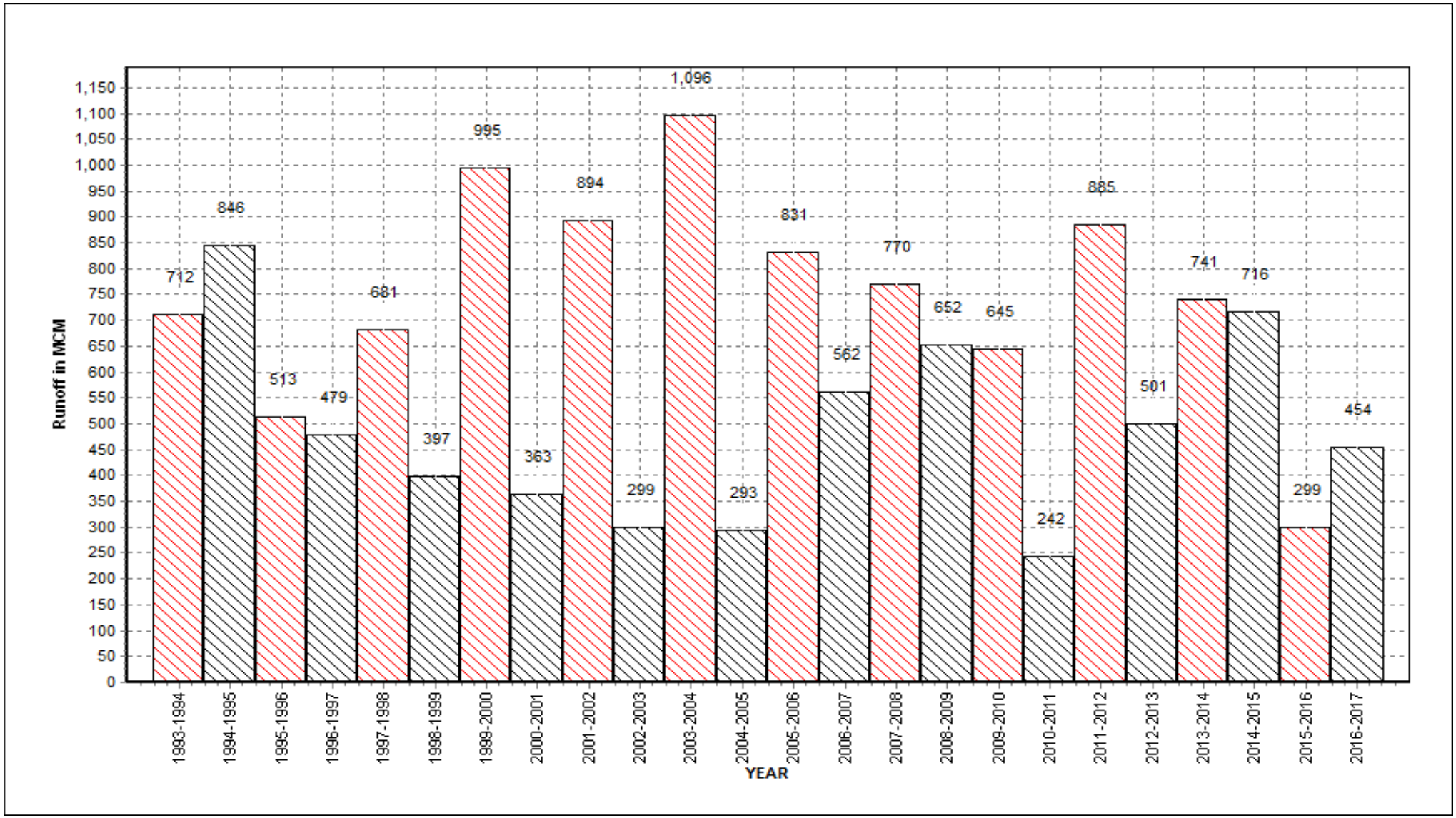
Local River : Ramyala | **Sub-Division : Rourkela**



Annual Runoff Values for the period: 1993 - 2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

Local River : Ramyala **Sub-Division : Rourkela**

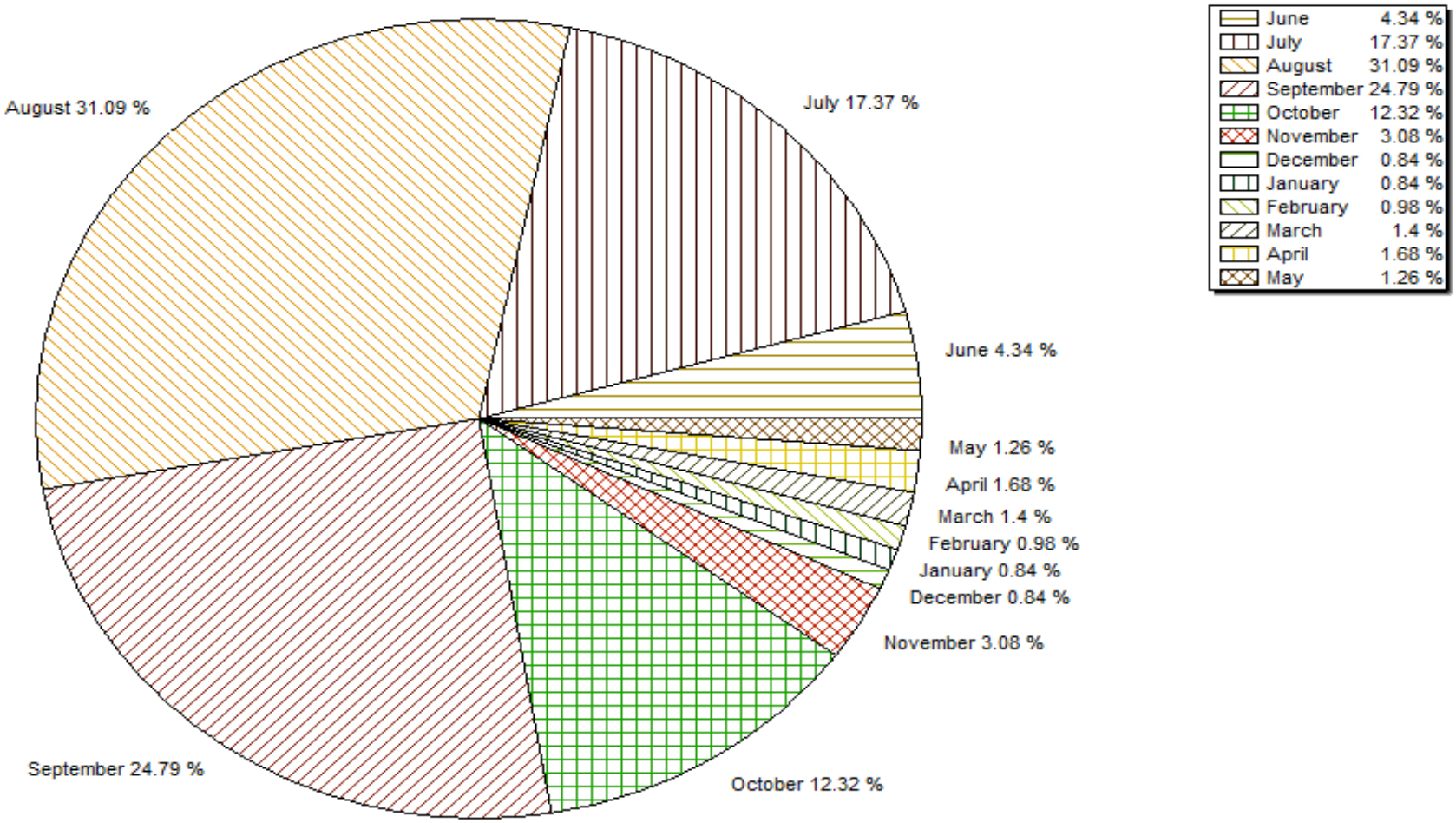


Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on period : 1993-2016

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

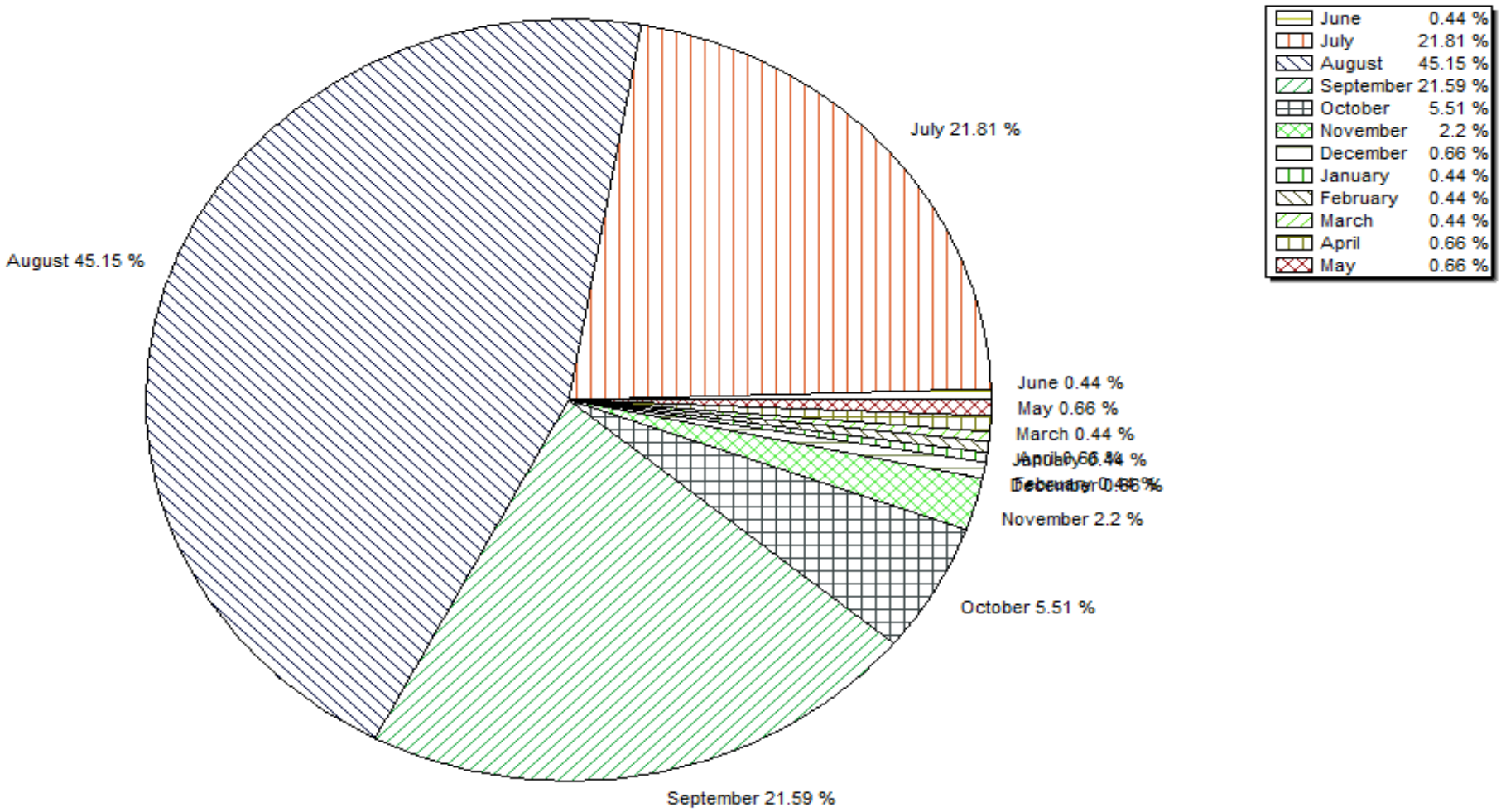
Local River : Ramyala **Sub-Division : Rourkela**



Monthly Runoff for the Year : 2016-2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

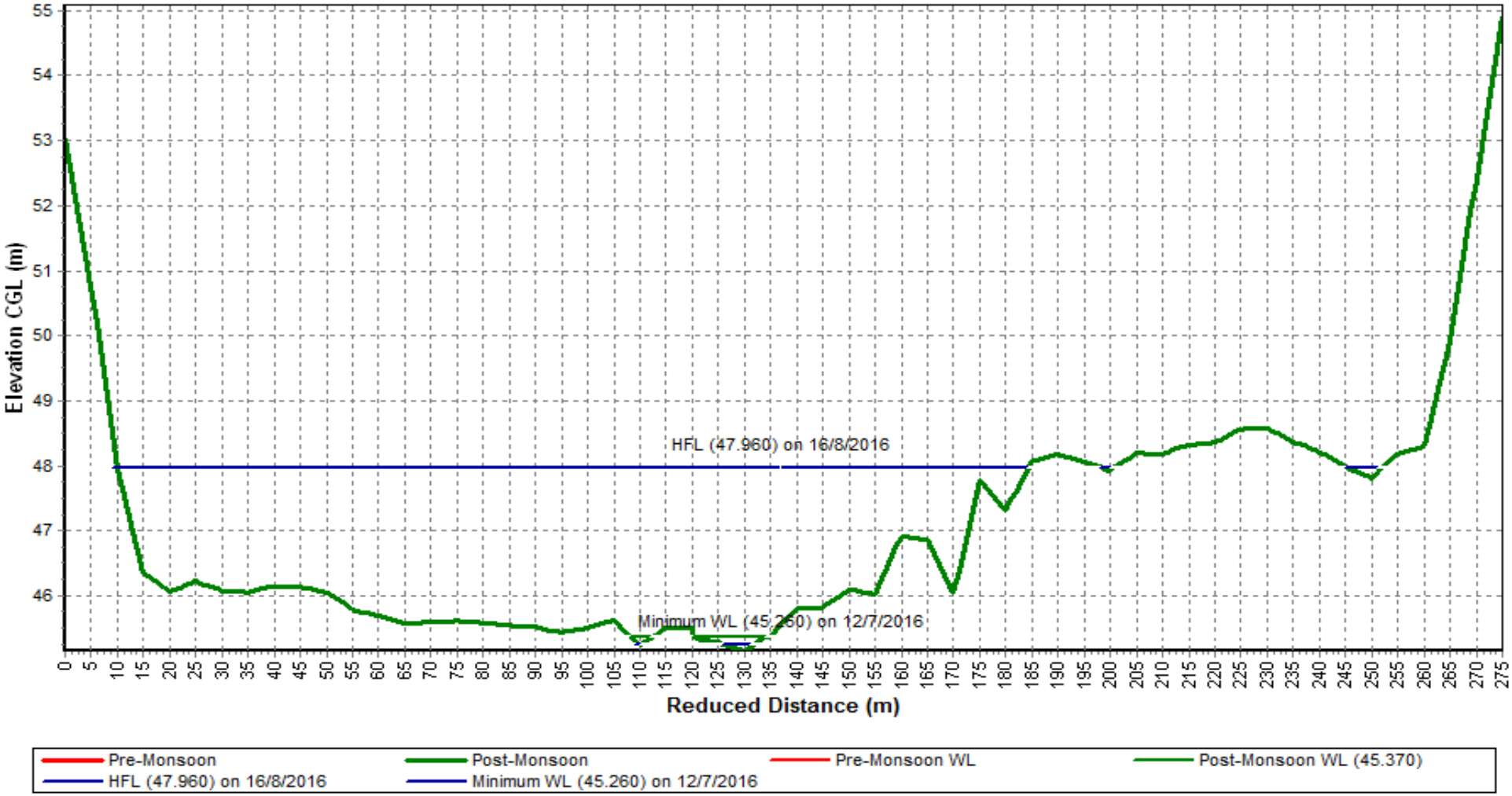
Local River : Ramyala **Sub-Division : Rourkela**



Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2016-2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

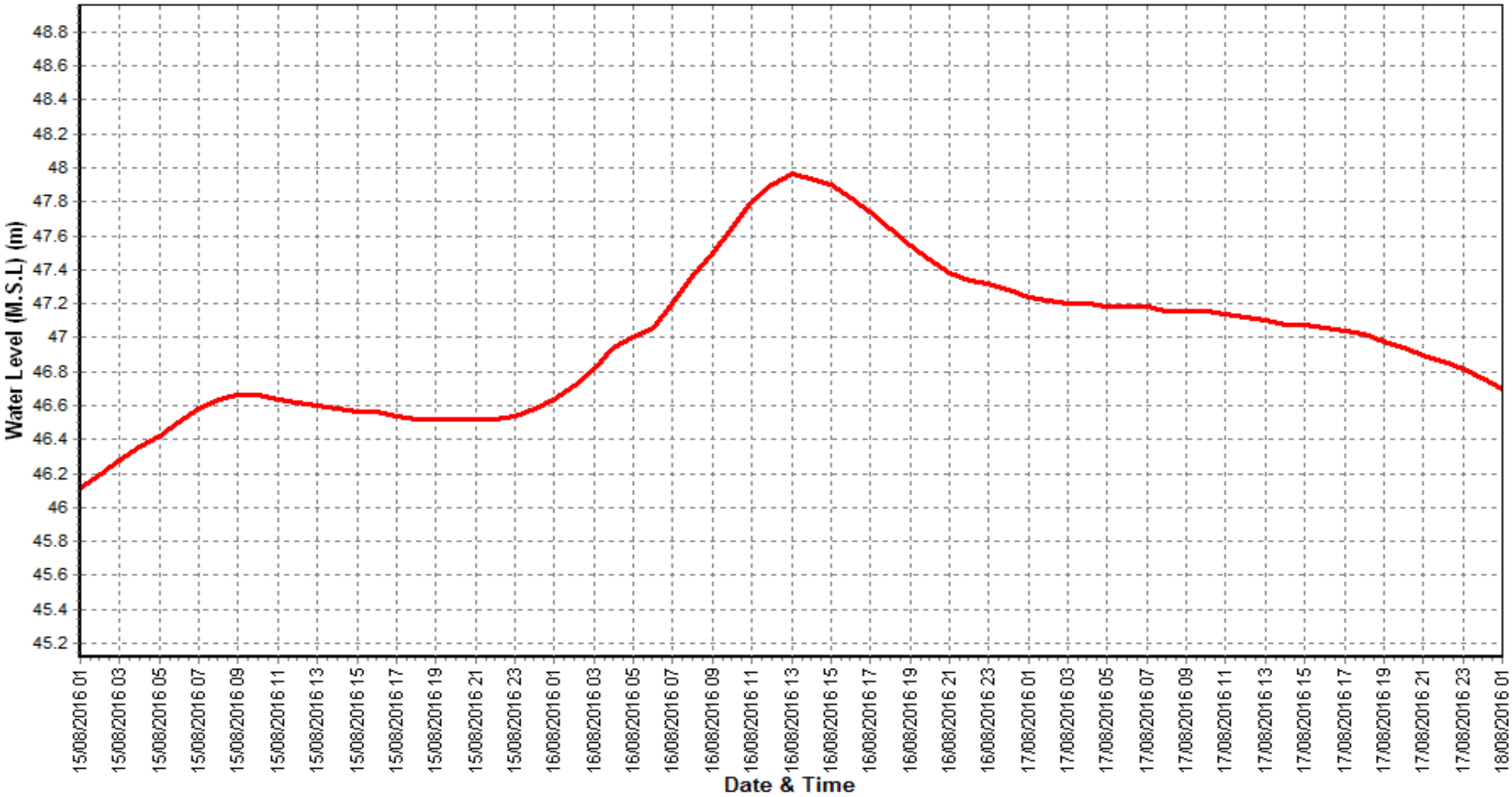
Local River : Ramyala **Sub-Division : Rourkela**



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2016-2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

Local River : Ramyala **Sub-Division : Rourkela**

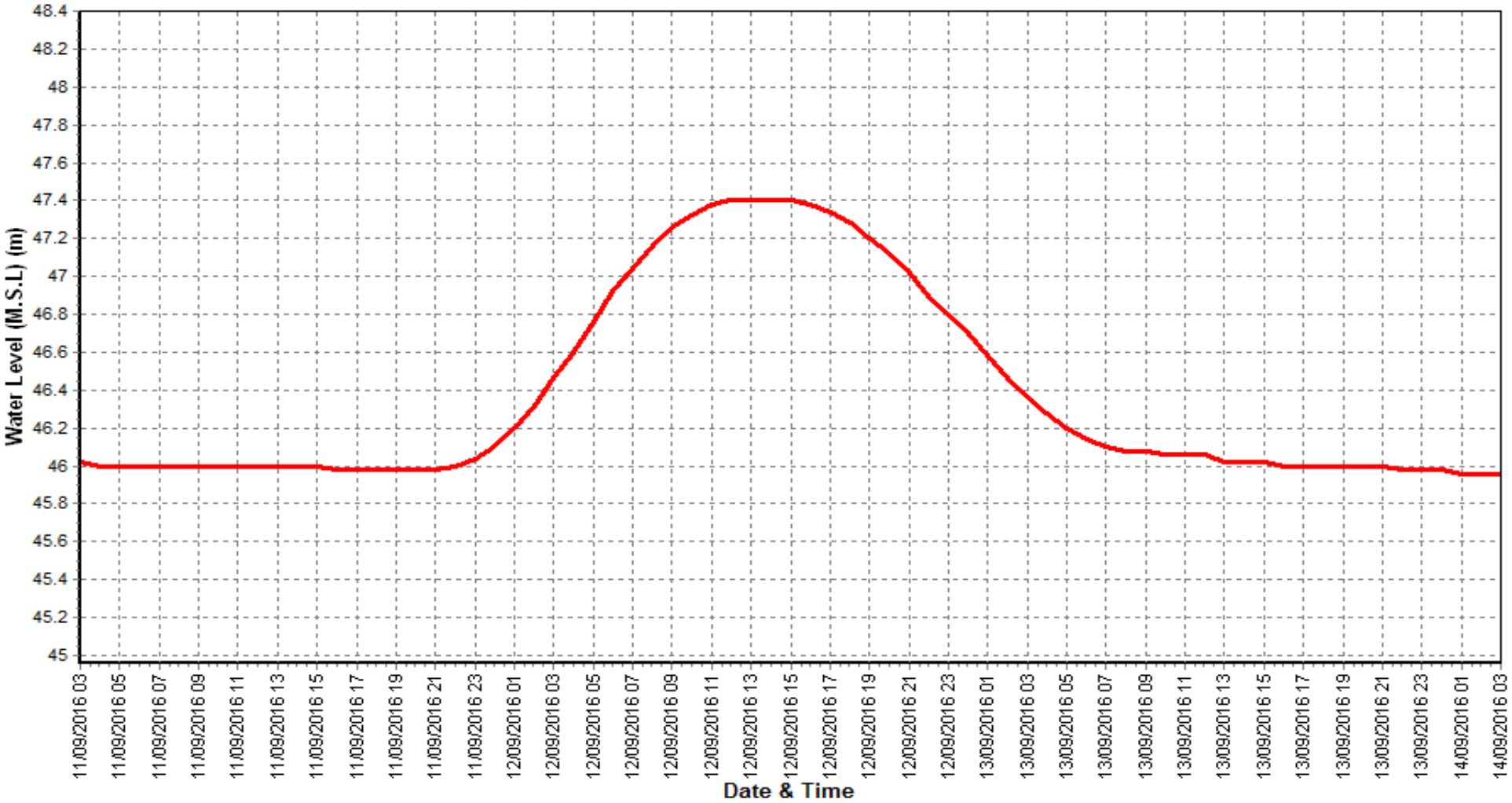


Time Span: 72 Hrs

Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2016-2017

Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

Local River : Ramyala **Sub-Division : Rourkela**

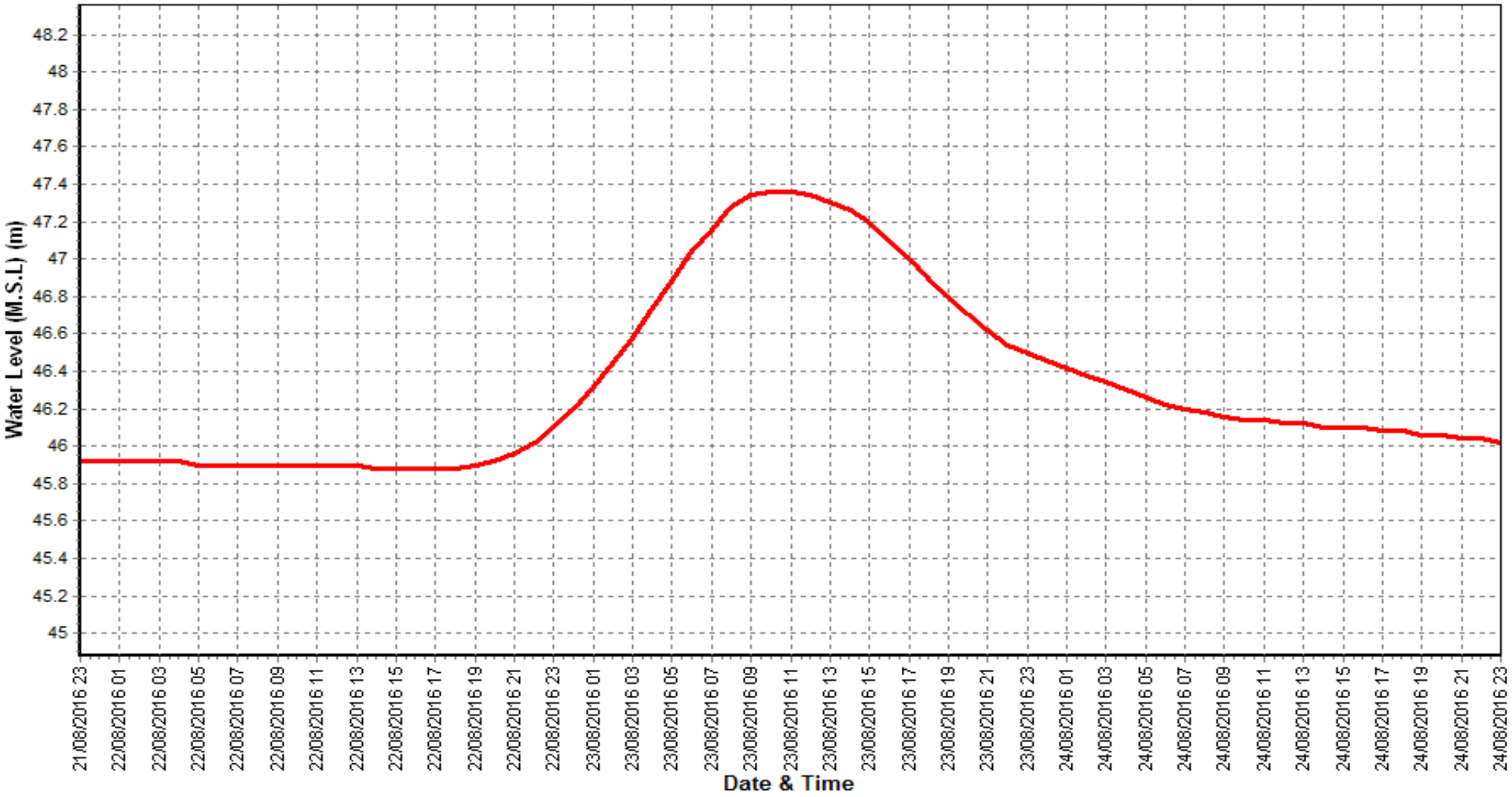


Time Span: 72 Hrs

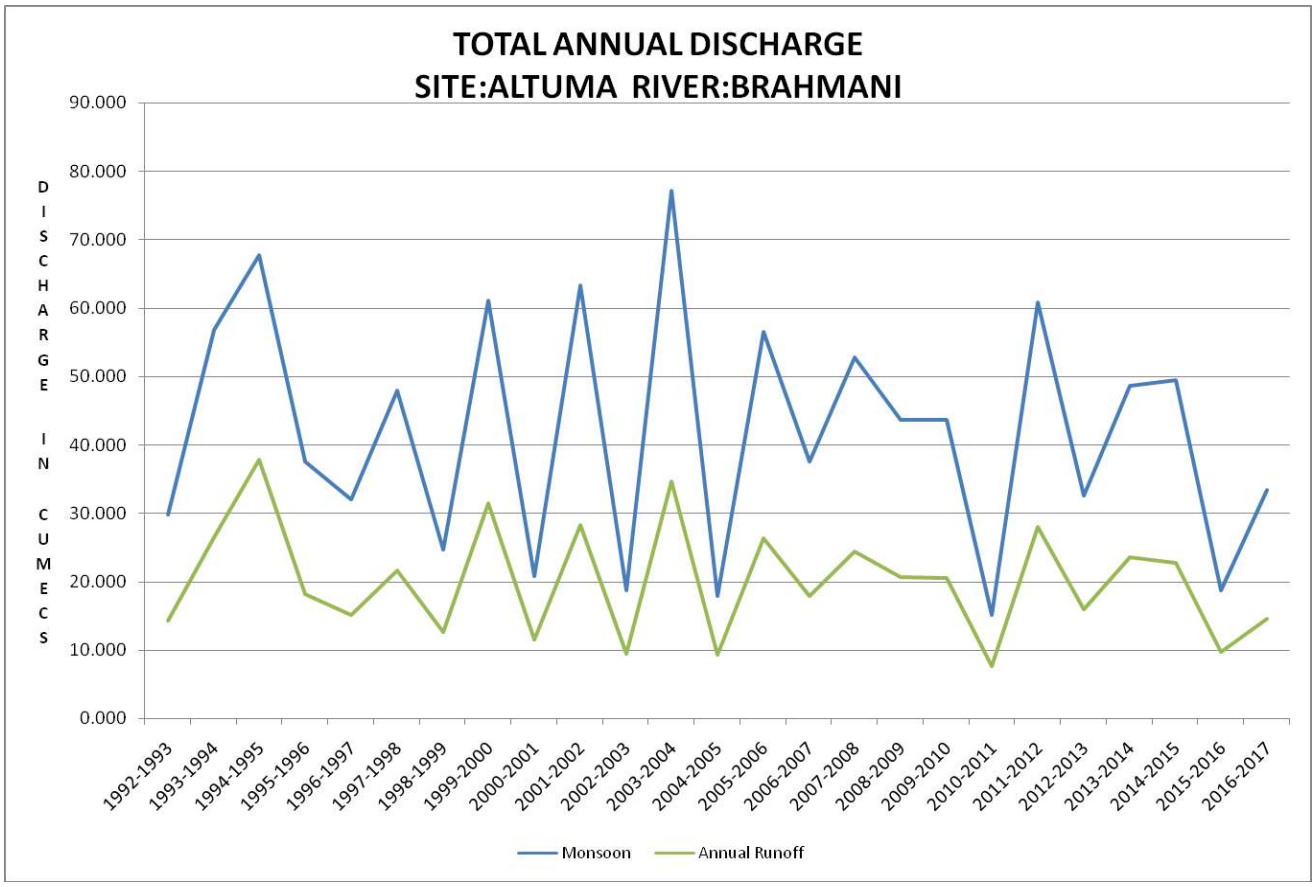
Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2016-2017

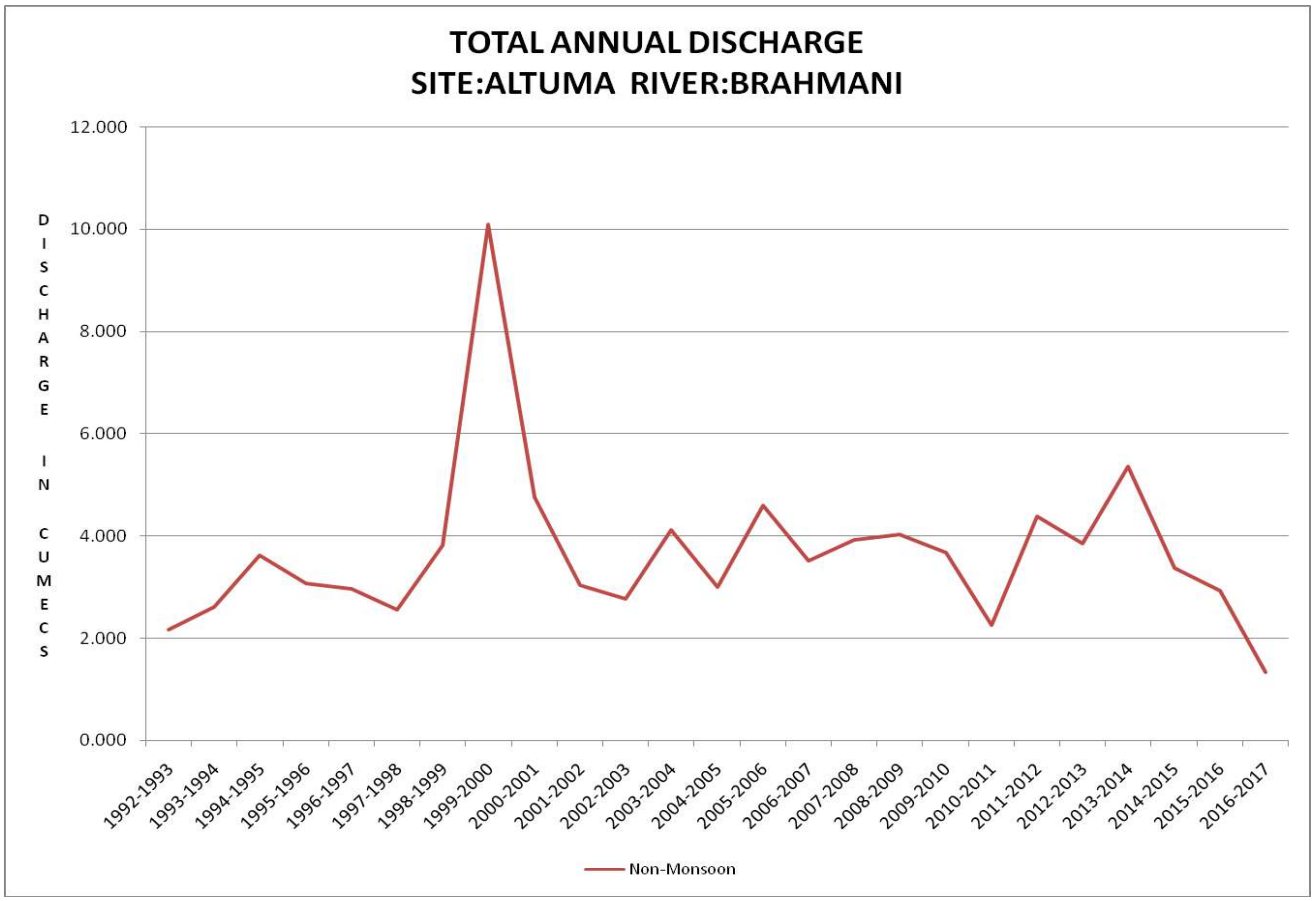
Station Name : Altuma (EBA00I3) **Division : E.E., Bhubaneswar**

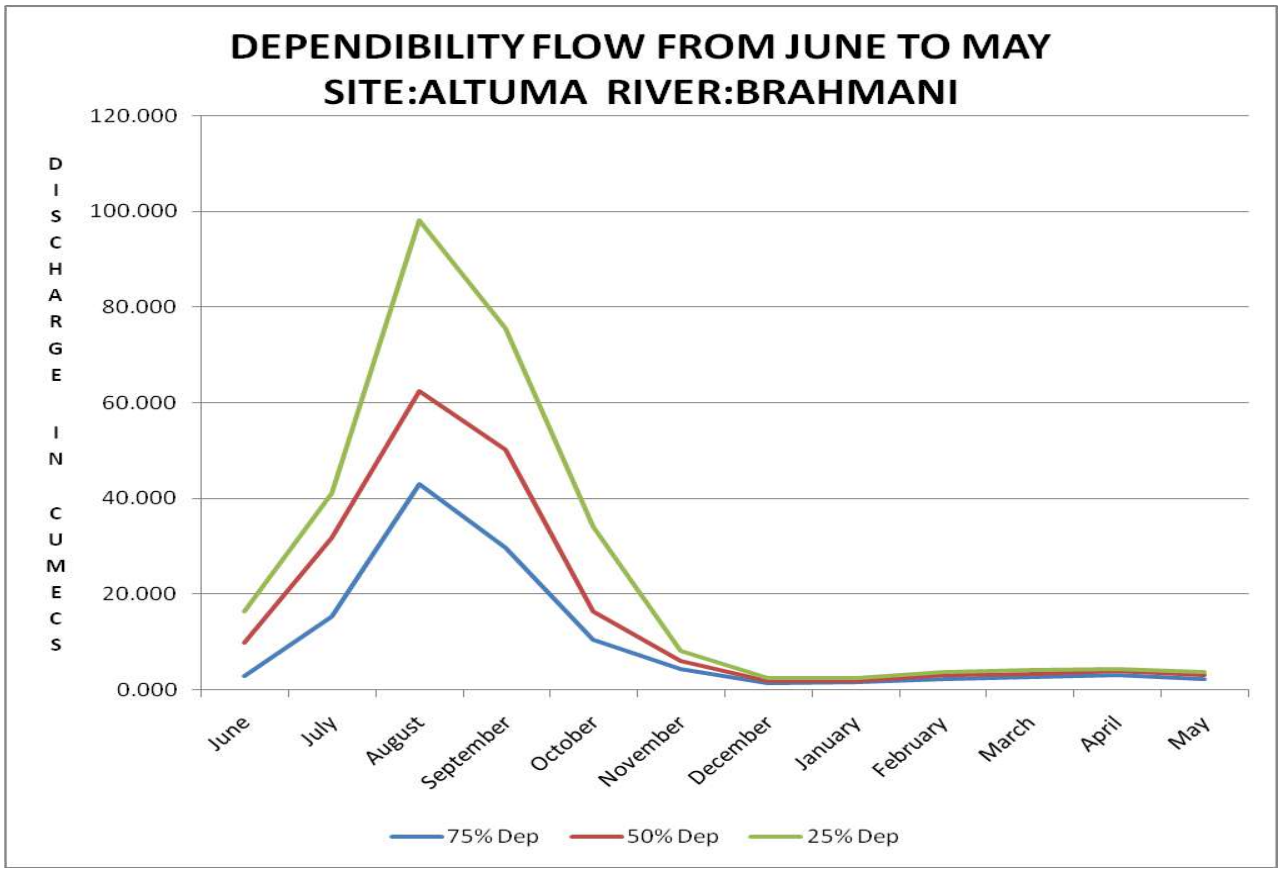
Local River : Ramyala **Sub-Division : Rourkela**

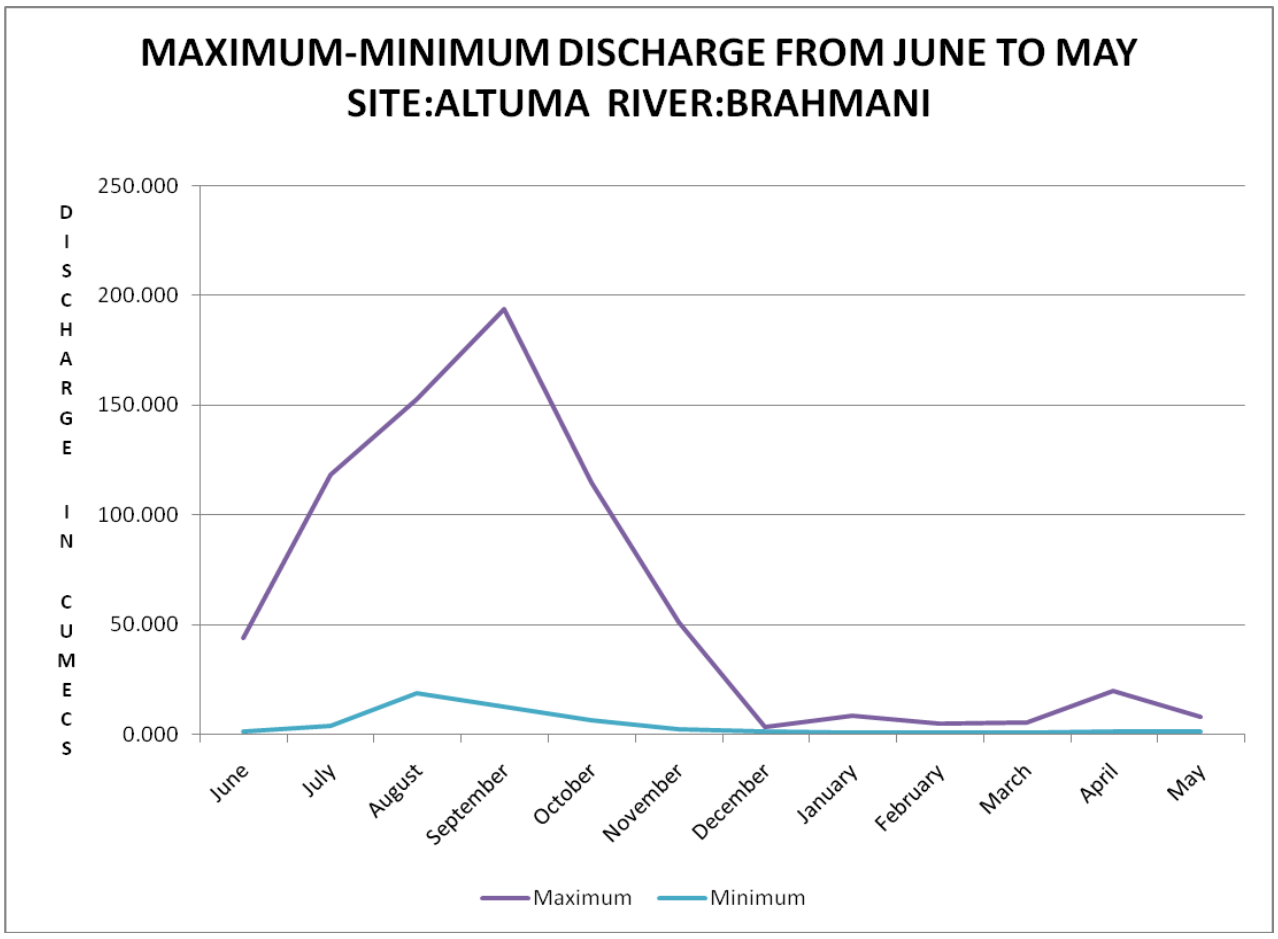


Time Span: 72 Hrs


TOTAL ANNUAL DISCHARGE
SITE:ALTUMA RIVER:BRAHMANI
DISCHARGE IN CUMECS
90.000
80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Monsoon
Annual Runoff


TOTAL ANNUAL DISCHARGE
SITE:ALTUMA RIVER:BRAHMANI
DISCHARGE IN CUMECS
12.000
10.000
8.000
6.000
4.000
2.000
0.000
1992-1993
1993-1994
1994-1995
1995-1996
1996-1997
1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
Non-Monsoon


DEPENDIBILITY FLOW FROM JUNE TO MAY
SITE:ALTUMA RIVER:BRAHMANI
DISCHARGE IN CUMECS
120.000
100.000
80.000
60.000
40.000
20.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
75% Dep
50% Dep
25% Dep


MAXIMUM-MINIMUM DISCHARGE FROM JUNE TO MAY
SITE:ALTUMA RIVER:BRAHMANI
DISCHARGE IN CUMECS
250.000
200.000
150.000
100.000
50.000
0.000
June
July
August
September
October
November
December
January
February
March
April
May
Maximum
Minimum

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**TALCHER**	**Code**	:	**EB000N5**
State	:	Orissa	District		Angul
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmani
Tributary	:	Brahmani	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Brahmani
Division	:	E.E., Bhubaneswar	Sub-Division	:	Rourkela
Drainage Area	:	29750 Sq. Km.	Bank	:	Left
Latitude	:	20°57'00"	Longitude	:	85°15'00"
		Opening Date	Closing Date		
Gauge	:	16.08.1985			
Discharge	:	16.08.1985	31.05.1996		
Sediment	:	16.08.1985	31.05.1996		
Water Quality	:	16.08.1985			

Water Quality Datasheet for the period : 2016-2017

Station Name : TALCHER (EB000N5) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water Analysis** | **Sub-Division : Rourkela**

S.No	Parameters	01.06.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	424	170	107	196	156	300	321	112	200	116	215	186
4	EC_GEN (µmho/cm)	426	171	109	101	160	303	325	116	205	118	220	192
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7	7.9	7.4	7.6	7.8	7.7	7.9	7.6	7.5	7.6	7.5	7.6
7	pH_GEN (pH units)	7.7	8.0	7.5	7.7	7.9	7.8	8.0	7.7	7.6	7.7	7.6	7.5
8	Temp (deg C)	29.0	30.2	28.6	34.0	28.0	29.6	24.0	22.0	18.5	23.0	27.5	31.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	55	55	92	92	32	51	37	32	46	51	51	55
3	B (mg/L)	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
4	Ca (mg/L)	34	37	35	37	35	37	37	38	38	38	40	42
5	Cl (mg/L)	9.4	9.4	11.3	18.9	7.5	11.3	11.3	13.2	13.2	9.4	9.4	9.4
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.8	0.3	0.6	0.1	0.2	0.3	0.3	0.7	0.5	0.5
9	HCO3 (mg/L)	68	68	113	113	39	62	45	39	56	62	62	68
10	K (mg/L)	1.6	6.7	21.8	21.9	6.3	11.3	12.2	25.1	5.7	6.1	5.9	6.1
11	Mg (mg/L)	11.7	12.6	13.6	14.6	13.6	11.7	14.6	15.6	14.6	25.7	15.6	16.5
12	Na (mg/L)	4.9	21.3	31.2	32.0	13.5	54.4	35.1	90.6	29.9	30.4	30.2	31.5
13	NO2+NO3 (mg N/L)	1.21	0.70	1.21	1.27	1.13	0.85	1.20	0.99	0.84	1.09	1.23	1.23
14	NO2-N (mgN/L)	0.00	0.01	0.00	0.04	0.00	0.00	0.01	0.03	0.03	0.03	0.01	0.00
15	NO3-N (mgN/L)	1.21	0.69	1.21	1.23	1.13	0.85	1.19	0.97	0.81	1.06	1.22	1.23
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	7.0	7.0	6.0	7.0	6.0	6.0	6.0	6.0	12.0	8.0	8.5	8.0
18	SO4 (mg/L)	12.4	14.0	14.1	14.4	12.8	42.8	43.2	49.6	50.5	3.7	4.0	5.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.6	3.2	0.4	0.2	1.0	1.0	0.6	4.0	1.4	1.0	1.0
2	DO (mg/L)	7.6	8.5	6.4	8.5	8.1	6.6	8.7	9.3	10.5	7.4	7.0	6.8
3	DO_SAT% (%)	98	113	81	121	104	85	104	107	111	86	87	91
4	FCol-MPN (MPN/100mL)						70	40	70	90	40	20	90
5	Tcol-MPN (MPN/100mL)						260	60	260	270	60	60	170
	TRACE & TOXIC												
1	Al (mg/L)												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	84	92	88	92	88	92	92	96	96	96	100	104
2	HAR_Total (mgCaCO3/L)	133	145	145	153	145	141	153	161	157	203	165	173
3	Na% (%)	7	23	28	28	16	43	31	51	28	24	28	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.2	0.8	1.1	1.1	0.5	2.0	1.2	3.1	1.0	0.9	1.0	1.0
	PESTICIDES												

Water Quality Summary for the period : 2016-2017

Station Name : TALCHER (EB000N5) **Division : E.E., Bhubaneswar**

Local River : Brahmani **Sub-Division : Rourkela**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	424	107	209
3	EC_GEN (µmho/cm)	12	426	101	204
4	pH_FLD (pH units)	12	7.9	7.4	7.7
5	pH_GEN (pH units)	12	8.0	7.5	7.7
6	Temp (deg C)	12	34.0	18.5	27.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	92	32	54
3	B (mg/L)	12	0.03	0.01	0.01
4	Ca (mg/L)	12	42	34	37
5	Cl (mg/L)	12	18.9	7.5	11.2
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.8	0.1	0.4
9	HCO3 (mg/L)	12	113	39	66
10	K (mg/L)	12	25.1	1.6	10.9
11	Mg (mg/L)	12	25.7	11.7	15
12	Na (mg/L)	12	90.6	4.9	33.7
13	NO2+NO3 (mg N/L)	12	1.27	0.70	1.08
14	NO2-N (mgN/L)	12	0.04	0.00	0.01
15	NO3-N (mgN/L)	12	1.23	0.69	1.07
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	12.0	6.0	7.3
18	SO4 (mg/L)	12	50.5	3.7	22.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	4.0	0.2	1.4
2	DO (mg/L)	12	10.5	6.4	7.9
3	DO_SAT% (%)	12	121	81	99
4	FCol-MPN (MPN/100mL)	7	90	20	60
5	Tcol-MPN (MPN/100mL)	7	270	60	163
	TRACE & TOXIC				
1	Al (mg/L)	1	0.00	0.00	0
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	104	84	94
2	HAR_Total (mgCaCO3/L)	12	203	133	156
3	Na% (%)	12	51	7	28
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	3.1	0.2	1.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : TALCHER (EB000N5) **Division : E.E., Bhubaneswar**

Local River : Brahmani **River Water** **Sub-Division : Rourkela**

S.No	Parameters	Flood																				
		Jun - Oct																				
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	136	114	151	112	129	156	124	126	160	108	144	110	131	226	211	138	116	136	191	117	99
3	EC_GEN (µmho/cm)	138	114	152	109	126	151	124	126	160	108	144	110	131	216	193	138	115	136	186	114	93
4	pH_FLD (pH units)	7.8	7.5	7.8	7.7	7.9	7.9	7.6	7.7	7.8	8.2	7.6	7.6	7.9	7.4	7.7	7.5	7.6	7.8	7.8	8.0	8.0
5	pH_GEN (pH units)	7.8	7.5	7.9	7.8	7.9	7.9	7.6	7.7	7.8	8.2	7.6	7.6	7.9	7.4	7.7	7.6	7.6	7.9	7.8	8.0	8.0
6	Temp (deg C)	30.2	29.9	24.5	28.9	29.2	30.2	29.2	28.4	27.4	28.0	29.6	28.9	27.7	29.6	30.0	25.9	23.0	24.9	23.6	24.8	24.4
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)					0.0	0.0	0.0	0.0	0.0	3.7	0.0		0.0	0.0	0.0					0.0	0.0
2	ALK-TOT (mgCaCO3/L)					80	86	36	32	44	43	46		34	54	66					87	41
3	B (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
4	Ca (mg/L)	13	12	16	12	13	16	12	11	16	47	21	15	47	19	36	14	13	11	18	15	11
5	Cl (mg/L)	10.1	8.5	16.7	9.4	10.5	12.6	10.6	9.7	12.6	17.0	14.7	13.4	17.0	11.2	11.3	10.2	8.7	8.7	15.6	8.8	9.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.02	0.27	0.02	0.02	0.02	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.02	0.37	0.00	0.00	0.00
8	Fe (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	1.9	0.0	0.4	0.4	0.5	0.2	0.2	0.1	0.1	0.2	0.1
9	HCO3 (mg/L)	50	45	68	43	64	62	44	39	55	43	62	66	43	66	80	44	49	43	87	48	35
10	K (mg/L)	1.6	1.5	1.8	1.7	8.2	1.8	1.3	1.6	1.9	1.6	1.8	1.6	1.6	1.9	11.7	1.6	1.6	1.5	2.0	1.6	1.5
11	Mg (mg/L)	3.3	2.1	5.3	2.0	3.2	4.6	3.9	5.1	4.7	3.5	6.8	4.2	3.5	9.0	13.2	2.7	2.8	3.6	7.3	2.2	1.7
12	Na (mg/L)	6.7	6.0	10.6	6.1	6.6	7.8	7.6	5.9	7.7	3.4	4.5	9.6	3.4	4.4	20.6	6.4	6.5	5.6	10.7	5.9	5.5
13	NO2+NO3 (mg N/L)	0.48	0.34	1.63	0.34	1.14	0.39	0.39	0.27	0.57	0.41	0.71	1.11	1.45	1.05	1.10	1.25	0.54	0.56	0.40	0.60	0.58
14	NO2-N (mgN/L)	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.00
15	NO3-N (mgN/L)	0.48	0.34	1.63	0.34	1.14	0.39	0.39	0.27	0.57	0.34	0.71	1.11	1.45	1.04	1.09	1.25	0.54	0.56	0.39	0.57	0.58
16	o-PO4-P (mg P/L)	0.000		0.000	0.000	0.000	0.000		0.000										0.000	0.000	0.000	0.000
17	P-Tot (mgP/L)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.001	0.001
18	SiO2 (mg/L)	22.4	9.2	18.1	27.4	11.5	13.3	8.3	6.8	6.9	10.4	12.8	10.9	5.2	5.6	6.6	10.5	9.3	22.1	22.8	18.8	9.0
19	SO4 (mg/L)	2.8	2.2	5.1	3.1	1.9	4.8	10.6	12.8	10.3	11.6	55.3	10.5	16.2	9.2	13.5	2.5	2.1	7.0	2.4	4.8	4.7
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	0.6	0.7	0.5	0.7	0.7	0.9	1.0	1.1	1.2	1.0	0.9	0.2	0.7	1.0	1.3	0.9	0.5	1.6	0.6	0.6	0.8
2	DO (mg/L)	7.3	6.8	7.5	7.2	7.1	7.3	7.1	7.4	7.3	7.1	7.2	7.4	6.5	6.4	7.8	7.6	8.2	8.0	8.2	7.7	7.8
3	DO_SAT% (%)	97	89	90	93	92	97	93	96	92	90	95	96	82	84	103	93	95	97	96	92	93
4	FCol-MPN (MPN/100mL)					93	13	27	12	250		30									111	
5	Tcol-MPN (MPN/100mL)					118	21	34	20	625		25									112	
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	32	30	39	30	33	41	30	28	41	117	51	38	117	48	89	35	32	27	45	37	28
2	HAR_Total (mgCaCO3/L)	45	39	61	38	47	60	47	49	60	132	80	55	132	85	144	46	43	43	75	46	35
3	Na% (%)	24	25	28	25	21	22	27	21	21	9	12	27	9	10	21	23	24	22	21	21	24
4	RSC (-)	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.6	0.4	0.4	0.4	0.5	0.4	0.4	0.2	0.2	0.6	0.2	0.2	0.7	0.4	0.4	0.4	0.5	0.4	0.4
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : TALCHER (EB000N5) | **Division : E.E., Bhubaneswar**

Local River : Brahmani | **River Water** | **Sub-Division : Rourkela**

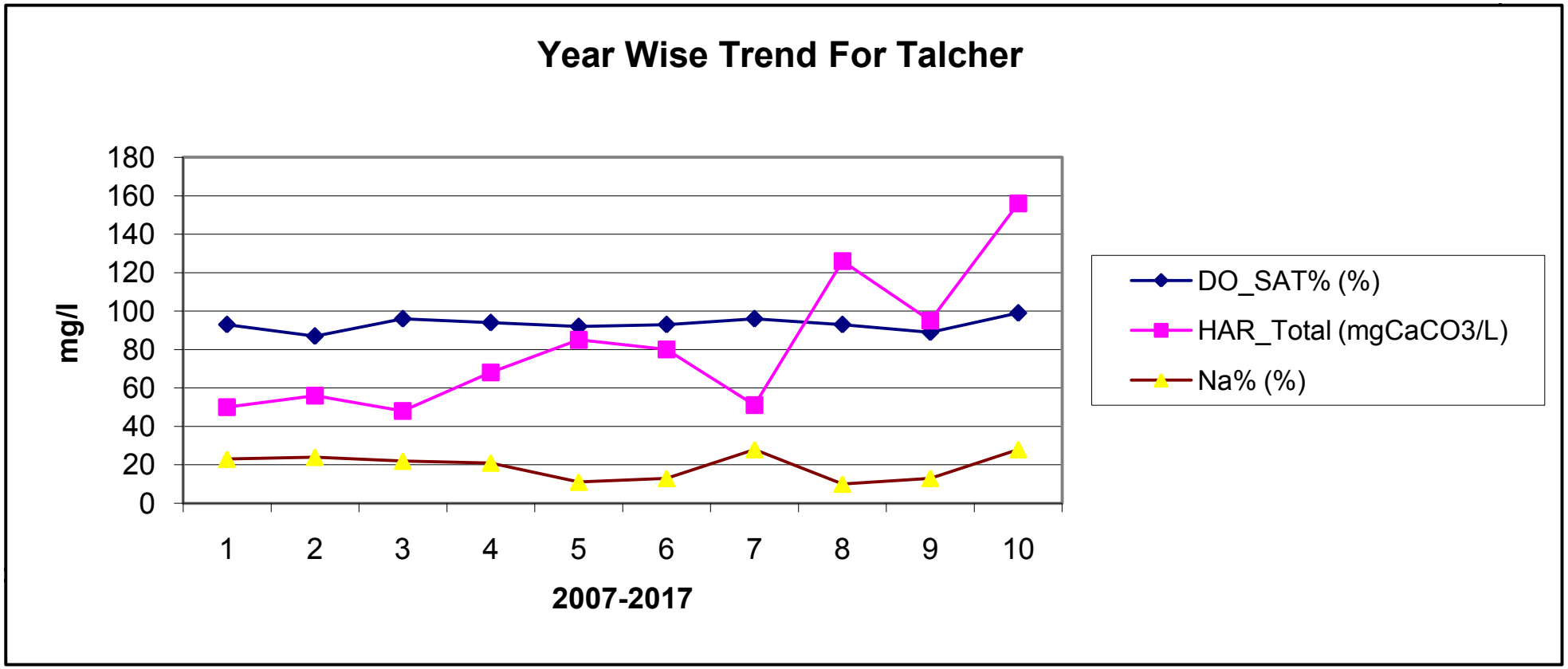
S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	158	130	152	108	128	113	159	696	233	136	122	139	135	136	143	178	115	267	123	137	114
3	EC_GEN (µmho/cm)	158	148	152	108	128	113	163	692	237	136	123	137	130	125	140	178	115	267	123	137	114
4	pH_FLD (pH units)	7.8	7.7	7.7	7.7	7.4	7.9	7.9	7.7	7.7	7.9	7.8	7.7	7.6	8.1	8.0	8.0	7.9	8.3	7.5	7.7	7.7
5	pH_GEN (pH units)	7.8	7.7	7.7	7.7	7.4	7.9	7.9	7.7	7.8	7.9	7.9	7.9	7.7	8.0	8.1	8.0	7.9	8.3	7.5	7.7	7.8
6	Temp (deg C)	24.1	24.3	23.8	26.3	23.1	24.1	20.9	24.0	23.5	26.3	23.9	26.7	28.2	29.0	26.8	28.8	27.7	28.3	30.0	26.3	27.0
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0		0.0	4.6	0.0					0.0	0.0	0.0	0.0	8.8	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	44	37	38	45	72		60	62	42					75	41	44	35	79	48	76	62
3	B (mg/L)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
4	Ca (mg/L)	17	10	12	16	18	14	36	20	38	16	14	8	15	14	13	17	10	24	14	21	13
5	Cl (mg/L)	12.7	11.2	12.3	22.2	12.3	11.6	21.9	14.6	12.3	11.6	8.4	11.0	9.8	9.3	12.0	17.5	9.9	20.7	11.9	24.1	12.5
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	0.34	0.00	0.00	0.01	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.2	0.1	0.1	0.0	1.5	0.0	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.0	1.9	0.0
9	HCO3 (mg/L)	53	44	57	54	68	74	42	65	51	49	53	34	52	46	51	58	43	62	58	73	76
10	K (mg/L)	1.5	1.5	1.8	1.4	1.5	1.3	1.5	3.3	13.6	1.7	1.5	2.0	1.7	1.6	1.2	1.6	1.3	4.9	1.5	1.5	1.4
11	Mg (mg/L)	4.9	5.3	6.1	3.4	10.0	3.5	5.3	9.5	14.1	2.9	2.7	3.8	2.0	2.4	4.8	5.5	4.9	9.1	2.9	4.5	3.7
12	Na (mg/L)	7.3	7.1	7.4	3.5	5.2	9.6	3.4	9.1	52.5	7.2	5.7	7.5	6.3	6.4	7.3	10.5	5.5	13.6	3.9	4.7	8.7
13	NO2+NO3 (mg N/L)	0.51	0.26	0.36	0.43	0.71	1.06	0.82	1.01	0.97	1.94	0.50	0.43	0.78	0.63	1.62	0.38	0.21	0.64	0.40	0.71	1.19
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.07	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.00	0.00
15	NO3-N (mgN/L)	0.51	0.26	0.36	0.36	0.71	1.15	0.81	0.99	0.96	1.94	0.50	0.43	0.78	0.62	1.62	0.38	0.21	0.64	0.33	0.71	1.19
16	o-PO4-P (mg P/L)		0.000											0.000	0.000	0.010		0.000				
17	P-Tot (mgP/L)	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.010	0.001	0.001	0.001	0.001	0.001	0.050	0.001	0.001	0.001	0.010	0.001	0.001
18	SiO2 (mg/L)	7.9	7.4	4.6	11.5	13.3	9.7	5.0	5.8	7.5	14.8	10.2	21.8	18.4	20.0	9.0	8.2	7.7	3.8	10.3	13.7	10.7
19	SO4 (mg/L)	11.4	9.6	9.4	9.4	9.3	11.7	10.0	13.4	46.5	2.0	1.2	7.3	3.1	3.2	3.9	12.2	7.1	24.8	2.6	3.7	10.8
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	0.9	1.1	1.0	1.4	0.3	0.5	0.9	1.7	1.6	0.6	0.6	0.8	0.7	0.8	0.9	1.1	1.4	1.3	1.1	1.1	0.3
2	DO (mg/L)	8.0	8.1	8.1	7.5	8.1	8.4	9.9	8.3	8.8	7.0	7.8	7.1	7.6	7.3	7.0	5.2	7.7	7.5	7.2	6.9	7.4
3	DO_SAT% (%)	95	97	95	93	95	100	110	98	102	86	92	88	97	94	87	68	97	97	95	86	93
4	FCol-MPN (MPN/100mL)	5	18	64		22				68					14	4	5	11	19		16	
5	Tcol-MPN (MPN/100mL)	6	22	885		23				213					146	5	8	12	20		24	
	TRACE & TOXIC																					
1	Al (mg/L)																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	42	26	30	40	45	35	91	50	94	40	34	21	36	34	33	41	24	59	35	53	32
2	HAR_Total (mgCaCO3/L)	62	48	55	54	87	50	113	90	153	52	45	36	45	44	53	64	44	97	47	72	48
3	Na% (%)	20	24	22	12	13	29	8	16	38	23	21	30	23	23	22	26	21	21	15	13	28
4	RSC (-)	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
5	SAR (-)	0.4	0.5	0.4	0.2	0.3	0.6	0.2	0.4	1.8	0.4	0.4	0.6	0.4	0.4	0.4	0.6	0.4	0.6	0.2	0.2	0.6
	PESTICIDES																					

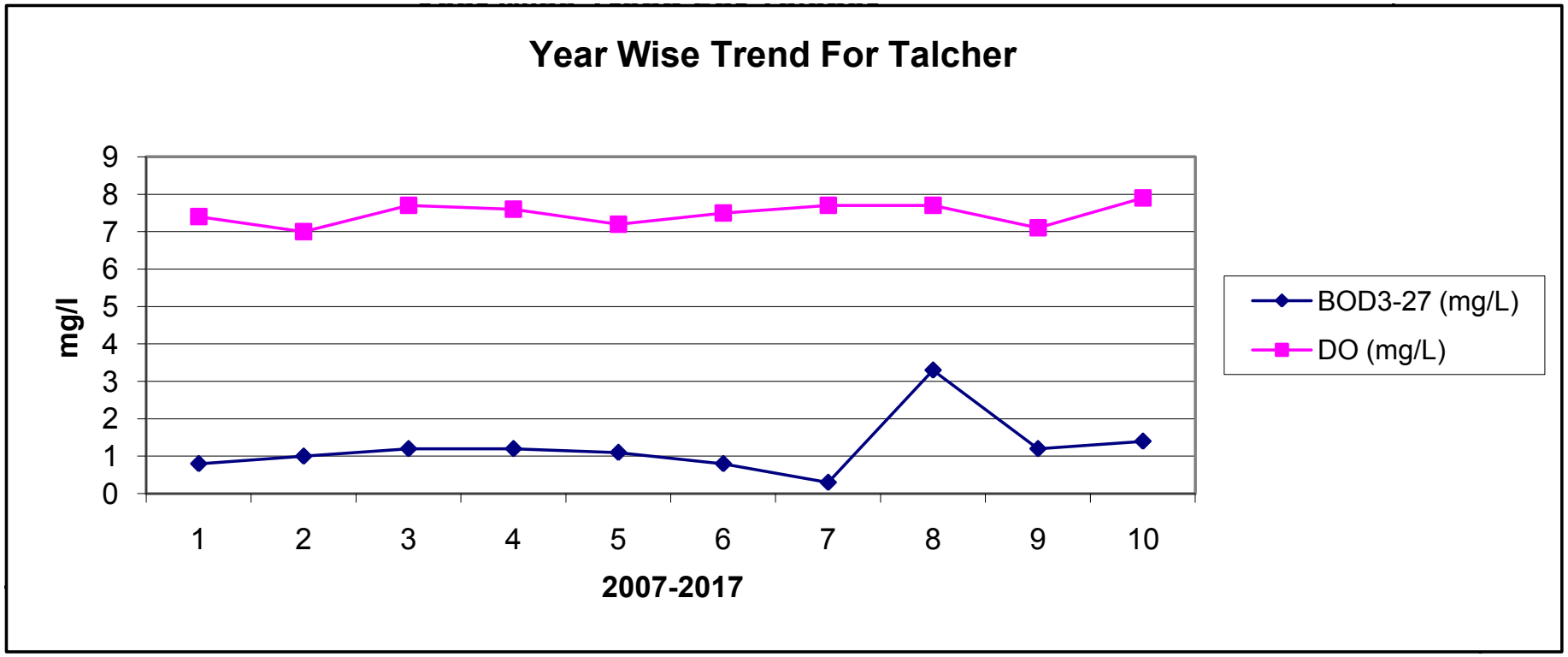
Water Quality Seasonal Average for the period: 2002-2017

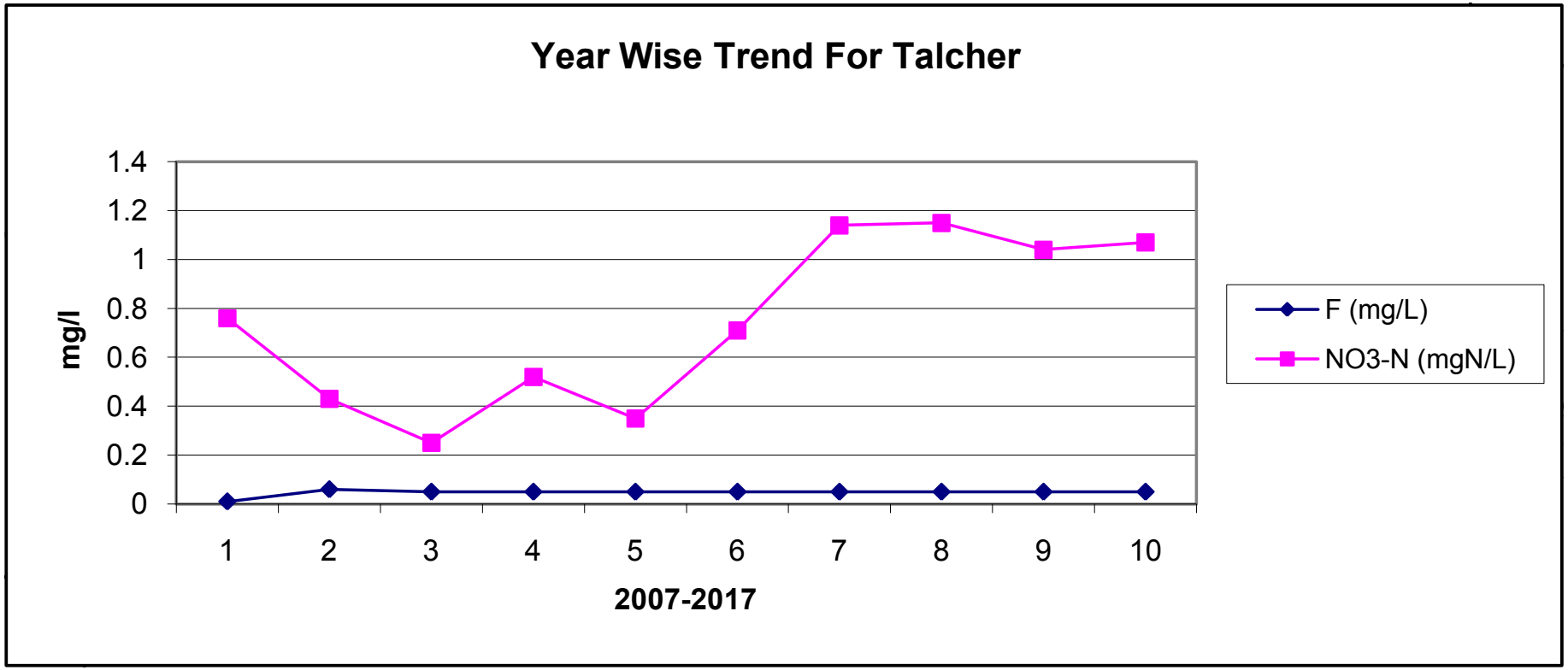
Station Name : TALCHER (EB000N5) **Division : E.E., Bhubaneswar**

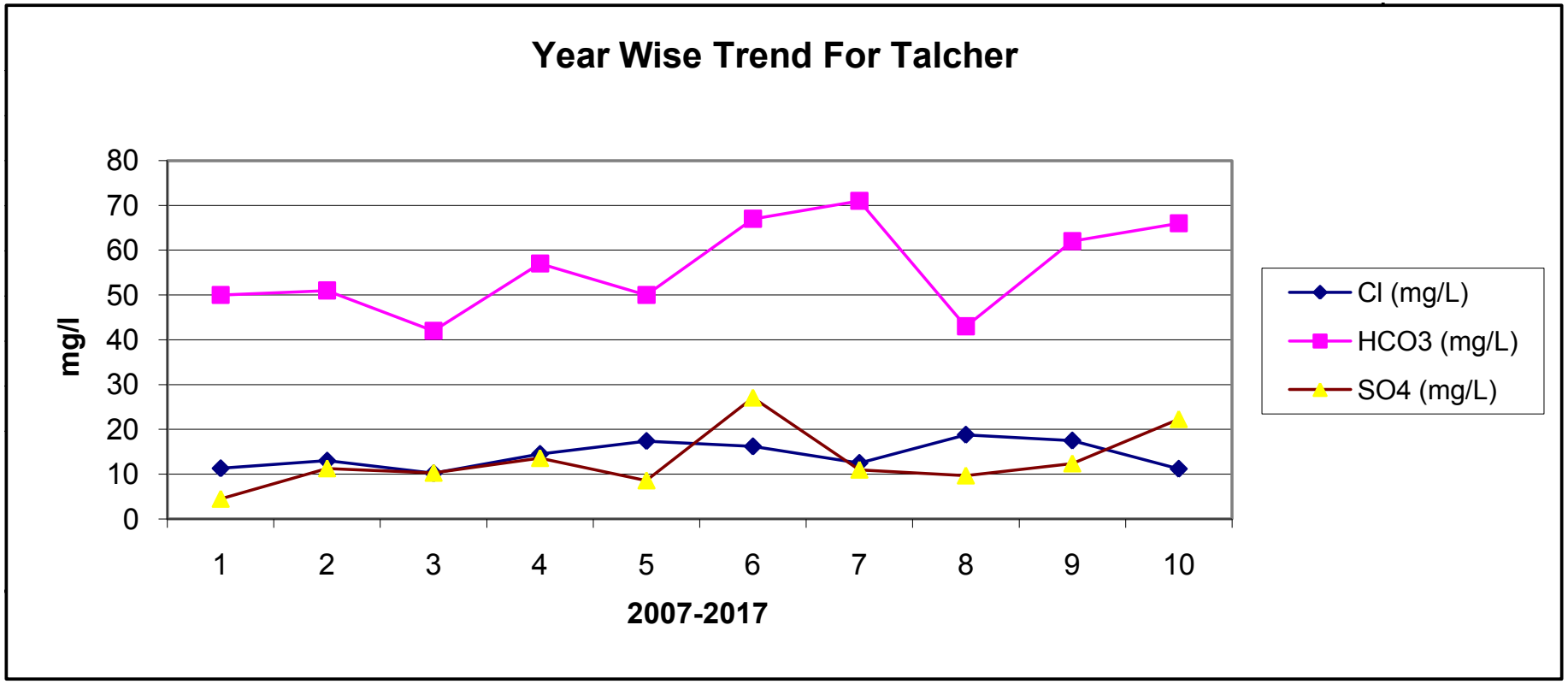
Local River : Brahmani **River Water** **Sub-Division : Rourkela**

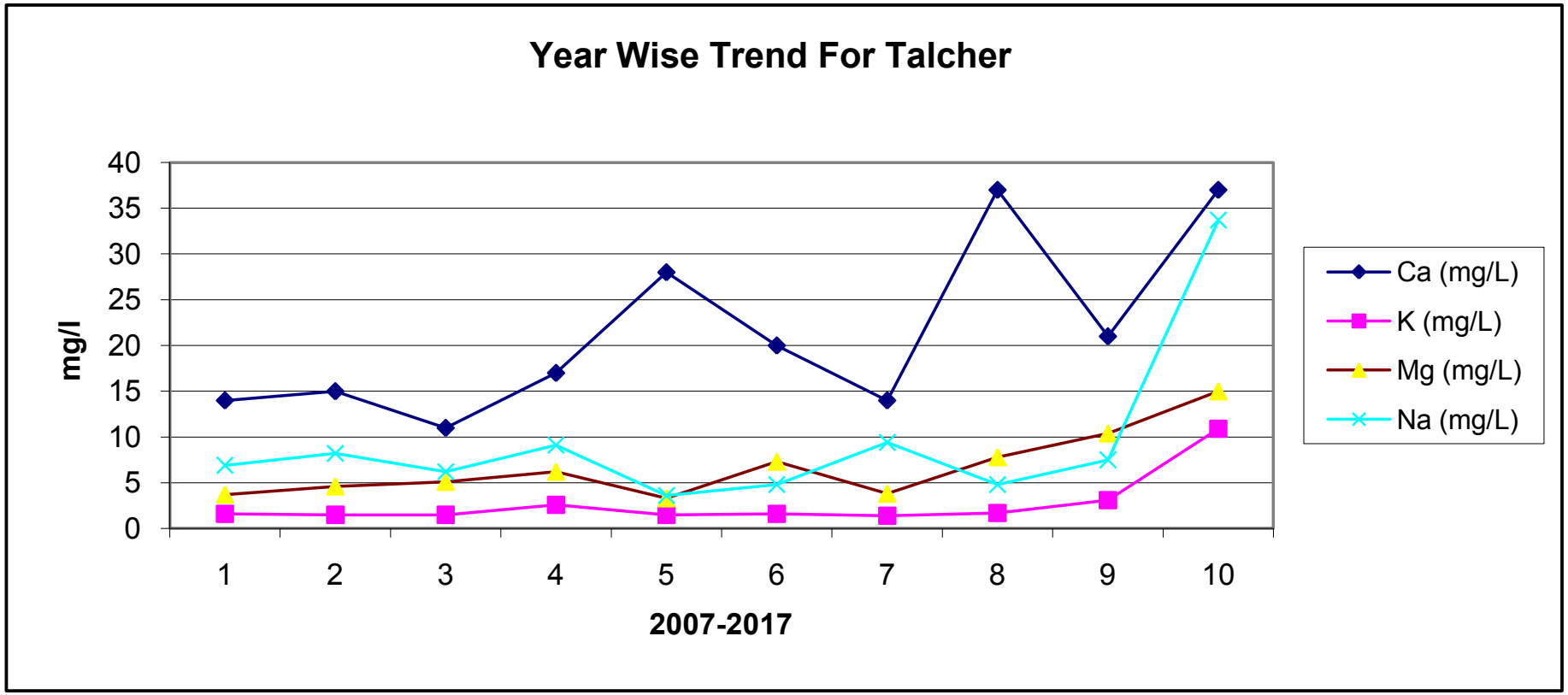
S.No	Parameters			
		2015	2016	2017
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	173	233	172
3	EC_GEN (µmho/cm)	173	232	177
4	pH_FLD (pH units)	7.8	7.8	7.6
5	pH_GEN (pH units)	7.8	7.9	7.6
6	Temp (deg C)	29.2	28.0	27.2
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	40	43	52
3	B (mg/L)	0.00	0.01	0.01
4	Ca (mg/L)	23	25	40
5	Cl (mg/L)	17.7	32.1	9.4
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.3	0.4	0.6
9	HCO3 (mg/L)	52	53	64
10	K (mg/L)	2.0	5.1	6.0
11	Mg (mg/L)	18.1	13.9	19.2
12	Na (mg/L)	9.1	10.4	30.7
13	NO2+NO3 (mg N/L)	1.11	1.10	1.19
14	NO2-N (mgN/L)	0.00	0.00	0.01
15	NO3-N (mgN/L)	1.11	1.10	1.17
16	o-PO4-P (mg P/L)			
17	P-Tot (mgP/L)	0.001	0.010	0.010
18	SiO2 (mg/L)	4.3	5.7	8.2
19	SO4 (mg/L)	9.0	16.2	4.5
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	1.1	0.9	1.1
2	DO (mg/L)	6.8	6.7	7.0
3	DO_SAT% (%)	89	86	88
4	FCol-MPN (MPN/100mL)			50
5	Tcol-MPN (MPN/100mL)			97
	TRACE & TOXIC			
1	Al (mg/L)			0.00
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	58	61	100
2	HAR_Total (mgCaCO3/L)	134	119	180
3	Na% (%)	14	15	26
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	1.0
	PESTICIDES			


Year Wise Trend For Talcher
mg/l
180
160
140
120
100
80
60
40
20
0
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Talcher
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Talcher
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Talcher
80
70
60
50
40
30
20
10
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Talcher
mg/l
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**NANDIRA**	**Code**	:	**NANDIRA**
State	:	Orissa	District		Angul
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:	Nandiranala	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Nandiranala
Division	:	E.E., Bhubaneswar	Sub-Division	:	Sambalpur
Drainage Area	:	Sq. Km.	Bank	:	Right
Latitude	:	°'"	Longitude	:	°'"
		Opening Date	Closing Date		
Gauge	:				
Discharge	:				
Sediment	:				
Water Quality	:	01.11.1990			

Water Quality Datasheet for the period : 2016-2017

Station Name : NANDIRA (NANDIRA) | **Division : E.E., Bhubaneswar**

Local River : Nandiranala | **River Water Analysis** | **Sub-Division : Sambalpur**

S.No	Parameters	01.06.2016	02.07.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	B	A	A	A	A	A	A	A	A	A	A
	PHYSICAL													
1	Q (cumec)													
2	Colour_Cod (-)	Clear		Clear	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	440		413	128	346	124	1088	883	136	375	412	165	521
4	EC_GEN (µmho/cm)	444		416	130	348	126	1090	887	138	376	417	168	540
5	Odour_Code (-)	odour free		odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.7		8.0	7.4	7.9	7.7	8.0	8.2	7.7	8.1	8.1	7.2	7.8
7	pH_GEN (pH units)	7.7		8.0	7.5	8.0	7.9	8.1	8.3	7.8	8.2	8.2	7.3	8.0
8	Temp (deg C)	30.7		30.0	28.2	33.8	28.5	28.2	23.0	21.0	18.0	22.0	27.0	31.5
	CHEMICAL													
1	Alk-Phen (mgCaCO3/L)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	60		92	65	65	46	46	51	55	37	92	42	88
3	B (mg/L)	0.01		0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01
4	Ca (mg/L)	32		34	34	35	38	40	38	37	40	37	38	51
5	Cl (mg/L)	11.3		28.3	13.2	20.8	11.3	11.3	13.2	33.8	13.2	24.5	9.4	34.0
6	CO3 (mg/L)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.5		0.6	0.1	0.2	0.5	0.4	0.4	0.5	0.5	0.6	0.7	0.7
9	HCO3 (mg/L)	73		113	79	79	56	56	62	68	45	113	51	107
10	K (mg/L)	1.4		12.3	9.1	9.2	8.1	18.7	19.1	6.4	29.0	28.0	30.1	17.2
11	Mg (mg/L)	9.7		27.2	23.3	22.4	19.4	20.4	20.4	19.4	19.4	18.5	17.5	18.5
12	Na (mg/L)	5.2		58.4	28.0	28.2	22.2	62.2	63.1	59.5	61.2	91.1	46.8	52.1
13	NO2+NO3 (mg N/L)	0.95		1.13	0.88	1.26	1.05	1.09	1.13	1.20	1.22	1.15	1.25	1.27
14	NO2-N (mgN/L)	0.00		0.00	0.07	0.00	0.00	0.00	0.03	0.01	0.01	0.01	0.01	0.03
15	NO3-N (mgN/L)	0.95		1.13	0.81	1.26	1.05	1.09	1.11	1.19	1.21	1.13	1.23	1.25
16	P-Tot (mgP/L)	0.010		0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0		6.0	7.0	6.0	6.0	6.0	7.0	7.0	8.0	7.5	9.2	8.9
18	SO4 (mg/L)	12.9		13.2	13.3	33.5	16.0	48.0	49.0	52.1	52.8	57.1	57.6	53.8
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	0.8		1.6	0.4	0.4	0.8	1.0	0.2	0.6	0.6	1.6	1.0	2.0
2	DO (mg/L)	7.2		7.7	6.8	4.8	10.5	6.4	8.1	9.7	10.1	7.4	6.8	6.4
3	DO_SAT% (%)	95		102	86	66	135	81	95	109	107	84	85	86
4	FCol-MPN (MPN/100mL)							140	40	120	20	90	60	80
5	Tcol-MPN (MPN/100mL)							170	120	340	40	170	120	140
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	80		84	84	88	96	100	96	92	100	92	96	128
2	HAR_Total (mgCaCO3/L)	121		198	181	181	177	185	181	173	181	169	169	205
3	Na% (%)	8		37	24	24	21	39	40	42	38	49	33	33
4	RSC (-)	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.2		1.8	0.9	0.9	0.7	2.0	2.0	2.0	2.0	3.1	1.6	1.6
	PESTICIDES													

Water Quality Summary for the period : 2016-2017

Station Name : NANDIRA (NANDIRA) **Division : E.E., Bhubaneswar**

Local River : Nandiranala **Sub-Division : Sambalpur**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	1088	124	419
3	EC_GEN (µmho/cm)	12	1090	126	423
4	pH_FLD (pH units)	12	8.2	7.2	7.8
5	pH_GEN (pH units)	12	8.3	7.3	7.9
6	Temp (deg C)	12	33.8	18.0	26.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	92	37	62
3	B (mg/L)	12	0.02	0.01	0.01
4	Ca (mg/L)	12	51	32	38
5	Cl (mg/L)	12	34.0	9.4	18.7
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.7	0.1	0.5
9	HCO3 (mg/L)	12	113	45	75
10	K (mg/L)	12	30.1	1.4	15.7
11	Mg (mg/L)	12	27.2	9.7	19.7
12	Na (mg/L)	12	91.1	5.2	48.2
13	NO2+NO3 (mg N/L)	12	1.27	0.88	1.13
14	NO2-N (mgN/L)	12	0.07	0.00	0.01
15	NO3-N (mgN/L)	12	1.26	0.81	1.12
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	9.2	6.0	7
18	SO4 (mg/L)	12	57.6	12.9	38.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.0	0.2	0.9
2	DO (mg/L)	12	10.5	4.8	7.6
3	DO_SAT% (%)	12	135	66	94
4	FCol-MPN (MPN/100mL)	7	140	20	79
5	Tcol-MPN (MPN/100mL)	7	340	40	157
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	128	80	95
2	HAR_Total (mgCaCO3/L)	12	205	121	177
3	Na% (%)	12	49	8	33
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	3.1	0.2	1.6
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : NANDIRA (NANDIRA) | **Division : E.E., Bhubaneswar**

Local River : Nandiranala | **River Water** | **Sub-Division : Sambalpur**

S.No	Parameters	Flood																				
		Jun - Oct																				
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	264	298	408	305	290	336	264	214	309	246	251	262	274	458	290	316	333	306	243	230	216
3	EC_GEN (µmho/cm)	270	295	408	302	277	333	264	214	309	246	251	262	274	463	293	321	341	306	239	226	213
4	pH_FLD (pH units)	7.7	7.9	8.0	7.8	7.9	8.0	7.8	7.8	8.1	8.0	7.6	7.7	7.8	7.6	7.7	7.9	7.8	8.0	7.9	8.1	7.9
5	pH_GEN (pH units)	7.5	7.7	8.0	7.8	8.0	8.0	7.8	7.8	8.1	8.0	7.6	7.7	7.8	7.5	7.8	7.8	7.7	8.0	7.9	8.1	8.0
6	Temp (deg C)	29.3	30.7	26.0	29.1	29.6	29.9	29.3	29.2	28.4	29.6	30.4	29.0	27.2	28.8	30.2	24.9	25.7	25.4	22.7	23.2	23.8
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)					0.0	0.1	0.0	0.0	3.2	4.6	0.0		0.0	0.0	0.0					0.0	0.0
2	ALK-TOT (mgCaCO3/L)					113	76	48	26	68	71	42		69	63	66					71	43
3	B (mg/L)	0.65	0.55	0.13	0.53	0.00	0.17	0.21	0.15	0.15	0.01	0.00	0.00	0.00	0.01	0.01	0.54	0.56	0.15	0.53	0.00	0.19
4	Ca (mg/L)	35	33	31	33	31	34	23	17	29	22	20	20	25	26	35	38	32	32	25	23	20
5	Cl (mg/L)	17.8	16.4	25.7	21.6	17.4	23.3	20.0	18.3	17.9	28.3	18.9	20.6	28.3	12.8	17.0	17.1	21.3	23.3	22.3	16.6	17.8
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	3.8	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.16	0.42	0.82	0.47	0.54	0.66	0.05	0.20	0.48	0.05	0.17	0.05	0.05	0.05	0.05	0.24	0.32	0.35	0.11	0.19	0.44
8	Fe (mg/L)	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	1.3	0.1	0.3	0.5	0.4	0.2	0.1	0.1	0.1	0.3	0.1
9	HCO3 (mg/L)	82	77	100	96	62	94	59	31	75	76	50	97	84	77	80	70	92	89	78	68	53
10	K (mg/L)	2.2	2.0	5.9	2.1	2.9	2.6	5.8	2.3	3.0	2.4	2.4	1.6	2.4	3.5	8.0	2.8	2.2	2.8	3.7	3.3	2.1
11	Mg (mg/L)	7.0	6.0	9.7	9.4	7.8	10.1	8.6	8.6	12.5	9.9	9.3	4.8	9.9	11.7	20.4	9.7	10.0	9.2	6.0	7.1	6.3
12	Na (mg/L)	12.2	11.3	17.2	14.9	11.5	15.5	13.4	10.9	12.2	8.4	9.0	10.7	8.4	13.4	28.4	11.0	13.9	15.3	14.8	11.1	12.3
13	NO2+NO3 (mg N/L)	10.67	7.27	10.01	9.01	11.29	9.05	6.58	5.43	7.80	0.41	0.96	1.88	2.03	1.11	1.06	12.14	10.48	8.76	6.33	7.82	6.33
14	NO2-N (mgN/L)	0.01	0.00	0.02	0.25	1.26	0.00	0.00	0.00	0.01	0.07	0.00	0.00	0.01	0.02	0.01	0.72	0.00	0.00	0.65	0.92	0.00
15	NO3-N (mgN/L)	10.66	7.27	9.98	8.75	10.03	9.05	6.58	5.43	7.79	0.34	0.96	1.88	2.02	1.08	1.04	11.42	10.48	8.76	5.68	6.90	6.33
16	o-PO4-P (mg P/L)			0.103	0.064	0.044	0.058	0.110	0.060	0.062									0.008	0.043	0.018	0.000
17	P-Tot (mgP/L)	0.106	0.066	0.001	0.064	0.045	0.280	0.003	0.010	0.001	0.010	0.001	0.001	0.001	0.001	0.010	0.114	0.037	0.001	0.032	0.019	0.001
18	SiO2 (mg/L)	15.0	14.0	32.6	26.7	13.9	10.1	9.2	8.5	6.6	11.6	11.4	8.0	5.4	6.0	6.2	15.3	14.4	31.9	22.2	18.2	9.0
19	SO4 (mg/L)	22.8	16.0	9.3	11.4	19.6	20.5	20.1	27.3	27.8	29.3	34.9	24.6	31.9	22.9	17.8	27.6	10.2	17.9	7.4	7.6	15.0
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	2.0	1.8	1.4	1.9	1.9	1.9	2.2	2.1	2.5	2.1	0.9	0.6	0.6	0.8	0.8	1.6	1.7	1.4	2.0	1.9	2.0
2	DO (mg/L)	5.7	6.5	6.5	6.7	6.6	6.6	6.9	7.2	7.2	6.8	6.6	6.9	6.4	6.7	7.4	7.7	7.3	8.0	7.9	7.5	7.4
3	DO_SAT% (%)	75	87	80	87	86	87	90	94	92	89	87	90	80	86	97	92	89	96	91	88	88
4	FCol-MPN (MPN/100mL)					170	60	57	12	335		17									705	
5	Tcol-MPN (MPN/100mL)					920	65	70	31	1250		26									1270	
	TRACE & TOXIC																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	88	83	77	82	76	86	58	42	71	55	50	49	61	64	87	95	80	80	61	58	51
2	HAR_Total (mgCaCO3/L)	117	108	117	121	109	128	93	77	123	97	89	69	103	113	172	136	122	118	86	87	77
3	Na% (%)	18	18	25	23	19	21	24	24	19	16	17	25	15	20	23	15	20	21	27	20	25
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.7	0.6	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.6	0.4	0.6	0.9	0.4	0.6	0.6	0.7	0.5	0.6
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : NANDIRA (NANDIRA) | **Division : E.E., Bhubaneswar**

Local River : Nandiranala | **River Water** | **Sub-Division : Sambalpur**

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	229	217	290	230	363	272	330	710	621	500	347	138	204	239	351	293	378	450	273	338	120
3	EC_GEN (µmho/cm)	229	217	290	230	363	272	330	707	623	498	352	138	201	236	353	293	378	450	273	338	120
4	pH_FLD (pH units)	7.9	7.8	7.6	7.7	7.4	8.0	8.0	7.8	8.0	8.0	8.0	7.9	7.5	8.1	8.1	8.3	7.9	8.2	7.6	7.5	7.6
5	pH_GEN (pH units)	7.9	7.8	7.6	7.7	7.4	8.0	8.0	7.7	8.1	8.0	7.8	7.9	7.5	8.1	8.1	8.3	7.9	8.2	7.6	7.5	7.6
6	Temp (deg C)	23.9	25.3	25.0	26.9	23.3	23.9	20.0	22.6	22.6	24.8	27.3	26.1	27.4	28.5	28.5	30.2	28.7	29.3	31.0	27.5	26.3
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0					0.0	0.0	0.0	0.0	19.5	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	46	45	69	72	113	84	64	67	47					94	87	53	90	120	71	81	
3	B (mg/L)	0.15	0.17	0.15	0.01	0.00	0.00	0.00	0.01	0.01	0.37	0.61	0.01	0.14	0.00	0.19	0.11	0.18	0.15	0.01	0.00	0.00
4	Ca (mg/L)	21	19	28	27	34	23	20	19	39	35	56	12	22	25	36	26	32	43	28	26	21
5	Cl (mg/L)	18.6	15.5	17.9	16.5	27.8	20.9	17.4	17.0	17.9	22.4	21.2	12.7	18.7	15.2	28.1	22.0	26.0	19.5	17.6	32.9	21.7
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	23.5	0.0	0.0	0.0
7	F (mg/L)	0.21	0.30	0.56	0.05	0.06	0.05	0.05	0.05	0.05	3.14	3.69	0.83	0.36	0.16	0.38	0.14	0.63	0.61	0.05	0.06	0.05
8	Fe (mg/L)	0.2	0.1	0.1	0.0	1.5	0.3	0.3	0.4	0.4	0.2	0.1	0.3	0.1	0.2	0.0	0.1	0.1	0.1	0.0	1.3	0.1
9	HCO3 (mg/L)	57	54	79	88	117	100	77	73	58	102	167	45	60	59	106	64	109	98	86	92	97
10	K (mg/L)	1.6	1.5	2.9	2.0	4.2	1.8	2.0	4.6	18.3	3.7	2.4	3.4	1.9	2.0	3.6	3.0	3.9	4.7	2.6	3.0	2.1
11	Mg (mg/L)	8.0	9.2	10.0	6.1	13.1	5.7	9.2	8.8	19.9	10.4	18.0	3.2	5.0	8.2	9.3	9.4	17.2	18.5	4.9	9.4	4.0
12	Na (mg/L)	13.8	9.8	12.3	10.8	19.5	12.0	10.7	21.8	61.5	15.9	13.9	9.8	13.1	10.8	19.5	16.0	15.6	14.1	10.3	17.0	12.9
13	NO2+NO3 (mg N/L)	6.27	4.06	5.25	0.44	0.84	2.89	1.24	1.13	1.16	9.46	8.30	4.39	5.62	7.51	7.31	2.67	4.49	3.56	0.41	0.81	2.72
14	NO2-N (mgN/L)	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.11	0.02	0.00	0.12	0.00	0.00	0.00	0.07	0.00	0.00
15	NO3-N (mgN/L)	6.27	4.06	5.25	0.37	0.84	2.89	1.23	1.13	1.15	9.46	8.30	4.28	5.60	7.51	7.19	2.67	4.49	3.56	0.34	0.81	2.72
16	o-PO4-P (mg P/L)	0.121	0.065											0.005	0.026		0.141	0.020				
17	P-Tot (mgP/L)	0.002	0.010	0.001	0.010	0.001	0.001	0.001	0.010	0.010	0.052	0.001	0.001	0.006	0.021	0.050	0.002	0.010	0.001	0.010	0.001	0.001
18	SiO2 (mg/L)	8.6	7.9	3.2	11.8	11.5	8.8	5.9	6.0	7.0	15.2	18.5	32.6	20.1	19.3	9.1	9.1	8.7	2.2	11.7	12.0	7.9
19	SO4 (mg/L)	15.2	25.4	34.5	27.8	43.9	27.4	27.9	22.5	50.5	21.8	40.3	4.7	10.7	20.5	22.0	42.4	36.4	60.0	31.8	55.6	28.1
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	2.0	2.6	2.4	2.8	0.7	0.7	1.2	2.0	0.6	1.7	2.1	2.5	2.0	2.2	2.3	2.6	2.6	4.8	2.5	0.8	0.3
2	DO (mg/L)	7.7	7.8	7.6	7.5	7.8	7.8	9.3	8.2	8.6	6.9	5.9	7.2	6.9	7.0	6.2	6.6	6.9	7.2	6.7	4.6	7.0
3	DO_SAT% (%)	91	95	92	94	92	92	102	94	98	83	73	88	87	89	80	87	89	94	91	58	86
4	FCol-MPN (MPN/100mL)	13	17	104		30				80					114	80	7	12	16		22	
5	Tcol-MPN (MPN/100mL)	17	21	940		25				168					855	90	11	15	19		31	
	TRACE & TOXIC																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	53	48	71	68	86	56	51	47	97	88	140	29	54	62	89	64	79	107	71	65	53
2	HAR_Total (mgCaCO3/L)	87	87	113	94	141	80	89	84	180	131	215	46	75	96	128	103	151	184	91	104	70
3	Na% (%)	26	20	19	20	22	25	20	35	40	20	12	31	26	20	25	26	19	14	19	27	28
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3
5	SAR (-)	0.7	0.5	0.5	0.5	0.7	0.6	0.5	1.0	2.0	0.6	0.4	0.7	0.6	0.5	0.8	0.7	0.5	0.4	0.5	0.8	0.7
	PESTICIDES																					

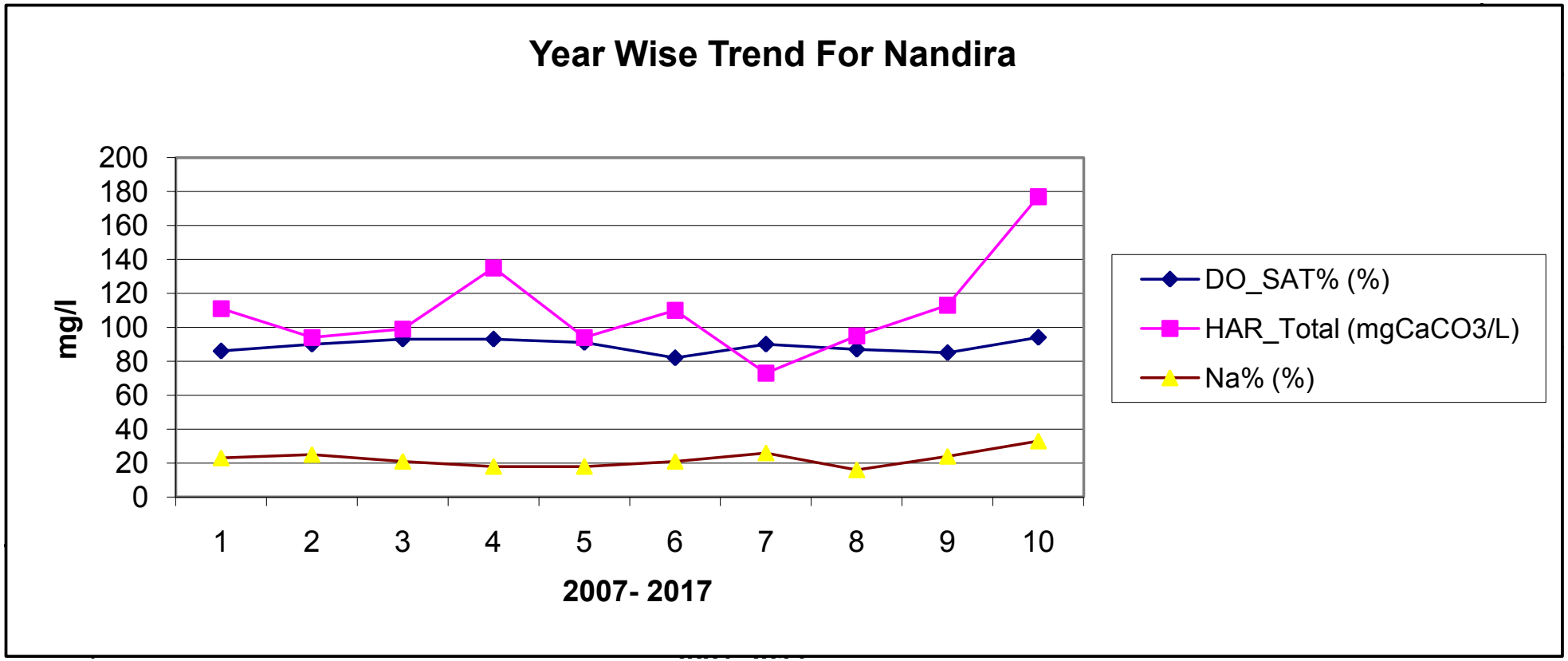
Water Quality Seasonal Average for the period: 2002-2017

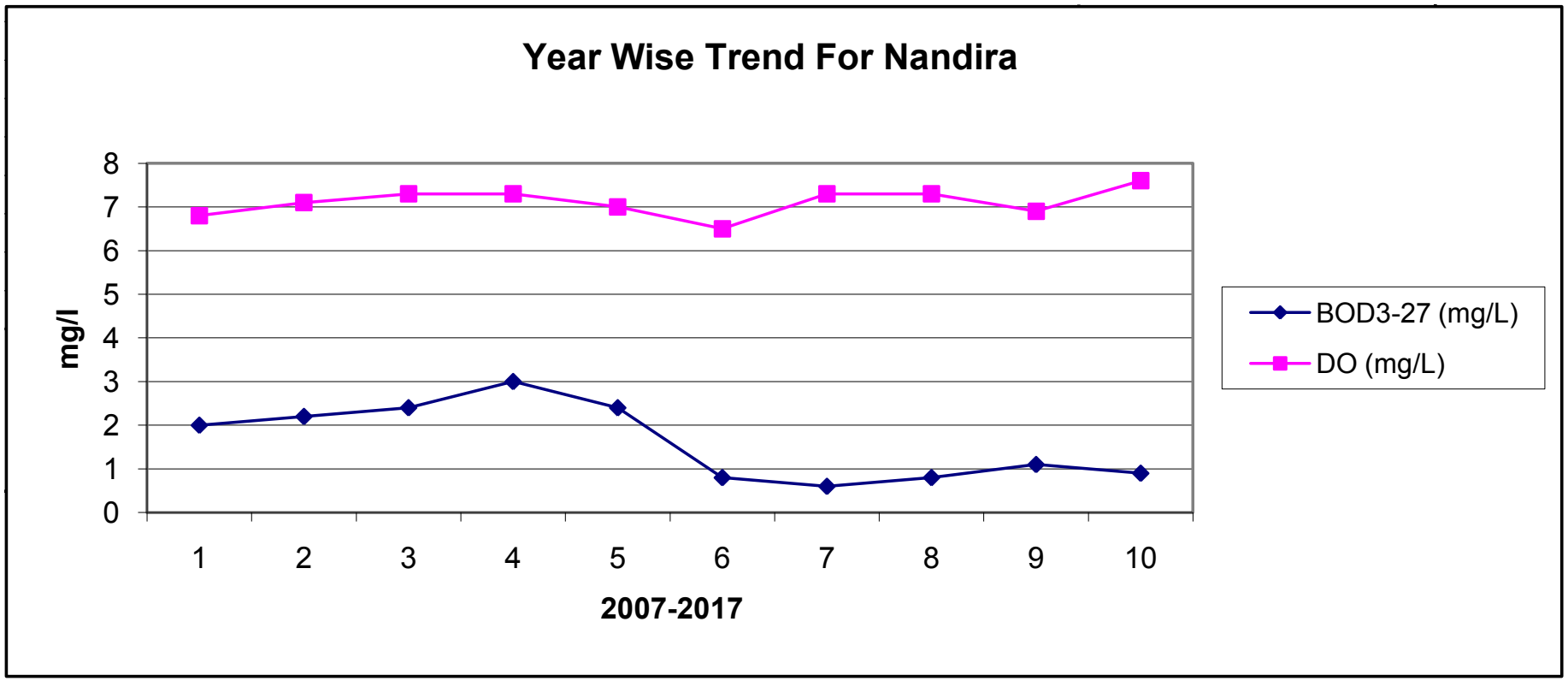
Station Name : NANDIRA (NANDIRA) **Division : E.E., Bhubaneswar**

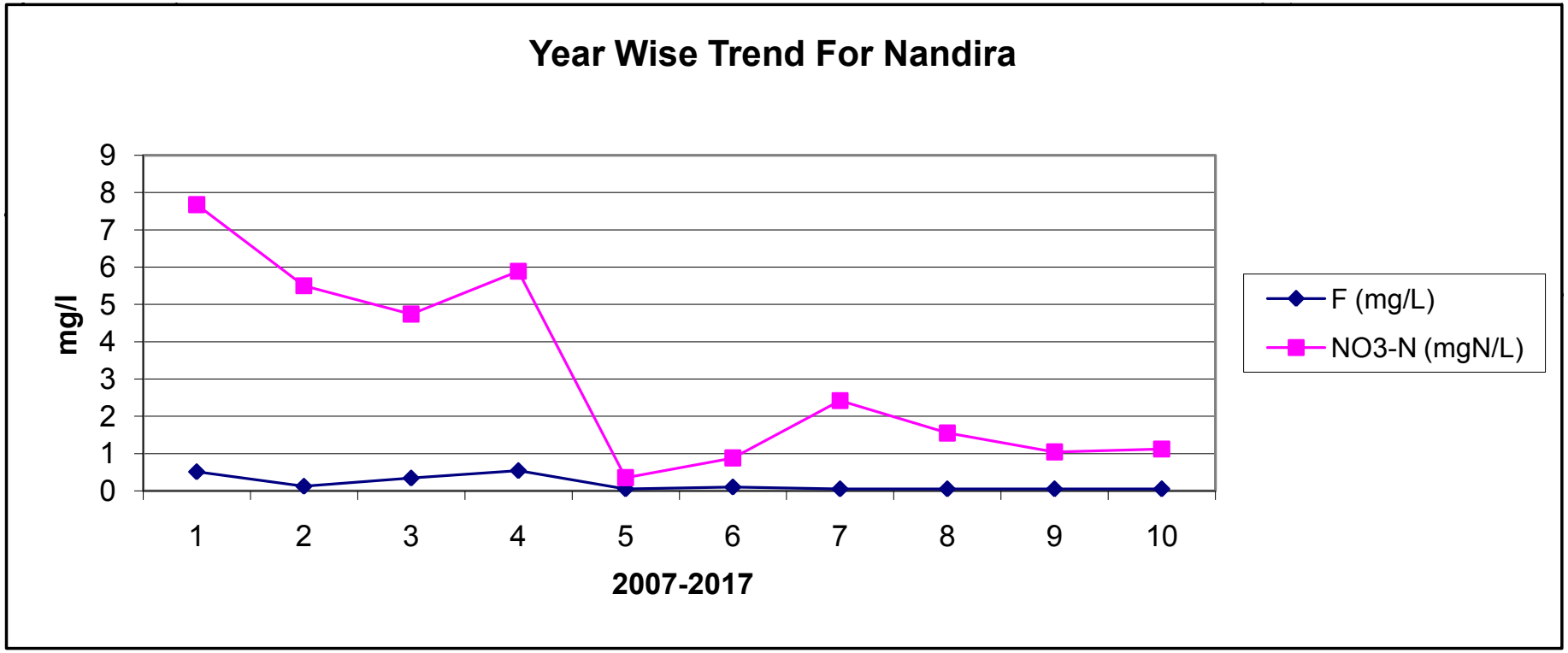
Local River : Nandiranala **Sub-Division : Sambalpur**

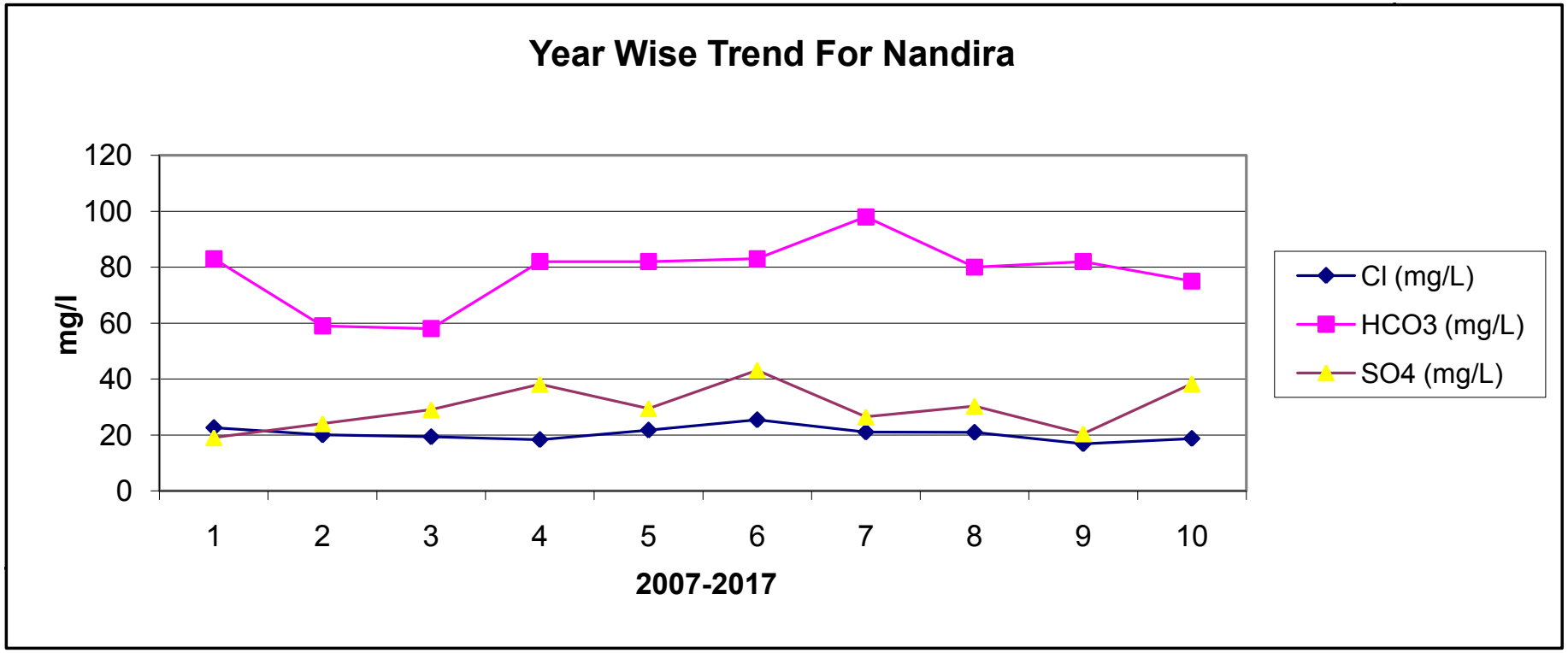
River Water

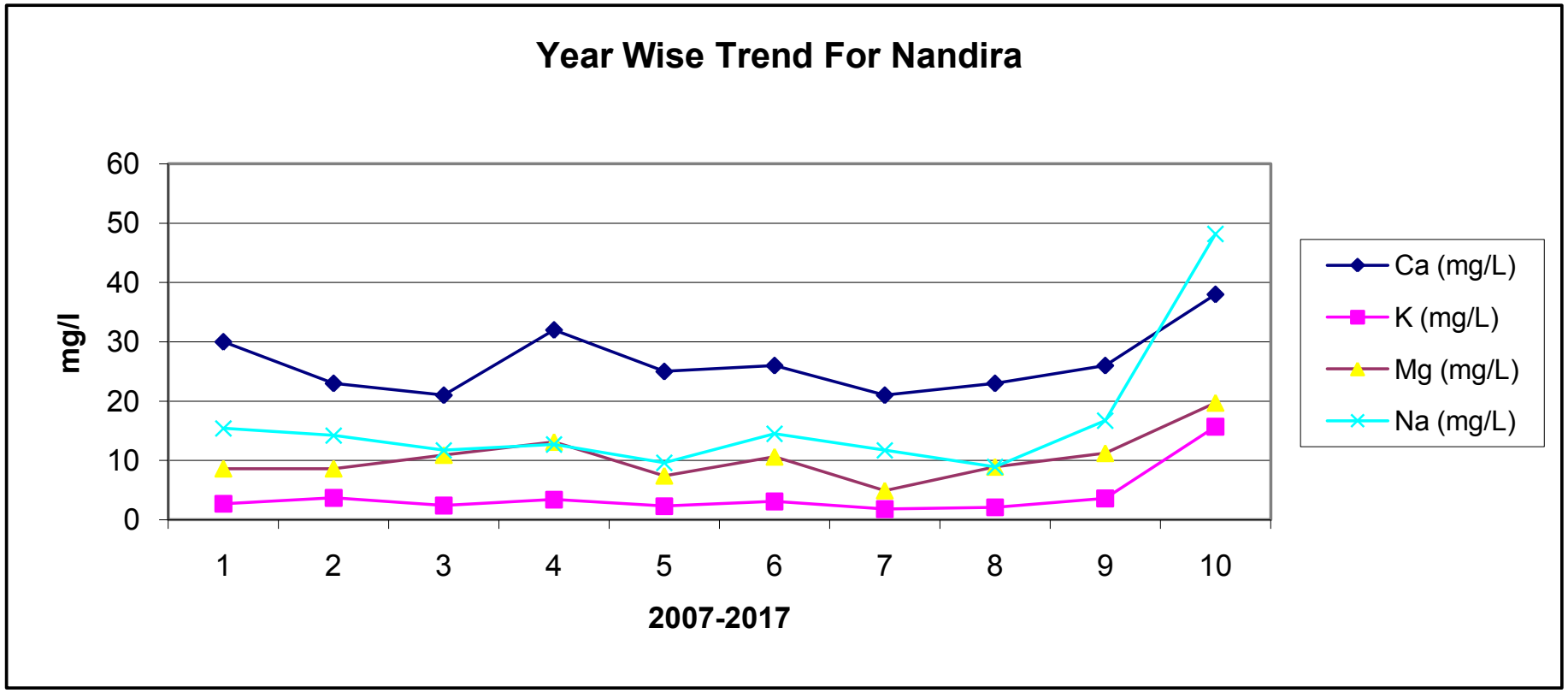
S.No	Parameters			
		2015	2016	2017
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	184	468	366
3	EC_GEN (µmho/cm)	184	473	375
4	pH_FLD (pH units)	7.8	7.6	7.7
5	pH_GEN (pH units)	7.8	7.8	7.8
6	Temp (deg C)	28.2	27.9	26.8
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	62	85	74
3	B (mg/L)	0.00	0.01	0.02
4	Ca (mg/L)	25	38	42
5	Cl (mg/L)	13.3	23.3	22.6
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.3	0.7
9	HCO3 (mg/L)	78	103	90
10	K (mg/L)	1.9	2.6	25.1
11	Mg (mg/L)	6.8	13.6	18.1
12	Na (mg/L)	7.2	15.3	63.3
13	NO2+NO3 (mg N/L)	1.19	0.85	1.22
14	NO2-N (mgN/L)	0.01	0.00	0.02
15	NO3-N (mgN/L)	1.18	0.85	1.21
16	o-PO4-P (mg P/L)			
17	P-Tot (mgP/L)	0.001	0.010	0.010
18	SiO2 (mg/L)	6.0	5.0	8.5
19	SO4 (mg/L)	30.7	13.5	56.2
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.5	0.6	1.5
2	DO (mg/L)	6.1	5.7	6.8
3	DO_SAT% (%)	78	72	85
4	FCol-MPN (MPN/100mL)			77
5	Tcol-MPN (MPN/100mL)			143
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	63	95	106
2	HAR_Total (mgCaCO3/L)	91	152	181
3	Na% (%)	14	17	39
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	2.1
	PESTICIDES			


Year Wise Trend For Nandira
200
180
160
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007- 2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Nandira
mg/l
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Nandira
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Nandira
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Nandira
mg/l
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

			Water Year	**:**	**2016-2017**
Site	**:**	**KAMALANGA**	**Code**	**:**	**KAMALANGA**
State	:	Orissa	District		Angul
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Brahmni
Division	:	E.E., Bhubaneswar	Sub-Division	:	Sambalpur
Drainage Area	:	Sq. Km.	Bank	:	Left
Latitude	:	°'"	Longitude	:	°'"
		Opening Date	Closing Date		
Gauge	:				
Discharge	:				
Sediment	:				
Water Quality	:	01.11.1990			

Water Quality Datasheet for the period : 2016-2017

Station Name : KAMALANGA (KAMALANGA) | **Division : E.E., Bhubaneswar**

Local River : Brahmni | **River Water Analysis** | **Sub-Division : Sambalpur**

S.No	Parameters	01.06.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	456	385	132	301	130	1131	1011	139	400	387	223	445
4	EC_GEN (µmho/cm)	460	387	136	309	134	1138	1015	140	405	390	226	450
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.6	7.8	7.5	8.1	7.7	8.2	8.3	7.8	8.0	8.0	7.4	8.0
7	pH_GEN (pH units)	7.6	7.9	7.6	8.2	7.8	8.2	8.4	7.9	8.1	8.1	7.5	7.8
8	Temp (deg C)	29.5	29.8	28.2	33.4	28.0	28.2	22.5	21.0	18.0	22.0	27.0	31.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	92	92	125	97	46	55	46	46	74	97	79	74
3	B (mg/L)	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.01
4	Ca (mg/L)	66	56	53	55	50	51	38	51	48	46	45	37
5	Cl (mg/L)	26.4	22.6	28.3	28.3	11.3	13.2	13.2	13.2	15.1	22.6	9.4	30.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.7	0.1	0.2	0.9	0.9	0.2	0.5	0.6	0.5	0.6	0.5	0.7
9	HCO3 (mg/L)	113	113	152	118	56	68	56	56	90	118	96	90
10	K (mg/L)	4.1	11.3	9.0	6.0	6.9	5.1	18.4	23.4	20.6	22.2	21.6	20.6
11	Mg (mg/L)	28.2	19.4	20.4	21.4	19.4	20.4	20.4	21.4	20.4	19.4	18.5	16.5
12	Na (mg/L)	20.4	52.3	22.5	16.3	19.6	25.1	29.8	72.2	53.6	93.0	50.1	51.3
13	NO2+NO3 (mg N/L)	1.25	0.76	1.21	1.08	1.22	1.11	0.99	1.08	1.11	1.26	1.20	1.25
14	NO2-N (mgN/L)	0.00	0.03	0.00	0.01	0.00	0.01	0.03	0.01	0.01	0.01	0.01	0.01
15	NO3-N (mgN/L)	1.25	0.73	1.21	1.06	1.22	1.09	0.97	1.06	1.09	1.25	1.19	1.23
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	6.0	7.0	6.0	6.0	6.0	7.0	6.0	7.0	8.5	9.0	8.8
18	SO4 (mg/L)	57.1	62.6	63.3	64.2	17.0	52.8	53.6	54.4	52.8	54.5	55.3	51.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.0	1.0	0.4	0.6	0.6	1.0	0.2	0.4	2.8	1.4	0.8	1.4
2	DO (mg/L)	7.4	8.1	6.4	7.9	9.7	6.0	8.7	8.7	11.1	7.0	6.4	6.4
3	DO_SAT% (%)	96	106	81	111	124	76	100	98	117	79	80	85
4	FCol-MPN (MPN/100mL)						90	40	90	110	80	140	130
5	Tcol-MPN (MPN/100mL)						120	60	170	170	140	330	270
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	164	140	132	136	124	128	96	128	120	116	112	92
2	HAR_Total (mgCaCO3/L)	282	221	217	225	205	213	181	217	205	197	189	161
3	Na% (%)	13	33	18	13	17	20	24	39	34	47	34	37
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	1.5	0.7	0.5	0.6	0.7	1.0	2.1	1.6	2.9	1.6	1.8
	PESTICIDES												

Water Quality Summary for the period : 2016-2017

Station Name : KAMALANGA (KAMALANGA) **Division : E.E., Bhubaneswar**

Local River : Brahmni **Sub-Division : Sambalpur**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	1131	130	428
3	EC_GEN (µmho/cm)	12	1138	134	433
4	pH_FLD (pH units)	12	8.3	7.4	7.9
5	pH_GEN (pH units)	12	8.4	7.5	7.9
6	Temp (deg C)	12	33.4	18.0	26.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	125	46	77
3	B (mg/L)	12	0.02	0.01	0.01
4	Ca (mg/L)	12	66	37	50
5	Cl (mg/L)	12	30.2	9.4	19.5
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.9	0.1	0.5
9	HCO3 (mg/L)	12	152	56	94
10	K (mg/L)	12	23.4	4.1	14.1
11	Mg (mg/L)	12	28.2	16.5	20.5
12	Na (mg/L)	12	93.0	16.3	42.2
13	NO2+NO3 (mg N/L)	12	1.26	0.76	1.13
14	NO2-N (mgN/L)	12	0.03	0.00	0.01
15	NO3-N (mgN/L)	12	1.25	0.73	1.11
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	9.0	6.0	6.9
18	SO4 (mg/L)	12	64.2	17.0	53.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	2.8	0.2	1
2	DO (mg/L)	12	11.1	6.0	7.8
3	DO_SAT% (%)	12	124	76	96
4	FCol-MPN (MPN/100mL)	7	140	40	97
5	Tcol-MPN (MPN/100mL)	7	330	60	180
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	164	92	124
2	HAR_Total (mgCaCO3/L)	12	282	161	210
3	Na% (%)	12	47	13	27
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	2.9	0.5	1.3
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : KAMALANGA (KAMALANGA) | **Division : E.E., Bhubaneswar**

Local River : Brahmni | **River Water** | **Sub-Division : Sambalpur**

S.No	Parameters	Flood																				
		Jun - Oct																				
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	284	222	313	159	203	278	231	183	269	191	177	251	308	424	281	236	313	160	146	139	175
3	EC_GEN (µmho/cm)	285	228	312	155	198	276	231	183	269	191	177	251	308	427	285	244	318	159	141	135	170
4	pH_FLD (pH units)	8.0	7.7	8.0	7.8	7.9	8.0	7.7	7.8	8.1	8.1	7.6	7.6	7.9	7.6	7.8	7.8	7.7	8.0	7.9	8.0	8.1
5	pH_GEN (pH units)	7.9	7.5	8.0	7.9	8.0	8.0	7.7	7.8	8.0	8.1	7.6	7.6	7.9	7.6	7.8	7.6	7.5	8.0	8.0	8.0	8.1
6	Temp (deg C)	30.2	28.9	25.5	28.3	28.5	29.5	29.3	29.3	28.4	29.6	30.4	23.4	27.2	28.8	29.8	25.3	24.4	25.2	22.8	23.8	23.4
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)					0.0	0.0	0.0	0.0	3.2	4.6	0.0		0.0	0.0	0.0					0.0	0.0
2	ALK-TOT (mgCaCO3/L)					104	62	47	36	66	65	51		52	75	91					57	46
3	B (mg/L)	0.60	0.53	0.00	0.44	0.00	0.13	0.11	0.13	0.14	0.01	0.00	0.00	0.00	0.01	0.01	0.56	0.45	0.11	0.47	0.00	0.19
4	Ca (mg/L)	32	25	30	19	23	28	21	15	24	19	16	18	24	24	56	26	34	17	16	14	22
5	Cl (mg/L)	17.5	11.0	18.3	10.7	16.5	15.2	15.2	14.8	17.9	23.4	14.7	21.1	23.4	13.6	23.4	12.2	17.2	10.3	10.1	10.4	10.9
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.17	0.18	0.42	0.06	0.21	0.21	0.23	0.11	0.12	0.05	0.06	0.05	0.05	0.05	0.05	0.15	0.15	0.38	0.14	0.08	0.17
8	Fe (mg/L)	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.0	1.3	0.1	0.3	0.5	0.6	0.1	0.1	0.2	0.1	0.2	0.1
9	HCO3 (mg/L)	71	50	81	48	66	76	57	44	72	68	48	80	63	91	110	60	75	36	41	41	56
10	K (mg/L)	2.3	1.7	4.0	1.6	2.0	6.3	3.3	1.9	2.5	2.0	1.7	3.1	2.0	2.4	7.5	2.1	2.2	2.4	1.6	1.7	1.4
11	Mg (mg/L)	7.8	6.2	8.6	4.5	5.7	8.4	8.6	7.6	10.3	7.4	5.3	4.6	7.4	9.3	21.8	6.8	9.6	4.4	5.4	4.7	4.1
12	Na (mg/L)	12.4	7.8	12.7	6.3	11.5	11.0	10.7	8.2	12.3	5.6	5.0	13.1	5.6	9.4	26.2	8.8	12.7	6.6	6.7	7.4	8.0
13	NH3-N (mg N/L)																					
14	NO2+NO3 (mg N/L)	9.57	7.41	7.61	3.64	6.15	7.94	4.18	3.30	5.15	0.41	2.59	2.87	1.54	0.96	1.10	9.01	11.39	5.97	4.80	3.14	3.76
15	NO2-N (mgN/L)	0.10	0.00	0.06	0.06	0.07	0.02	0.00	0.00	0.00	0.07	0.00	0.01	0.01	0.02	0.01	0.08	0.06	0.02	0.03	0.07	0.10
16	NO3-N (mgN/L)	9.47	7.41	7.55	3.58	6.08	7.93	4.18	3.30	5.15	0.34	2.59	2.86	1.54	0.94	1.09	8.93	11.33	5.95	4.76	3.08	3.66
17	o-PO4-P (mg P/L)			0.036	0.010	0.089	0.012	0.058	0.046										0.088	0.047	0.310	0.013
18	P-Tot (mgP/L)	0.026	0.061	0.001	0.011	0.062	0.015	0.002	0.008	0.001	0.010	0.001	0.001	0.001	0.001	0.010	0.044	0.064	0.001	0.044	0.055	0.031
19	SiO2 (mg/L)	15.8	13.4	25.2	12.8	15.1	9.7	8.8	8.0	8.0	10.2	12.4	8.5	8.5	6.0	6.2	16.7	18.4	24.7	16.7	20.6	8.8
20	SO4 (mg/L)	19.9	20.5	25.9	13.6	9.5	23.0	24.4	18.5	17.3	22.8	65.3	22.1	24.8	24.1	52.8	14.0	30.3	15.8	12.9	12.6	13.0
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.5	2.3	1.2	1.2	1.5	1.5	1.6	1.6	2.0	1.5	1.0	0.6	0.4	0.8	0.9	1.6	1.3	1.2	1.5	1.5	1.9
2	DO (mg/L)	6.6	5.5	6.7	7.0	7.0	7.1	7.2	7.3	7.4	7.1	6.7	7.0	6.1	6.5	7.9	7.4	7.9	8.1	8.0	7.9	7.5
3	DO_SAT% (%)	87	71	81	89	90	93	93	95	95	93	89	86	77	84	104	89	93	98	93	94	88
4	FCol-MPN (MPN/100mL)					60	80	26	15	82		17									550	
5	Tcol-MPN (MPN/100mL)					165	90	29	28	155		22									660	
	TRACE & TOXIC																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	80	64	75	47	59	70	52	38	59	46	39	44	59	59	139	64	85	44	41	35	54
2	HAR_Total (mgCaCO3/L)	112	90	112	66	82	105	88	70	102	77	61	63	90	98	230	92	125	70	64	55	71
3	Na% (%)	19	16	20	17	22	18	22	21	20	14	15	30	12	16	19	16	18	19	18	22	21
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.4	0.5	0.3	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.7	0.3	0.4	0.8	0.4	0.5	0.4	0.4	0.4	0.4
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : KAMALANGA (KAMALANGA) | **Division : E.E., Bhubaneswar**

Local River : Brahmni | **River Water** | **Sub-Division : Sambalpur**

S.No	Parameters	Winter Nov - Feb									Summer Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	175	212	267	197	358	284	373	822	670	279	193	133	145	179	226	260	258	467	260	352	119
3	EC_GEN (µmho/cm)	175	212	267	197	358	284	373	824	675	288	200	131	140	175	225	260	258	467	260	352	119
4	pH_FLD (pH units)	7.9	7.8	7.6	7.7	7.5	8.1	8.0	7.5	8.1	8.0	8.1	7.8	7.6	8.2	8.1	7.9	7.9	8.2	7.6	7.6	7.7
5	pH_GEN (pH units)	8.0	7.8	7.6	7.7	7.5	8.1	8.0	7.6	8.1	7.7	7.9	7.8	7.7	8.2	7.5	7.7	7.9	8.2	7.6	7.6	7.7
6	Temp (deg C)	23.6	25.3	25.0	27.0	23.3	18.7	20.1	23.2	22.4	26.8	23.9	26.8	27.8	28.2	27.0	29.5	28.7	29.3	31.0	27.5	26.3
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0		0.0	3.5	0.0					0.0		0.0	0.0	13.7	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	38	45	66	51	83		65	65	55					104		60	49	110	68	85	64
3	B (mg/L)	0.10	0.12	0.15	0.01	0.00	0.00	0.00	0.01	0.01	0.48	0.55	0.04	0.29	0.00	0.21	0.07	0.17	0.15	0.01	0.00	0.00
4	Ca (mg/L)	14	19	25	31	39	16	26	20	47	34	21	12	17	21	23	23	21	41	26	25	18
5	Cl (mg/L)	15.2	14.1	15.1	17.9	25.9	15.7	18.1	17.4	13.7	14.9	11.0	11.6	9.4	9.9	16.1	17.5	16.7	23.3	17.0	29.6	20.2
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5	0.0	0.0	0.0
7	F (mg/L)	0.23	0.15	0.07	0.05	0.06	0.05	0.05	0.05	0.05	0.13	0.11	0.40	0.08	0.09	0.11	0.23	0.16	0.13	0.05	0.05	0.05
8	Fe (mg/L)	0.1	0.1	0.1	0.0	1.3	0.1	0.2	0.4	0.5	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	1.1	0.1
9	HCO3 (mg/L)	47	55	81	62	106	85	79	70	68	86	55	33	43	64	85	73	59	100	83	113	94
10	K (mg/L)	1.5	1.4	2.6	1.8	3.8	2.2	1.7	2.7	16.9	2.2	1.8	2.3	1.6	1.6	1.6	1.9	2.7	4.9	2.4	3.4	1.6
11	Mg (mg/L)	7.0	8.7	10.0	7.8	16.5	4.3	5.6	9.0	20.7	6.8	6.3	3.2	4.9	6.1	6.8	10.4	11.7	21.1	8.1	10.0	4.0
12	Na (mg/L)	9.6	9.8	10.7	8.3	19.2	11.9	7.9	15.6	45.2	10.3	7.8	7.8	5.8	6.1	12.0	12.5	11.3	15.0	9.6	16.3	10.5
13	NH3-N (mg N/L)															0.05						
14	NO2+NO3 (mg N/L)	3.38	3.85	5.03	0.42	0.86	2.05	0.93	0.95	1.07	7.27	5.70	2.84	3.71	3.87	0.98	2.64	5.14	8.09	0.41	0.79	1.56
15	NO2-N (mgN/L)	0.00	0.04	0.00	0.07	0.00	0.00	0.02	0.03	0.02	0.05	0.08	0.06	0.04	0.02	0.06	0.00	0.06	0.00	0.07	0.00	0.00
16	NO3-N (mgN/L)	3.38	3.81	5.03	0.35	0.86	2.05	0.91	0.92	1.05	7.22	5.62	2.78	3.68	3.85	0.93	2.64	5.09	8.09	0.35	0.79	1.55
17	o-PO4-P (mg P/L)	0.062	0.078										0.041	0.055	0.017		0.069	0.147				
18	P-Tot (mgP/L)	0.003	0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.010	0.069	0.131	0.001	0.065	0.018	0.050	0.002	0.001	0.001	0.010	0.001	0.001
19	SiO2 (mg/L)	8.8	7.6	3.2	10.8	12.5	8.4	8.8	5.3	6.5	16.3	13.3	23.4	19.3	17.2	9.9	9.0	8.2	1.9	11.0	12.0	8.6
20	SO4 (mg/L)	10.9	21.3	28.2	28.5	40.7	22.6	24.1	31.9	53.4	19.6	17.0	10.0	14.1	11.5	16.6	27.5	34.2	52.9	29.3	49.7	24.0
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.6	1.9	1.8	2.3	0.3	0.7	0.7	1.2	1.1	1.7	1.5	1.7	1.7	1.5	1.6	1.4	1.8	2.1	1.9	1.2	0.7
2	DO (mg/L)	7.8	7.8	7.7	7.5	7.9	7.9	8.9	7.2	8.6	5.9	7.4	7.3	7.2	7.0	6.8	6.8	7.2	7.0	6.9	6.6	7.6
3	DO_SAT% (%)	91	95	93	94	93	96	97	84	98	73	87	91	91	90	86	89	93	92	93	83	94
4	FCol-MPN (MPN/100mL)	7	13	33		17				83					74	45	8	4	13		20	
5	Tcol-MPN (MPN/100mL)	8	16	560		22				130					654	65	12	6	13		25	
	TRACE & TOXIC																					
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	36	47	62	78	97	41	65	50	118	84	52	31	43	51	57	57	52	102	64	62	44
2	HAR_Total (mgCaCO3/L)	65	84	104	111	166	59	88	88	204	112	78	40	64	77	86	101	101	189	98	104	61
3	Na% (%)	24	20	18	16	20	30	16	26	29	16	18	26	16	15	24	22	19	14	17	25	27
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3
5	SAR (-)	0.5	0.5	0.5	0.4	0.6	0.7	0.4	0.7	1.4	0.4	0.4	0.5	0.3	0.3	0.6	0.6	0.5	0.5	0.4	0.7	0.6
	PESTICIDES																					

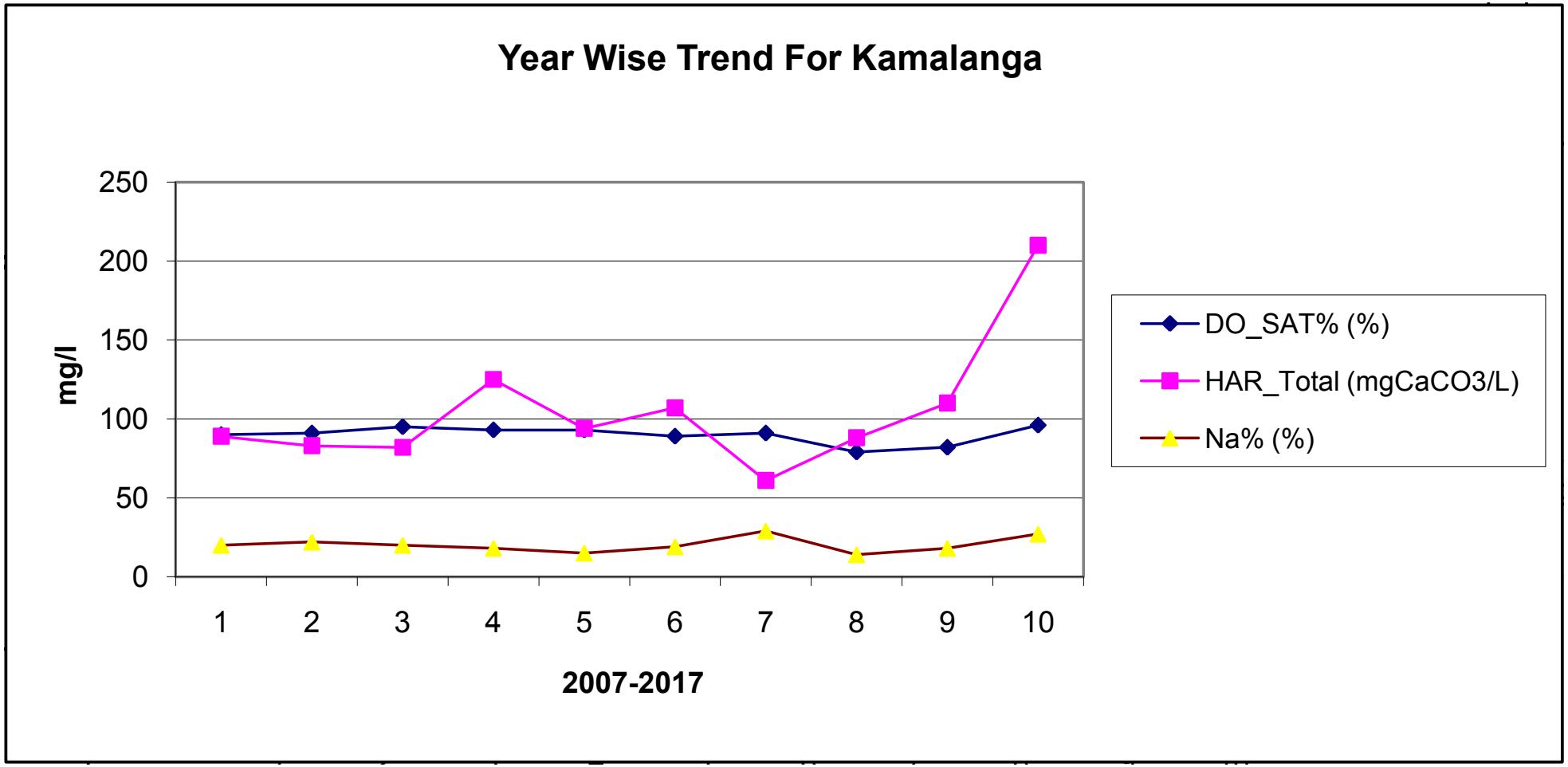
Water Quality Seasonal Average for the period: 2002-2017

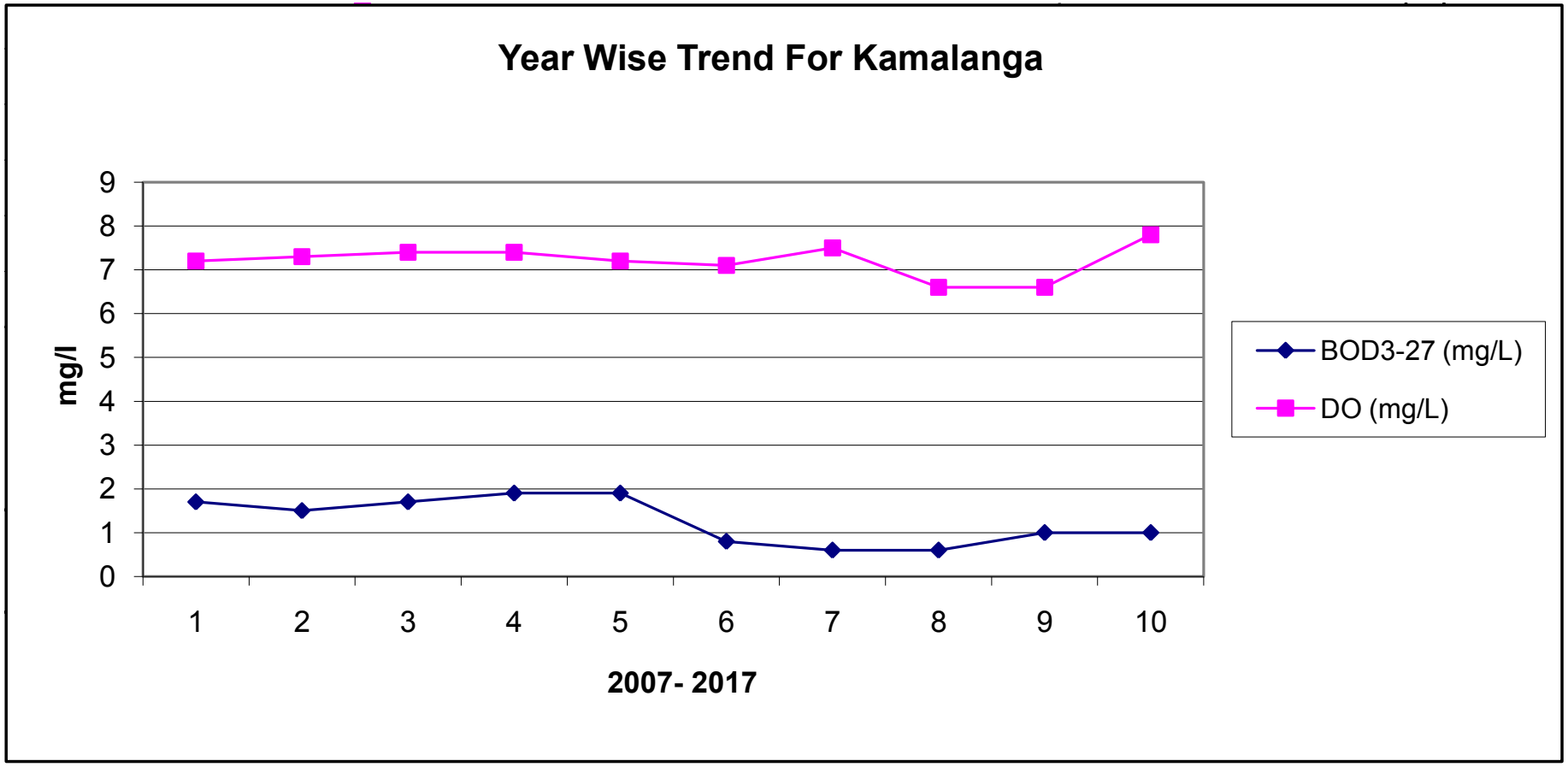
Station Name : KAMALANGA (KAMALANGA) | **Division : E.E., Bhubaneswar**

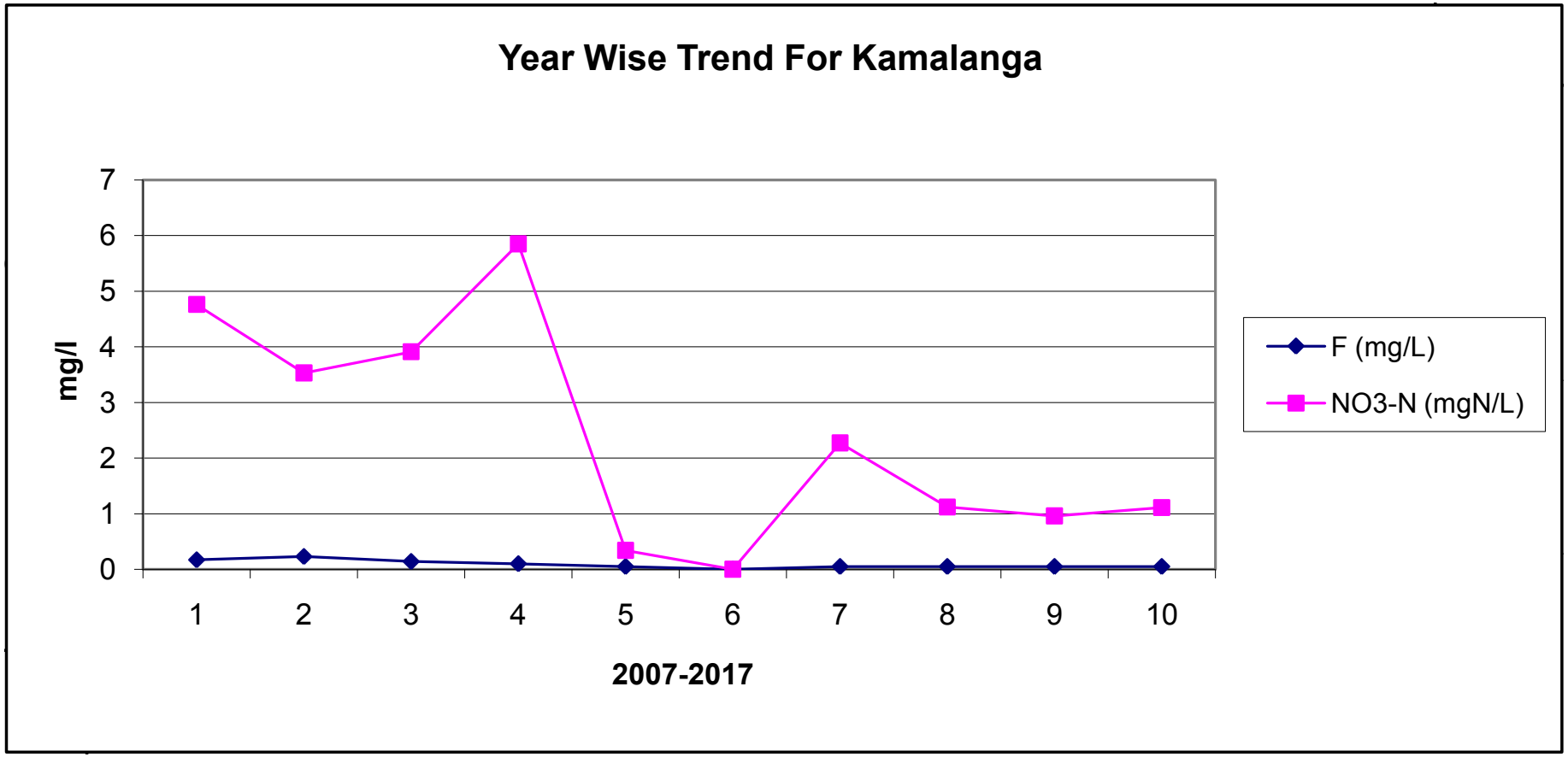
Local River : Brahmni | **Sub-Division : Sambalpur**

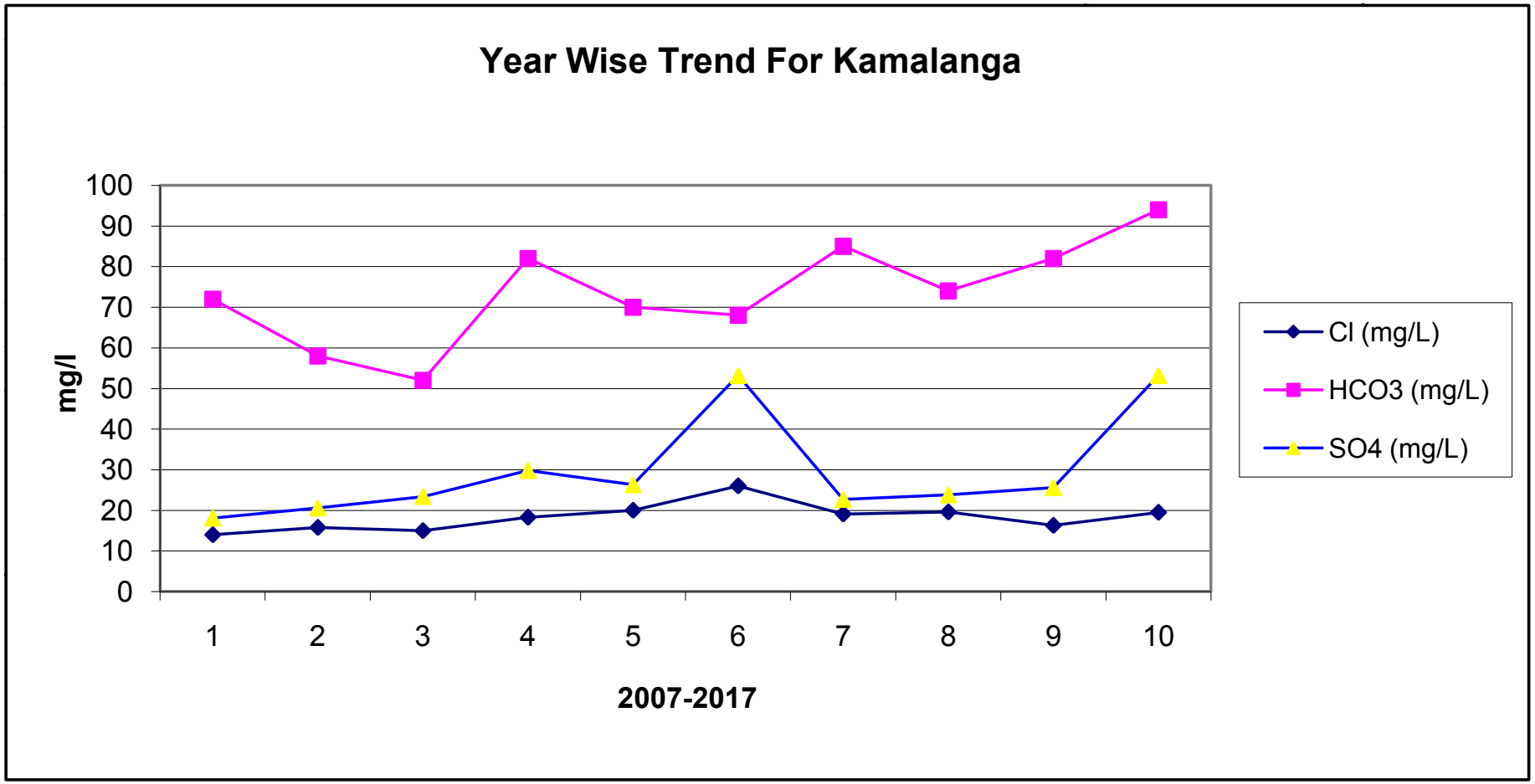
River Water

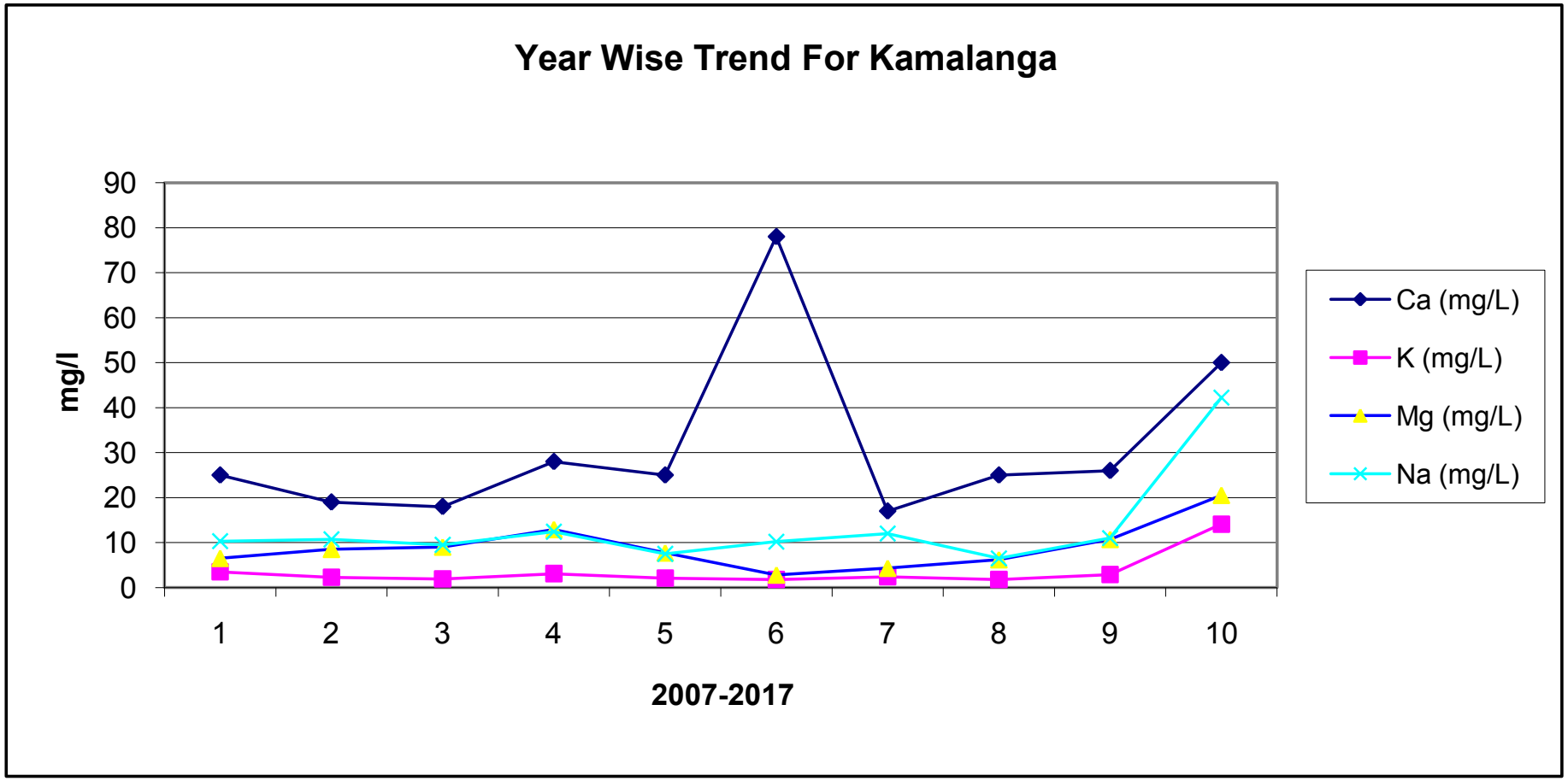
S.No	Parameters	2015	2016	2017
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	132	395	352
3	EC_GEN (µmho/cm)	193	396	355
4	pH_FLD (pH units)	7.7	7.8	7.8
5	pH_GEN (pH units)	7.7	7.9	7.8
6	Temp (deg C)	28.0	27.6	26.7
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	3.1	0.0
2	ALK-TOT (mgCaCO3/L)	71	72	83
3	B (mg/L)	0.00	0.01	0.01
4	Ca (mg/L)	25	38	43
5	Cl (mg/L)	15.2	19.5	20.7
6	CO3 (mg/L)	0.0	3.7	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.6
9	HCO3 (mg/L)	87	81	101
10	K (mg/L)	1.7	3.8	21.5
11	Mg (mg/L)	5.2	15.2	18.1
12	Na (mg/L)	6.2	7.7	64.8
13	NH3-N (mg N/L)			
14	NO2+NO3 (mg N/L)	0.72	1.01	1.24
15	NO2-N (mgN/L)	0.03	0.00	0.01
16	NO3-N (mgN/L)	0.70	1.01	1.22
17	o-PO4-P (mg P/L)			
18	P-Tot (mgP/L)	0.001	0.010	0.010
19	SiO2 (mg/L)	8.7	5.0	8.8
20	SO4 (mg/L)	21.5	19.7	53.7
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.7	1.1	1.2
2	DO (mg/L)	4.4	6.0	6.6
3	DO_SAT% (%)	57	76	82
4	FCol-MPN (MPN/100mL)			117
5	Tcol-MPN (MPN/100mL)			247
	TRACE & TOXIC			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	62	96	107
2	HAR_Total (mgCaCO3/L)	83	160	182
3	Na% (%)	14	11	39
4	RSC (-)	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	2.1
	PESTICIDES			


Year Wise Trend For Kamalanga
250
200
150
100
50
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For Kamalanga
mg/l
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007- 2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For Kamalanga
mg/l
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For Kamalanga
mg/l
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For Kamalanga
mg/l
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
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10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

HISTORY SHEET

			Water Year	:	**2016-2017**
Site	:	**RSP NALLA**	**Code**	:	**RSP**
State	:	Orissa	District		Sundergarh
Basin	:	Brahmani-Baitarani	Independent River	:	Brahmni
Tributary	:	RSP Nala	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	RSP Nala
Division	:	E.E., Bhubaneswar	Sub-Division	:	Sambalpur
Drainage Area	:	Sq. Km.	Bank	:	Left
Latitude	:	°'"	Longitude	:	°'"
		Opening Date	Closing Date		
Gauge	:				
Discharge	:				
Sediment	:				
Water Quality	:	01.11.1990			

Water Quality Datasheet for the period : 2016-2017

Station Name : RSP NALLA (RSP) | **Division : E.E., Bhubaneswar**

Local River : RSP Nala | **River Water Analysis** | **Sub-Division : Sambalpur**

S.No	Parameters	01.06.2016	02.07.2016	01.08.2016	01.09.2016	01.10.2016	01.11.2016	01.12.2016	02.01.2017	01.02.2017	01.03.2017	01.04.2017	01.05.2017
		A	A	A	A	A	A	A	A	A	A	A	A
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	296	356	301	527	324	699	824	423	520	586	536	582
4	EC_GEN (µmho/cm)	298	358	307	530	334	702	826	427	522	590	540	570
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	7.5	7.5	7.9	7.4	7.4	7.1	7.8	7.9	7.9	7.4	7.2	7.4
7	pH_GEN (pH units)	7.5	7.6	8.0	7.5	7.5	7.2	7.9	8.0	8.0	7.5	7.4	7.8
8	Temp (deg C)	31.0	30.0	27.0	27.0	28.0	27.0	20.0	18.0	19.0	20.0	24.0	27.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	51	51	55	55	46	60	51	55	55	51	60	65
3	B (mg/L)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.02
4	Ca (mg/L)	48	50	48	46	38	35	40	37	42	42	40	38
5	Cl (mg/L)	20.8	20.8	18.9	17.0	20.8	18.9	20.8	15.1	20.8	20.8	39.6	34.0
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Fe (mg/L)	0.5	0.4	0.3	0.1	0.5	0.7	0.5	0.6	0.6	0.4	0.5	0.6
9	HCO3 (mg/L)	62	62	68	68	56	73	62	68	68	62	73	79
10	K (mg/L)	6.2	20.3	7.9	7.6	5.0	8.0	8.5	4.1	8.6	9.3	9.0	9.0
11	Mg (mg/L)	16.5	17.5	12.6	13.6	14.6	14.6	14.6	13.6	15.6	27.3	15.6	12.6
12	Na (mg/L)	13.1	35.1	16.8	16.6	16.1	16.9	20.1	74.4	50.0	90.2	48.5	49.1
13	NO2+NO3 (mg N/L)	1.09	0.87	1.18	1.06	1.09	1.29	1.32	0.98	0.87	1.12	1.13	1.11
14	NO2-N (mgN/L)	0.00	0.03	0.01	0.03	0.00	0.00	0.00	0.01	0.03	0.00	0.03	0.01
15	NO3-N (mgN/L)	1.09	0.84	1.16	1.04	1.09	1.29	1.32	0.97	0.84	1.12	1.11	1.09
16	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
17	SiO2 (mg/L)	6.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0	8.0	8.0	7.0	8.0
18	SO4 (mg/L)	49.0	55.3	51.2	54.4	44.3	14.8	14.8	15.2	15.6	57.3	57.6	51.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	20.0	0.8	60.0	2.4	5.2	1.8	3.8	4.8	4.8	2.8	1.8	1.0
2	DO (mg/L)	3.8	6.0	5.0	3.8	6.8	3.4	6.8	7.0	7.6	4.6	4.0	1.4
3	DO_SAT% (%)	51	79	62	47	86	42	74	73	81	50	47	17
4	FCol-MPN (MPN/100mL)						140	110	20	110	40	110	80
5	Tcol-MPN (MPN/100mL)						700	140	120	140	60	140	170
	TRACE & TOXIC												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	120	124	120	116	96	88	100	92	104	104	100	96
2	HAR_Total (mgCaCO3/L)	189	197	173	173	157	149	161	149	169	218	165	149
3	Na% (%)	13	26	17	17	18	19	20	51	38	46	38	40
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	1.1	0.6	0.6	0.6	0.6	0.7	2.7	1.7	2.7	1.6	1.8
	PESTICIDES												

Water Quality Summary for the period : 2016-2017

Station Name : RSP NALLA (RSP) **Division : E.E., Bhubaneswar**

Local River : RSP Nala **Sub-Division : Sambalpur**

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (µmho/cm)	12	824	296	498
3	EC_GEN (µmho/cm)	12	826	298	500
4	pH_FLD (pH units)	12	7.9	7.1	7.5
5	pH_GEN (pH units)	12	8.0	7.2	7.6
6	Temp (deg C)	12	31.0	18.0	24.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	65	46	55
3	B (mg/L)	12	0.03	0.01	0.01
4	Ca (mg/L)	12	50	35	42
5	Cl (mg/L)	12	39.6	15.1	22.3
6	CO3 (mg/L)	12	0.0	0.0	0
7	F (mg/L)	12	0.05	0.05	0.05
8	Fe (mg/L)	12	0.7	0.1	0.5
9	HCO3 (mg/L)	12	79	56	67
10	K (mg/L)	12	20.3	4.1	8.6
11	Mg (mg/L)	12	27.3	12.6	15.7
12	Na (mg/L)	12	90.2	13.1	37.2
13	NO2+NO3 (mg N/L)	12	1.32	0.87	1.09
14	NO2-N (mgN/L)	12	0.03	0.00	0.01
15	NO3-N (mgN/L)	12	1.32	0.84	1.08
16	P-Tot (mgP/L)	12	0.010	0.010	0.01
17	SiO2 (mg/L)	12	8.0	6.0	6.8
18	SO4 (mg/L)	12	57.6	14.8	40.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	60.0	0.8	9.1
2	DO (mg/L)	12	7.6	1.4	5
3	DO_SAT% (%)	12	86	17	59
4	FCol-MPN (MPN/100mL)	7	140	20	87
5	Tcol-MPN (MPN/100mL)	7	700	60	210
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	124	88	105
2	HAR_Total (mgCaCO3/L)	12	218	149	171
3	Na% (%)	12	51	13	28
4	RSC (-)	12	0.0	0.0	0
5	SAR (-)	12	2.7	0.4	1.2
	PESTICIDES				

Water Quality Seasonal Average for the period: 2002-2017

Station Name : RSP NALLA (RSP) | **Division : E.E., Bhubaneswar**

Local River : RSP Nala | **River Water** | **Sub-Division : Sambalpur**

S.No	Parameters	Flood																				
		Jun - Oct																				
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	313	426	379	272	262	328	321	293	311	358	338	316	404	514	361	403	297	465	292	301	318
3	EC_GEN (µmho/cm)	317	432	379	269	260	326	321	293	311	358	338	316	404	516	365	409	303	465	287	300	339
4	pH_FLD (pH units)	7.2	7.5	7.6	7.6	7.4	7.6	7.4	7.4	7.5	8.1	7.3	7.4	7.4	7.6	7.6	7.0	7.5	7.8	7.5	7.9	7.6
5	pH_GEN (pH units)	7.1	7.4	7.6	7.6	7.5	7.6	7.4	7.4	7.5	8.1	7.3	7.4	7.4	7.4	7.6	6.8	7.2	7.8	7.6	7.9	7.6
6	Temp (deg C)	29.2	29.5	29.0	30.6	30.2	28.6	29.6	29.8	31.0	30.2	28.0	25.8	28.6	28.8	28.6	23.8	29.3	23.0	22.7	22.4	22.3
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)						0.0	0.0	0.0	0.0	1.8			0.0	0.0	0.0						0.0
2	ALK-TOT (mgCaCO3/L)						72	61	60	48	82			91	68	52						64
3	B (mg/L)	0.61	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.16	0.01	0.00	0.00	0.00	0.01	0.01	0.63	0.49	0.00	0.00	0.00	0.19
4	Ca (mg/L)	45	30	43	29	27	33	30	25	28	34	28	20	34	28	46	56	42	57	29	32	35
5	Cl (mg/L)	18.6	16.8	22.1	17.5	18.2	19.0	22.0	21.4	21.9	27.2	34.7	25.7	33.8	17.7	19.6	17.5	18.7	16.5	18.8	16.5	21.3
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	F (mg/L)	0.29	0.27	0.39	0.40	0.51	0.43	0.30	0.27	0.25	0.05	0.06	0.05	0.05	0.05	0.05	0.57	0.58	0.53	0.32	0.33	0.33
8	Fe (mg/L)	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.0	1.4	0.1	0.3	0.5	0.4	0.1	0.1	0.1	0.3	0.2	0.1
9	HCO3 (mg/L)	127	80	111	55	80	88	72	42	59	96	45	93	111	83	63	152	89	149	50	78	78
10	K (mg/L)	3.1	2.9	3.3	2.5	6.7	2.9	5.3	4.3	4.5	6.7	4.1	3.3	6.7	3.6	9.4	3.0	2.4	2.3	4.5	3.2	3.6
11	Mg (mg/L)	15.9	11.1	10.5	7.5	7.1	11.5	10.7	10.7	11.1	12.6	8.4	6.1	12.6	12.6	15.0	15.3	15.1	14.8	7.9	10.3	11.2
12	Na (mg/L)	12.6	12.3	15.1	13.2	12.5	13.7	14.8	12.6	13.5	15.5	9.3	15.7	15.5	8.5	19.5	11.7	13.0	11.2	14.0	11.9	14.1
13	NO2+NO3 (mg N/L)	10.88	9.50	10.68	13.11	7.23	10.33	10.66	7.36	7.50	0.39	1.06	12.72	1.50	1.19	1.06	13.50	19.70	17.90	15.24	13.00	14.38
14	NO2-N (mgN/L)	0.06	0.00	0.01	0.96	0.16	0.03	0.09	0.00	0.00	0.07	0.00	0.00	0.02	0.02	0.01	0.01	0.39	1.30	1.00	0.83	0.09
15	NO3-N (mgN/L)	10.82	9.50	10.67	12.15	7.07	10.30	10.57	7.36	7.50	0.33	1.06	12.72	1.48	1.16	1.05	13.49	19.31	16.60	14.24	12.17	14.29
16	o-PO4-P (mg P/L)			0.027	0.011	0.010	0.000		0.000										0.000	0.000	0.005	0.000
17	P-Tot (mgP/L)	0.026	0.001	0.001	0.012	0.011	0.001	0.002	0.003	0.001	0.010	0.001	0.001	0.001	0.001	0.010	0.001	0.001	0.001	0.001	0.007	0.001
18	SiO2 (mg/L)	20.3	16.2	23.7	25.4	12.3	8.6	9.1	9.1	7.8	8.8	11.6	8.0	5.6	6.0	6.6	16.6	16.1	25.5	21.7	16.3	8.9
19	SO4 (mg/L)	29.7	28.9	23.3	20.2	16.2	25.1	24.4	42.7	37.4	42.8	45.0	32.5	45.0	26.4	50.8	33.3	36.2	27.8	25.6	23.3	22.4
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	5.8	1.2	5.5	1.4	3.4	1.4	1.4	1.8	1.7	1.9	5.6	1.9	5.3	9.0	17.7	2.3	1.9	6.5	1.8	1.5	1.6
2	DO (mg/L)	7.3	5.3	4.9	5.8	5.6	5.6	5.3	4.5	5.4	3.8	5.0	5.6	3.2	4.4	5.0	5.6	4.8	4.8	7.4	7.2	6.3
3	DO_SAT% (%)	95	69	64	77	75	73	69	59	73	50	64	69	42	57	65	66	63	56	85	83	71
4	FCol-MPN (MPN/100mL)																					
5	Tcol-MPN (MPN/100mL)																					
	TRACE & TOXIC																					
1	Al (mg/L)				4.02																	
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	114	75	108	72	67	81	75	63	70	84	70	51	84	71	115	141	106	142	73	80	88
2	HAR_Total (mgCaCO3/L)	180	121	152	103	95	129	120	107	116	137	105	77	137	123	178	205	168	204	106	122	135
3	Na% (%)	15	19	19	22	23	22	23	21	20	18	16	30	18	12	18	11	15	11	21	17	19
4	RSC (-)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.4	0.8	0.6	0.3	0.6	0.4	0.4	0.3	0.6	0.5	0.5
	PESTICIDES																					

Water Quality Seasonal Average for the period: 2002-2017

Station Name : RSP NALLA (RSP) | **Division : E.E., Bhubaneswar**

Local River : RSP Nala | **River Water** | **Sub-Division : Sambalpur**

S.No	Parameters	Winter									Summer											
		Nov - Feb									Mar - May											
		2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	PHYSICAL																					
1	Q (cumec)																					
2	EC_FLD (µmho/cm)	400	265	475	273	348	233	460	877	617	313	233	493	382	398	454	450	343	523	337	473	357
3	EC_GEN (µmho/cm)	403	265	475	273	348	233	460	878	619	312	267	493	377	393	457	450	343	523	337	473	357
4	pH_FLD (pH units)	7.8	7.6	7.5	7.5	7.7	7.6	7.7	7.5	7.7	7.8	7.7	7.6	7.4	7.6	7.4	7.7	7.4	7.5	7.3	7.7	7.6
5	pH_GEN (pH units)	7.8	7.6	7.5	7.5	7.7	7.6	7.7	7.5	7.7	7.6	7.5	7.6	7.5	7.6	7.4	7.7	7.4	7.5	7.3	7.7	7.6
6	Temp (deg C)	22.5	20.5	21.8	22.8	19.8	19.5	21.0	20.3	21.0	26.7	28.2	27.7	28.4	28.5	28.5	27.0	26.7	26.3	28.7	23.7	25.7
	CHEMICAL																					
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0			0.0	0.0	0.0					0.0		0.0	0.0	0.0	10.4		
2	ALK-TOT (mgCaCO3/L)	84	30	93	89			102	52	55					151		73	39	92	73		
3	B (mg/L)	0.00	0.25	0.20	0.01	0.00	0.00	0.00	0.01	0.01	0.56	0.64	0.70	0.07	0.00	0.20	0.00	0.55	0.15	0.01	0.00	0.00
4	Ca (mg/L)	38	24	47	31	34	23	29	22	38	50	33	57	42	44	49	42	25	50	31	27	22
5	Cl (mg/L)	24.5	19.9	26.4	35.8	32.5	31.3	37.2	17.4	18.9	18.7	17.3	23.1	19.3	18.3	29.1	30.9	28.5	30.8	27.0	33.6	26.1
6	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0
7	F (mg/L)	0.08	0.41	0.74	0.05	0.06	0.05	0.05	0.05	0.05	0.63	0.20	0.49	0.77	0.34	0.32	0.18	0.41	0.38	0.05	0.06	0.05
8	Fe (mg/L)	0.3	0.1	0.1	0.0	1.2	0.1	0.3	0.5	0.6	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.0	0.9	0.1
9	HCO3 (mg/L)	90	37	113	108	76	119	124	63	68	105	71	124	87	97	155	89	48	112	64	133	111
10	K (mg/L)	4.5	2.0	5.1	5.6	5.1	4.6	6.4	5.2	7.3	2.6	2.1	3.6	3.2	3.7	3.3	5.0	4.3	5.4	3.7	6.6	6.2
11	Mg (mg/L)	14.1	10.3	16.0	7.8	16.0	7.2	10.7	11.7	14.6	13.6	10.9	13.9	12.1	12.9	14.0	12.6	12.3	18.5	6.2	10.4	7.3
12	Na (mg/L)	16.0	12.0	17.1	15.7	13.5	14.9	15.5	12.3	40.4	13.2	11.9	14.8	13.6	12.4	19.3	20.9	16.4	19.3	15.0	20.5	16.5
13	NO2+NO3 (mg N/L)	12.66	10.82	10.90	0.40	1.11	15.50	1.12	1.13	1.11	19.07	15.57	17.98	19.35	14.69	9.16	10.62	11.53	20.07	0.41	1.04	11.65
14	NO2-N (mgN/L)	0.96	0.10	0.00	0.07	0.00	0.00	0.00	0.00	0.01	0.00	0.29	0.10	1.18	0.07	0.07	0.30	0.39	0.00	0.07	0.00	0.01
15	NO3-N (mgN/L)	11.70	10.72	10.90	0.33	1.11	15.50	1.12	1.13	1.10	19.07	15.28	17.88	18.17	14.62	9.09	10.32	11.14	20.07	0.34	1.04	11.64
16	o-PO4-P (mg P/L)	0.120	0.008										0.000	0.000	0.000	0.012		0.000				
17	P-Tot (mgP/L)	0.002	0.001	0.001	0.010	0.001	0.001	0.001	0.010	0.010	0.001	0.001	0.001	0.001	0.001	0.034	0.002	0.007	0.001	0.010	0.001	0.001
18	SiO2 (mg/L)	9.4	8.9	5.5	8.8	12.0	9.1	5.8	5.8	6.5	15.3	15.6	24.1	19.1	16.8	9.6	9.3	8.8	4.1	8.7	12.0	8.1
19	SO4 (mg/L)	28.4	23.9	62.6	28.5	42.8	41.5	44.4	24.3	15.1	28.8	19.7	34.7	27.6	28.8	23.3	45.9	40.1	49.3	29.2	44.8	27.8
	BIOLOGICAL/BACTERIOLOGICAL																					
1	BOD3-27 (mg/L)	1.9	2.0	2.3	2.2	1.2	7.7	3.3	1.3	3.8	7.7	2.6	20.4	1.9	1.6	1.8	2.4	1.8	1.9	1.4	2.3	3.3
2	DO (mg/L)	6.9	7.9	6.2	6.5	7.2	5.9	6.9	5.4	6.2	6.3	3.9	3.6	5.7	4.9	4.9	5.0	5.8	5.3	5.2	4.6	5.2
3	DO_SAT% (%)	79	88	71	75	78	64	78	58	68	79	49	46	73	62	63	63	71	66	67	53	62
4	FCol-MPN (MPN/100mL)									95												
5	Tcol-MPN (MPN/100mL)									275												
	TRACE & TOXIC																					
1	Al (mg/L)															0.05						
	CHEMICAL INDICES																					
1	HAR_Ca (mgCaCO3/L)	94	59	117	78	86	57	73	55	96	125	83	141	104	111	121	106	63	124	77	67	54
2	HAR_Total (mgCaCO3/L)	153	102	184	111	153	87	117	104	157	182	129	199	154	164	180	158	114	201	103	111	84
3	Na% (%)	18	20	17	23	16	26	21	19	32	14	16	14	16	14	19	22	23	17	23	27	28
4	RSC (-)	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3
5	SAR (-)	0.6	0.5	0.6	0.7	0.5	0.7	0.6	0.5	1.4	0.4	0.5	0.5	0.5	0.4	0.6	0.7	0.7	0.6	0.6	0.9	0.8
	PESTICIDES																					

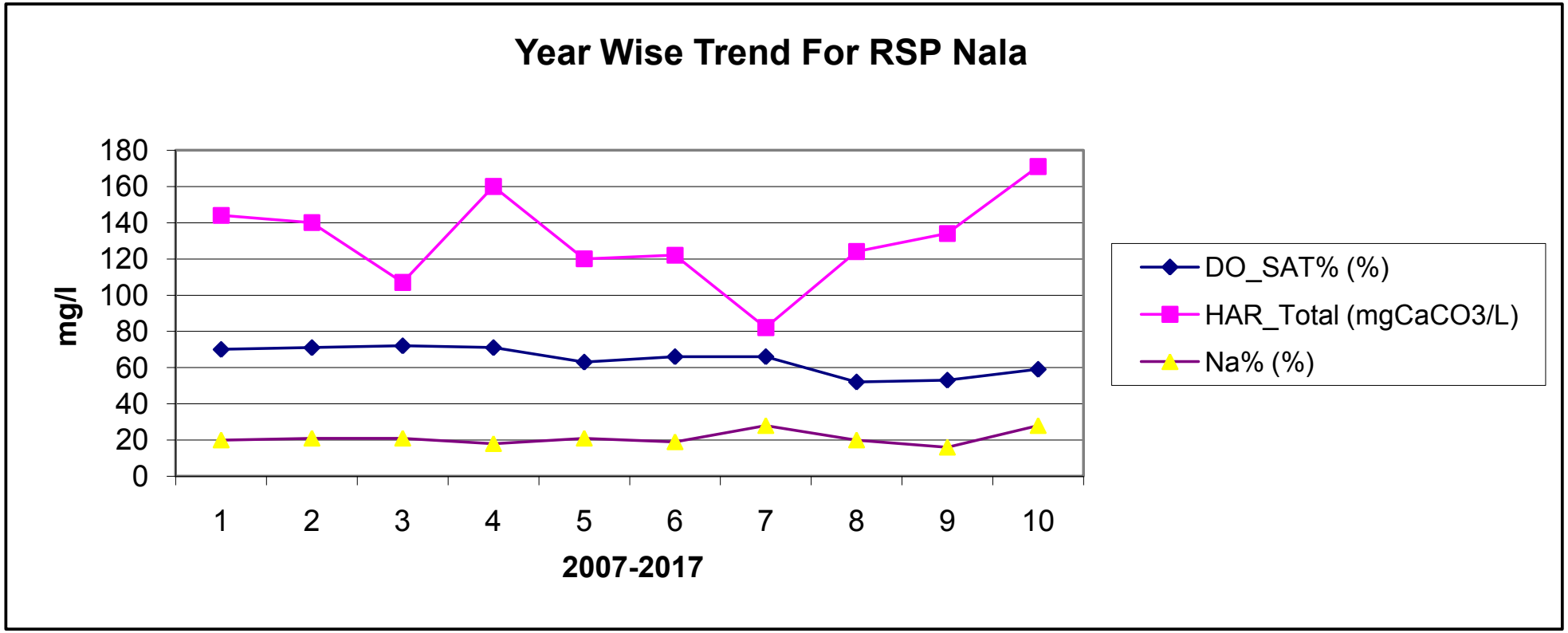
Water Quality Seasonal Average for the period: 2002-2017

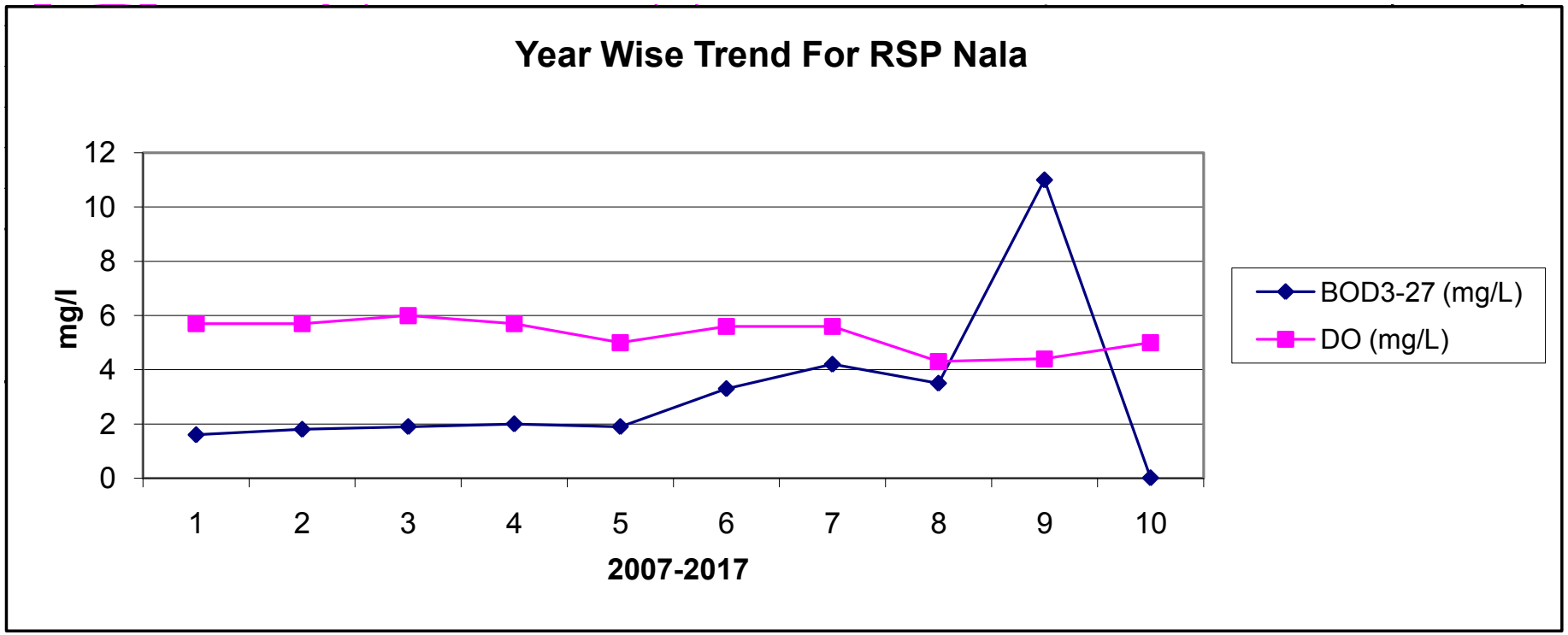
Station Name : RSP NALLA (RSP) | **Division : E.E., Bhubaneswar**

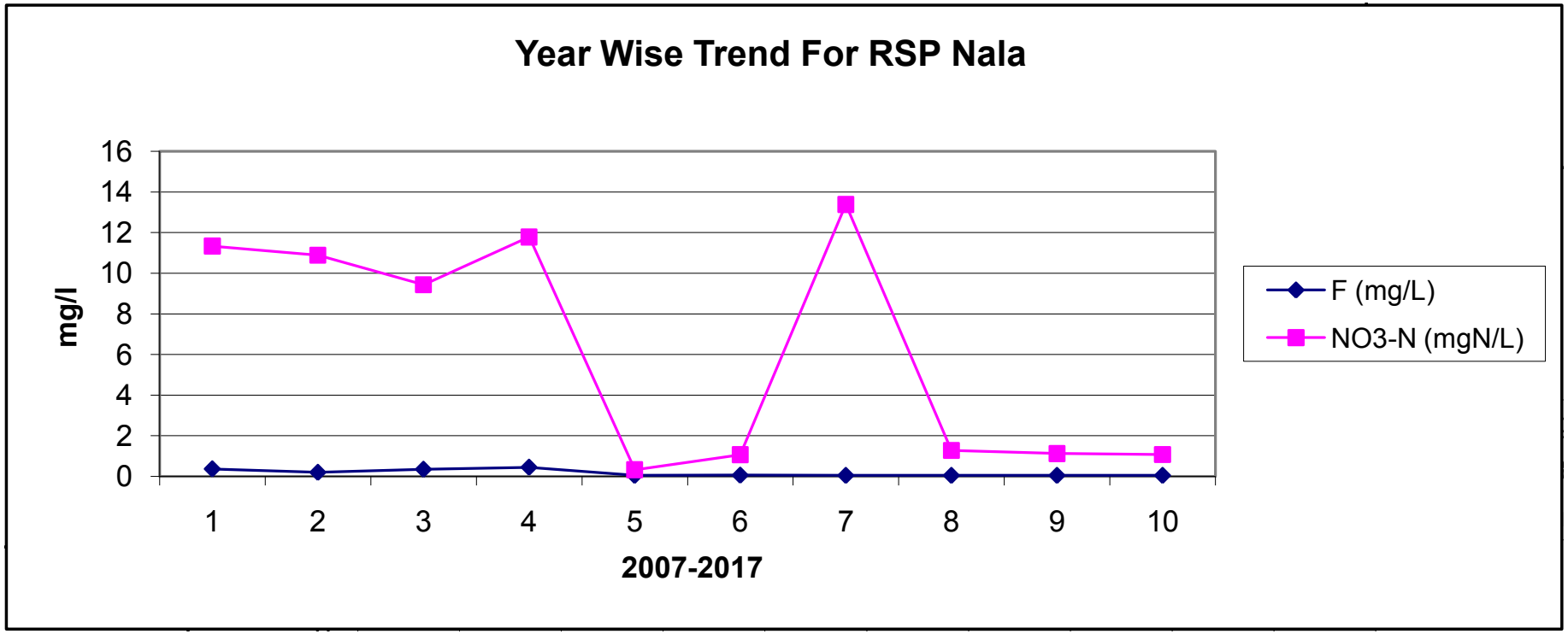
Local River : RSP Nala | **Sub-Division : Sambalpur**

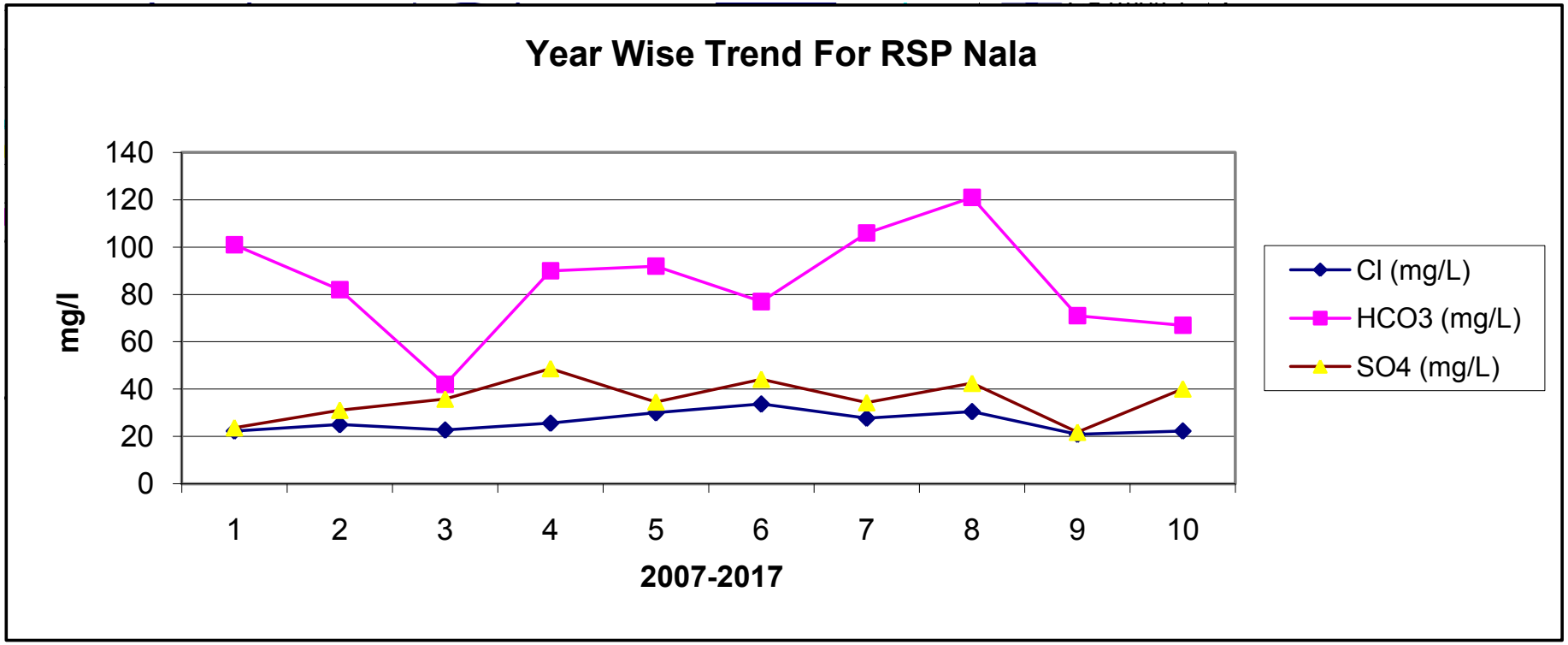
River Water

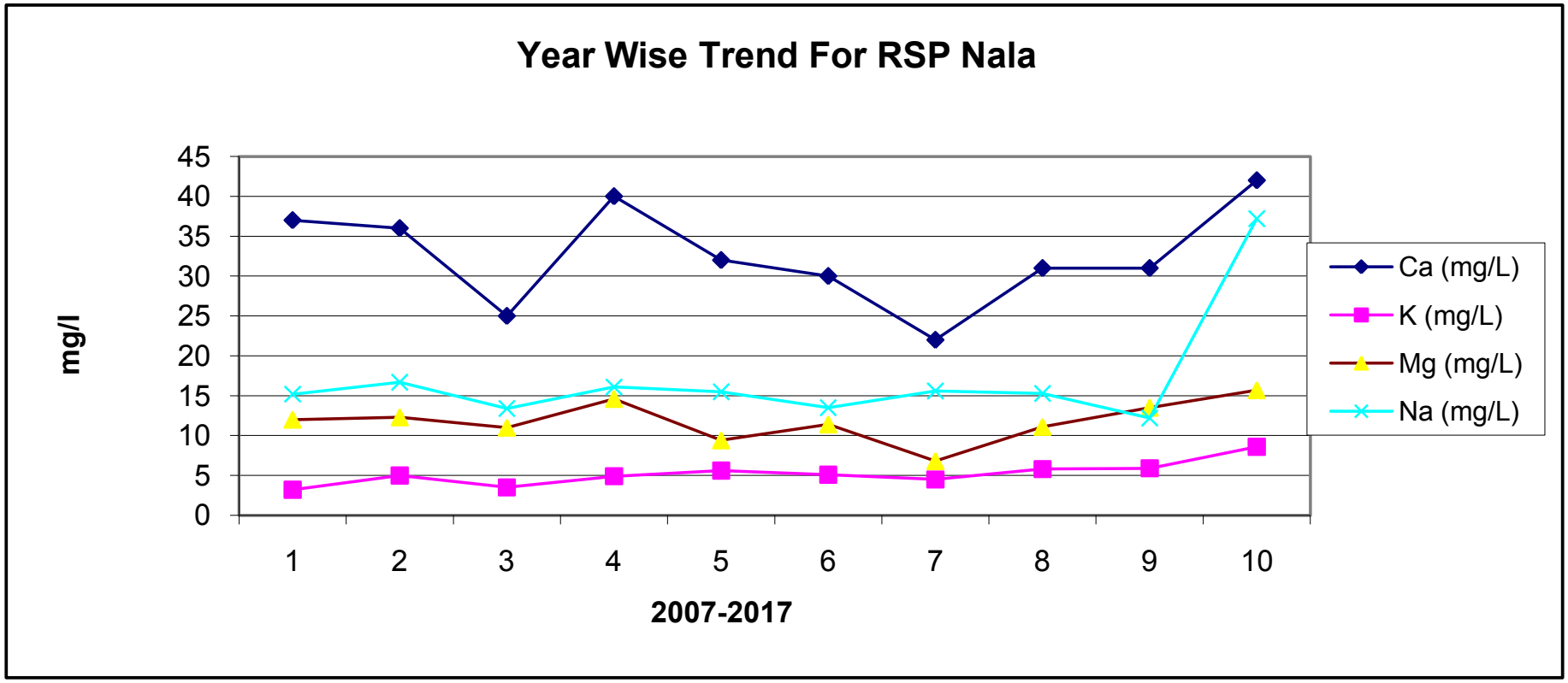
S.No	Parameters			
		2015	2016	2017
	PHYSICAL			
1	Q (cumec)			
2	EC_FLD (µmho/cm)	634	814	568
3	EC_GEN (µmho/cm)	634	815	567
4	pH_FLD (pH units)	7.4	7.0	7.3
5	pH_GEN (pH units)	7.4	6.9	7.5
6	Temp (deg C)	27.0	26.4	23.7
	CHEMICAL			
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	110	49	59
3	B (mg/L)	0.00	0.01	0.02
4	Ca (mg/L)	29	47	40
5	Cl (mg/L)	26.9	30.8	31.4
6	CO3 (mg/L)	0.0	0.0	0.0
7	F (mg/L)	0.05	0.05	0.05
8	Fe (mg/L)	0.4	0.4	0.5
9	HCO3 (mg/L)	134	60	71
10	K (mg/L)	3.6	10.9	9.1
11	Mg (mg/L)	9.0	17.5	18.5
12	Na (mg/L)	14.5	18.1	62.6
13	NO2+NO3 (mg N/L)	1.15	1.08	1.12
14	NO2-N (mgN/L)	0.00	0.00	0.01
15	NO3-N (mgN/L)	1.15	1.08	1.11
16	o-PO4-P (mg P/L)			
17	P-Tot (mgP/L)	0.001	0.010	0.010
18	SiO2 (mg/L)	6.7	5.3	7.7
19	SO4 (mg/L)	35.9	10.7	55.4
	BIOLOGICAL/BACTERIOLOGICAL			
1	BOD3-27 (mg/L)	0.8	27.1	1.9
2	DO (mg/L)	2.7	3.1	3.3
3	DO_SAT% (%)	34	39	38
4	FCol-MPN (MPN/100mL)			77
5	Tcol-MPN (MPN/100mL)			123
	TRACE & TOXIC			
1	Al (mg/L)			
	CHEMICAL INDICES			
1	HAR_Ca (mgCaCO3/L)	73	118	100
2	HAR_Total (mgCaCO3/L)	111	190	177
3	Na% (%)	21	17	41
4	RSC (-)	0.1	0.0	0.0
5	SAR (-)	0.6	0.6	2.0
	PESTICIDES			


Year Wise Trend For RSP Nala
180
160
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
DO_SAT% (%)
HAR_Total (mgCaCO3/L)
Na% (%)


Year Wise Trend For RSP Nala
12
10
8
6
4
2
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
BOD3-27 (mg/L)
DO (mg/L)


Year Wise Trend For RSP Nala
mg/l
16
14
12
10
8
6
4
2
0
1
2
3
4
5
6
7
8
9
10
2007-2017
F (mg/L)
NO3-N (mgN/L)


Year Wise Trend For RSP Nala
140
120
100
80
60
40
20
0
mg/l
1
2
3
4
5
6
7
8
9
10
2007-2017
Cl (mg/L)
HCO3 (mg/L)
SO4 (mg/L)


Year Wise Trend For RSP Nala
mg/l
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10
2007-2017
Ca (mg/L)
K (mg/L)
Mg (mg/L)
Na (mg/L)

LIST OF PERSONS INVOLVED IN THE PREPARATION OF WATER YEAR BOOK

1. Sri. C. Mohanty, Executive Engineer, ERD, CWC, Bhubaneswar
2. Sri. D.S. Prasad, AEE, H.O. Circle, CWC, Bhubaneswar
3. Sri. P.S. Baral, SDE, Brahmani Sub-Division, CWC, Rourkela
4. Smt.Dr. B.S Shanthala Devi, EAD, ERD, CWC, Bhubaneswar
5. Sri. N.K. Bhuyan, ARO, ERD, CWC, Bhubaneswar
6. Sri. B.B Nayak, JE (HQS), ERD, CWC, Bhubaneswar
7. Sri. S.S. Mohanty, Sr. Computer, ERD, CWC, Bhubaneswar
8. Sri. Ashok Mishra, SWA,ERD, Bhubaneswar