

केवल सरकारी उपयोग हेतु

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गाद पुस्तिका

SEDIMENT DATA BOOK

नर्मदा बे सन

Narmada Basin

जून 2015- मई 2016

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केन्द्रीय जल आयोग  
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### प्रस्तावना

जल प्रकृति द्वारा प्रदत्त एक अनमोल उपहार है। जीवन संचालन में जल की महत्वता की दृष्टि से जल संसाधनों के नियोजन, प्रबंधन एवं विकास की अत्यधिक आवश्यकता है। केन्द्रीय जल आयोग, इस क्षेत्र में भारत सरकार की एक शीर्षस्थ तकनीकी संस्था है। आयोग के गेज एवं डिस्चार्ज मापन स्थलों पर सतही जल की मात्रा के आकलन के अलावा प्रमुख स्थलों पर जल गुणवत्ता प्रबोधन, निलम्बित गादभार का आंकलन एवं तलछट पदार्थ के ऑकड़े भी एकत्रित किये जाते हैं।

जल ग्रहण क्षेत्र की मिट्टी तीव्र वर्षा से बहकर नदी में आती है तथा निलम्बित गाद के रूप में बहती है। जल की गति के मंद पड़ने, गाद के संघटन एवं नदी के आकार में परिवर्तन आदि कारणों से यह प्रवाह मार्ग में विभिन्न स्थलों पर निक्षेपित हो जाती है। अतः गाद भार के साथ साथ तलछट पदार्थ के संघटन का आंकलन करना भी अति-महत्वपूर्ण है।

इस पुस्तक में वर्ष 2015-16 में नर्मदा मंडल, भोपाल द्वारा नर्मदा नदी पर मध्य प्रदेश में स्थित 9 स्थलों तथा तापी मंडल, सूरत द्वारा गुजरात में स्थित 2 स्थलों पर एकत्रित किये गये गाद भार तथा तलछट पदार्थ सम्बन्धी ऑकड़ों का संकलन किया गया है।

आशा है, इस पुस्तक में संकलित ऑकड़े, जल संसाधन संबंधी परियोजनाओं के नियोजन, अभिकल्पन, विकास और संबंधित अध्ययनों के लिए लाभप्रद होंगे। इस पुस्तक को और अधिक उपयोगी बनाने के लिए सुझाव आमंत्रित हैं।

मैं, नर्मदा बेसिन संगठन के उन सभी अधिकारियों एवं कर्मचारियों के प्रति आभार प्रकट करता हूँ, जिन्होंने इस पुस्तक को तैयार करने में समर्पण की भावना से अपना प्रशंसनीय योगदान दिया है।

स्थान - भोपाल  
अप्रैल '2017



(राकेश टोटेजा)  
अधीक्षण अभियंता (समन्वय)

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## List of Abbreviation and Symbols

|                        |   |                               |
|------------------------|---|-------------------------------|
| A                      | : | Area of section               |
| AV                     | : | Average                       |
| C                      | : | Coarse sediment               |
| Con                    | : | Concentration                 |
| Cumec                  | : | Cubic metres per second       |
| Cum                    | : | Cubic metres                  |
| D                      | : | Day                           |
| F                      | : | Fine sediment                 |
| f                      | : | Average silt factor           |
| G                      | : | Gauge                         |
| GD                     | : | Gauge and Discharge           |
| GDS                    | : | Gauge, Discharge and Sediment |
| g/l                    | : | Grams per litre               |
| km                     | : | Kilometer                     |
| L.B.                   | : | Left bank                     |
| M                      | : | Medium sediment               |
| m                      | : | Metre                         |
| mm                     | : | Millimetre                    |
| m <sup>3</sup> /s      | : | Cubic metre per second        |
| Mean dia 'd'           | : | Mean Diameter                 |
| NDN                    | : | Narmada Division              |
| P                      | : | Wetted Perimeter              |
| %                      | : | Percentage                    |
| Q                      | : | Discharge                     |
| R                      | : | Hydraulic mean depth          |
| R.B.                   | : | Right bank                    |
| R. Days                | : | Remaining days                |
| R.D.                   | : | Reduced distance              |
| R.L.                   | : | Reduced level                 |
| S                      | : | Second                        |
| Sed                    | : | Sediment                      |
| S/G                    | : | Station gauge                 |
| km <sup>2</sup> /sq.km | : | Square kilo metre             |
| m <sup>2</sup>         | : | Square metre                  |
| T/D                    | : | Tonnes per day                |
| TDN                    | : | Tapi Division                 |
| V                      | : | Mean velocity                 |
| W.L.                   | : | Water Level                   |
| W.Year                 | : | Water year                    |
| W.Q                    | : | Water Quality                 |
| 0°                     | : | Degree                        |
| '                      | : | Minute                        |
| "                      | : | Second                        |
| *                      | : | Estimated by unitary method   |
| **                     | : | Estimated by interpolation    |
| ***                    | : | Estimated by average value    |
| @                      | : | Estimated by graph            |
| MMT                    | : | Million Metric Tones          |

## 1 Introduction

### 1.1 Scope

Central Water Commission is conducting sediment load observations & bed material observation along with discharge observations etc. During the reporting year 2015-16 sediment load & bed material observations in Narmada Basin were conducted at 11 stations under the jurisdiction of the Narmada Division, Bhopal and Tapi Division, Surat. 9 of these stations are located in the state of Madhya Pradesh and 2 stations in the Gujarat State. These stations have been functioning under plan schemes viz. “Development of Water Resources Information System”, during 12<sup>th</sup> Five Year Plan. The name of the stations where suspended sediment load & bed material observations were conducted are given in Table – 1-1 :

**Table 1-1: Sediment and Bed Material Observation Stations at Narmada River**

| Sl. No. | Name of Station        | Code No.  |
|---------|------------------------|-----------|
| 1.      | Orsang at Chandwada    | 010215032 |
| 2.      | Narmada at Garudeshwar | 010215030 |
| 3.      | Narmada at Mandleshwar | 010215026 |
| 4.      | Narmada at Handia      | 010215022 |
| 5.      | Narmada at Hoshangabad | 010215019 |
| 6.      | Narmada at Sandia      | 010215013 |
| 7.      | Shakkar at Gadarwara   | 010215012 |
| 8.      | Narmada at Barman      | 010215011 |
| 9.      | Banjar at Bamni        | NCA SITE  |
| 10.     | Burhner at Mohgaon     | 010215004 |
| 11.     | Narmada at Manot       | 010215002 |

### 1.2 Sources of Information

The administrative controls of these 11 stations were distributed under two divisions, namely Narmada Division, Bhopal (Nine Stations) and Tapi Division, Surat (Two Stations). During the year 2015-16, the Division wise the stations and their code are given in Table 1-2:

**Table 1-2: Division wise GD stations and their codes**

| Sl. No.                         | Name of Station        | Code No.  |
|---------------------------------|------------------------|-----------|
| <b>Narmada Division, Bhopal</b> |                        |           |
| 1.                              | Narmada at Mandleshwar | 010215026 |
| 2.                              | Narmada at Handia      | 010215022 |
| 3.                              | Narmada at Hoshangabad | 010215019 |
| 4.                              | Narmada at Sandia      | 010215013 |
| 5.                              | Shakkar at Gadarwara   | 010215012 |
| 6.                              | Narmada at Barmanghat  | 010215011 |
| 7.                              | Banjar at Bamni        | 010215006 |
| 8.                              | Burhner at Mohgaon     | 010215004 |
| 9.                              | Narmada at Manot       | 010215002 |
| <b>Tapi Division, Surat</b>     |                        |           |
| 1.                              | Narmada at Garudeshwar | 010215030 |
| 2.                              | Orsang at Chandwada    | 010215032 |

### 1.3 Basin Description

Narmada is the largest west flowing and fifth largest river of India. It drains a large area in Madhya Pradesh besides some area in the states of Maharashtra and Gujarat. Narmada basin lies between East Longitudes 72° 32' to 81° 45' and North Latitudes 21° 20' to 23° 45'. It flows through Deccan traps in between Vindhya and Satpura ranges of hills before falling into the Gulf of Cambay in the Arabian Sea. Narmada drains an area of 98,796 km<sup>2</sup> out of which nearly 87% lies in Madhya Pradesh. The state wise distribution of drainage area is shown in Table 1-3:

**Table 1-3: Statewise Distribution of Drainage Area**

| Sl. No. | Name of State  | Drainage Area (sq. km.) | Percentage   |
|---------|----------------|-------------------------|--------------|
| 1.      | Madhya Pradesh | 85, 859                 | 86.9         |
| 2.      | Maharashtra    | 1,538                   | 1.5          |
| 3.      | Gujarat        | 11,399                  | 11.6         |
|         | <b>Total</b>   | <b>98,796</b>           | <b>100.0</b> |

Narmada rises from a 'Kund' (spring) at an elevation of 1,057 m at Amarkantak in Maikal hills in Shahdol district of Madhya Pradesh and flows through Madhya Pradesh, Maharashtra and Gujarat between Vindhya and Satpura hill ranges before falling into the Gulf of Cambay in the Arabian sea about 10 km north of Bharuch. The total length of this west flowing river from its origin to outfall into the sea is 1,312 km. For the first 1,079 km it runs in Madhya Pradesh and there after forms the common boundary between Madhya Pradesh and Maharashtra for 35 km and 39 km. in Maharashtra and Gujarat boundary. In Gujarat, it stretches for 159 km. The

basin has an elongated shape, with a maximum length of 953 km from east to west and a maximum width of 234 km from north to south.

The river has a number of falls in its heads reaches. At 8 km from the origin, the river drops 24 m at the Kapildhara falls. At 0.4 km further downstream, the river again drop by 4.6 m at Dudhdhara fall. Burhner, the first major tributary of Narmada, joins the river from left at 248 km from its origin. Flowing in a generally south-westerly direction in the narrow and deep valley, the river has hairpin bends at some places. At 286 km from its source, the river turns towards the north and about 1 km further downstream, the Banjar tributary joins it. After flowing past Mandla town in a number of channels called Sahastra-dhara, the river at 404 km from the origin drops nearly 15 km at the Dhuandhar fall close to Jabalpur. Further down, the river flows through a channel through the famous marble rocks.

Emerging from the marble rocks, the Narmada enters the upper fertile plains. At a distance of 464 km from the origin, Hiran a major right bank tributary joins the river. Continuing to flow in a western direction through the upper plains, the river receives several tributaries like Sher, Shakkar, Dudhi, Tawa and Ganjal from the left and Tendon, Barna and Kolar from the right. Flowing through west, it joins the middle plains near Panghat in East Nimar district. At Nandhar, 806 km from the origin, it drops 12 m at Dhardi, 853 km from origin, it again drops 12 m. At 966 km from the origin and nearly 6.4 km downstream of Maheshwar, the Narmada again drops by about 6.7 m at Sahastra-dhara falls. During this part of the journey through the middle plains, Chhota tawa and Kundi from the left and Man from the right joins it.

Flowing further west, the river enters the lower hilly regions and flows through a gorge where Goi enters from the left and Uri and Hatni from the right. The 113 km long gorge is formed by the convergence of Vindhya ranges from the north and Satpura ranges to the south. Emerging from the gorge, the river enters the lower plains and meanders in broad curves till it reaches Bharuch. The Karjan from the left and Orsang from the right joins the Narmada in this reach. Beyond Bharuch, the river valley widens and the river enters the Gulf of Cambay. The river has 41 tributaries of which 22 are on the left bank and 19 on the right bank, having catchment area more than 500 sq.km out of these some major tributaries like Burhner, Banjar, Hiran, Tawa, Orsang and Kundi are having catchment area more than 3,550 sq.km.

The average rainfall in Narmada Basin is 1,250 mm. The maximum temperature varies between 40°C to 49°C in the month of May when the land gets heated up. The temperature drops to a minimum range of 1°C to 9°C during the dry/cold season in December/January.

At present, there are 30 proposed/ongoing/completed major hydroelectric cum Irrigation projects. There are four major hydroelectric cum irrigation project namely *Bargi*, *Indira Sagar*, *Omkareshwar* & *Sardar Sarovar* Projects on main Narmada river which are almost completed and eight completed projects on different tributaries namely Matiyari, Barna, Tawa, Kolar, Sukta, Man, Jobat and Karjan.

There are 11 sediment-monitoring stations in Narmada basin. Out of eleven, 7 stations are located on the main river and remaining 4 are located on the principal tributaries viz. Orsang, Shakkar, Banjar and Burhner.



## **2 Suspended Sediment Observation**

### **3 2.1 Observation Techniques**

#### **3.1.1 Collection of Sediment Samples**

Suspended sediment observations are conducted simultaneously along with discharge observation once a day starting at 08.00 hrs except on Sunday and holidays. The observations are conducted at station gauge line under normal condition. However, when the conditions become unsuitable for observation, say due to pooling, shallow depths, multi-channel formation etc., then the observation site is shifted to a temporary section at up-stream or down-stream of the station gauge line.

Sediment samples are collected at 0.6 depths from each vertical, where velocity observation is done for computation of discharge, provided depth of flow is above 0.3 m. The samples thus collected from each vertical are grouped in 1, 2, 3, 4 or 5 composite groups depending upon the width of the river in such a way that each composite group discharge  $\pm 10\%$  of average segment discharge. Punjab bottle type sampler is commonly used for collection of suspended sediment sample for analysis. A uniform practice of holding the bottle in vertical position is being adopted. Thus samples from shallow depths (less 0.3 m) are collected from the surface. These surface samples at shallow depths are presumed as of 0.6 depths sampling. The water samples collected are kept in composite groups based on the data observed on previous day and carried to the site laboratory for analysis.

#### **3.1.2 Analysis of the Suspended Sediment Samples**

The analysis of the suspended sediment sample is carried out for these different grades namely, coarse sediment having particle diameter above 0.2 mm, medium sediment with diameter ranging from 0.075 mm to 0.2 mm and fine sediment with diameter less than 0.075 mm. The sediment samples from each group (as stated in para 2.1.1) are passed through 212 micron mesh sieve. The residue on sieve is washed with clean water several times, transferred to a pre-weighted crucible and its oven dried weight is determined. This gives the coarse sediments from which the concentration of the coarse sediment g/l for the group is worked out.

After removal of coarse sediment, the filtrate and washing which now contains medium and fine sediment is similarly passed through 75 micron mesh sieve. The residue on sieve is washed with clean water several times, transferred to a pre-weighted crucible and its oven dried weight is determined. This gives the medium sediment from which sediment concentration in g/l for the group is determined.

The filtrates and washing after separation of coarse and medium grades now contain only fine sediment. For fine sediment analysis, all the above groups (after removal of coarse and fine sediment) are combined into a single large sample to form a homogeneous liquid in a big bucket.

The sediment analysis of complete volume is carried out upto 10-12 litres with moderate sediment concentration. If either medium sediment is higher or volume of sample is more than 12 litres, then the water is stirred with a clean wooden rod, so that any sediment settled in the bucket mix with the whole sample thoroughly. Immediately at least four litres of homogeneous samples is taken into separate bucket for analysis of time sediment load. This homogeneous sample is kept overnight for settling. About 5 to 10 ml of 10% alum solution is added to hasten the coagulation of colloidal silt. After the settlement is complete, the supernatant liquid is siphoned off carefully and the remaining volume of suspension is filtered in pre-weighed filter paper (Whatman grade I) and transfer of entire settled additional washing with clean water ensures silt. The filter paper along with the sediment is dried and weighted to determine the concentration of fine sediment in g/l for the entire cross section.

The total suspended sediment load of the river along the section is worked out from the concentration, thus contained for coarse, medium and fine sediment group-wise for the entire cross section.

### **3.2 Explanatory Notes**

The explanatory notes described hereunder are given to assist in the interpretation of hydrological parameters contained in the data presented. The note are, therefore, applicable in so far as the data presented in this book are concerned.

- i. Water year covers the period from 1<sup>st</sup> June of calendar year to 31st May of next calendar year and includes complete one hydrological cycle. The water year is further sub divided as:
  - Monsoon period from June to October and
  - Non-Monsoon period from November to May.
- ii. The gauging station code number is a unique nine-column numeric reference number, which facilitates storage and retrieval of sediment data in data banks. The first two columns are identifier of measuring authority. Third and fourth columns are for zone/basin fifth and sixth columns are for Independent River and last three i.e. seventh, eighth and ninth columns are for station numbers.
- iii. Sediment is classified as coarse, medium and fine according to diameter as indicated below:
  - Coarse: Sediment above 0.2 mm diameter,
  - Medium: Sediment between 0.2 & 0.075 mm diameter,
  - Fine: Sediment above 0.075 mm diameter.

### **3.3 Method of Presentation**

Suspended sediment data is presented in Part - I of the book, comprising history sheet and suspended sediment flow tables. The chronology of suspended sediment observation station is arranged from the mouth of the river to upstream giving. The tributaries are arranged in similar fashion.

History sheet gives concise description of the suspended sediment observation station. The suspended sediment table includes the following:

- Daily observed sediment flow tables for the period from June to November, because during the period major part of the annual sediment load is transported by the rivers.
- Ten daily summary of coarse, medium and fine sediment for the full year.
- Monthly and seasonal summary of the sediment load.

### **3.4 Comments on Sitewise Data**

#### **3.4.1 Orsang at Chandwada**

The total length of the river Orsang, a major right bank tributary of Narmada is 101 km in the plains of Gujarat state. The monitoring station Chandwada is situated at 9 km upstream of the confluence point of this river with Narmada. It has a drainage area of 3,846 sq km. The maximum value of sediment concentration is 0.008 g/l recorded on 26.07.2015. The annual sediment load works out to 1101 metric tonnes.

#### **2.4.2. Narmada at Garudeshwar**

The river has drainage area of 87,892 sq km upto this station. The river flows over length of 1,169 km upto this station. The maximum sediment concentration is recorded as 0.033 g/l, on 29.07.2015. The annual sediment load work out to 58431 metric tonnes.

#### **2.4.3. Narmada at Mandleshwar**

The river Narmada has drainage area of 72,809 sq km and length 852 km from the origin to this station. The maximum sediment concentration is 0.607 g/l, which was observed on 05.08.2015. The total annual sediment load 1636219 metric tonnes.

#### **2.4.4. Narmada at Handia**

The station is on main Narmada having a drainage area of 54,027 sq km. The river flows for a length of 774 km from the origin to this station. The maximum sediment concentration is 1.109 g/l, which was observed on 21.01.2016. The total annual sediment load is 5020260 metric tonnes.

#### **2.4.5. Narmada at Hoshangabad**

River Narmada has drainage area of 44,548 sq km and length of 521 km from the origin to this station. The maximum sediment concentration is 2.000 g/l, which was observed on 20.07.2015. The total annual sediment load is 5207803 metric tonnes. The monsoon sediment load work out to 99.3% of the total load of the year.

#### **2.4.6. Narmada at Sandia**

The station is 584 km from the origin of Narmada and has drainage area of 33,954 sq km and length 852 km from the origin to this station. The maximum sediment concentration is 0.822 g/l, which was observed on 10.07.2015. The total annual sediment load is 624785 metric tonnes.

#### **2.4.7. Shakkar at Gadarwara**

This station is on the tributary Shakkar on the left bank of Narmada and has a drainage area of 2,270 sq km. The length of the Shakkar upto this station is 140 km. The maximum sediment concentration is 1.774 g/l, which was observed on 14.08.2015. The total annual sediment load is 632929 metric tonnes.

#### **2.4.8. Narmada at Barmanghat**

Narmada traverses a length of 504 km upto this station and the drainage area is 26,453 sq km. The maximum sediment concentration is 1.873 g/l which was observed on 04.08.2015. The total annual sediment load is 924562 metric tonnes.

#### **2.4.9. Banjar at Bamni**

The Station is on the tributary Banjar on the left bank of Narmada and has a drainage area 1864 sq km. The maximum value of sediment concentration is 0.361 g/l, which was recorded on 30.08.2015. The annual sediment load works out to 74771 metric tonnes.

#### **2.4.10. Burhner at Mohgaon**

This station is on the tributary Burhner on the left bank of Narmada and has a drainage area of 3919 sq km. The length of the Burhner river upto this site is 177 km. The maximum sediment concentration is 4.173 g/l, which was observed on 23.06.2015. The total annual sediment load is 1098559 metric tonnes.

#### **2.4.11. Narmada at Manot**

The length and drainage area of Narmada at this station are 218 km and 4,667 sq km. respectively. The maximum sediment concentration is 0.912 g/l, which was observed on 23.06.2015. The total annual sediment load is 617465 metric tonnes.

## 4 Bed Material Observation

### 5 3.1 Observation Techniques

#### 5.1.1 Collection of Samples

Depending upon the width of the river, 3 to 10 samples are collected from the site along the station gauge line. A scoop type bed material sampler is used for collecting the sample from flowing portion of the channel and where the bed is dry, samples are collected manually after scraping the upper layer at the bed to avoid local surface contamination. After drying the sample, about 1 kg of the sample is taken by coning and quartering process.

#### 5.1.2 Packing of Samples

Bed material samples thus collected are filled in polythene bags and placed inside a thick cloth bag for protection. The details of the samples are inserted in the polythene bag and the same are sent to divisional laboratory for analysis.

#### 5.1.3 Analysis of Sample

In the laboratory, analysis of samples is done either by sieve for Bed Material particles above 0.6 mm size or by wet process using Puri's Siltometer for particles below 0.6 mm size.

**Analysis by Sieves:** The sieves are arranged one above the other in order of their mesh sizes, largest at top and smallest (0.6 mm) aperture sieve at the bottom. Each representative sample is weighed and then put on the top metallic. The portion of the material passing through 0.6 mm sieve is collected in a metallic container placed at the bottom of the set of sieves. Shaking of the sieves is done either by gentle horizontal rotation or by a mechanical shaker for about 15 to 20 minutes. The material retained on each sieve is collected separately in a metallic container and is weighed. The material passing through 0.6 mm sieve is also weighed and recorded.

**Analysis by Puri's Siltometer:** For particles of size below 0.6 mm, the analysis is done by wet process using Puri's Siltometer. About 10 grams of the Bed Material sample passing through 0.6 mm sieve is released from the top of the siltometer. The sand, silt particles travel downwards at different velocities depending upon their diameter and the temperature of water. The trough of the Siltometer is rotated at a pre-determined rate to collect the fractions. Thus different fractions of a sample are redeposit in 20 receptacles in a trough. Each of these fractions is then collected in the silt measuring tube and compacted by tapping on the rubber pad. The volume of the each fraction is noted.

From the result of the above analysis, summation curves are plotted and the mean diameter of the samples worked out as per the standard procedure. Statistical method is also used to work out the mean diameter. The silt factor is obtained from formula:

$$f = 1.76 (d)^{1/2}$$

Where 'd' is the mean diameter in mm of the particles.

## 5.2 Presentation of Data

The sequence of the stations for which analysis data has been presented in this book are downstream to upstream in part - II of the book.

| <b>Sr.</b> | <b>Name of Station</b> | <b>Code No.</b> |
|------------|------------------------|-----------------|
| 1.         | Orsang at Chandwada    | 010215032       |
| 2.         | Narmada at Garudeshwar | 010215030       |
| 3.         | Narmada at Mandleshwar | 010215026       |
| 4.         | Narmada at Handia      | 010215022       |
| 5.         | Narmada at Hoshangabad | 010215019       |
| 6.         | Narmada at Sandia      | 010215013       |
| 7.         | Shakkar at Gadarwara   | 010215012       |
| 8.         | Narmada at Barman      | 010215011       |
| 9.         | Banjar at Bamni        | 010215006       |
| 10.        | Burhner at Mohgaon     | 010215004       |
| 11.        | Narmada at Manot       | 010215002       |

## 6 Part – I Sediment Data

### 6.1 Orsang at Chandwada

#### History Sheet

|                          |                              |                   |                       |
|--------------------------|------------------------------|-------------------|-----------------------|
|                          |                              | <b>Water Year</b> | <b>: 2015-2016</b>    |
| <b>Site</b>              | <b>: Orsang at Chandwada</b> | <b>Code</b>       | <b>: 01 02 15 032</b> |
| State                    | : Gujarat                    | District          | Vadodara              |
| Basin                    | : Narmada                    | Independent River | : Narmada             |
| Tributary                | : Orsang                     | Sub Tributary     | :                     |
| Sub-Sub Tributary        | :                            | Local River       | : Orsang              |
| Division                 | : Tapi Division, Surat       | Sub-Division      | : LNSD, Bharuch       |
| Drainage Area            | : 3846 Sq. Km.               | Bank              | : Right               |
| Latitude                 | : 22°01'48"                  | Longitude         | : 73°25'30"           |
| <b>Zero of Gauge (m)</b> | <b>: 18 .000(M.S.L.)</b>     | 01/10/1979        |                       |
|                          | Opening Date                 | Closing Date      |                       |
| Gauge                    | : 11/01/1979                 |                   |                       |
| Discharge                | : 01/11/1979                 |                   |                       |
| Sediment                 | : 01/08/1988                 |                   |                       |
| Water Quality            | : 15/03/1980                 |                   |                       |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch

| Day                   | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|-----------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                       | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1                     | 0.000        |               |               |             |              |                   | 3.308        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 156.6        | 0.000         | 0.000         | 0.005       | 0.005        | 66                |
| 2                     | 0.000        |               |               |             |              |                   | 2.751        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 58.51        | 0.000         | 0.000         | 0.002       | 0.002        | 9                 |
| 3                     | 0.000        |               |               |             |              |                   | 2.301        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 47.37        | 0.000         | 0.000         | 0.002       | 0.002        | 9                 |
| 4                     | 0.000        |               |               |             |              |                   | 1.902        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 46.13        | 0.000         | 0.000         | 0.002       | 0.002        | 8                 |
| 5                     | 0.000        |               |               |             |              |                   | 1.534        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 38.79        | 0.000         | 0.000         | 0.002       | 0.002        | 6                 |
| 6                     | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 50.74        | 0.000         | 0.000         | 0.007       | 0.007        | 32                |
| 7                     | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 49.30        | 0.000         | 0.000         | 0.006       | 0.006        | 26                |
| 8                     | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 48.12        | 0.000         | 0.000         | 0.001       | 0.001        | 5                 |
| 9                     | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 52.98        | 0.000         | 0.000         | 0.001       | 0.001        | 6                 |
| 10                    | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 47.39        | 0.000         | 0.000         | 0.001       | 0.001        | 4                 |
| 11                    | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 23.29        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 |
| 12                    | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 22.12        | 0.000         | 0.000         | 0.002       | 0.002        | 3                 |
| 13                    | 0.000        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 21.21        | 0.000         | 0.000         | 0.002       | 0.002        | 3                 |
| 14                    | 27.56        |               |               |             |              |                   | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 46.17        | 0.000         | 0.000         | 0.001       | 0.001        | 4                 |
| 15                    | 2.914        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.10        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 |
| 16                    | 2.895        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.10        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 |
| 17                    | 3.699        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 46.19        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 |
| 18                    | 1.902        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 48.67        | 0.000         | 0.000         | 0.001       | 0.001        | 5                 |
| 19                    | 1.902        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 47.10        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 |
| 20                    | 3.715        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 | 157.6        | 0.000         | 0.000         | 0.005       | 0.005        | 67                | 49.15        | 0.000         | 0.000         | 0.001       | 0.001        | 6                 |
| 21                    | 2.727        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 3.906        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 | 47.98        | 0.000         | 0.000         | 0.001       | 0.001        | 5                 |
| 22                    | 1.534        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.990        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 46.99        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 |
| 23                    | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 2.916        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 34.18        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 |
| 24                    | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 2.734        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 11.25        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 25                    | 1.902        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 157.5        | 0.000         | 0.000         | 0.005       | 0.005        | 65                | 11.43        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 26                    | 1.534        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 267.3        | 0.000         | 0.000         | 0.008       | 0.008        | 188               | 10.92        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 27                    | 32.52        | 0.000         | 0.000         | 0.003       | 0.003        | 8                 | 314.3        | 0.000         | 0.000         | 0.003       | 0.003        | 87                | 10.26        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 28                    | 28.63        | 0.000         | 0.000         | 0.003       | 0.003        | 6                 | 470.6        | 0.000         | 0.000         | 0.004       | 0.004        | 167               | 10.11        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 29                    | 3.738        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 252.6        | 0.000         | 0.000         | 0.004       | 0.004        | 94                | 9.788        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 30                    | 3.377        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 162.8        | 0.000         | 0.000         | 0.005       | 0.005        | 68                | 4.163        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 31                    |              |               |               |             |              |                   | 146.9        | 0.000         | 0.000         | 0.004       | 0.004        | 46                | 3.521        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| <b>Ten Daily Mean</b> |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| <b>Ten Daily I</b>    | 0.000        |               |               |             |              |                   | 1.180        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 59.60        | 0.000         | 0.000         | 0.003       | 0.003        | 17                |
| <b>Ten Daily II</b>   | 4.459        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 15.76        | 0.000         | 0.000         | 0.000       | 0.000        | 7                 | 38.41        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 |
| <b>Ten Daily III</b>  | 7.596        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 | 162.2        | 0.000         | 0.000         | 0.003       | 0.003        | 65                | 18.24        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 |
| <b>Monthly Total</b>  |              |               |               |             |              | 19                |              |               |               |             |              | 782               |              |               |               |             |              | 214               |

# Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 3.198        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 5.870        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 2              | 2.825        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 2.301        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 3              | 21.49        | 0.000         | 0.000         | 0.002       | 0.002        | 4                 | 3.591        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 4              | 12.93        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 5              | 11.89        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 6              | 7.034        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 7              | 6.014        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 8              | 5.644        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 9              | 3.645        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 10             | 2.924        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 11             | 2.173        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 12             | 2.022        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 13             | 1.980        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 14             | 11.05        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 15             | 43.93        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 16             | 22.83        | 0.000         | 0.000         | 0.002       | 0.002        | 4                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 17             | 9.721        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 18             | 13.46        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 19             | 128.7        | 0.000         | 0.000         | 0.005       | 0.005        | 54                |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 20             | 51.63        | 0.000         | 0.000         | 0.002       | 0.002        | 9                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 21             | 40.22        | 0.000         | 0.000         | 0.002       | 0.002        | 6                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 22             | 27.87        | 0.000         | 0.000         | 0.002       | 0.002        | 4                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 23             | 22.35        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 24             | 20.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 25             | 11.18        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 26             | 20.20        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 27             | 9.019        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 28             | 10.17        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 29             | 9.661        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 30             | 6.351        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |              |               |               |             |              |                   |
| 31             |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 7.760        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1.960        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| Ten Daily II   | 28.75        | 0.000         | 0.000         | 0.001       | 0.001        | 7                 |              | 0.000         | 0.000         | 0.000       | 0.000        |                   |              |               |               |             |              |                   |
| Ten Daily III  | 17.77        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 |              | 0.000         | 0.000         | 0.000       | 0.000        |                   |              |               |               |             |              |                   |
| Monthly Total  |              |               |               |             |              | 87                |              |               |               |             |              | 0                 |              |               |               |             |              |                   |

# Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch

| Day                   | Dec          |               |               |             |              |                   | Jan          |               |               |             |              |                   | Feb          |               |               |             |              |                   |
|-----------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                       | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 2                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 3                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 4                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 5                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 6                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 7                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 8                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 9                     | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 10                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 11                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 12                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 13                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 14                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 15                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 16                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 17                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 18                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 19                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 20                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 21                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 22                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 23                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 24                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 25                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 26                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 27                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 28                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 29                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 30                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 31                    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   |
| <u>Ten Daily Mean</u> |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I           | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| Ten Daily II          | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| Ten Daily III         | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| <u>Monthly Total</u>  |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 2              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 3              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 4              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 5              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 6              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 7              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 8              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 9              | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 10             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 11             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 12             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 13             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 14             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 15             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 16             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 17             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 18             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 19             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 20             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 21             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 22             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 23             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 24             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 25             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 26             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 27             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 28             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 29             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 30             | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 31             | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| Ten Daily II   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| Ten Daily III  | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| Monthly Total  |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1989-2016

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1989-1990 | 1707848           | 0                     | 1707848               | 1097                    |
| 1990-1991 | 2902510           | 0                     | 2902510               | 2782                    |
| 1991-1992 | 1714771           | 0                     | 1714771               | 858                     |
| 1992-1993 | 908882            | 0                     | 908882                | 589                     |
| 1993-1994 | 827289            | 0                     | 827289                | 974                     |
| 1994-1995 | 1887533           | 0                     | 1887533               | 4035                    |
| 1995-1996 | 702121            | 0                     | 702121                | 579                     |
| 1996-1997 | 3226266           | 0                     | 3226266               | 2348                    |
| 1997-1998 | 1632617           | 0                     | 1632617               | 1999                    |
| 1998-1999 | 999417            | 0                     | 999417                | 1389                    |
| 1999-2000 | 2884450           | 0                     | 2884450               | 1070                    |
| 2000-2001 | 52131             | 0                     | 52131                 | 43                      |
| 2001-2002 | 1397910           | 0                     | 1397910               | 1009                    |
| 2002-2003 | 732254            | 0                     | 732254                | 447                     |
| 2003-2004 | 1734616           | 0                     | 1734616               | 1706                    |
| 2004-2005 | 3831760           | 0                     | 3831760               | 2297                    |
| 2005-2006 | 4509              | 0                     | 4509                  | 953                     |
| 2006-2007 | 2268661           | 0                     | 2268661               | 2812                    |
| 2007-2008 | 1191464           | 0                     | 1191464               | 2229                    |
| 2008-2009 | 913355            | 0                     | 913355                | 947                     |
| 2009-2010 | 84582             | 0                     | 84582                 | 323                     |
| 2010-2011 | 676260            | 0                     | 676260                | 808                     |
| 2011-2012 | 257612            | 26                    | 257638                | 1104                    |
| 2012-2013 | 10657             | 24                    | 10681                 | 1439                    |
| 2013-2014 | 308796            | 0                     | 308796                | 4306                    |
| 2014-2015 | 9316              | 0                     | 9316                  | 720                     |
| 2015-2016 | 1101              | 0                     | 1101                  | 329                     |

# Sediment Data Year Book 2015-16

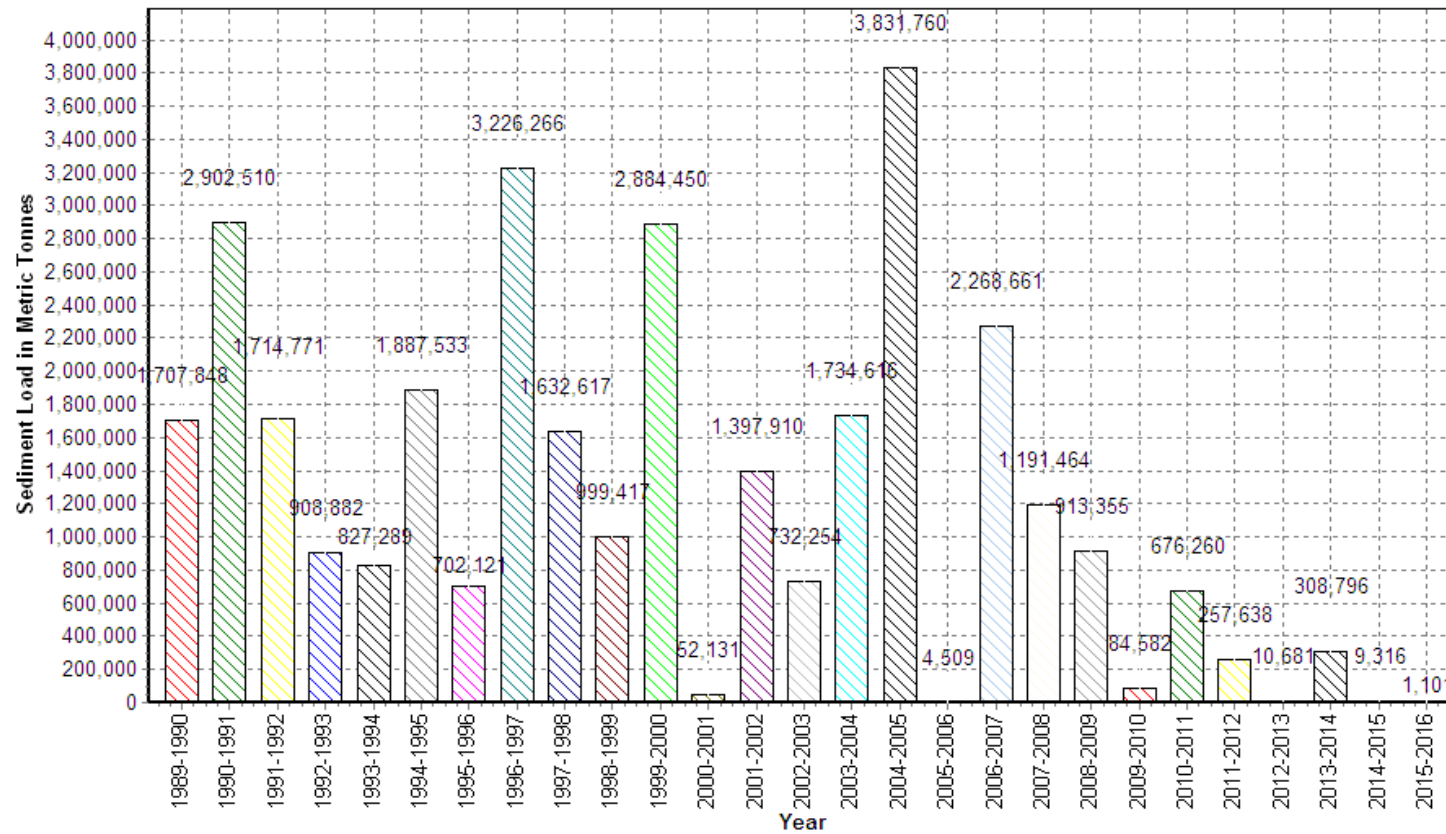
## Annual Sediment Load for the period: 1989-2016

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD, Bharuch



Sediment Data Year Book 2015-16

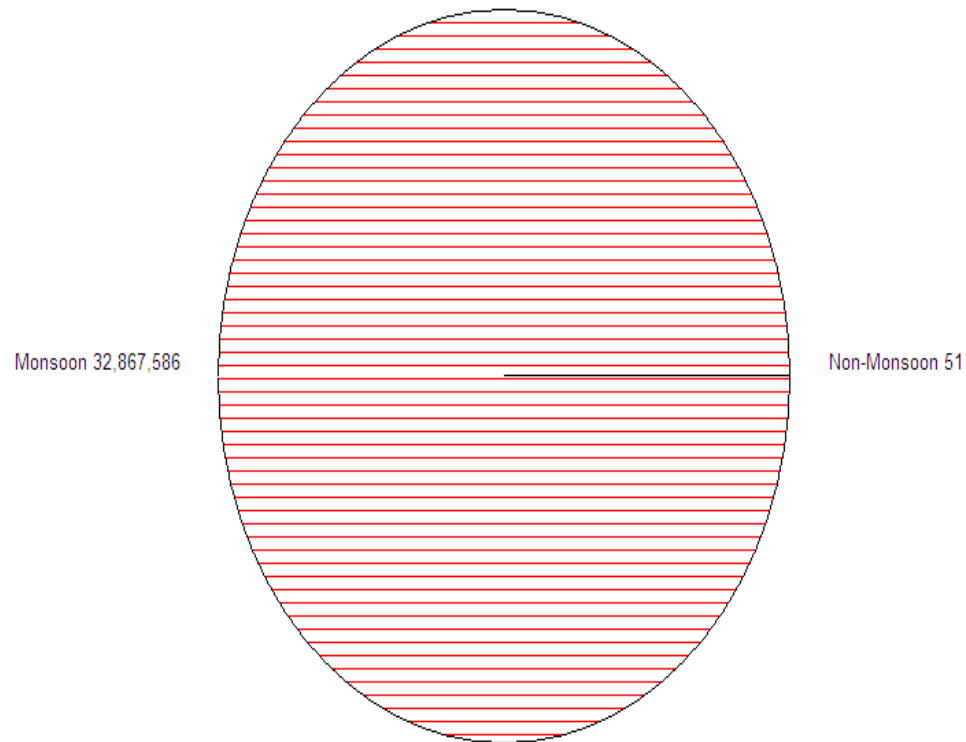
**Seasonal Sediment Load for the period : 1989-2016**

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch



Sediment Data Year Book 2015-16

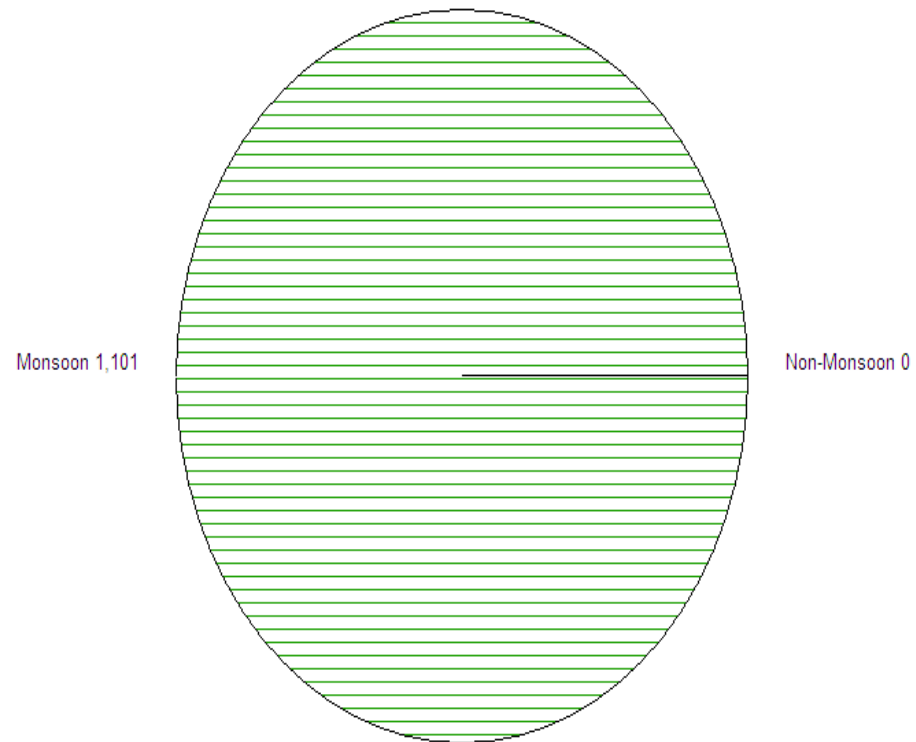
**Seasonal Sediment Load for the Year: 2015-2016**

Station Name : Orsang at Chandwada ( 01 02 15 032)

Division : Tapi Division, Surat

Local River : Orsang

Sub-Division : LNSD,Bharuch





**6.2 Narmada at Garudeshwar****History Sheet**

|                          |                                 |                   |                       |
|--------------------------|---------------------------------|-------------------|-----------------------|
|                          |                                 | <b>Water Year</b> | <b>: 2015-2016</b>    |
| <b>Site</b>              | <b>: Narmada at Garudeshwar</b> | <b>Code</b>       | <b>: 01 02 15 030</b> |
| State                    | : Gujarat                       | District          | Bharuch               |
| Basin                    | : Narmada                       | Independent River | : Narmada             |
| Tributary                | :                               | Sub Tributary     | :                     |
| Sub-Sub Tributary        | :                               | Local River       | : Narmada             |
| Division                 | : Tapi Division, Surat          | Sub-Division      | : LNSD,Bharuch        |
| Drainage Area            | : 87892 Sq. Km.                 | Bank              | : Right               |
| Latitude                 | : 21°53'00"                     | Longitude         | : 73°39'00"           |
| <b>Zero of Gauge (m)</b> | <b>: 10 .000(M.S.L.)</b>        | 22/12/1971        |                       |
|                          | Opening Date                    | Closing Date      |                       |
| Gauge                    | : 22/12/1971                    |                   |                       |
| Discharge                | : 23/03/1972                    |                   |                       |
| Sediment                 | : 21/03/1973                    |                   |                       |
| Water Quality            | : 15/06/1977                    |                   |                       |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD,Bharuch

| Day            | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 25.92        | 0.000         | 0.000         | 0.002       | 0.002        | 4                 | 18.72        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1523         | 0.000         | 0.000         | 0.032       | 0.032        | 4144              |
| 2              | 28.46        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.22        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 413.6        | 0.000         | 0.000         | 0.009       | 0.009        | 306               |
| 3              | 26.21        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 0.000        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 682.6        | 0.000         | 0.000         | 0.028       | 0.028        | 1651              |
| 4              | 18.37        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.20        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 486.2        | 0.000         | 0.000         | 0.018       | 0.018        | 743               |
| 5              | 18.71        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.10        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1453         | 0.000         | 0.000         | 0.018       | 0.018        | 2260              |
| 6              | 18.27        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 18.19        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 4678         | 0.000         | 0.000         | 0.009       | 0.009        | 3638              |
| 7              | 15.25        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 17.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 4805         | 0.000         | 0.000         | 0.011       | 0.011        | 4359              |
| 8              | 18.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.34        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 2920         | 0.000         | 0.000         | 0.011       | 0.011        | 2649              |
| 9              | 19.33        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.23        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1596         | 0.000         | 0.000         | 0.006       | 0.006        | 791               |
| 10             | 18.90        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.46        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1538         | 0.000         | 0.000         | 0.013       | 0.013        | 1661              |
| 11             | 19.83        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 18.01        | 0.000         | 0.000         | 0.002       | 0.002        | 3                 | 1520         | 0.000         | 0.000         | 0.013       | 0.013        | 1642              |
| 12             | 19.07        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.00        | 0.000         | 0.000         | 0.002       | 0.002        | 4                 | 557.3        | 0.000         | 0.000         | 0.012       | 0.012        | 554               |
| 13             | 20.68        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.57        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1514         | 0.000         | 0.000         | 0.012       | 0.012        | 1570              |
| 14             | 385.6        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.21        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1589         | 0.000         | 0.000         | 0.008       | 0.008        | 1030              |
| 15             | 30.40        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.17        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1515         | 0.000         | 0.000         | 0.007       | 0.007        | 936               |
| 16             | 29.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 19.04        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1719         | 0.000         | 0.000         | 0.008       | 0.008        | 1205              |
| 17             | 33.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 18.69        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1710         | 0.000         | 0.000         | 0.008       | 0.008        | 1152              |
| 18             | 32.29        | 0.000         | 0.000         | 0.004       | 0.004        | 12                | 18.65        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1646         | 0.000         | 0.000         | 0.008       | 0.008        | 1067              |
| 19             | 42.36        | 0.000         | 0.000         | 0.004       | 0.004        | 15                | 21.23        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1603         | 0.000         | 0.000         | 0.008       | 0.008        | 1039              |
| 20             | 37.82        | 0.000         | 0.000         | 0.003       | 0.003        | 9                 | 19.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1595         | 0.000         | 0.000         | 0.010       | 0.010        | 1378              |
| 21             | 67.96        | 0.000         | 0.000         | 0.005       | 0.005        | 28                | 20.46        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 1584         | 0.000         | 0.000         | 0.010       | 0.010        | 1368              |
| 22             | 41.97        | 0.000         | 0.000         | 0.002       | 0.002        | 8                 | 21.08        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1576         | 0.000         | 0.000         | 0.015       | 0.015        | 2043              |
| 23             | 38.31        | 0.000         | 0.000         | 0.002       | 0.002        | 8                 | 236.3        | 0.000         | 0.000         | 0.000       | 0.000        | 6                 | 1408         | 0.000         | 0.000         | 0.013       | 0.013        | 1630              |
| 24             | 42.21        | 0.000         | 0.000         | 0.005       | 0.005        | 18                | 29.75        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 1513         | 0.000         | 0.000         | 0.010       | 0.010        | 1307              |
| 25             | 41.96        | 0.000         | 0.000         | 0.005       | 0.005        | 18                | 278.0        | 0.000         | 0.000         | 0.000       | 0.000        | 2                 | 1454         | 0.000         | 0.000         | 0.003       | 0.003        | 377               |
| 26             | 38.39        | 0.000         | 0.000         | 0.018       | 0.018        | 61                | 172.8        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 1401         | 0.000         | 0.000         | 0.003       | 0.003        | 339               |
| 27             | 1333         | 0.000         | 0.000         | 0.004       | 0.004        | 403               | 504.6        | 0.000         | 0.000         | 0.021       | 0.021        | 916               | 1393         | 0.000         | 0.000         | 0.000       | 0.000        | 36                |
| 28             | 102.4        | 0.000         | 0.000         | 0.000       | 0.000        | 2                 | 1612         | 0.000         | 0.000         | 0.029       | 0.029        | 4038              | 1482         | 0.000         | 0.000         | 0.000       | 0.000        | 38                |
| 29             | 42.03        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1529         | 0.000         | 0.000         | 0.033       | 0.033        | 4360              | 1176         | 0.000         | 0.000         | 0.000       | 0.000        | 30                |
| 30             | 20.26        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 1570         | 0.000         | 0.000         | 0.030       | 0.030        | 4028              | 102.4        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 31             |              |               |               |             |              |                   | 1609         | 0.000         | 0.000         | 0.025       | 0.025        | 3475              | 32.00        | 0.000         | 0.000         | 0.002       | 0.002        | 6                 |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 20.82        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 17.04        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 2010         | 0.000         | 0.000         | 0.015       | 0.015        | 2220              |
| Ten Daily II   | 65.13        | 0.000         | 0.000         | 0.001       | 0.001        | 4                 | 19.22        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 | 1497         | 0.000         | 0.000         | 0.009       | 0.009        | 1157              |
| Ten Daily III  | 176.9        | 0.000         | 0.000         | 0.004       | 0.004        | 55                | 689.3        | 0.000         | 0.000         | 0.013       | 0.013        | 1530              | 1193         | 0.000         | 0.000         | 0.005       | 0.005        | 652               |
| Monthly Total  |              |               |               |             |              | 587               |              |               |               |             |              | 16837             |              |               |               |             |              | 40951             |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD,Bharuch

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 24.25        | 0.000         | 0.000         | 0.002       | 0.002        | 3                 | 200.1        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 2              | 24.34        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 | 84.44        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 3              | 24.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 20.21        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.37        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 4              | 22.59        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 | 24.63        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 5              | 23.66        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 33.43        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.54        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 6              | 23.66        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 33.32        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.57        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 7              | 228.1        | 0.000         | 0.000         | 0.000       | 0.000        | 6                 | 33.42        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.28        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 8              | 28.65        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 34.15        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 31.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 9              | 28.05        | 0.000         | 0.000         | 0.001       | 0.001        | 3                 | 34.25        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.21        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 10             | 225.5        | 0.000         | 0.000         | 0.000       | 0.000        | 4                 | 33.76        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.22        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 11             | 25.73        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 12             | 24.45        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 33.45        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.99        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 13             | 25.00        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 35.89        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 14             | 25.55        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 34.83        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.97        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 15             | 34.55        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 34.66        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 21.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 16             | 33.17        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 35.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.39        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 17             | 15.39        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 36.81        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.14        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 18             | 267.4        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 33.71        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.28        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 19             | 1516         | 0.000         | 0.000         | 0.000       | 0.000        | 13                | 35.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.13        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 20             | 1360         | 0.000         | 0.000         | 0.000       | 0.000        | 11                | 36.37        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.24        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 21             | 1454         | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 35.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.42        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 22             | 245.4        | 0.000         | 0.000         | 0.000       | 0.000        | 6                 | 33.71        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 23             | 46.62        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 36.85        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.47        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 24             | 34.23        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.31        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 25             | 22.96        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 26             | 33.97        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 35.41        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.38        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 27             | 21.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 36.81        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.72        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 28             | 32.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 221.4        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.82        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 29             | 34.73        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 47.03        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 30             | 35.16        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 35.33        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.75        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 31             |              |               |               |             |              |                   | 34.97        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 65.31        | 0.000         | 0.000         | 0.001       | 0.001        | 2                 | 53.17        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.86        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily II   | 332.7        | 0.000         | 0.000         | 0.000       | 0.000        | 3                 | 34.37        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.06        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily III  | 196.2        | 0.000         | 0.000         | 0.000       | 0.000        | 1                 | 52.25        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.61        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Monthly Total  |              |               |               |             |              | 57                |              |               |               |             |              | 0                 |              |               |               |             |              | 0                 |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD,Bharuch

| Day            | Dec          |               |               |             |              |                   | Jan          |               |               |             |              |                   | Feb          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 27.86        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 23.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 2              | 27.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 23.60        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 30.64        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 3              | 27.53        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.63        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.83        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 4              | 27.79        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.59        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 42.15        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 5              | 28.03        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.09        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 39.55        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 6              | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.17        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.66        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 7              | 27.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.20        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 8              | 27.73        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 9              | 27.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.38        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 36.05        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 10             | 27.68        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.68        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 11             | 27.53        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.07        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.51        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 12             | 27.20        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.85        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.04        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 13             | 19.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 45.44        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 14             | 23.59        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 28.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 96.27        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 15             | 23.09        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 23.32        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.70        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 16             | 23.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.61        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.10        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 17             | 23.90        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.33        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 18             | 23.46        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.66        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.41        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 19             | 22.56        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.50        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.65        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 20             | 16.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.13        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 21             | 22.73        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.83        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 43.99        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 22             | 23.58        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.28        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.98        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 23             | 27.42        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.05        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.79        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 24             | 26.26        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.01        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 25             | 24.63        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.46        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.90        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 26             | 23.59        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 22.96        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.97        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 27             | 28.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.46        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.56        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 28             | 23.58        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.21        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 39.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 29             | 27.43        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.17        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.54        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 30             | 27.07        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.14        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| 31             | 23.64        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 27.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.00        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 30.54        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily II   | 23.16        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.32        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 36.54        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily III  | 25.28        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.39        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 39.83        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Monthly Total  |              |               |               |             |              | 0                 |              |               |               |             |              | 0                 |              |               |               |             |              | 0                 |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD,Bharuch

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 42.58        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.10        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 2              | 41.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 3              | 42.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 33.71        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.59        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 4              | 41.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.90        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.83        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 5              | 41.65        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.47        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.58        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 6              | 37.68        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 39.44        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 7              | 40.36        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.20        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.41        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 8              | 40.87        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 38.88        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 33.71        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 9              | 40.45        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.10        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.89        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 10             | 41.09        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 48.43        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.16        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 11             | 40.01        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 38.34        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.84        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 12             | 40.28        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 38.94        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.03        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 13             | 37.68        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.77        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.49        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 14             | 26.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 39.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.85        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 15             | 40.69        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.02        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 16             | 26.53        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.50        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 17             | 26.53        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 41.84        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 18             | 26.95        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 37.94        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 19             | 26.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.54        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 20             | 46.19        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 37.68        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.34        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 21             | 26.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.09        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 29.93        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 22             | 26.51        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 185.7        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 31.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 23             | 39.24        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.91        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.23        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 24             | 35.67        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 31.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 25             | 21.35        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.01        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.29        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 26             | 26.78        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 24.97        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 42.55        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 27             | 39.74        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.84        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 40.30        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 28             | 26.59        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 25.62        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 47.19        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 29             | 40.77        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.56        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 31.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 30             | 41.10        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.38        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| 31             | 41.61        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |              |               |               |             |              |                   | 40.34        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 41.12        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 34.80        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 27.15        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily II   | 33.85        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 33.98        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 26.47        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Ten Daily III  | 33.29        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 42.43        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 | 34.65        | 0.000         | 0.000         | 0.000       | 0.000        | 0                 |
| Monthly Total  |              |               |               |             |              | 0                 |              |               |               |             |              | 0                 |              |               |               |             |              | 0                 |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030) Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD,Bharuch

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 23596920          | 0                     | 23596920              | 15058                   |
| 1988-1989 | 44968910          | 0                     | 44968910              | 33262                   |
| 1989-1990 | 29277169          | 0                     | 29277169              | 23454                   |
| 1990-1991 | 51824968          | 0                     | 51824968              | 51213                   |
| 1991-1992 | 30082897          | 0                     | 30082897              | 26138                   |
| 1992-1993 | 15587484          | 0                     | 15587484              | 20886                   |
| 1993-1994 | 17225635          | 0                     | 17225635              | 35989                   |
| 1994-1995 | 36751681          | 0                     | 36751681              | 74061                   |
| 1995-1996 | 2218095           | 0                     | 2218095               | 23290                   |
| 1996-1997 | 9122661           | 0                     | 9122661               | 27246                   |
| 1997-1998 | 7607284           | 0                     | 7607284               | 33802                   |
| 1998-1999 | 4610413           | 0                     | 4610413               | 23109                   |
| 1999-2000 | 15376745          | 0                     | 15376745              | 49029                   |
| 2000-2001 | 588472            | 0                     | 588472                | 11486                   |
| 2001-2002 | 3084144           | 0                     | 3084144               | 23284                   |
| 2002-2003 | 3720112           | 0                     | 3720112               | 21023                   |
| 2003-2004 | 4835297           | 0                     | 4835297               | 30308                   |
| 2004-2005 | 2602520           | 0                     | 2602520               | 17505                   |
| 2005-2006 | 2678060           | 85099                 | 2763159               | 25676                   |
| 2006-2007 | 6639002           | 60256                 | 6699258               | 32524                   |
| 2007-2008 | 3310012           | 43520                 | 3353532               | 18427                   |
| 2008-2009 | 75144             | 3083                  | 78227                 | 4492                    |
| 2009-2010 | 737914            | 7828                  | 745742                | 6744                    |
| 2010-2011 | 311630            | 205                   | 311835                | 8295                    |
| 2011-2012 | 84072             | 423                   | 84495                 | 21732                   |
| 2012-2013 | 28164             | 451                   | 28615                 | 21901                   |
| 2013-2014 | 2767532           | 0                     | 2767532               | 49130                   |
| 2014-2015 | 104139            | 0                     | 104139                | 8980                    |
| 2015-2016 | 58431             | 0                     | 58431                 | 6284                    |

# Sediment Data Year Book 2015-16

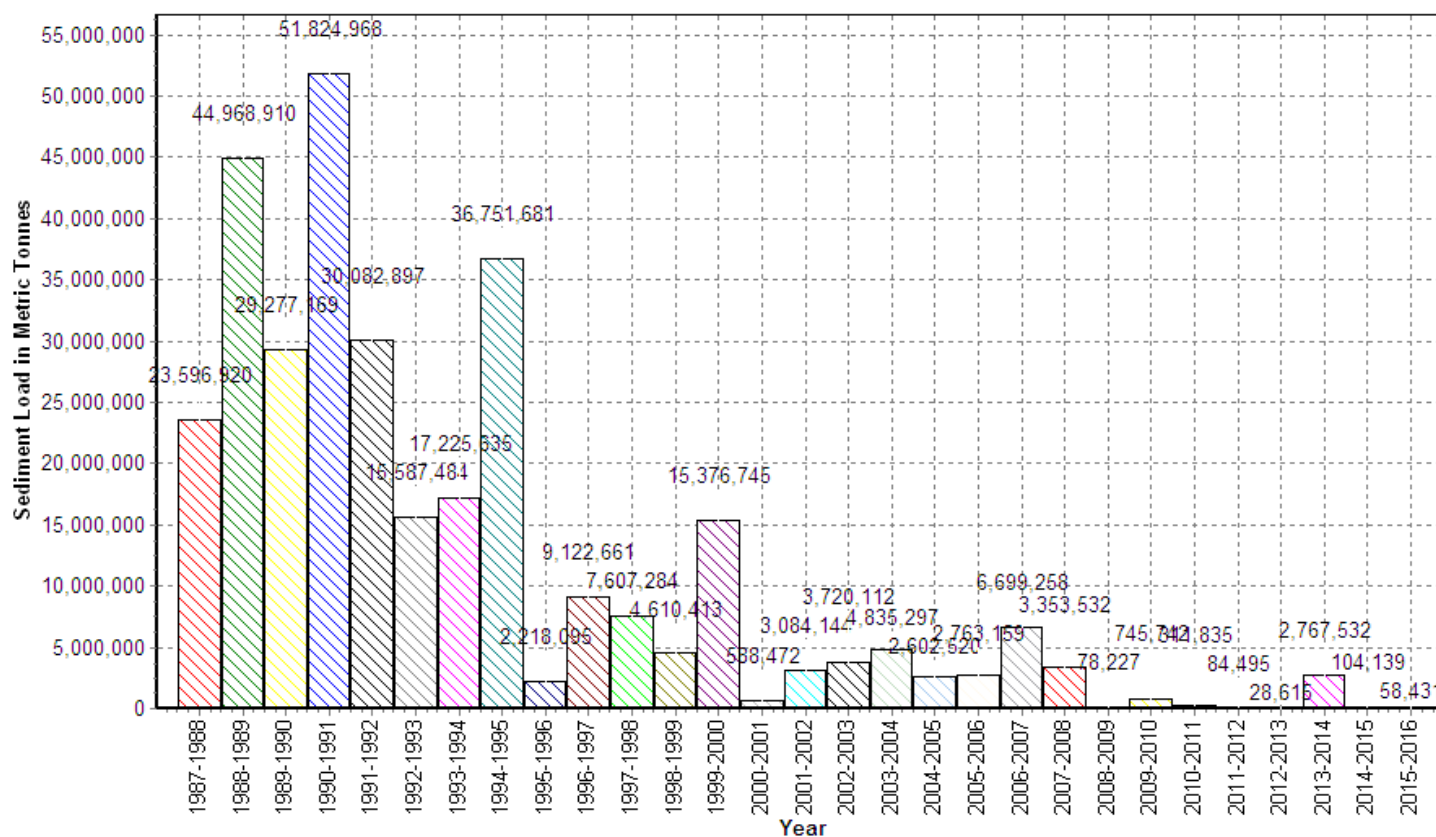
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD,Bharuch



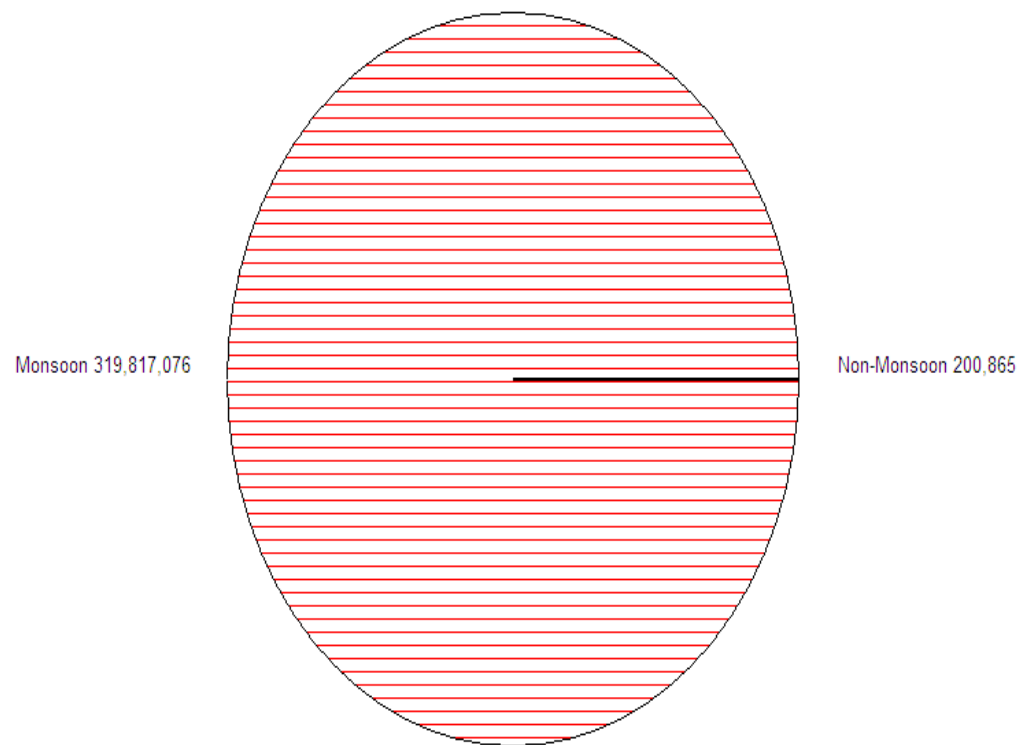
**Seasonal Sediment Load for the period : 1987-2016**

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Division : Tapi Division, Surat

Local River : Narmada

Sub-Division : LNSD, Bharuch



# Sediment Data Year Book 2015-16

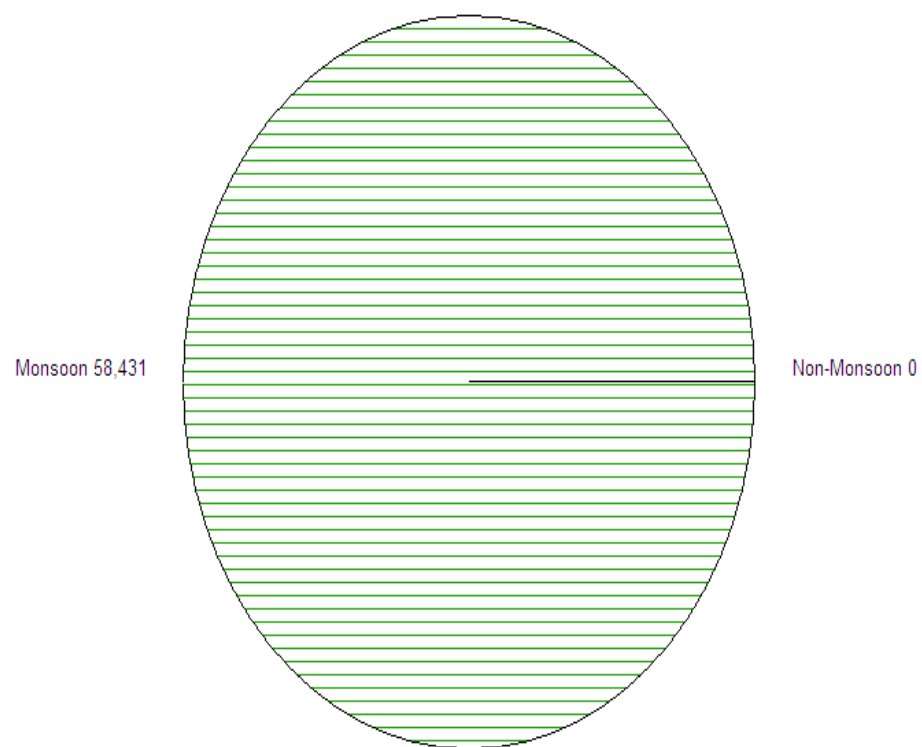
## Seasonal Sediment Load for the period : 2015-2016

Station Name : Narmada at Garudeshwar ( 01 02 15 030)

Local River : Narmada

Division : Tapi Division, Surat

Sub-Division : LNSD, Bharuch





**6.3 Narmada at Mandleshwar****History Sheet**

|                          |          |                               |                   |                  |                  |
|--------------------------|----------|-------------------------------|-------------------|------------------|------------------|
|                          |          | <b>Water Year</b>             | <b>:</b>          | <b>2015-2016</b> |                  |
| <b>Site</b>              | <b>:</b> | <b>Narmada at Mandleshwar</b> | <b>Code</b>       | <b>:</b>         | <b>010215026</b> |
| State                    | :        | Madhya Pradesh                | District          | :                | Khargone         |
| Basin                    | :        | Narmada                       | Independent River | :                | Narmada          |
| Tributary                | :        |                               | Local River       | :                | Narmada          |
| Division                 | :        | Narmada Division, Bhopal      | Sub-Division      | :                | MNSD-III, Indore |
| Drainage Area            | :        | 72809 Sq. Km.                 | Bank              | :                | Right            |
| Latitude                 | :        | 22°10'18"                     | Longitude         | :                | 75°39'39"        |
| <b>Zero of Gauge (m)</b> | :        | 138 .000(M.S.L.)              | 16/12/1970        |                  |                  |
|                          |          | Opening Date                  | Closing Date      |                  |                  |
| Gauge                    | :        | 16/12/1970                    |                   |                  |                  |
| Discharge                | :        | 28/08/1971                    |                   |                  |                  |
| Sediment                 | :        | 14/04/1972                    |                   |                  |                  |
| Water Quality            | :        | 18/06/1979                    |                   |                  |                  |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Mandleshwar ( 010215026)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD- III, Indore

| Day            | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 215.8        | 0.000         | 0.000         | 0.012       | 0.012        | 214               | 685.6        | 0.000         | 0.000         | 0.021       | 0.021        | 1262              | 823.9        | 0.000         | 0.000         | 0.034       | 0.034        | 2399              |
| 2              | 210.6        | 0.000         | 0.000         | 0.012       | 0.012        | 213               | 493.1        | 0.000         | 0.000         | 0.018       | 0.018        | 767               | 620.2        | 0.000         | 0.000         | 0.025       | 0.025        | 1359              |
| 3              | 204.9        | 0.000         | 0.000         | 0.010       | 0.010        | 177               | 434.0        | 0.000         | 0.000         | 0.020       | 0.020        | 757               | 1107         | 0.000         | 0.000         | 0.048       | 0.048        | 4542              |
| 4              | 261.1        | 0.000         | 0.000         | 0.009       | 0.009        | 210               | 746.0        | 0.000         | 0.000         | 0.024       | 0.024        | 1547              | 835.9        | 0.000         | 0.000         | 0.030       | 0.030        | 2167              |
| 5              | 365.3        | 0.000         | 0.000         | 0.013       | 0.013        | 410               | 493.8        | 0.000         | 0.000         | 0.016       | 0.016        | 678               | 16922        | 0.000         | 0.000         | 0.607       | 0.607        | 887928            |
| 6              | 227.8        | 0.000         | 0.000         | 0.010       | 0.010        | 197               | 616.2        | 0.000         | 0.000         | 0.019       | 0.019        | 1001              | 7122         | 0.000         | 0.000         | 0.256       | 0.256        | 157292            |
| 7              | 259.5        | 0.000         | 0.000         | 0.011       | 0.011        | 255               | 302.3        | 0.000         | 0.000         | 0.015       | 0.015        | 392               | 1300         | 0.000         | 0.000         | 0.060       | 0.060        | 6739              |
| 8              | 214.6        | 0.000         | 0.000         | 0.012       | 0.012        | 222               | 814.5        | 0.000         | 0.000         | 0.021       | 0.021        | 1443              | 709.2        | 0.000         | 0.000         | 0.028       | 0.028        | 1716              |
| 9              | 511.7        | 0.000         | 0.000         | 0.024       | 0.024        | 1052              | 397.2        | 0.000         | 0.000         | 0.010       | 0.010        | 343               | 1137         | 0.000         | 0.000         | 0.045       | 0.045        | 4410              |
| 10             | 215.5        | 0.000         | 0.000         | 0.010       | 0.010        | 186               | 215.8        | 0.000         | 0.000         | 0.018       | 0.018        | 336               | 1212         | 0.000         | 0.000         | 0.044       | 0.044        | 4555              |
| 11             | 240.0        | 0.000         | 0.000         | 0.018       | 0.018        | 379               | 193.0        | 0.000         | 0.000         | 0.023       | 0.023        | 375               | 1306         | 0.000         | 0.000         | 0.048       | 0.048        | 5361              |
| 12             | 325.9        | 0.000         | 0.000         | 0.025       | 0.025        | 698               | 169.2        | 0.000         | 0.000         | 0.020       | 0.020        | 288               | 2103         | 0.000         | 0.000         | 0.051       | 0.051        | 9211              |
| 13             | 235.7        | 0.000         | 0.000         | 0.019       | 0.019        | 387               | 510.5        | 0.000         | 0.000         | 0.025       | 0.025        | 1103              | 2300         | 0.000         | 0.000         | 0.100       | 0.100        | 19810             |
| 14             | 347.6        | 0.000         | 0.000         | 0.028       | 0.028        | 842               | 1155         | 0.000         | 0.000         | 0.026       | 0.026        | 2625              | 2259         | 0.000         | 0.000         | 0.093       | 0.093        | 18056             |
| 15             | 439.3        | 0.000         | 0.000         | 0.016       | 0.016        | 588               | 1209         | 0.000         | 0.000         | 0.027       | 0.027        | 2820              | 3019         | 0.000         | 0.000         | 0.124       | 0.124        | 32242             |
| 16             | 380.9        | 0.000         | 0.000         | 0.012       | 0.012        | 388               | 1277         | 0.000         | 0.000         | 0.025       | 0.025        | 2759              | 2840         | 0.000         | 0.000         | 0.116       | 0.116        | 28539             |
| 17             | 335.2        | 0.000         | 0.000         | 0.012       | 0.012        | 333               | 1250         | 0.000         | 0.000         | 0.022       | 0.022        | 2375              | 2311         | 0.000         | 0.000         | 0.067       | 0.067        | 13378             |
| 18             | 389.8        | 0.000         | 0.000         | 0.020       | 0.020        | 657               | 772.1        | 0.000         | 0.000         | 0.014       | 0.014        | 907               | 2230         | 0.000         | 0.000         | 0.037       | 0.037        | 7188              |
| 19             | 286.7        | 0.000         | 0.000         | 0.014       | 0.014        | 334               | 200.4        | 0.000         | 0.000         | 0.004       | 0.004        | 61                | 2235         | 0.000         | 0.000         | 0.050       | 0.050        | 9657              |
| 20             | 690.6        | 0.000         | 0.000         | 0.034       | 0.034        | 2011              | 1042         | 0.000         | 0.000         | 0.033       | 0.033        | 2970              | 2224         | 0.000         | 0.000         | 0.044       | 0.044        | 8454              |
| 21             | 294.7        | 0.000         | 0.000         | 0.014       | 0.014        | 366               | 1126         | 0.000         | 0.000         | 0.032       | 0.032        | 3083              | 2215         | 0.000         | 0.000         | 0.033       | 0.033        | 6374              |
| 22             | 369.3        | 0.000         | 0.000         | 0.013       | 0.013        | 421               | 1206         | 0.000         | 0.000         | 0.031       | 0.031        | 3262              | 2224         | 0.000         | 0.000         | 0.038       | 0.038        | 7244              |
| 23             | 1255         | 0.000         | 0.000         | 0.061       | 0.061        | 6615              | 1360         | 0.000         | 0.000         | 0.035       | 0.035        | 4147              | 2191         | 0.000         | 0.000         | 0.037       | 0.037        | 7030              |
| 24             | 375.6        | 0.000         | 0.000         | 0.040       | 0.040        | 1298              | 772.0        | 0.000         | 0.000         | 0.069       | 0.069        | 4616              | 1559         | 0.000         | 0.000         | 0.033       | 0.033        | 4379              |
| 25             | 204.0        | 0.000         | 0.000         | 0.035       | 0.035        | 612               | 930.1        | 0.000         | 0.000         | 0.057       | 0.057        | 4597              | 1691         | 0.000         | 0.000         | 0.037       | 0.037        | 5361              |
| 26             | 689.8        | 0.000         | 0.000         | 0.065       | 0.065        | 3874              | 475.3        | 0.000         | 0.000         | 0.029       | 0.029        | 1200              | 1285         | 0.000         | 0.000         | 0.031       | 0.031        | 3476              |
| 27             | 270.8        | 0.000         | 0.000         | 0.034       | 0.034        | 800               | 996.9        | 0.000         | 0.000         | 0.066       | 0.066        | 5685              | 1287         | 0.000         | 0.000         | 0.030       | 0.030        | 3359              |
| 28             | 585.3        | 0.000         | 0.000         | 0.074       | 0.074        | 3738              | 1025         | 0.000         | 0.000         | 0.050       | 0.050        | 4411              | 690.5        | 0.000         | 0.000         | 0.028       | 0.028        | 1670              |
| 29             | 515.0        | 0.000         | 0.000         | 0.021       | 0.021        | 934               | 759.2        | 0.000         | 0.000         | 0.039       | 0.039        | 2525              | 1126         | 0.000         | 0.000         | 0.032       | 0.032        | 3093              |
| 30             | 355.2        | 0.000         | 0.000         | 0.020       | 0.020        | 605               | 534.3        | 0.000         | 0.000         | 0.040       | 0.040        | 1847              | 962.5        | 0.000         | 0.000         | 0.027       | 0.027        | 2261              |
| 31             |              |               |               |             |              |                   | 909.9        | 0.000         | 0.000         | 0.043       | 0.043        | 3380              | 1220         | 0.000         | 0.000         | 0.033       | 0.033        | 3426              |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 268.7        | 0.000         | 0.000         | 0.012       | 0.012        | 314               | 519.9        | 0.000         | 0.000         | 0.018       | 0.018        | 852               | 3179         | 0.000         | 0.000         | 0.118       | 0.118        | 107311            |
| Ten Daily II   | 367.2        | 0.000         | 0.000         | 0.020       | 0.020        | 662               | 777.8        | 0.000         | 0.000         | 0.022       | 0.022        | 1628              | 2283         | 0.000         | 0.000         | 0.073       | 0.073        | 15190             |
| Ten Daily III  | 491.5        | 0.000         | 0.000         | 0.038       | 0.038        | 1926              | 917.7        | 0.000         | 0.000         | 0.045       | 0.045        | 3523              | 1496         | 0.000         | 0.000         | 0.033       | 0.033        | 4334              |
| Monthly Total  |              |               |               |             |              | 29018             |              |               |               |             |              | 63560             |              |               |               |             |              | 1272677           |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Mandleshwar ( 010215026)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 920.2        | 0.000         | 0.000         | 0.033       | 0.033        | 2584              | 209.7        | 0.000         | 0.000         | 0.025       | 0.025        | 453               | 656.4        | 0.000         | 0.000         | 0.018       | 0.018        | 996               |
| 2              | 730.4        | 0.000         | 0.000         | 0.024       | 0.024        | 1502              | 141.1        | 0.000         | 0.000         | 0.017       | 0.017        | 205               | 405.3        | 0.000         | 0.000         | 0.023       | 0.023        | 805               |
| 3              | 920.9        | 0.000         | 0.000         | 0.025       | 0.025        | 1965              | 455.7        | 0.000         | 0.000         | 0.026       | 0.026        | 1024              | 665.4        | 0.000         | 0.000         | 0.025       | 0.025        | 1420              |
| 4              | 1135         | 0.000         | 0.000         | 0.027       | 0.027        | 2648              | 285.7        | 0.000         | 0.000         | 0.016       | 0.016        | 402               | 772.1        | 0.000         | 0.000         | 0.029       | 0.029        | 1912              |
| 5              | 1240         | 0.000         | 0.000         | 0.028       | 0.028        | 3000              | 699.4        | 0.000         | 0.000         | 0.029       | 0.029        | 1722              | 878.7        | 0.000         | 0.000         | 0.033       | 0.033        | 2476              |
| 6              | 1821         | 0.000         | 0.000         | 0.041       | 0.041        | 6469              | 630.5        | 0.000         | 0.000         | 0.021       | 0.021        | 1144              | 237.4        | 0.000         | 0.000         | 0.016       | 0.016        | 318               |
| 7              | 1079         | 0.000         | 0.000         | 0.026       | 0.026        | 2424              | 580.8        | 0.000         | 0.000         | 0.026       | 0.026        | 1305              | 212.1        | 0.000         | 0.000         | 0.021       | 0.021        | 388               |
| 8              | 860.7        | 0.000         | 0.000         | 0.025       | 0.025        | 1822              | 701.5        | 0.000         | 0.000         | 0.027       | 0.027        | 1637              | 276.8        | 0.000         | 0.000         | 0.028       | 0.028        | 662               |
| 9              | 419.2        | 0.000         | 0.000         | 0.023       | 0.023        | 815               | 345.7        | 0.000         | 0.000         | 0.020       | 0.020        | 582               | 273.4        | 0.000         | 0.000         | 0.018       | 0.018        | 430               |
| 10             | 790.8        | 0.000         | 0.000         | 0.023       | 0.023        | 1571              | 220.2        | 0.000         | 0.000         | 0.018       | 0.018        | 333               | 382.7        | 0.000         | 0.000         | 0.022       | 0.022        | 727               |
| 11             | 242.4        | 0.000         | 0.000         | 0.025       | 0.025        | 524               | 200.4        | 0.000         | 0.000         | 0.016       | 0.016        | 276               | 304.0        | 0.000         | 0.000         | 0.017       | 0.017        | 459               |
| 12             | 635.3        | 0.000         | 0.000         | 0.027       | 0.027        | 1455              | 490.3        | 0.000         | 0.000         | 0.022       | 0.022        | 932               | 216.8        | 0.000         | 0.000         | 0.019       | 0.019        | 352               |
| 13             | 606.1        | 0.000         | 0.000         | 0.025       | 0.025        | 1324              | 550.1        | 0.000         | 0.000         | 0.022       | 0.022        | 1055              | 242.1        | 0.000         | 0.000         | 0.022       | 0.022        | 456               |
| 14             | 285.2        | 0.000         | 0.000         | 0.026       | 0.026        | 628               | 1197         | 0.000         | 0.000         | 0.019       | 0.019        | 1913              | 251.8        | 0.000         | 0.000         | 0.018       | 0.018        | 381               |
| 15             | 280.8        | 0.000         | 0.000         | 0.027       | 0.027        | 655               | 1263         | 0.000         | 0.000         | 0.023       | 0.023        | 2478              | 313.4        | 0.000         | 0.000         | 0.022       | 0.022        | 590               |
| 16             | 656.7        | 0.000         | 0.000         | 0.028       | 0.028        | 1560              | 1192         | 0.000         | 0.000         | 0.023       | 0.023        | 2317              | 328.7        | 0.000         | 0.000         | 0.016       | 0.016        | 460               |
| 17             | 551.5        | 0.000         | 0.000         | 0.023       | 0.023        | 1101              | 434.2        | 0.000         | 0.000         | 0.019       | 0.019        | 724               | 420.7        | 0.000         | 0.000         | 0.021       | 0.021        | 763               |
| 18             | 1551         | 0.000         | 0.000         | 0.034       | 0.034        | 4583              | 1137         | 0.000         | 0.000         | 0.051       | 0.051        | 4965              | 318.9        | 0.000         | 0.000         | 0.020       | 0.020        | 557               |
| 19             | 865.4        | 0.000         | 0.000         | 0.036       | 0.036        | 2654              | 764.2        | 0.000         | 0.000         | 0.018       | 0.018        | 1175              | 588.4        | 0.000         | 0.000         | 0.020       | 0.020        | 1032              |
| 20             | 656.4        | 0.000         | 0.000         | 0.027       | 0.027        | 1527              | 665.5        | 0.000         | 0.000         | 0.020       | 0.020        | 1150              | 426.5        | 0.000         | 0.000         | 0.022       | 0.022        | 792               |
| 21             | 245.6        | 0.000         | 0.000         | 0.035       | 0.035        | 743               | 585.3        | 0.000         | 0.000         | 0.019       | 0.019        | 936               | 674.0        | 0.000         | 0.000         | 0.024       | 0.024        | 1398              |
| 22             | 210.2        | 0.000         | 0.000         | 0.034       | 0.034        | 617               | 394.8        | 0.000         | 0.000         | 0.012       | 0.012        | 426               | 519.0        | 0.000         | 0.000         | 0.018       | 0.018        | 829               |
| 23             | 470.8        | 0.000         | 0.000         | 0.036       | 0.036        | 1452              | 494.3        | 0.000         | 0.000         | 0.018       | 0.018        | 769               | 882.5        | 0.000         | 0.000         | 0.025       | 0.025        | 1891              |
| 24             | 738.9        | 0.000         | 0.000         | 0.037       | 0.037        | 2330              | 457.3        | 0.000         | 0.000         | 0.017       | 0.017        | 658               | 516.5        | 0.000         | 0.000         | 0.022       | 0.022        | 973               |
| 25             | 519.0        | 0.000         | 0.000         | 0.026       | 0.026        | 1150              | 693.7        | 0.000         | 0.000         | 0.025       | 0.025        | 1514              | 830.0        | 0.000         | 0.000         | 0.035       | 0.035        | 2512              |
| 26             | 335.4        | 0.000         | 0.000         | 0.034       | 0.034        | 985               | 460.6        | 0.000         | 0.000         | 0.016       | 0.016        | 649               | 879.9        | 0.000         | 0.000         | 0.021       | 0.021        | 1558              |
| 27             | 347.6        | 0.000         | 0.000         | 0.035       | 0.035        | 1058              | 280.9        | 0.000         | 0.000         | 0.014       | 0.014        | 347               | 649.0        | 0.000         | 0.000         | 0.015       | 0.015        | 848               |
| 28             | 669.3        | 0.000         | 0.000         | 0.028       | 0.028        | 1619              | 225.4        | 0.000         | 0.000         | 0.011       | 0.011        | 223               | 224.3        | 0.000         | 0.000         | 0.020       | 0.020        | 391               |
| 29             | 527.9        | 0.000         | 0.000         | 0.029       | 0.029        | 1332              | 199.3        | 0.000         | 0.000         | 0.014       | 0.014        | 241               | 605.5        | 0.000         | 0.000         | 0.055       | 0.055        | 2853              |
| 30             | 476.6        | 0.000         | 0.000         | 0.028       | 0.028        | 1132              | 300.6        | 0.000         | 0.000         | 0.017       | 0.017        | 449               | 241.6        | 0.000         | 0.000         | 0.020       | 0.020        | 407               |
| 31             |              |               |               |             |              |                   | 777.4        | 0.000         | 0.000         | 0.021       | 0.021        | 1397              |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 991.7        | 0.000         | 0.000         | 0.027       | 0.027        | 2480              | 427.0        | 0.000         | 0.000         | 0.022       | 0.022        | 881               | 476.0        | 0.000         | 0.000         | 0.023       | 0.023        | 1013              |
| Ten Daily II   | 633.1        | 0.000         | 0.000         | 0.028       | 0.028        | 1601              | 789.4        | 0.000         | 0.000         | 0.023       | 0.023        | 1699              | 341.1        | 0.000         | 0.000         | 0.020       | 0.020        | 584               |
| Ten Daily III  | 454.1        | 0.000         | 0.000         | 0.032       | 0.032        | 1242              | 442.7        | 0.000         | 0.000         | 0.017       | 0.017        | 692               | 602.2        | 0.000         | 0.000         | 0.025       | 0.025        | 1366              |
| Monthly Total  |              |               |               |             |              | 53230             |              |               |               |             |              | 33401             |              |               |               |             |              | 29636             |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Mandleshwar ( 010215026)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore

| Day            | Dec          |               |               |             |              |                   | Jan          |               |               |             |              |                   | Feb          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 281.1        | 0.000         | 0.000         | 0.023       | 0.023        | 551               | 530.1        | 0.000         | 0.000         | 0.027       | 0.027        | 1217              | 290.5        | 0.000         | 0.000         | 0.018       | 0.018        | 439               |
| 2              | 499.1        | 0.000         | 0.000         | 0.040       | 0.040        | 1737              | 550.8        | 0.000         | 0.000         | 0.028       | 0.028        | 1314              | 423.3        | 0.000         | 0.000         | 0.026       | 0.026        | 933               |
| 3              | 454.4        | 0.000         | 0.000         | 0.037       | 0.037        | 1440              | 493.8        | 0.000         | 0.000         | 0.025       | 0.025        | 1056              | 381.0        | 0.000         | 0.000         | 0.023       | 0.023        | 756               |
| 4              | 530.4        | 0.000         | 0.000         | 0.043       | 0.043        | 1962              | 380.4        | 0.000         | 0.000         | 0.020       | 0.020        | 648               | 345.1        | 0.000         | 0.000         | 0.021       | 0.021        | 620               |
| 5              | 530.0        | 0.000         | 0.000         | 0.019       | 0.019        | 847               | 340.7        | 0.000         | 0.000         | 0.018       | 0.018        | 519               | 331.9        | 0.000         | 0.000         | 0.020       | 0.020        | 573               |
| 6              | 634.5        | 0.000         | 0.000         | 0.022       | 0.022        | 1214              | 525.3        | 0.000         | 0.000         | 0.027       | 0.027        | 1235              | 403.4        | 0.000         | 0.000         | 0.024       | 0.024        | 847               |
| 7              | 637.1        | 0.000         | 0.000         | 0.018       | 0.018        | 980               | 400.2        | 0.000         | 0.000         | 0.021       | 0.021        | 717               | 416.9        | 0.000         | 0.000         | 0.025       | 0.025        | 905               |
| 8              | 515.3        | 0.000         | 0.000         | 0.014       | 0.014        | 641               | 359.6        | 0.000         | 0.000         | 0.019       | 0.019        | 579               | 339.5        | 0.000         | 0.000         | 0.015       | 0.015        | 440               |
| 9              | 685.8        | 0.000         | 0.000         | 0.019       | 0.019        | 1135              | 316.6        | 0.000         | 0.000         | 0.016       | 0.016        | 448               | 355.0        | 0.000         | 0.000         | 0.016       | 0.016        | 481               |
| 10             | 640.4        | 0.000         | 0.000         | 0.018       | 0.018        | 990               | 362.9        | 0.000         | 0.000         | 0.019       | 0.019        | 589               | 353.4        | 0.000         | 0.000         | 0.016       | 0.016        | 477               |
| 11             | 595.5        | 0.000         | 0.000         | 0.017       | 0.017        | 856               | 341.2        | 0.000         | 0.000         | 0.014       | 0.014        | 407               | 345.8        | 0.000         | 0.000         | 0.015       | 0.015        | 456               |
| 12             | 544.8        | 0.000         | 0.000         | 0.015       | 0.015        | 716               | 243.9        | 0.000         | 0.000         | 0.010       | 0.010        | 208               | 356.1        | 0.000         | 0.000         | 0.016       | 0.016        | 484               |
| 13             | 525.4        | 0.000         | 0.000         | 0.015       | 0.015        | 666               | 253.4        | 0.000         | 0.000         | 0.010       | 0.010        | 224               | 971.6        | 0.000         | 0.000         | 0.043       | 0.043        | 3604              |
| 14             | 353.0        | 0.000         | 0.000         | 0.017       | 0.017        | 518               | 319.1        | 0.000         | 0.000         | 0.013       | 0.013        | 356               | 890.4        | 0.000         | 0.000         | 0.039       | 0.039        | 3026              |
| 15             | 339.0        | 0.000         | 0.000         | 0.016       | 0.016        | 478               | 340.7        | 0.000         | 0.000         | 0.014       | 0.014        | 406               | 954.5        | 0.000         | 0.000         | 0.018       | 0.018        | 1443              |
| 16             | 383.8        | 0.000         | 0.000         | 0.018       | 0.018        | 613               | 334.9        | 0.000         | 0.000         | 0.014       | 0.014        | 392               | 519.1        | 0.000         | 0.000         | 0.010       | 0.010        | 427               |
| 17             | 454.0        | 0.000         | 0.000         | 0.022       | 0.022        | 858               | 215.3        | 0.000         | 0.000         | 0.009       | 0.009        | 162               | 252.7        | 0.000         | 0.000         | 0.005       | 0.005        | 101               |
| 18             | 468.3        | 0.000         | 0.000         | 0.023       | 0.023        | 912               | 288.0        | 0.000         | 0.000         | 0.014       | 0.014        | 356               | 417.3        | 0.000         | 0.000         | 0.008       | 0.008        | 276               |
| 19             | 475.9        | 0.000         | 0.000         | 0.023       | 0.023        | 942               | 215.5        | 0.000         | 0.000         | 0.011       | 0.011        | 199               | 562.5        | 0.000         | 0.000         | 0.010       | 0.010        | 501               |
| 20             | 384.0        | 0.000         | 0.000         | 0.018       | 0.018        | 614               | 280.2        | 0.000         | 0.000         | 0.014       | 0.014        | 337               | 554.5        | 0.000         | 0.000         | 0.010       | 0.010        | 487               |
| 21             | 421.6        | 0.000         | 0.000         | 0.020       | 0.020        | 718               | 613.9        | 0.000         | 0.000         | 0.030       | 0.030        | 1617              | 439.7        | 0.000         | 0.000         | 0.008       | 0.008        | 306               |
| 22             | 418.3        | 0.000         | 0.000         | 0.020       | 0.020        | 706               | 342.8        | 0.000         | 0.000         | 0.017       | 0.017        | 504               | 466.7        | 0.000         | 0.000         | 0.016       | 0.016        | 645               |
| 23             | 434.7        | 0.000         | 0.000         | 0.020       | 0.020        | 763               | 525.3        | 0.000         | 0.000         | 0.026       | 0.026        | 1184              | 673.6        | 0.000         | 0.000         | 0.023       | 0.023        | 1344              |
| 24             | 400.2        | 0.000         | 0.000         | 0.019       | 0.019        | 647               | 641.8        | 0.000         | 0.000         | 0.032       | 0.032        | 1767              | 530.7        | 0.000         | 0.000         | 0.018       | 0.018        | 834               |
| 25             | 439.7        | 0.000         | 0.000         | 0.021       | 0.021        | 781               | 721.4        | 0.000         | 0.000         | 0.012       | 0.012        | 748               | 394.3        | 0.000         | 0.000         | 0.014       | 0.014        | 461               |
| 26             | 470.4        | 0.000         | 0.000         | 0.022       | 0.022        | 893               | 899.2        | 0.000         | 0.000         | 0.015       | 0.015        | 1162              | 253.9        | 0.000         | 0.000         | 0.009       | 0.009        | 191               |
| 27             | 422.5        | 0.000         | 0.000         | 0.020       | 0.020        | 721               | 672.4        | 0.000         | 0.000         | 0.011       | 0.011        | 650               | 221.5        | 0.000         | 0.000         | 0.008       | 0.008        | 145               |
| 28             | 353.0        | 0.000         | 0.000         | 0.018       | 0.018        | 540               | 620.4        | 0.000         | 0.000         | 0.010       | 0.010        | 553               | 272.4        | 0.000         | 0.000         | 0.009       | 0.009        | 220               |
| 29             | 395.9        | 0.000         | 0.000         | 0.020       | 0.020        | 679               | 449.7        | 0.000         | 0.000         | 0.007       | 0.007        | 291               | 444.1        | 0.000         | 0.000         | 0.017       | 0.017        | 652               |
| 30             | 555.7        | 0.000         | 0.000         | 0.028       | 0.028        | 1338              | 515.2        | 0.000         | 0.000         | 0.009       | 0.009        | 381               |              |               |               |             |              |                   |
| 31             | 653.9        | 0.000         | 0.000         | 0.033       | 0.033        | 1853              | 411.3        | 0.000         | 0.000         | 0.007       | 0.007        | 243               |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 540.8        | 0.000         | 0.000         | 0.025       | 0.025        | 1150              | 426.0        | 0.000         | 0.000         | 0.022       | 0.022        | 832               | 364.0        | 0.000         | 0.000         | 0.020       | 0.020        | 647               |
| Ten Daily II   | 452.4        | 0.000         | 0.000         | 0.018       | 0.018        | 717               | 283.2        | 0.000         | 0.000         | 0.012       | 0.012        | 305               | 582.5        | 0.000         | 0.000         | 0.017       | 0.017        | 1081              |
| Ten Daily III  | 451.5        | 0.000         | 0.000         | 0.022       | 0.022        | 876               | 583.0        | 0.000         | 0.000         | 0.016       | 0.016        | 827               | 410.8        | 0.000         | 0.000         | 0.014       | 0.014        | 533               |
| Monthly Total  |              |               |               |             |              | 28309             |              |               |               |             |              | 20469             |              |               |               |             |              | 22075             |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Mandleshwar ( 010215026)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 400.6        | 0.000         | 0.000         | 0.015       | 0.015        | 531               | 545.2        | 0.000         | 0.000         | 0.030       | 0.030        | 1390              | 571.6        | 0.000         | 0.000         | 0.014       | 0.014        | 697               |
| 2              | 295.0        | 0.000         | 0.000         | 0.011       | 0.011        | 288               | 672.7        | 0.000         | 0.000         | 0.036       | 0.036        | 2116              | 554.8        | 0.000         | 0.000         | 0.018       | 0.018        | 863               |
| 3              | 414.9        | 0.000         | 0.000         | 0.016       | 0.016        | 569               | 304.0        | 0.000         | 0.000         | 0.016       | 0.016        | 432               | 555.1        | 0.000         | 0.000         | 0.018       | 0.018        | 864               |
| 4              | 430.6        | 0.000         | 0.000         | 0.016       | 0.016        | 613               | 262.7        | 0.000         | 0.000         | 0.018       | 0.018        | 397               | 555.4        | 0.000         | 0.000         | 0.018       | 0.018        | 865               |
| 5              | 328.2        | 0.000         | 0.000         | 0.013       | 0.013        | 356               | 681.1        | 0.000         | 0.000         | 0.045       | 0.045        | 2670              | 557.1        | 0.000         | 0.000         | 0.018       | 0.018        | 870               |
| 6              | 890.4        | 0.000         | 0.000         | 0.034       | 0.034        | 2622              | 428.6        | 0.000         | 0.000         | 0.029       | 0.029        | 1057              | 554.2        | 0.000         | 0.000         | 0.018       | 0.018        | 861               |
| 7              | 944.6        | 0.000         | 0.000         | 0.021       | 0.021        | 1730              | 422.5        | 0.000         | 0.000         | 0.028       | 0.028        | 1028              | 554.2        | 0.000         | 0.000         | 0.018       | 0.018        | 861               |
| 8              | 944.0        | 0.000         | 0.000         | 0.021       | 0.021        | 1728              | 559.0        | 0.000         | 0.000         | 0.037       | 0.037        | 1798              | 578.4        | 0.000         | 0.000         | 0.019       | 0.019        | 938               |
| 9              | 940.8        | 0.000         | 0.000         | 0.021       | 0.021        | 1716              | 342.1        | 0.000         | 0.000         | 0.023       | 0.023        | 674               | 570.1        | 0.000         | 0.000         | 0.017       | 0.017        | 847               |
| 10             | 854.2        | 0.000         | 0.000         | 0.019       | 0.019        | 1415              | 337.6        | 0.000         | 0.000         | 0.022       | 0.022        | 656               | 568.5        | 0.000         | 0.000         | 0.017       | 0.017        | 843               |
| 11             | 835.0        | 0.000         | 0.000         | 0.019       | 0.019        | 1352              | 327.6        | 0.000         | 0.000         | 0.019       | 0.019        | 532               | 567.4        | 0.000         | 0.000         | 0.017       | 0.017        | 839               |
| 12             | 568.0        | 0.000         | 0.000         | 0.013       | 0.013        | 626               | 622.8        | 0.000         | 0.000         | 0.036       | 0.036        | 1923              | 569.4        | 0.000         | 0.000         | 0.017       | 0.017        | 845               |
| 13             | 400.2        | 0.000         | 0.000         | 0.009       | 0.009        | 311               | 485.1        | 0.000         | 0.000         | 0.028       | 0.028        | 1167              | 568.9        | 0.000         | 0.000         | 0.017       | 0.017        | 844               |
| 14             | 225.7        | 0.000         | 0.000         | 0.019       | 0.019        | 361               | 342.6        | 0.000         | 0.000         | 0.020       | 0.020        | 582               | 568.2        | 0.000         | 0.000         | 0.017       | 0.017        | 842               |
| 15             | 328.8        | 0.000         | 0.000         | 0.027       | 0.027        | 766               | 678.6        | 0.000         | 0.000         | 0.039       | 0.039        | 2283              | 578.4        | 0.000         | 0.000         | 0.017       | 0.017        | 872               |
| 16             | 202.4        | 0.000         | 0.000         | 0.017       | 0.017        | 290               | 554.6        | 0.000         | 0.000         | 0.032       | 0.032        | 1525              | 578.0        | 0.000         | 0.000         | 0.016       | 0.016        | 799               |
| 17             | 234.9        | 0.000         | 0.000         | 0.019       | 0.019        | 391               | 571.6        | 0.000         | 0.000         | 0.033       | 0.033        | 1620              | 579.4        | 0.000         | 0.000         | 0.016       | 0.016        | 803               |
| 18             | 343.5        | 0.000         | 0.000         | 0.028       | 0.028        | 836               | 563.9        | 0.000         | 0.000         | 0.015       | 0.015        | 731               | 577.8        | 0.000         | 0.000         | 0.016       | 0.016        | 798               |
| 19             | 346.0        | 0.000         | 0.000         | 0.028       | 0.028        | 848               | 555.0        | 0.000         | 0.000         | 0.015       | 0.015        | 708               | 577.8        | 0.000         | 0.000         | 0.016       | 0.016        | 798               |
| 20             | 487.6        | 0.000         | 0.000         | 0.040       | 0.040        | 1684              | 571.6        | 0.000         | 0.000         | 0.015       | 0.015        | 751               | 578.7        | 0.000         | 0.000         | 0.016       | 0.016        | 801               |
| 21             | 342.6        | 0.000         | 0.000         | 0.017       | 0.017        | 509               | 208.7        | 0.000         | 0.000         | 0.006       | 0.006        | 100               | 592.2        | 0.000         | 0.000         | 0.016       | 0.016        | 839               |
| 22             | 554.3        | 0.000         | 0.000         | 0.028       | 0.028        | 1333              | 191.7        | 0.000         | 0.000         | 0.005       | 0.005        | 84                | 592.2        | 0.000         | 0.000         | 0.016       | 0.016        | 839               |
| 23             | 420.8        | 0.000         | 0.000         | 0.021       | 0.021        | 768               | 555.1        | 0.000         | 0.000         | 0.015       | 0.015        | 708               | 588.8        | 0.000         | 0.000         | 0.018       | 0.018        | 916               |
| 24             | 462.1        | 0.000         | 0.000         | 0.023       | 0.023        | 926               | 571.6        | 0.000         | 0.000         | 0.015       | 0.015        | 751               | 537.0        | 0.000         | 0.000         | 0.016       | 0.016        | 762               |
| 25             | 215.3        | 0.000         | 0.000         | 0.011       | 0.011        | 201               | 554.5        | 0.000         | 0.000         | 0.014       | 0.014        | 656               | 578.3        | 0.000         | 0.000         | 0.018       | 0.018        | 883               |
| 26             | 245.1        | 0.000         | 0.000         | 0.012       | 0.012        | 261               | 553.0        | 0.000         | 0.000         | 0.014       | 0.014        | 653               | 361.9        | 0.000         | 0.000         | 0.011       | 0.011        | 346               |
| 27             | 255.2        | 0.000         | 0.000         | 0.013       | 0.013        | 283               | 553.5        | 0.000         | 0.000         | 0.014       | 0.014        | 654               | 199.9        | 0.000         | 0.000         | 0.006       | 0.006        | 106               |
| 28             | 354.8        | 0.000         | 0.000         | 0.019       | 0.019        | 589               | 554.6        | 0.000         | 0.000         | 0.014       | 0.014        | 657               | 166.4        | 0.000         | 0.000         | 0.005       | 0.005        | 73                |
| 29             | 255.5        | 0.000         | 0.000         | 0.014       | 0.014        | 305               | 554.2        | 0.000         | 0.000         | 0.014       | 0.014        | 656               | 53.50        | 0.000         | 0.000         | 0.002       | 0.002        | 8                 |
| 30             | 538.1        | 0.000         | 0.000         | 0.029       | 0.029        | 1354              | 554.6        | 0.000         | 0.000         | 0.014       | 0.014        | 657               | 138.9        | 0.000         | 0.000         | 0.018       | 0.018        | 216               |
| 31             | 535.1        | 0.000         | 0.000         | 0.029       | 0.029        | 1339              |              |               |               |             |              |                   | 706.8        | 0.000         | 0.000         | 0.092       | 0.092        | 5594              |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 644.3        | 0.000         | 0.000         | 0.019       | 0.019        | 1157              | 455.6        | 0.000         | 0.000         | 0.028       | 0.028        | 1222              | 562.0        | 0.000         | 0.000         | 0.018       | 0.018        | 851               |
| Ten Daily II   | 397.2        | 0.000         | 0.000         | 0.022       | 0.022        | 746               | 527.3        | 0.000         | 0.000         | 0.025       | 0.025        | 1182              | 574.4        | 0.000         | 0.000         | 0.017       | 0.017        | 824               |
| Ten Daily III  | 379.9        | 0.000         | 0.000         | 0.020       | 0.020        | 715               | 485.2        | 0.000         | 0.000         | 0.012       | 0.012        | 558               | 410.5        | 0.000         | 0.000         | 0.020       | 0.020        | 962               |
| Monthly Total  |              |               |               |             |              | 26898             |              |               |               |             |              | 29615             |              |               |               |             |              | 27330             |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Mandleshwar ( 010215026) Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 25830845          | 0                     | 25830845              | 15627                   |
| 1988-1989 | 33706127          | 0                     | 33706127              | 31636                   |
| 1989-1990 | 16590011          | 0                     | 16590011              | 19676                   |
| 1990-1991 | 43573305          | 0                     | 43573305              | 48597                   |
| 1991-1992 | 17919771          | 0                     | 17919771              | 25628                   |
| 1992-1993 | 10212181          | 0                     | 10212181              | 19270                   |
| 1993-1994 | 54775380          | 0                     | 54775380              | 35866                   |
| 1994-1995 | 107300433         | 0                     | 107300433             | 70228                   |
| 1995-1996 | 33242247          | 0                     | 33242247              | 24638                   |
| 1996-1997 | 20710748          | 0                     | 20710748              | 23868                   |
| 1997-1998 | 33307097          | 0                     | 33307097              | 33380                   |
| 1998-1999 | 19597535          | 0                     | 19597535              | 27975                   |
| 1999-2000 | 71022743          | 0                     | 71022743              | 55946                   |
| 2000-2001 | 5140065           | 0                     | 5140065               | 12662                   |
| 2001-2002 | 18046536          | 0                     | 18046536              | 22925                   |
| 2002-2003 | 23246402          | 0                     | 23246402              | 22435                   |
| 2003-2004 | 12526668          | 0                     | 12526668              | 34555                   |
| 2004-2005 | 5791854           | 0                     | 5791854               | 19488                   |
| 2005-2006 | 3756113           | 18213                 | 3774326               | 33883                   |
| 2006-2007 | 23348119          | 70019                 | 23418139              | 33299                   |
| 2007-2008 | 3619871           | 61874                 | 3681745               | 24539                   |
| 2008-2009 | 357341            | 257632                | 614973                | 16210                   |
| 2009-2010 | 1250506           | 382715                | 1633220               | 28066                   |
| 2010-2011 | 2824844           | 386277                | 3211121               | 28697                   |
| 2011-2012 | 5268557           | 272974                | 5541530               | 44924                   |
| 2012-2013 | 3053619           | 256865                | 3310484               | 45507                   |
| 2013-2014 | 6692576           | 327613                | 7020190               | 65013                   |
| 2014-2015 | 738527            | 246678                | 985205                | 25134                   |
| 2015-2016 | 1481523           | 154696                | 1636219               | 21095                   |

# Sediment Data Year Book 2015-16

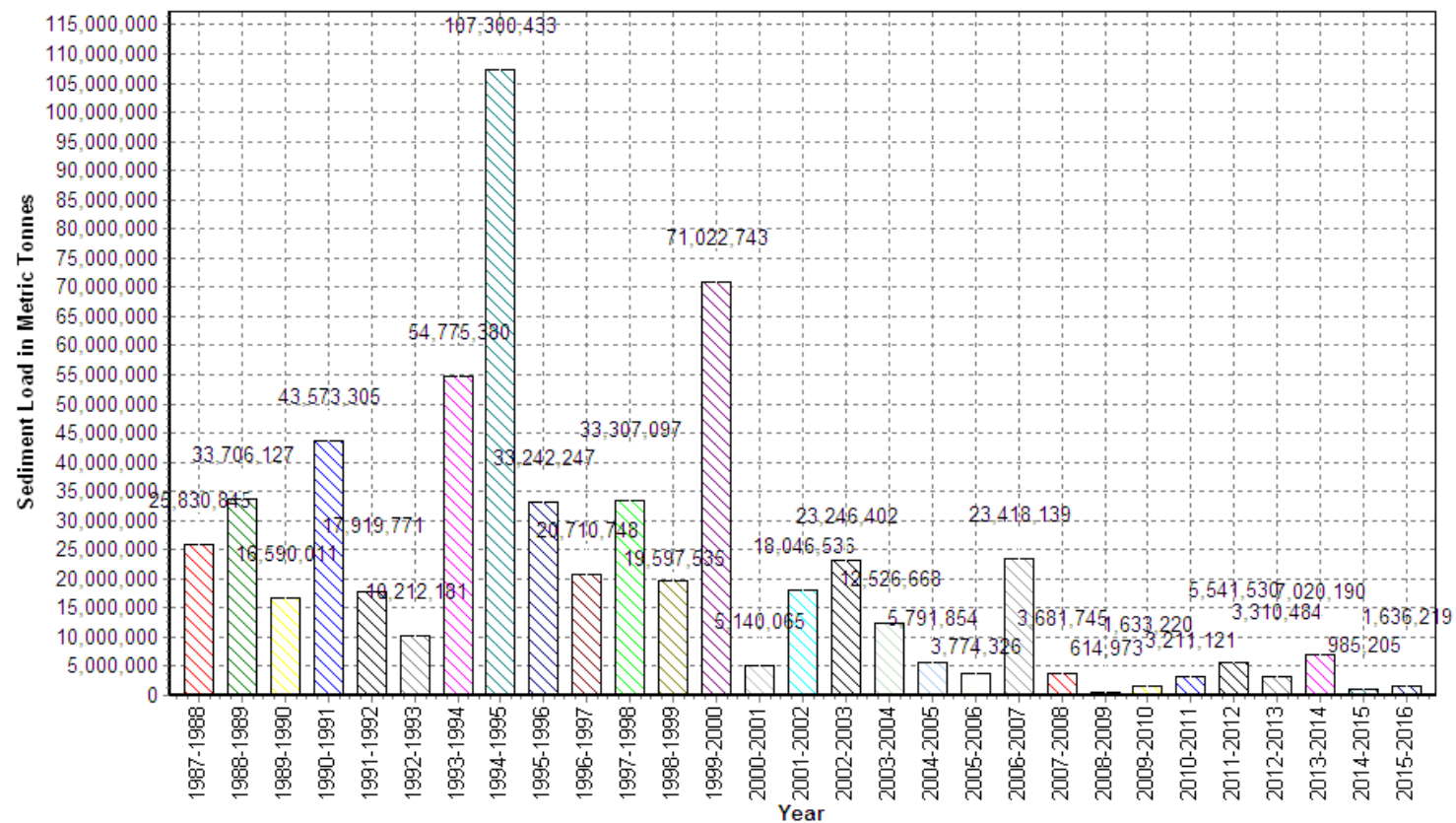
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Mandleshwar ( 010215026)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore



Sediment Data Year Book 2015-16

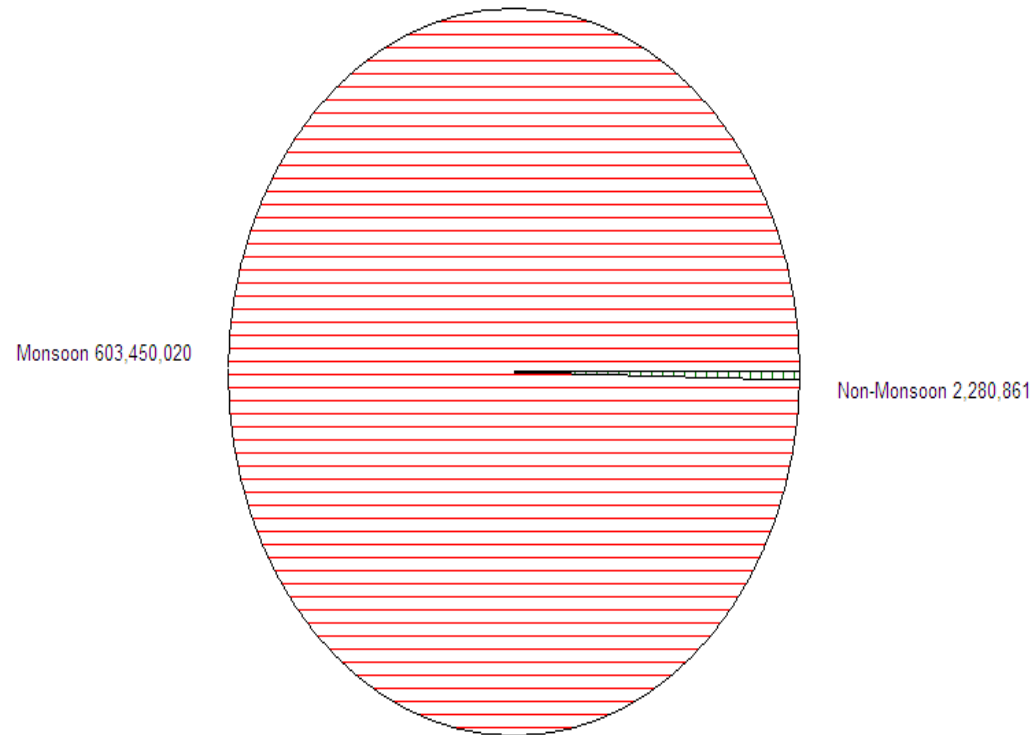
**Seasonal Sediment Load for the period : 1987-2016**

Station Name : Narmada at Mandleshwar ( 010215026)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore



Sediment Data Year Book 2015-16

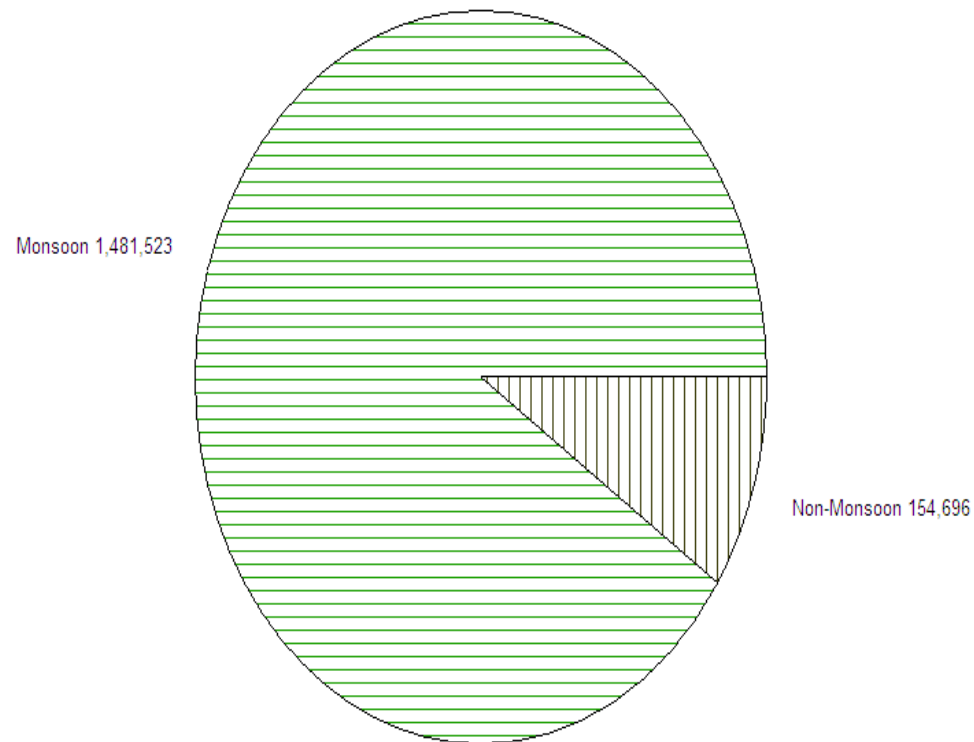
**Seasonal Sediment Load for the period : 2015-2016**

Station Name : Narmada at Mandleshwar ( 010215026)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore





**6.4 Narmada at Handia****History Sheet**

|                          |                            |                   |                    |
|--------------------------|----------------------------|-------------------|--------------------|
|                          |                            | <b>Water Year</b> | <b>: 2015-2016</b> |
| <b>Site</b>              | <b>: Narmada at Handia</b> | <b>Code</b>       | <b>: 010215022</b> |
| State                    | : Madhya Pradesh           | District          | Harda              |
| Basin                    | : Narmada                  | Independent River | : Narmada          |
| Tributary                | : -                        | Sub Tributary     | : -                |
| Sub-Sub Tributary        | : -                        | Local River       | : Narmada          |
| Division                 | : Narmada Division,Bhopal  | Sub-Division      | : MNSD-II, Bhopal  |
| Drainage Area            | : 54027 Sq. Km.            | Bank              | : Left             |
| Latitude                 | : 22°29'25"                | Longitude         | : 76°59'37"        |
| <b>Zero of Gauge (m)</b> | <b>: 258 .000(M.S.L.)</b>  | 09/02/1977        |                    |
|                          | Opening Date               | Closing Date      |                    |
| Gauge                    | : 09/02/1977               |                   |                    |
| Discharge                | : 26/04/1977               |                   |                    |
| Sediment                 | : 11/12/1977               |                   |                    |
| Water Quality            | : 01/08/1979               |                   |                    |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-II, Bhopal

| Day            | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 162.0        | 0.000         | 0.000         | 0.030       | 0.030        | 420               | 98.10        | 0.000         | 0.000         | 0.036       | 0.036        | 307               | 478.0        | 0.003         | 0.008         | 0.148       | 0.159        | 6546              |
| 2              | 172.0        | 0.000         | 0.000         | 0.032       | 0.032        | 473               | 111.0        | 0.000         | 0.000         | 0.035       | 0.035        | 336               | 381.5        | 0.002         | 0.006         | 0.118       | 0.127        | 4169              |
| 3              | 180.0        | 0.000         | 0.000         | 0.033       | 0.033        | 518               | 121.0        | 0.000         | 0.000         | 0.036       | 0.036        | 371               | 279.0        | 0.002         | 0.005         | 0.086       | 0.093        | 2230              |
| 4              | 189.0        | 0.000         | 0.000         | 0.035       | 0.035        | 572               | 124.8        | 0.000         | 0.000         | 0.037       | 0.037        | 395               | 372.0        | 0.002         | 0.008         | 0.149       | 0.159        | 5101              |
| 5              | 180.0        | 0.000         | 0.000         | 0.033       | 0.033        | 518               | 122.3        | 0.000         | 0.000         | 0.036       | 0.036        | 379               | 4852         | 0.007         | 0.110         | 0.493       | 0.610        | 255521            |
| 6              | 172.0        | 0.000         | 0.000         | 0.032       | 0.032        | 473               | 119.0        | 0.000         | 0.000         | 0.039       | 0.039        | 399               | 3821         | 0.007         | 0.011         | 0.491       | 0.510        | 168186            |
| 7              | 256.8        | 0.000         | 0.000         | 0.048       | 0.048        | 1055              | 122.3        | 0.000         | 0.000         | 0.040       | 0.040        | 421               | 2588         | 0.007         | 0.012         | 0.491       | 0.510        | 114053            |
| 8              | 170.0        | 0.000         | 0.000         | 0.075       | 0.075        | 1102              | 112.0        | 0.000         | 0.000         | 0.035       | 0.035        | 339               | 1932         | 0.005         | 0.009         | 0.367       | 0.381        | 63567             |
| 9              | 170.0        | 0.000         | 0.000         | 0.075       | 0.075        | 1102              | 111.0        | 0.000         | 0.000         | 0.038       | 0.038        | 360               | 1700         | 0.005         | 0.008         | 0.323       | 0.335        | 49192             |
| 10             | 180.0        | 0.000         | 0.000         | 0.079       | 0.079        | 1235              | 122.0        | 0.000         | 0.000         | 0.045       | 0.045        | 474               | 3342         | 0.007         | 0.013         | 0.495       | 0.515        | 148685            |
| 11             | 187.0        | 0.000         | 0.000         | 0.083       | 0.083        | 1333              | 124.8        | 0.000         | 0.000         | 0.046       | 0.046        | 496               | 2077         | 0.006         | 0.013         | 0.505       | 0.524        | 93990             |
| 12             | 183.0        | 0.000         | 0.000         | 0.081       | 0.081        | 1277              | 1853         | 0.006         | 0.008         | 0.255       | 0.269        | 43096             | 3067         | 0.008         | 0.013         | 0.505       | 0.526        | 139452            |
| 13             | 180.0        | 0.000         | 0.000         | 0.079       | 0.079        | 1235              | 2141         | 0.007         | 0.009         | 0.295       | 0.311        | 57537             | 3854         | 0.010         | 0.016         | 0.508       | 0.534        | 177628            |
| 14             | 256.8        | 0.000         | 0.000         | 0.113       | 0.113        | 2514              | 1060         | 0.006         | 0.012         | 0.160       | 0.178        | 16302             | 2279         | 0.008         | 0.013         | 0.503       | 0.524        | 103141            |
| 15             | 167.0        | 0.000         | 0.000         | 0.030       | 0.030        | 433               | 723.5        | 0.004         | 0.008         | 0.109       | 0.121        | 7595              | 3363         | 0.012         | 0.020         | 0.742       | 0.773        | 224594            |
| 16             | 132.0        | 0.000         | 0.000         | 0.035       | 0.035        | 399               | 560.0        | 0.003         | 0.009         | 0.150       | 0.162        | 7838              | 3758         | 0.013         | 0.022         | 0.829       | 0.864        | 280467            |
| 17             | 106.0        | 0.000         | 0.000         | 0.035       | 0.035        | 321               | 362.0        | 0.002         | 0.008         | 0.148       | 0.158        | 4926              | 2916         | 0.007         | 0.013         | 0.510       | 0.530        | 133392            |
| 18             | 93.80        | 0.000         | 0.000         | 0.034       | 0.034        | 276               | 294.3        | 0.002         | 0.007         | 0.120       | 0.128        | 3256              | 1942         | 0.005         | 0.008         | 0.340       | 0.353        | 59183             |
| 19             | 93.60        | 0.000         | 0.000         | 0.034       | 0.034        | 275               | 306.1        | 0.002         | 0.007         | 0.125       | 0.133        | 3522              | 2478         | 0.007         | 0.012         | 0.496       | 0.516        | 110370            |
| 20             | 92.90        | 0.000         | 0.000         | 0.035       | 0.035        | 281               | 4678         | 0.006         | 0.010         | 0.491       | 0.507        | 204979            | 1767         | 0.008         | 0.013         | 0.493       | 0.514        | 78430             |
| 21             | 211.9        | 0.000         | 0.000         | 0.080       | 0.080        | 1462              | 5371         | 0.007         | 0.010         | 0.492       | 0.509        | 236222            | 1277         | 0.008         | 0.015         | 0.490       | 0.513        | 56550             |
| 22             | 132.0        | 0.000         | 0.000         | 0.040       | 0.040        | 456               | 2269         | 0.006         | 0.012         | 0.467       | 0.485        | 94986             | 766.9        | 0.005         | 0.009         | 0.294       | 0.308        | 20394             |
| 23             | 171.0        | 0.000         | 0.000         | 0.045       | 0.045        | 665               | 884.3        | 0.002         | 0.004         | 0.182       | 0.189        | 14427             | 623.5        | 0.004         | 0.007         | 0.239       | 0.250        | 13480             |
| 24             | 420.0        | 0.000         | 0.000         | 0.053       | 0.053        | 1905              | 2928         | 0.008         | 0.015         | 0.603       | 0.625        | 158161            | 546.7        | 0.003         | 0.006         | 0.210       | 0.219        | 10365             |
| 25             | 385.0        | 0.000         | 0.000         | 0.049       | 0.049        | 1620              | 2376         | 0.006         | 0.012         | 0.489       | 0.507        | 104165            | 475.1        | 0.003         | 0.005         | 0.182       | 0.191        | 7826              |
| 26             | 271.5        | 0.000         | 0.000         | 0.034       | 0.034        | 806               | 1993         | 0.005         | 0.010         | 0.410       | 0.426        | 73282             | 450.7        | 0.003         | 0.005         | 0.173       | 0.181        | 7044              |
| 27             | 108.0        | 0.000         | 0.000         | 0.032       | 0.032        | 299               | 2043         | 0.007         | 0.003         | 0.051       | 0.061        | 10800             | 422.3        | 0.003         | 0.005         | 0.162       | 0.169        | 6184              |
| 28             | 127.4        | 0.000         | 0.000         | 0.030       | 0.030        | 330               | 1597         | 0.005         | 0.003         | 0.049       | 0.057        | 7822              | 371.0        | 0.003         | 0.009         | 0.175       | 0.187        | 5994              |
| 29             | 112.0        | 0.000         | 0.000         | 0.026       | 0.026        | 255               | 816.2        | 0.005         | 0.035         | 0.048       | 0.088        | 6171              | 390.4        | 0.003         | 0.009         | 0.184       | 0.197        | 6637              |
| 30             | 105.0        | 0.000         | 0.000         | 0.028       | 0.028        | 249               | 754.4        | 0.005         | 0.032         | 0.044       | 0.081        | 5271              | 557.4        | 0.005         | 0.014         | 0.263       | 0.281        | 13531             |
| 31             |              |               |               |             |              |                   | 551.0        | 0.004         | 0.002         | 0.046       | 0.052        | 2485              | 818.1        | 0.007         | 0.020         | 0.386       | 0.412        | 29146             |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 183.2        | 0.000         | 0.000         | 0.047       | 0.047        | 747               | 116.4        | 0.000         | 0.000         | 0.038       | 0.038        | 378               | 1975         | 0.005         | 0.019         | 0.316       | 0.340        | 81725             |
| Ten Daily II   | 149.2        | 0.000         | 0.000         | 0.056       | 0.056        | 834               | 1210         | 0.004         | 0.008         | 0.190       | 0.201        | 34955             | 2750         | 0.008         | 0.014         | 0.543       | 0.566        | 140065            |
| Ten Daily III  | 204.4        | 0.000         | 0.000         | 0.042       | 0.042        | 805               | 1962         | 0.005         | 0.013         | 0.262       | 0.280        | 64890             | 609.0        | 0.004         | 0.009         | 0.251       | 0.264        | 16105             |
| Monthly Total  |              |               |               |             |              | 23857             |              |               |               |             |              | 1067121           |              |               |               |             |              | 2395047           |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-II, Bhopal

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 773.2        | 0.006         | 0.019         | 0.365       | 0.390        | 26036             | 275.2        | 0.001         | 0.002         | 0.162       | 0.164        | 3903              | 135.1        | 0.001         | 0.001         | 0.013       | 0.015        | 180               |
| 2              | 711.4        | 0.006         | 0.017         | 0.336       | 0.359        | 22040             | 271.5        | 0.001         | 0.002         | 0.159       | 0.162        | 3798              | 127.0        | 0.000         | 0.000         | 0.028       | 0.028        | 302               |
| 3              | 837.7        | 0.007         | 0.020         | 0.395       | 0.422        | 30559             | 267.8        | 0.001         | 0.002         | 0.157       | 0.160        | 3695              | 89.95        | 0.000         | 0.000         | 0.019       | 0.019        | 151               |
| 4              | 734.0        | 0.004         | 0.002         | 0.488       | 0.493        | 31290             | 260.4        | 0.001         | 0.002         | 0.153       | 0.155        | 3494              | 119.9        | 0.000         | 0.000         | 0.026       | 0.026        | 269               |
| 5              | 617.9        | 0.003         | 0.002         | 0.410       | 0.415        | 22173             | 284.0        | 0.001         | 0.002         | 0.170       | 0.173        | 4240              | 132.5        | 0.000         | 0.000         | 0.029       | 0.029        | 328               |
| 6              | 557.4        | 0.003         | 0.001         | 0.370       | 0.375        | 18045             | 270.0        | 0.001         | 0.002         | 0.170       | 0.173        | 4031              | 145.8        | 0.000         | 0.000         | 0.032       | 0.032        | 398               |
| 7              | 510.0        | 0.003         | 0.006         | 0.481       | 0.490        | 21600             | 196.0        | 0.001         | 0.002         | 0.180       | 0.183        | 3096              | 140.4        | 0.000         | 0.000         | 0.030       | 0.030        | 369               |
| 8              | 498.0        | 0.003         | 0.005         | 0.047       | 0.055        | 2366              | 221.9        | 0.001         | 0.002         | 0.204       | 0.207        | 3967              | 129.9        | 0.000         | 0.000         | 0.028       | 0.028        | 316               |
| 9              | 493.0        | 0.002         | 0.005         | 0.450       | 0.457        | 19466             | 172.0        | 0.001         | 0.002         | 0.018       | 0.020        | 300               | 146.0        | 0.000         | 0.000         | 0.025       | 0.025        | 315               |
| 10             | 403.9        | 0.002         | 0.004         | 0.369       | 0.374        | 13066             | 185.0        | 0.001         | 0.002         | 0.018       | 0.021        | 328               | 144.0        | 0.000         | 0.000         | 0.025       | 0.025        | 307               |
| 11             | 338.5        | 0.001         | 0.003         | 0.309       | 0.314        | 9178              | 267.8        | 0.001         | 0.003         | 0.025       | 0.030        | 687               | 127.4        | 0.000         | 0.000         | 0.022       | 0.022        | 240               |
| 12             | 362.0        | 0.002         | 0.004         | 0.438       | 0.444        | 13871             | 260.4        | 0.001         | 0.003         | 0.025       | 0.029        | 649               | 140.0        | 0.000         | 0.000         | 0.024       | 0.024        | 290               |
| 13             | 275.2        | 0.002         | 0.003         | 0.333       | 0.337        | 8018              | 225.3        | 0.001         | 0.002         | 0.021       | 0.025        | 486               | 145.0        | 0.000         | 0.000         | 0.025       | 0.025        | 311               |
| 14             | 284.0        | 0.002         | 0.004         | 0.433       | 0.439        | 10760             | 202.2        | 0.001         | 0.002         | 0.019       | 0.022        | 391               | 147.0        | 0.000         | 0.000         | 0.025       | 0.025        | 320               |
| 15             | 267.8        | 0.002         | 0.004         | 0.408       | 0.413        | 9567              | 168.0        | 0.001         | 0.002         | 0.018       | 0.020        | 296               | 117.4        | 0.000         | 0.000         | 0.020       | 0.020        | 204               |
| 16             | 267.8        | 0.002         | 0.004         | 0.408       | 0.413        | 9567              | 213.0        | 0.001         | 0.002         | 0.175       | 0.178        | 3276              | 142.0        | 0.000         | 0.000         | 0.023       | 0.023        | 276               |
| 17             | 267.8        | 0.002         | 0.004         | 0.408       | 0.413        | 9567              | 225.3        | 0.001         | 0.002         | 0.185       | 0.188        | 3664              | 147.0        | 0.000         | 0.000         | 0.023       | 0.023        | 296               |
| 18             | 510.0        | 0.001         | 0.004         | 0.435       | 0.440        | 19388             | 235.5        | 0.001         | 0.002         | 0.193       | 0.197        | 4005              | 117.0        | 0.000         | 0.000         | 0.019       | 0.019        | 187               |
| 19             | 381.5        | 0.001         | 0.003         | 0.325       | 0.329        | 10848             | 278.0        | 0.001         | 0.002         | 0.019       | 0.022        | 524               | 117.0        | 0.000         | 0.000         | 0.019       | 0.019        | 187               |
| 20             | 359.7        | 0.001         | 0.003         | 0.307       | 0.310        | 9644              | 246.1        | 0.001         | 0.002         | 0.017       | 0.019        | 410               | 124.8        | 0.000         | 0.000         | 0.020       | 0.020        | 213               |
| 21             | 378.0        | 0.002         | 0.004         | 0.434       | 0.440        | 14360             | 180.0        | 0.001         | 0.002         | 0.175       | 0.178        | 2768              | 129.9        | 0.000         | 0.000         | 0.021       | 0.021        | 231               |
| 22             | 344.0        | 0.002         | 0.004         | 0.434       | 0.440        | 13069             | 177.3        | 0.001         | 0.002         | 0.172       | 0.175        | 2686              | 132.5        | 0.000         | 0.000         | 0.021       | 0.021        | 240               |
| 23             | 288.0        | 0.001         | 0.003         | 0.433       | 0.437        | 10862             | 173.0        | 0.001         | 0.002         | 0.018       | 0.021        | 306               | 124.8        | 0.000         | 0.000         | 0.020       | 0.020        | 213               |
| 24             | 310.0        | 0.001         | 0.002         | 0.177       | 0.179        | 4805              | 156.9        | 0.001         | 0.002         | 0.016       | 0.019        | 252               | 143.1        | 0.000         | 0.000         | 0.023       | 0.023        | 280               |
| 25             | 294.3        | 0.001         | 0.002         | 0.168       | 0.170        | 4331              | 159.7        | 0.001         | 0.002         | 0.016       | 0.019        | 261               | 165.5        | 0.000         | 0.000         | 0.026       | 0.026        | 375               |
| 26             | 302.0        | 0.001         | 0.003         | 0.175       | 0.179        | 4663              | 140.0        | 0.002         | 0.002         | 0.019       | 0.023        | 275               | 173.0        | 0.000         | 0.000         | 0.026       | 0.026        | 392               |
| 27             | 302.1        | 0.001         | 0.003         | 0.175       | 0.179        | 4666              | 115.0        | 0.001         | 0.001         | 0.020       | 0.022        | 219               | 180.0        | 0.000         | 0.000         | 0.027       | 0.027        | 424               |
| 28             | 294.0        | 0.001         | 0.003         | 0.178       | 0.181        | 4603              | 174.3        | 0.002         | 0.002         | 0.030       | 0.033        | 502               | 166.0        | 0.000         | 0.000         | 0.025       | 0.025        | 361               |
| 29             | 298.0        | 0.001         | 0.002         | 0.175       | 0.178        | 4575              | 178.0        | 0.002         | 0.002         | 0.021       | 0.025        | 388               | 162.6        | 0.000         | 0.000         | 0.025       | 0.025        | 346               |
| 30             | 290.4        | 0.001         | 0.002         | 0.171       | 0.173        | 4346              | 210.0        | 0.002         | 0.002         | 0.020       | 0.024        | 435               | 196.0        | 0.000         | 0.000         | 0.028       | 0.028        | 466               |
| 31             |              |               |               |             |              |                   | 143.1        | 0.001         | 0.001         | 0.014       | 0.016        | 202               |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 613.6        | 0.004         | 0.008         | 0.371       | 0.383        | 20664             | 240.4        | 0.001         | 0.002         | 0.139       | 0.142        | 3085              | 131.1        | 0.000         | 0.000         | 0.025       | 0.026        | 294               |
| Ten Daily II   | 331.4        | 0.002         | 0.004         | 0.380       | 0.385        | 11041             | 232.1        | 0.001         | 0.002         | 0.070       | 0.073        | 1439              | 132.5        | 0.000         | 0.000         | 0.022       | 0.022        | 252               |
| Ten Daily III  | 310.1        | 0.001         | 0.003         | 0.252       | 0.256        | 7028              | 164.3        | 0.001         | 0.002         | 0.047       | 0.050        | 754               | 157.3        | 0.000         | 0.000         | 0.024       | 0.024        | 333               |
| Monthly Total  |              |               |               |             |              | 387329            |              |               |               |             |              | 53534             |              |               |               |             |              | 8787              |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-II, Bhopal

| Day            | Dec          |               |               |             |              |                   | Jan          |               |               |             |              |                   | Feb          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 205.0        | 0.000         | 0.000         | 0.029       | 0.029        | 509               | 122.0        | 0.000         | 0.000         | 0.026       | 0.026        | 276               | 155.0        | 0.000         | 0.000         | 0.033       | 0.033        | 435               |
| 2              | 164.0        | 0.000         | 0.000         | 0.023       | 0.023        | 326               | 120.0        | 0.000         | 0.000         | 0.026       | 0.026        | 267               | 168.4        | 0.000         | 0.000         | 0.035       | 0.035        | 514               |
| 3              | 128.0        | 0.000         | 0.000         | 0.018       | 0.018        | 199               | 140.4        | 0.000         | 0.000         | 0.030       | 0.030        | 366               | 154.1        | 0.000         | 0.000         | 0.032       | 0.032        | 430               |
| 4              | 168.4        | 0.000         | 0.000         | 0.024       | 0.024        | 344               | 140.4        | 0.000         | 0.000         | 0.030       | 0.030        | 366               | 150.0        | 0.000         | 0.000         | 0.031       | 0.031        | 408               |
| 5              | 135.1        | 0.000         | 0.000         | 0.019       | 0.019        | 221               | 140.4        | 0.000         | 0.000         | 0.030       | 0.030        | 366               | 151.3        | 0.000         | 0.000         | 0.032       | 0.032        | 415               |
| 6              | 127.4        | 0.000         | 0.000         | 0.018       | 0.018        | 197               | 154.1        | 0.000         | 0.000         | 0.033       | 0.033        | 441               | 148.5        | 0.000         | 0.000         | 0.031       | 0.031        | 400               |
| 7              | 124.0        | 0.000         | 0.000         | 0.026       | 0.026        | 281               | 180.3        | 0.000         | 0.000         | 0.039       | 0.039        | 603               | 151.3        | 0.000         | 0.000         | 0.032       | 0.032        | 415               |
| 8              | 151.3        | 0.000         | 0.000         | 0.032       | 0.032        | 418               | 186.4        | 0.000         | 0.000         | 0.040       | 0.040        | 645               | 152.0        | 0.000         | 0.000         | 0.030       | 0.030        | 394               |
| 9              | 133.0        | 0.000         | 0.000         | 0.028       | 0.028        | 323               | 177.3        | 0.000         | 0.000         | 0.038       | 0.038        | 583               | 151.3        | 0.000         | 0.000         | 0.030       | 0.030        | 390               |
| 10             | 131.0        | 0.000         | 0.000         | 0.028       | 0.028        | 313               | 168.4        | 0.000         | 0.000         | 0.036       | 0.036        | 526               | 144.0        | 0.000         | 0.000         | 0.028       | 0.028        | 354               |
| 11             | 135.0        | 0.000         | 0.000         | 0.029       | 0.029        | 333               | 139.0        | 0.000         | 0.000         | 0.029       | 0.029        | 345               | 141.0        | 0.000         | 0.000         | 0.028       | 0.028        | 339               |
| 12             | 132.0        | 0.000         | 0.000         | 0.028       | 0.028        | 318               | 165.5        | 0.000         | 0.000         | 0.034       | 0.034        | 489               | 140.0        | 0.000         | 0.000         | 0.028       | 0.028        | 334               |
| 13             | 145.8        | 0.000         | 0.000         | 0.031       | 0.031        | 388               | 214.1        | 0.000         | 0.000         | 0.442       | 0.442        | 81785             | 154.1        | 0.000         | 0.000         | 0.030       | 0.030        | 405               |
| 14             | 130.0        | 0.000         | 0.000         | 0.028       | 0.028        | 309               | 152.0        | 0.000         | 0.000         | 0.031       | 0.031        | 412               | 154.1        | 0.000         | 0.000         | 0.030       | 0.030        | 405               |
| 15             | 140.0        | 0.000         | 0.000         | 0.030       | 0.030        | 358               | 162.6        | 0.000         | 0.000         | 0.034       | 0.034        | 472               | 154.1        | 0.000         | 0.000         | 0.030       | 0.030        | 405               |
| 16             | 146.0        | 0.000         | 0.000         | 0.031       | 0.031        | 390               | 174.3        | 0.000         | 0.000         | 0.036       | 0.036        | 542               | 151.3        | 0.000         | 0.000         | 0.030       | 0.030        | 390               |
| 17             | 127.0        | 0.000         | 0.000         | 0.027       | 0.027        | 295               | 165.5        | 0.000         | 0.000         | 0.034       | 0.034        | 489               | 151.3        | 0.000         | 0.000         | 0.030       | 0.030        | 390               |
| 18             | 122.0        | 0.000         | 0.000         | 0.026       | 0.026        | 272               | 154.1        | 0.000         | 0.000         | 0.032       | 0.032        | 424               | 154.0        | 0.000         | 0.000         | 0.030       | 0.030        | 399               |
| 19             | 124.0        | 0.000         | 0.000         | 0.026       | 0.026        | 281               | 145.8        | 0.000         | 0.000         | 0.030       | 0.030        | 379               | 160.0        | 0.000         | 0.000         | 0.031       | 0.031        | 431               |
| 20             | 137.7        | 0.000         | 0.000         | 0.029       | 0.029        | 347               | 4537         | 0.000         | 0.000         | 0.937       | 0.937        | 367224            | 162.0        | 0.000         | 0.000         | 0.032       | 0.032        | 442               |
| 21             | 109.0        | 0.000         | 0.000         | 0.026       | 0.026        | 247               | 5371         | 0.000         | 0.000         | 1.109       | 1.109        | 514666            | 174.3        | 0.000         | 0.000         | 0.034       | 0.034        | 511               |
| 22             | 124.8        | 0.000         | 0.000         | 0.030       | 0.030        | 324               | 195.8        | 0.000         | 0.000         | 0.040       | 0.040        | 684               | 185.0        | 0.000         | 0.000         | 0.032       | 0.032        | 511               |
| 23             | 122.3        | 0.000         | 0.000         | 0.029       | 0.029        | 311               | 186.4        | 0.000         | 0.000         | 0.038       | 0.038        | 620               | 189.5        | 0.000         | 0.000         | 0.033       | 0.033        | 537               |
| 24             | 119.9        | 0.000         | 0.000         | 0.029       | 0.029        | 298               | 177.3        | 0.000         | 0.000         | 0.037       | 0.037        | 561               | 162.0        | 0.000         | 0.000         | 0.028       | 0.028        | 392               |
| 25             | 119.9        | 0.000         | 0.000         | 0.029       | 0.029        | 298               | 169.0        | 0.000         | 0.000         | 0.033       | 0.033        | 482               | 170.0        | 0.000         | 0.000         | 0.029       | 0.029        | 432               |
| 26             | 115.0        | 0.000         | 0.000         | 0.028       | 0.028        | 275               | 165.5        | 0.000         | 0.000         | 0.032       | 0.032        | 462               | 162.0        | 0.000         | 0.000         | 0.028       | 0.028        | 392               |
| 27             | 127.4        | 0.000         | 0.000         | 0.031       | 0.031        | 337               | 146.0        | 0.000         | 0.000         | 0.029       | 0.029        | 360               | 156.0        | 0.000         | 0.000         | 0.027       | 0.027        | 364               |
| 28             | 127.4        | 0.000         | 0.000         | 0.031       | 0.031        | 337               | 1597         | 0.000         | 0.000         | 0.312       | 0.312        | 43021             | 162.6        | 0.000         | 0.000         | 0.028       | 0.028        | 395               |
| 29             | 122.3        | 0.000         | 0.000         | 0.029       | 0.029        | 311               | 816.2        | 0.000         | 0.000         | 0.159       | 0.159        | 11240             | 142.0        | 0.000         | 0.000         | 0.030       | 0.030        | 368               |
| 30             | 122.3        | 0.000         | 0.000         | 0.029       | 0.029        | 311               | 154.0        | 0.000         | 0.000         | 0.030       | 0.030        | 400               |              |               |               |             |              |                   |
| 31             | 127.4        | 0.000         | 0.000         | 0.031       | 0.031        | 337               | 171.3        | 0.000         | 0.000         | 0.033       | 0.033        | 495               |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 146.7        | 0.000         | 0.000         | 0.024       | 0.024        | 313               | 153.0        | 0.000         | 0.000         | 0.033       | 0.033        | 444               | 152.6        | 0.000         | 0.000         | 0.031       | 0.031        | 415               |
| Ten Daily II   | 134.0        | 0.000         | 0.000         | 0.028       | 0.028        | 329               | 793.7        | 0.000         | 0.000         | 0.164       | 0.164        | 45256             | 152.2        | 0.000         | 0.000         | 0.030       | 0.030        | 394               |
| Ten Daily III  | 121.6        | 0.000         | 0.000         | 0.029       | 0.029        | 308               | 831.8        | 0.000         | 0.000         | 0.168       | 0.168        | 52090             | 167.0        | 0.000         | 0.000         | 0.030       | 0.030        | 434               |
| Monthly Total  |              |               |               |             |              | 9806              |              |               |               |             |              | 1029987           |              |               |               |             |              | 11997             |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division,

Bhopal Local River : Narmada

Sub-Division : MNSD-II, Bhopal

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 139.0        | 0.000         | 0.000         | 0.029       | 0.029        | 353               | 79.59        | 0.000         | 0.000         | 0.020       | 0.020        | 139               | 137.7        | 0.000         | 0.000         | 0.026       | 0.026        | 310               |
| 2              | 130.0        | 0.000         | 0.000         | 0.027       | 0.027        | 308               | 75.63        | 0.000         | 0.000         | 0.019       | 0.019        | 125               | 135.0        | 0.000         | 0.000         | 0.035       | 0.035        | 408               |
| 3              | 127.0        | 0.000         | 0.000         | 0.027       | 0.027        | 294               | 69.88        | 0.000         | 0.000         | 0.018       | 0.018        | 107               | 138.0        | 0.000         | 0.000         | 0.036       | 0.036        | 427               |
| 4              | 120.0        | 0.000         | 0.000         | 0.025       | 0.025        | 263               | 72.80        | 0.000         | 0.000         | 0.030       | 0.030        | 189               | 130.0        | 0.000         | 0.000         | 0.034       | 0.034        | 379               |
| 5              | 109.0        | 0.000         | 0.000         | 0.023       | 0.023        | 217               | 75.10        | 0.000         | 0.000         | 0.031       | 0.031        | 201               | 132.0        | 0.000         | 0.000         | 0.034       | 0.034        | 390               |
| 6              | 77.60        | 0.000         | 0.000         | 0.016       | 0.016        | 110               | 122.0        | 0.000         | 0.000         | 0.050       | 0.050        | 530               | 140.0        | 0.000         | 0.000         | 0.036       | 0.036        | 439               |
| 7              | 98.00        | 0.000         | 0.000         | 0.030       | 0.030        | 254               | 137.7        | 0.000         | 0.000         | 0.057       | 0.057        | 675               | 133.0        | 0.000         | 0.000         | 0.034       | 0.034        | 396               |
| 8              | 90.00        | 0.000         | 0.000         | 0.028       | 0.028        | 214               | 120.0        | 0.000         | 0.000         | 0.049       | 0.049        | 513               | 127.4        | 0.000         | 0.000         | 0.033       | 0.033        | 363               |
| 9              | 89.00        | 0.000         | 0.000         | 0.027       | 0.027        | 210               | 107.8        | 0.000         | 0.000         | 0.044       | 0.044        | 414               | 143.1        | 0.000         | 0.000         | 0.037       | 0.037        | 459               |
| 10             | 44.56        | 0.000         | 0.000         | 0.014       | 0.014        | 53                | 122.3        | 0.000         | 0.000         | 0.050       | 0.050        | 533               | 140.4        | 0.000         | 0.000         | 0.036       | 0.036        | 442               |
| 11             | 59.06        | 0.000         | 0.000         | 0.018       | 0.018        | 92                | 141.0        | 0.000         | 0.000         | 0.034       | 0.034        | 411               | 140.4        | 0.000         | 0.000         | 0.036       | 0.036        | 442               |
| 12             | 81.61        | 0.000         | 0.000         | 0.025       | 0.025        | 176               | 160.0        | 0.000         | 0.000         | 0.038       | 0.038        | 529               | 145.8        | 0.000         | 0.000         | 0.038       | 0.038        | 476               |
| 13             | 115.0        | 0.000         | 0.000         | 0.035       | 0.035        | 350               | 164.0        | 0.000         | 0.000         | 0.039       | 0.039        | 555               | 143.1        | 0.000         | 0.000         | 0.037       | 0.037        | 459               |
| 14             | 143.1        | 0.000         | 0.000         | 0.044       | 0.044        | 542               | 145.8        | 0.000         | 0.000         | 0.035       | 0.035        | 439               | 137.7        | 0.000         | 0.000         | 0.036       | 0.036        | 425               |
| 15             | 143.1        | 0.000         | 0.000         | 0.044       | 0.044        | 542               | 119.9        | 0.000         | 0.000         | 0.029       | 0.029        | 297               | 137.7        | 0.000         | 0.000         | 0.036       | 0.036        | 425               |
| 16             | 135.1        | 0.000         | 0.000         | 0.041       | 0.041        | 483               | 117.0        | 0.000         | 0.000         | 0.028       | 0.028        | 283               | 135.0        | 0.000         | 0.000         | 0.034       | 0.034        | 398               |
| 17             | 127.4        | 0.000         | 0.000         | 0.039       | 0.039        | 429               | 103.2        | 0.000         | 0.000         | 0.025       | 0.025        | 220               | 134.0        | 0.000         | 0.000         | 0.034       | 0.034        | 392               |
| 18             | 115.0        | 0.000         | 0.000         | 0.035       | 0.035        | 350               | 85.73        | 0.000         | 0.000         | 0.020       | 0.020        | 152               | 132.0        | 0.000         | 0.000         | 0.033       | 0.033        | 380               |
| 19             | 107.8        | 0.000         | 0.000         | 0.033       | 0.033        | 307               | 75.63        | 0.000         | 0.000         | 0.018       | 0.018        | 118               | 130.0        | 0.000         | 0.000         | 0.033       | 0.033        | 369               |
| 20             | 85.73        | 0.000         | 0.000         | 0.026       | 0.026        | 194               | 87.82        | 0.000         | 0.000         | 0.021       | 0.021        | 159               | 130.0        | 0.000         | 0.000         | 0.033       | 0.033        | 369               |
| 21             | 102.0        | 0.000         | 0.000         | 0.031       | 0.031        | 273               | 132.5        | 0.000         | 0.000         | 0.032       | 0.032        | 363               | 122.3        | 0.000         | 0.000         | 0.031       | 0.031        | 326               |
| 22             | 108.0        | 0.000         | 0.000         | 0.033       | 0.033        | 306               | 174.3        | 0.000         | 0.000         | 0.042       | 0.042        | 627               | 122.3        | 0.000         | 0.000         | 0.031       | 0.031        | 326               |
| 23             | 98.00        | 0.000         | 0.000         | 0.030       | 0.030        | 252               | 180.3        | 0.000         | 0.000         | 0.043       | 0.043        | 671               | 124.8        | 0.000         | 0.000         | 0.032       | 0.032        | 340               |
| 24             | 71.77        | 0.000         | 0.000         | 0.022       | 0.022        | 135               | 180.3        | 0.000         | 0.000         | 0.043       | 0.043        | 671               | 124.8        | 0.000         | 0.000         | 0.032       | 0.032        | 340               |
| 25             | 77.60        | 0.000         | 0.000         | 0.024       | 0.024        | 158               | 185.0        | 0.000         | 0.000         | 0.035       | 0.035        | 559               | 124.8        | 0.000         | 0.000         | 0.032       | 0.032        | 340               |
| 26             | 120.0        | 0.000         | 0.000         | 0.036       | 0.036        | 378               | 188.0        | 0.000         | 0.000         | 0.036       | 0.036        | 578               | 133.0        | 0.000         | 0.000         | 0.034       | 0.034        | 386               |
| 27             | 107.8        | 0.000         | 0.000         | 0.033       | 0.033        | 305               | 186.0        | 0.000         | 0.000         | 0.035       | 0.035        | 566               | 133.0        | 0.000         | 0.000         | 0.034       | 0.034        | 386               |
| 28             | 128.0        | 0.000         | 0.000         | 0.033       | 0.033        | 359               | 180.0        | 0.000         | 0.000         | 0.034       | 0.034        | 530               | 142.0        | 0.000         | 0.000         | 0.036       | 0.036        | 440               |
| 29             | 126.0        | 0.000         | 0.000         | 0.032       | 0.032        | 348               | 174.0        | 0.000         | 0.000         | 0.033       | 0.033        | 495               | 127.4        | 0.000         | 0.000         | 0.032       | 0.032        | 354               |
| 30             | 103.2        | 0.000         | 0.000         | 0.026       | 0.026        | 234               | 140.4        | 0.000         | 0.000         | 0.027       | 0.027        | 322               | 134.0        | 0.000         | 0.000         | 0.035       | 0.035        | 405               |
| 31             | 87.82        | 0.000         | 0.000         | 0.022       | 0.022        | 169               |              |               |               |             |              |                   | 129.0        | 0.000         | 0.000         | 0.034       | 0.034        | 376               |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 102.4        | 0.000         | 0.000         | 0.025       | 0.025        | 228               | 98.29        | 0.000         | 0.000         | 0.037       | 0.037        | 343               | 135.7        | 0.000         | 0.000         | 0.034       | 0.034        | 401               |
| Ten Daily II   | 111.3        | 0.000         | 0.000         | 0.034       | 0.034        | 346               | 120.0        | 0.000         | 0.000         | 0.029       | 0.029        | 316               | 136.6        | 0.000         | 0.000         | 0.035       | 0.035        | 413               |
| Ten Daily III  | 102.7        | 0.000         | 0.000         | 0.029       | 0.029        | 265               | 172.1        | 0.000         | 0.000         | 0.036       | 0.036        | 538               | 128.9        | 0.000         | 0.000         | 0.033       | 0.033        | 365               |
| Monthly Total  |              |               |               |             |              | 8659              |              |               |               |             |              | 11970             |              |               |               |             |              | 12166             |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Handia ( 010215022) Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-II, Bhopal

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 19027611          | 0                     | 19027611              | 12386                   |
| 1988-1989 | 22044739          | 0                     | 22044739              | 20636                   |
| 1989-1990 | 16984378          | 0                     | 16984378              | 14552                   |
| 1990-1991 | 36819507          | 0                     | 36819507              | 34844                   |
| 1991-1992 | 21786214          | 0                     | 21786214              | 22333                   |
| 1992-1993 | 30379689          | 0                     | 30379689              | 19003                   |
| 1993-1994 | 32853670          | 0                     | 32853670              | 26030                   |
| 1994-1995 | 101606688         | 0                     | 101606688             | 58509                   |
| 1995-1996 | 26951347          | 0                     | 26951347              | 21017                   |
| 1996-1997 | 10000361          | 0                     | 10000361              | 13843                   |
| 1997-1998 | 17324971          | 0                     | 17324971              | 26684                   |
| 1998-1999 | 8688917           | 0                     | 8688917               | 21137                   |
| 1999-2000 | 55929198          | 0                     | 55929198              | 48510                   |
| 2000-2001 | 4949972           | 0                     | 4949972               | 11884                   |
| 2001-2002 | 23651116          | 0                     | 23651116              | 18109                   |
| 2002-2003 | 42984927          | 0                     | 42984927              | 20969                   |
| 2003-2004 | 91149988          | 0                     | 91149988              | 36177                   |
| 2004-2005 | 20421994          | 0                     | 20421994              | 18547                   |
| 2005-2006 | 41467076          | 98453                 | 41565529              | 31744                   |
| 2006-2007 | 45194540          | 292973                | 45487513              | 25638                   |
| 2007-2008 | 8965974           | 385964                | 9351938               | 16540                   |
| 2008-2009 | 5445970           | 127525                | 5573495               | 14890                   |
| 2009-2010 | 20454333          | 148158                | 20602491              | 18687                   |
| 2010-2011 | 8459170           | 184097                | 8643268               | 16918                   |
| 2011-2012 | 20529932          | 47316                 | 20577247              | 28368                   |
| 2012-2013 | 25035667          | 32777                 | 25068444              | 26489                   |
| 2013-2014 | 57330546          | 116888                | 57447434              | 44001                   |
| 2014-2015 | 3431846           | 107423                | 3539270               | 15060                   |
| 2015-2016 | 3935676           | 1084585               | 5020260               | 13485                   |

# Sediment Data Year Book 2015-16

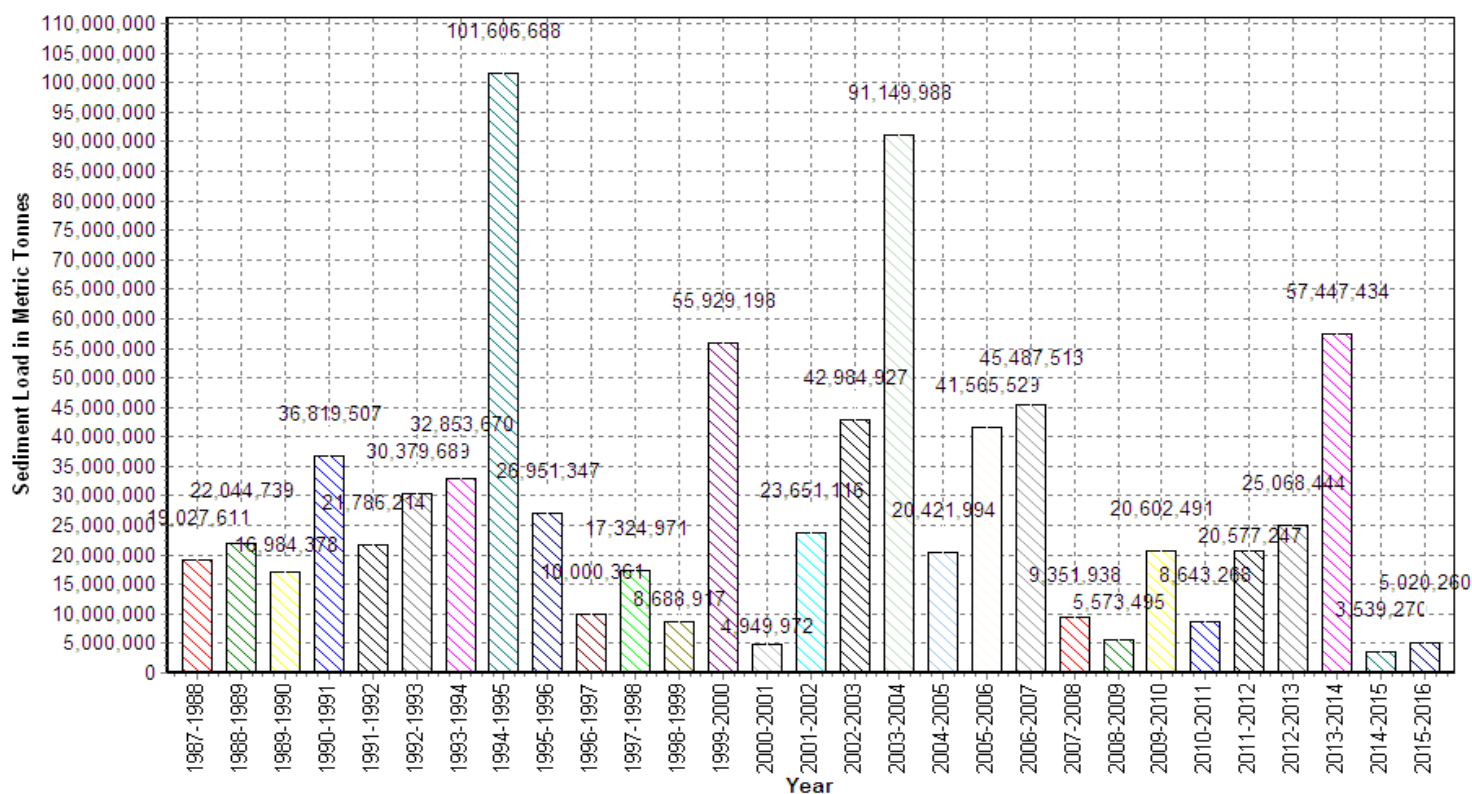
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD II, Bhopal



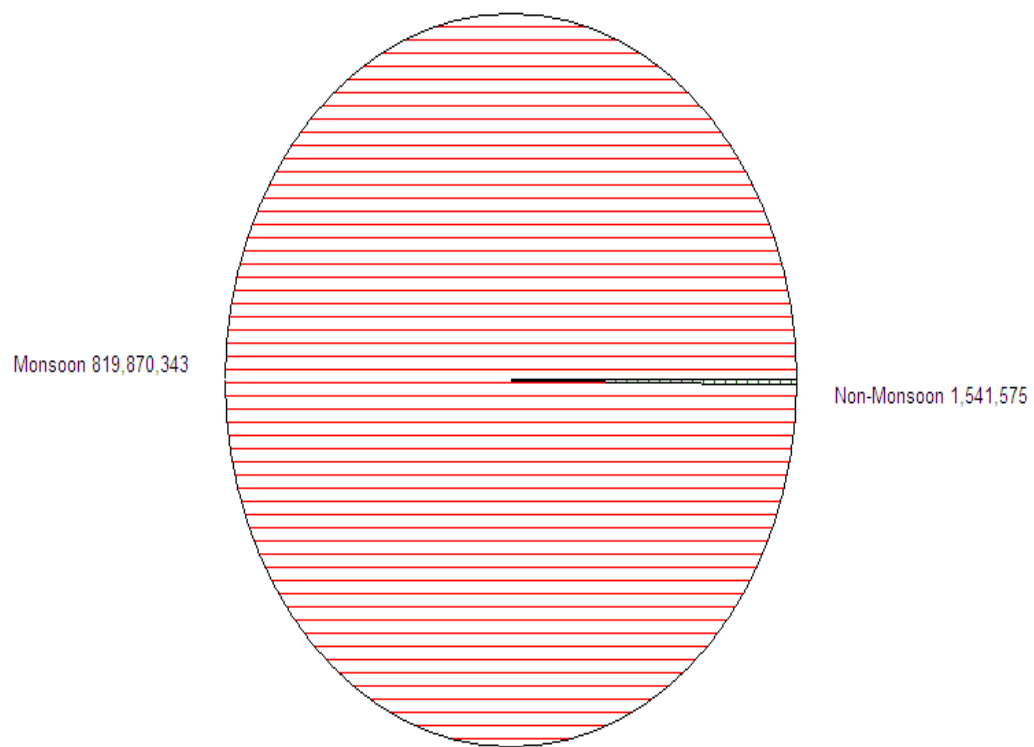
**Seasonal Sediment Load for the period : 1987-2016**

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-II, Bhopal



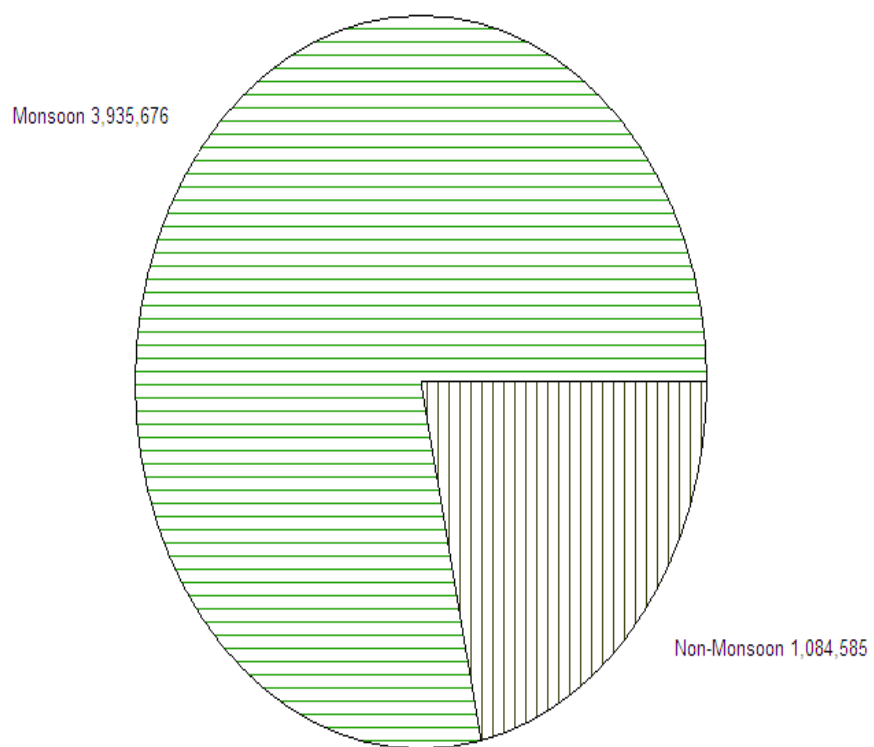
**Seasonal Sediment Load for the period : 2015-2016**

Station Name : Narmada at Handia ( 010215022)

Division : Narmada Division Bhopal

Local River : Narmada

Sub-Division : MNSD-II, Bhopal





**6.5 Narmada at Hoshangabad****History sheet**

|                          |                                 |                   |                       |
|--------------------------|---------------------------------|-------------------|-----------------------|
|                          |                                 | <b>Water Year</b> | <b>: 2015-2016</b>    |
| <b>Site</b>              | <b>: Narmada at Hoshangabad</b> | <b>Code</b>       | <b>: 010215019</b>    |
| State                    | : Madhya Pradesh                | District          | Hoshangabad           |
| Basin                    | : Narmada                       | Independent River | : Narmada             |
| Tributary                | :                               | Sub Tributary     | :                     |
| Sub-Sub Tributary        | :                               | Local River       | : Narmada             |
| Division                 | : Narmada Division, Bhopal      | Sub-Division      | : MNSD-I, Hoshangabad |
| Drainage Area            | : 44548 Sq. Km.                 | Bank              | : Left                |
| Latitude                 | : 22°45'21"                     | Longitude         | : 77°43'58"           |
| <b>Zero of Gauge (m)</b> | <b>: 282 .000(M.S.L.)</b>       | 21/05/1972        |                       |
|                          | Opening Date                    | Closing Date      |                       |
| Gauge                    | : 21/05/1972                    |                   |                       |
| Discharge                | : 16/09/1972                    |                   |                       |
| Sediment                 | : 29/12/1972                    |                   |                       |
| Water Quality            | : 15/07/1979                    |                   |                       |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad

| Day            | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 202.1        | 0.000         | 0.000         | 0.045       | 0.045        | 786               | 132.4        | 0.000         | 0.000         | 0.040       | 0.040        | 458               | 1265         | 0.000         | 0.000         | 0.461       | 0.461        | 50426             |
| 2              | 207.3        | 0.000         | 0.000         | 0.050       | 0.050        | 895               | 142.2        | 0.000         | 0.000         | 0.040       | 0.040        | 491               | 1413         | 0.000         | 0.000         | 0.515       | 0.515        | 62901             |
| 3              | 186.7        | 0.000         | 0.000         | 0.033       | 0.033        | 532               | 137.0        | 0.000         | 0.000         | 0.041       | 0.041        | 480               | 1401         | 0.000         | 0.000         | 0.295       | 0.295        | 35717             |
| 4              | 168.3        | 0.000         | 0.000         | 0.025       | 0.025        | 363               | 145.1        | 0.000         | 0.000         | 0.040       | 0.040        | 501               | 1417         | 0.000         | 0.000         | 0.270       | 0.270        | 33064             |
| 5              | 148.3        | 0.000         | 0.000         | 0.033       | 0.033        | 416               | 140.0        | 0.000         | 0.000         | 0.039       | 0.039        | 467               | 1590         | 0.000         | 0.000         | 1.218       | 1.218        | 167277            |
| 6              | 144.7        | 0.000         | 0.000         | 0.030       | 0.030        | 375               | 131.5        | 0.000         | 0.000         | 0.039       | 0.039        | 441               | 1644         | 0.000         | 0.000         | 0.953       | 0.953        | 135267            |
| 7              | 145.8        | 0.000         | 0.000         | 0.030       | 0.030        | 381               | 125.6        | 0.000         | 0.000         | 0.038       | 0.038        | 407               | 1541         | 0.000         | 0.000         | 0.588       | 0.588        | 78210             |
| 8              | 169.5        | 0.000         | 0.000         | 0.025       | 0.025        | 366               | 139.3        | 0.000         | 0.000         | 0.050       | 0.050        | 602               | 2247         | 0.000         | 0.000         | 0.625       | 0.625        | 121364            |
| 9              | 167.8        | 0.000         | 0.000         | 0.030       | 0.030        | 435               | 125.9        | 0.000         | 0.000         | 0.040       | 0.040        | 435               | 5794         | 0.000         | 0.000         | 1.612       | 1.612        | 806781            |
| 10             | 160.0        | 0.000         | 0.000         | 0.028       | 0.028        | 380               | 169.0        | 0.000         | 0.000         | 0.048       | 0.048        | 693               | 5640         | 0.000         | 0.000         | 0.475       | 0.475        | 231453            |
| 11             | 158.2        | 0.000         | 0.000         | 0.038       | 0.038        | 513               | 1782         | 0.000         | 0.000         | 0.525       | 0.525        | 80836             | 4468         | 0.000         | 0.000         | 0.468       | 0.468        | 180467            |
| 12             | 145.7        | 0.000         | 0.000         | 0.025       | 0.025        | 315               | 1754         | 0.000         | 0.000         | 0.517       | 0.517        | 78331             | 3036         | 0.000         | 0.000         | 0.713       | 0.713        | 186901            |
| 13             | 142.1        | 0.000         | 0.000         | 0.024       | 0.024        | 299               | 1209         | 0.000         | 0.000         | 0.525       | 0.525        | 54858             | 2534         | 0.000         | 0.000         | 0.480       | 0.480        | 105072            |
| 14             | 145.8        | 0.000         | 0.000         | 0.025       | 0.025        | 315               | 628.7        | 0.000         | 0.000         | 0.425       | 0.425        | 23085             | 2884         | 0.000         | 0.000         | 0.700       | 0.700        | 174408            |
| 15             | 112.4        | 0.000         | 0.000         | 0.030       | 0.030        | 291               | 451.5        | 0.000         | 0.000         | 0.538       | 0.538        | 20966             | 4132         | 0.000         | 0.000         | 1.003       | 1.003        | 358055            |
| 16             | 111.3        | 0.000         | 0.000         | 0.033       | 0.033        | 313               | 346.5        | 0.000         | 0.000         | 0.435       | 0.435        | 13025             | 3273         | 0.000         | 0.000         | 0.794       | 0.794        | 224671            |
| 17             | 113.3        | 0.000         | 0.000         | 0.033       | 0.033        | 318               | 368.6        | 0.000         | 0.000         | 0.438       | 0.438        | 13935             | 3187         | 0.000         | 0.000         | 0.460       | 0.460        | 126675            |
| 18             | 114.9        | 0.000         | 0.000         | 0.049       | 0.049        | 484               | 317.0        | 0.000         | 0.000         | 0.376       | 0.376        | 10305             | 2999         | 0.000         | 0.000         | 0.463       | 0.463        | 119823            |
| 19             | 135.0        | 0.000         | 0.000         | 0.045       | 0.045        | 525               | 366.3        | 0.000         | 0.000         | 0.435       | 0.435        | 13760             | 2360         | 0.000         | 0.000         | 0.425       | 0.425        | 86652             |
| 20             | 141.2        | 0.000         | 0.000         | 0.035       | 0.035        | 427               | 1685         | 0.000         | 0.000         | 2.000       | 2.000        | 291158            | 1584         | 0.000         | 0.000         | 0.360       | 0.360        | 49254             |
| 21             | 134.3        | 0.000         | 0.000         | 0.033       | 0.033        | 386               | 1270         | 0.000         | 0.000         | 0.588       | 0.588        | 64471             | 622.4        | 0.000         | 0.000         | 0.225       | 0.225        | 12100             |
| 22             | 128.4        | 0.000         | 0.000         | 0.030       | 0.030        | 333               | 497.7        | 0.000         | 0.000         | 0.460       | 0.460        | 19779             | 513.1        | 0.000         | 0.000         | 0.193       | 0.193        | 8534              |
| 23             | 140.2        | 0.000         | 0.000         | 0.045       | 0.045        | 545               | 450.2        | 0.000         | 0.000         | 0.445       | 0.445        | 17311             | 3013         | 0.000         | 0.000         | 1.130       | 1.130        | 294254            |
| 24             | 134.8        | 0.000         | 0.000         | 0.038       | 0.038        | 437               | 799.0        | 0.000         | 0.000         | 0.430       | 0.430        | 29685             | 1924         | 0.000         | 0.000         | 0.215       | 0.215        | 35731             |
| 25             | 153.2        | 0.000         | 0.000         | 0.028       | 0.028        | 371               | 1408         | 0.000         | 0.000         | 0.620       | 0.620        | 75432             | 1387         | 0.000         | 0.000         | 0.215       | 0.215        | 25770             |
| 26             | 130.5        | 0.000         | 0.000         | 0.035       | 0.035        | 395               | 1531         | 0.000         | 0.000         | 0.674       | 0.674        | 89200             | 1146         | 0.000         | 0.000         | 0.170       | 0.170        | 16836             |
| 27             | 129.5        | 0.000         | 0.000         | 0.038       | 0.038        | 419               | 1166         | 0.000         | 0.000         | 0.750       | 0.750        | 75588             | 1341         | 0.000         | 0.000         | 0.200       | 0.200        | 23170             |
| 28             | 123.2        | 0.000         | 0.000         | 0.036       | 0.036        | 380               | 632.6        | 0.000         | 0.000         | 0.593       | 0.593        | 32384             | 339.0        | 0.000         | 0.000         | 0.210       | 0.210        | 6150              |
| 29             | 118.3        | 0.000         | 0.000         | 0.038       | 0.038        | 383               | 512.6        | 0.000         | 0.000         | 0.593       | 0.593        | 26240             | 3805         | 0.000         | 0.000         | 0.200       | 0.200        | 65751             |
| 30             | 111.5        | 0.000         | 0.000         | 0.026       | 0.026        | 253               | 447.0        | 0.000         | 0.000         | 0.593       | 0.593        | 22882             | 3501         | 0.000         | 0.000         | 0.184       | 0.184        | 55663             |
| 31             |              |               |               |             |              |                   | 342.0        | 0.000         | 0.000         | 0.465       | 0.465        | 13738             | 575.1        | 0.000         | 0.000         | 0.250       | 0.250        | 12423             |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 170.0        | 0.000         | 0.000         | 0.033       | 0.033        | 493               | 138.8        | 0.000         | 0.000         | 0.041       | 0.041        | 497               | 2395         | 0.000         | 0.000         | 0.701       | 0.701        | 172246            |
| Ten Daily II   | 132.0        | 0.000         | 0.000         | 0.034       | 0.034        | 380               | 891.0        | 0.000         | 0.000         | 0.621       | 0.621        | 60026             | 3046         | 0.000         | 0.000         | 0.586       | 0.586        | 161198            |
| Ten Daily III  | 130.4        | 0.000         | 0.000         | 0.035       | 0.035        | 390               | 823.4        | 0.000         | 0.000         | 0.564       | 0.564        | 42428             | 1651         | 0.000         | 0.000         | 0.290       | 0.290        | 50580             |
| Monthly Total  |              |               |               |             |              | 12631             |              |               |               |             |              | 1071942           |              |               |               |             |              | 3890820           |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 533.3        | 0.000         | 0.000         | 0.253       | 0.253        | 11635             | 186.6        | 0.000         | 0.000         | 0.093       | 0.093        | 1491              | 95.03        | 0.000         | 0.000         | 0.015       | 0.015        | 127               |
| 2              | 786.2        | 0.000         | 0.000         | 0.255       | 0.255        | 17322             | 190.1        | 0.000         | 0.000         | 0.094       | 0.094        | 1548              | 125.7        | 0.000         | 0.000         | 0.016       | 0.016        | 176               |
| 3              | 722.8        | 0.000         | 0.000         | 0.250       | 0.250        | 15613             | 174.4        | 0.000         | 0.000         | 0.090       | 0.090        | 1356              | 149.5        | 0.000         | 0.000         | 0.030       | 0.030        | 388               |
| 4              | 567.2        | 0.000         | 0.000         | 0.250       | 0.250        | 12252             | 186.7        | 0.000         | 0.000         | 0.096       | 0.096        | 1554              | 156.6        | 0.000         | 0.000         | 0.030       | 0.030        | 406               |
| 5              | 521.7        | 0.000         | 0.000         | 0.225       | 0.225        | 10142             | 166.9        | 0.000         | 0.000         | 0.138       | 0.138        | 1983              | 146.6        | 0.000         | 0.000         | 0.028       | 0.028        | 348               |
| 6              | 518.6        | 0.000         | 0.000         | 0.224       | 0.224        | 10022             | 156.3        | 0.000         | 0.000         | 0.088       | 0.088        | 1182              | 141.2        | 0.000         | 0.000         | 0.025       | 0.025        | 305               |
| 7              | 483.2        | 0.000         | 0.000         | 0.150       | 0.150        | 6262              | 161.4        | 0.000         | 0.000         | 0.089       | 0.089        | 1238              | 140.9        | 0.000         | 0.000         | 0.028       | 0.028        | 335               |
| 8              | 463.2        | 0.000         | 0.000         | 0.115       | 0.115        | 4602              | 174.9        | 0.000         | 0.000         | 0.090       | 0.090        | 1360              | 137.1        | 0.000         | 0.000         | 0.027       | 0.027        | 317               |
| 9              | 402.0        | 0.000         | 0.000         | 0.125       | 0.125        | 4341              | 210.1        | 0.000         | 0.000         | 0.128       | 0.128        | 2314              | 137.4        | 0.000         | 0.000         | 0.025       | 0.025        | 297               |
| 10             | 353.2        | 0.000         | 0.000         | 0.123       | 0.123        | 3754              | 296.2        | 0.000         | 0.000         | 0.103       | 0.103        | 2623              | 133.5        | 0.000         | 0.000         | 0.020       | 0.020        | 231               |
| 11             | 332.5        | 0.000         | 0.000         | 0.125       | 0.125        | 3591              | 200.3        | 0.000         | 0.000         | 0.069       | 0.069        | 1200              | 115.1        | 0.000         | 0.000         | 0.017       | 0.017        | 172               |
| 12             | 298.0        | 0.000         | 0.000         | 0.098       | 0.098        | 2510              | 160.2        | 0.000         | 0.000         | 0.088       | 0.088        | 1211              | 117.4        | 0.000         | 0.000         | 0.015       | 0.015        | 152               |
| 13             | 275.2        | 0.000         | 0.000         | 0.090       | 0.090        | 2141              | 165.5        | 0.000         | 0.000         | 0.085       | 0.085        | 1215              | 115.0        | 0.000         | 0.000         | 0.015       | 0.015        | 149               |
| 14             | 260.4        | 0.000         | 0.000         | 0.125       | 0.125        | 2813              | 172.4        | 0.000         | 0.000         | 0.100       | 0.100        | 1489              | 112.1        | 0.000         | 0.000         | 0.015       | 0.015        | 145               |
| 15             | 301.2        | 0.000         | 0.000         | 0.150       | 0.150        | 3903              | 197.1        | 0.000         | 0.000         | 0.083       | 0.083        | 1405              | 102.3        | 0.000         | 0.000         | 0.014       | 0.014        | 121               |
| 16             | 261.4        | 0.000         | 0.000         | 0.135       | 0.135        | 3049              | 209.0        | 0.000         | 0.000         | 0.110       | 0.110        | 1986              | 117.6        | 0.000         | 0.000         | 0.016       | 0.016        | 166               |
| 17             | 232.6        | 0.000         | 0.000         | 0.120       | 0.120        | 2414              | 216.9        | 0.000         | 0.000         | 0.123       | 0.123        | 2296              | 114.6        | 0.000         | 0.000         | 0.015       | 0.015        | 149               |
| 18             | 208.5        | 0.000         | 0.000         | 0.135       | 0.135        | 2433              | 251.5        | 0.000         | 0.000         | 0.142       | 0.142        | 3087              | 112.0        | 0.000         | 0.000         | 0.014       | 0.014        | 133               |
| 19             | 305.3        | 0.000         | 0.000         | 0.198       | 0.198        | 5214              | 211.6        | 0.000         | 0.000         | 0.095       | 0.095        | 1737              | 120.0        | 0.000         | 0.000         | 0.120       | 0.120        | 1244              |
| 20             | 279.2        | 0.000         | 0.000         | 0.181       | 0.181        | 4362              | 169.7        | 0.000         | 0.000         | 0.060       | 0.060        | 880               | 86.01        | 0.000         | 0.000         | 0.086       | 0.086        | 639               |
| 21             | 277.1        | 0.000         | 0.000         | 0.128       | 0.128        | 3053              | 145.7        | 0.000         | 0.000         | 0.028       | 0.028        | 346               | 112.8        | 0.000         | 0.000         | 0.018       | 0.018        | 170               |
| 22             | 218.9        | 0.000         | 0.000         | 0.120       | 0.120        | 2269              | 134.3        | 0.000         | 0.000         | 0.025       | 0.025        | 294               | 109.9        | 0.000         | 0.000         | 0.017       | 0.017        | 162               |
| 23             | 221.4        | 0.000         | 0.000         | 0.120       | 0.120        | 2296              | 135.4        | 0.000         | 0.000         | 0.018       | 0.018        | 205               | 145.5        | 0.000         | 0.000         | 0.025       | 0.025        | 314               |
| 24             | 255.5        | 0.000         | 0.000         | 0.143       | 0.143        | 3146              | 123.2        | 0.000         | 0.000         | 0.016       | 0.016        | 169               | 139.7        | 0.000         | 0.000         | 0.023       | 0.023        | 272               |
| 25             | 236.3        | 0.000         | 0.000         | 0.132       | 0.132        | 2691              | 117.8        | 0.000         | 0.000         | 0.015       | 0.015        | 155               | 137.1        | 0.000         | 0.000         | 0.022       | 0.022        | 262               |
| 26             | 221.7        | 0.000         | 0.000         | 0.125       | 0.125        | 2394              | 123.9        | 0.000         | 0.000         | 0.015       | 0.015        | 161               | 147.3        | 0.000         | 0.000         | 0.013       | 0.013        | 168               |
| 27             | 228.9        | 0.000         | 0.000         | 0.129       | 0.129        | 2552              | 111.1        | 0.000         | 0.000         | 0.018       | 0.018        | 168               | 140.0        | 0.000         | 0.000         | 0.015       | 0.015        | 181               |
| 28             | 211.3        | 0.000         | 0.000         | 0.100       | 0.100        | 1826              | 108.7        | 0.000         | 0.000         | 0.018       | 0.018        | 164               | 144.9        | 0.000         | 0.000         | 0.015       | 0.015        | 188               |
| 29             | 197.5        | 0.000         | 0.000         | 0.095       | 0.095        | 1621              | 122.6        | 0.000         | 0.000         | 0.018       | 0.018        | 185               | 161.0        | 0.000         | 0.000         | 0.017       | 0.017        | 232               |
| 30             | 194.0        | 0.000         | 0.000         | 0.090       | 0.090        | 1508              | 122.1        | 0.000         | 0.000         | 0.018       | 0.018        | 185               | 151.6        | 0.000         | 0.000         | 0.013       | 0.013        | 164               |
| 31             |              |               |               |             |              |                   | 107.5        | 0.000         | 0.000         | 0.018       | 0.018        | 163               |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 535.1        | 0.000         | 0.000         | 0.197       | 0.197        | 9594              | 190.4        | 0.000         | 0.000         | 0.101       | 0.101        | 1665              | 136.4        | 0.000         | 0.000         | 0.024       | 0.024        | 293               |
| Ten Daily II   | 275.4        | 0.000         | 0.000         | 0.136       | 0.136        | 3243              | 195.4        | 0.000         | 0.000         | 0.095       | 0.095        | 1651              | 111.2        | 0.000         | 0.000         | 0.033       | 0.033        | 307               |
| Ten Daily III  | 226.2        | 0.000         | 0.000         | 0.118       | 0.118        | 2335              | 122.9        | 0.000         | 0.000         | 0.019       | 0.019        | 200               | 139.0        | 0.000         | 0.000         | 0.018       | 0.018        | 211               |
| Monthly Total  |              |               |               |             |              | 151728            |              |               |               |             |              | 35350             |              |               |               |             |              | 8111              |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad

| Day            | Dec          |               |               |             |              |                   | Jan          |               |               |             |              |                   | Feb          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 145.0        | 0.000         | 0.000         | 0.012       | 0.012        | 150               | 121.9        | 0.000         | 0.000         | 0.019       | 0.019        | 196               | 168.6        | 0.000         | 0.000         | 0.019       | 0.019        | 281               |
| 2              | 117.1        | 0.000         | 0.000         | 0.010       | 0.010        | 98                | 125.0        | 0.000         | 0.000         | 0.019       | 0.019        | 206               | 169.2        | 0.000         | 0.000         | 0.019       | 0.019        | 283               |
| 3              | 111.2        | 0.000         | 0.000         | 0.009       | 0.009        | 88                | 109.9        | 0.000         | 0.000         | 0.017       | 0.017        | 159               | 169.1        | 0.000         | 0.000         | 0.019       | 0.019        | 283               |
| 4              | 97.57        | 0.000         | 0.000         | 0.010       | 0.010        | 84                | 127.2        | 0.000         | 0.000         | 0.010       | 0.010        | 110               | 168.7        | 0.000         | 0.000         | 0.019       | 0.019        | 282               |
| 5              | 110.2        | 0.000         | 0.000         | 0.011       | 0.011        | 108               | 154.4        | 0.000         | 0.000         | 0.012       | 0.012        | 162               | 168.6        | 0.000         | 0.000         | 0.019       | 0.019        | 281               |
| 6              | 128.7        | 0.000         | 0.000         | 0.013       | 0.013        | 147               | 154.9        | 0.000         | 0.000         | 0.012       | 0.012        | 163               | 166.6        | 0.000         | 0.000         | 0.019       | 0.019        | 275               |
| 7              | 126.6        | 0.000         | 0.000         | 0.016       | 0.016        | 178               | 137.4        | 0.000         | 0.000         | 0.011       | 0.011        | 128               | 173.6        | 0.000         | 0.000         | 0.020       | 0.020        | 298               |
| 8              | 120.3        | 0.000         | 0.000         | 0.015       | 0.015        | 161               | 130.8        | 0.000         | 0.000         | 0.010       | 0.010        | 116               | 166.4        | 0.000         | 0.000         | 0.018       | 0.018        | 259               |
| 9              | 128.0        | 0.000         | 0.000         | 0.016       | 0.016        | 182               | 126.9        | 0.000         | 0.000         | 0.010       | 0.010        | 109               | 161.7        | 0.000         | 0.000         | 0.017       | 0.017        | 244               |
| 10             | 129.7        | 0.000         | 0.000         | 0.017       | 0.017        | 187               | 128.7        | 0.000         | 0.000         | 0.010       | 0.010        | 112               | 159.3        | 0.000         | 0.000         | 0.017       | 0.017        | 237               |
| 11             | 121.4        | 0.000         | 0.000         | 0.016       | 0.016        | 164               | 143.2        | 0.000         | 0.000         | 0.010       | 0.010        | 127               | 162.1        | 0.000         | 0.000         | 0.018       | 0.018        | 246               |
| 12             | 115.9        | 0.000         | 0.000         | 0.015       | 0.015        | 149               | 152.2        | 0.000         | 0.000         | 0.011       | 0.011        | 144               | 162.0        | 0.000         | 0.000         | 0.018       | 0.018        | 245               |
| 13             | 120.4        | 0.000         | 0.000         | 0.016       | 0.016        | 161               | 135.7        | 0.000         | 0.000         | 0.010       | 0.010        | 114               | 166.5        | 0.000         | 0.000         | 0.018       | 0.018        | 259               |
| 14             | 129.2        | 0.000         | 0.000         | 0.021       | 0.021        | 231               | 141.0        | 0.000         | 0.000         | 0.010       | 0.010        | 124               | 173.6        | 0.000         | 0.000         | 0.019       | 0.019        | 282               |
| 15             | 125.8        | 0.000         | 0.000         | 0.020       | 0.020        | 219               | 133.2        | 0.000         | 0.000         | 0.010       | 0.010        | 110               | 166.1        | 0.000         | 0.000         | 0.017       | 0.017        | 244               |
| 16             | 119.8        | 0.000         | 0.000         | 0.019       | 0.019        | 199               | 137.7        | 0.000         | 0.000         | 0.010       | 0.010        | 118               | 166.2        | 0.000         | 0.000         | 0.017       | 0.017        | 244               |
| 17             | 115.5        | 0.000         | 0.000         | 0.019       | 0.019        | 185               | 112.5        | 0.000         | 0.000         | 0.008       | 0.008        | 79                | 174.4        | 0.000         | 0.000         | 0.018       | 0.018        | 269               |
| 18             | 115.0        | 0.000         | 0.000         | 0.018       | 0.018        | 183               | 145.4        | 0.000         | 0.000         | 0.011       | 0.011        | 138               | 176.5        | 0.000         | 0.000         | 0.018       | 0.018        | 275               |
| 19             | 109.6        | 0.000         | 0.000         | 0.018       | 0.018        | 166               | 169.8        | 0.000         | 0.000         | 0.013       | 0.013        | 188               | 174.7        | 0.000         | 0.000         | 0.018       | 0.018        | 270               |
| 20             | 95.03        | 0.000         | 0.000         | 0.015       | 0.015        | 125               | 184.7        | 0.000         | 0.000         | 0.014       | 0.014        | 223               | 178.3        | 0.000         | 0.000         | 0.018       | 0.018        | 281               |
| 21             | 120.1        | 0.000         | 0.000         | 0.018       | 0.018        | 190               | 182.9        | 0.000         | 0.000         | 0.014       | 0.014        | 219               | 193.5        | 0.000         | 0.000         | 0.020       | 0.020        | 331               |
| 22             | 126.6        | 0.000         | 0.000         | 0.019       | 0.019        | 211               | 168.6        | 0.000         | 0.000         | 0.013       | 0.013        | 186               | 197.9        | 0.000         | 0.000         | 0.018       | 0.018        | 299               |
| 23             | 127.7        | 0.000         | 0.000         | 0.019       | 0.019        | 215               | 164.9        | 0.000         | 0.000         | 0.012       | 0.012        | 178               | 183.7        | 0.000         | 0.000         | 0.016       | 0.016        | 258               |
| 24             | 102.3        | 0.000         | 0.000         | 0.016       | 0.016        | 138               | 167.2        | 0.000         | 0.000         | 0.013       | 0.013        | 183               | 180.7        | 0.000         | 0.000         | 0.016       | 0.016        | 249               |
| 25             | 97.44        | 0.000         | 0.000         | 0.015       | 0.015        | 125               | 161.5        | 0.000         | 0.000         | 0.015       | 0.015        | 202               | 166.4        | 0.000         | 0.000         | 0.015       | 0.015        | 212               |
| 26             | 115.3        | 0.000         | 0.000         | 0.018       | 0.018        | 175               | 167.2        | 0.000         | 0.000         | 0.015       | 0.015        | 217               | 164.6        | 0.000         | 0.000         | 0.015       | 0.015        | 207               |
| 27             | 115.1        | 0.000         | 0.000         | 0.018       | 0.018        | 174               | 164.7        | 0.000         | 0.000         | 0.015       | 0.015        | 210               | 164.8        | 0.000         | 0.000         | 0.015       | 0.015        | 207               |
| 28             | 119.5        | 0.000         | 0.000         | 0.018       | 0.018        | 188               | 169.8        | 0.000         | 0.000         | 0.015       | 0.015        | 224               | 170.4        | 0.000         | 0.000         | 0.015       | 0.015        | 222               |
| 29             | 104.7        | 0.000         | 0.000         | 0.016       | 0.016        | 144               | 171.9        | 0.000         | 0.000         | 0.015       | 0.015        | 229               | 162.9        | 0.000         | 0.000         | 0.013       | 0.013        | 176               |
| 30             | 104.8        | 0.000         | 0.000         | 0.016       | 0.016        | 145               | 174.1        | 0.000         | 0.000         | 0.016       | 0.016        | 235               |              |               |               |             |              |                   |
| 31             | 113.6        | 0.000         | 0.000         | 0.017       | 0.017        | 170               | 183.4        | 0.000         | 0.000         | 0.016       | 0.016        | 261               |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 121.4        | 0.000         | 0.000         | 0.013       | 0.013        | 138               | 131.7        | 0.000         | 0.000         | 0.013       | 0.013        | 146               | 167.2        | 0.000         | 0.000         | 0.019       | 0.019        | 272               |
| Ten Daily II   | 116.8        | 0.000         | 0.000         | 0.018       | 0.018        | 178               | 145.5        | 0.000         | 0.000         | 0.011       | 0.011        | 137               | 170.1        | 0.000         | 0.000         | 0.018       | 0.018        | 262               |
| Ten Daily III  | 113.4        | 0.000         | 0.000         | 0.017       | 0.017        | 170               | 170.6        | 0.000         | 0.000         | 0.014       | 0.014        | 213               | 176.1        | 0.000         | 0.000         | 0.016       | 0.016        | 240               |
| Monthly Total  |              |               |               |             |              | 5040              |              |               |               |             |              | 5171              |              |               |               |             |              | 7500              |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 158.5        | 0.000         | 0.000         | 0.012       | 0.012        | 167               | 134.6        | 0.000         | 0.000         | 0.011       | 0.011        | 131               | 183.4        | 0.000         | 0.000         | 0.018       | 0.018        | 293               |
| 2              | 142.2        | 0.000         | 0.000         | 0.011       | 0.011        | 134               | 134.8        | 0.000         | 0.000         | 0.011       | 0.011        | 131               | 178.3        | 0.000         | 0.000         | 0.015       | 0.015        | 231               |
| 3              | 137.7        | 0.000         | 0.000         | 0.011       | 0.011        | 126               | 131.4        | 0.000         | 0.000         | 0.011       | 0.011        | 125               | 175.6        | 0.000         | 0.000         | 0.015       | 0.015        | 224               |
| 4              | 135.0        | 0.000         | 0.000         | 0.010       | 0.010        | 121               | 156.4        | 0.000         | 0.000         | 0.014       | 0.014        | 182               | 178.5        | 0.000         | 0.000         | 0.015       | 0.015        | 232               |
| 5              | 130.2        | 0.000         | 0.000         | 0.010       | 0.010        | 112               | 173.9        | 0.000         | 0.000         | 0.015       | 0.015        | 226               | 175.2        | 0.000         | 0.000         | 0.015       | 0.015        | 223               |
| 6              | 125.9        | 0.000         | 0.000         | 0.010       | 0.010        | 105               | 168.5        | 0.000         | 0.000         | 0.015       | 0.015        | 212               | 175.3        | 0.000         | 0.000         | 0.015       | 0.015        | 223               |
| 7              | 130.4        | 0.000         | 0.000         | 0.011       | 0.011        | 118               | 164.7        | 0.000         | 0.000         | 0.014       | 0.014        | 202               | 172.5        | 0.000         | 0.000         | 0.015       | 0.015        | 216               |
| 8              | 138.2        | 0.000         | 0.000         | 0.011       | 0.011        | 133               | 159.9        | 0.000         | 0.000         | 0.014       | 0.014        | 191               | 183.4        | 0.000         | 0.000         | 0.015       | 0.015        | 244               |
| 9              | 164.4        | 0.000         | 0.000         | 0.013       | 0.013        | 188               | 160.1        | 0.000         | 0.000         | 0.014       | 0.014        | 191               | 178.7        | 0.000         | 0.000         | 0.016       | 0.016        | 239               |
| 10             | 185.5        | 0.000         | 0.000         | 0.015       | 0.015        | 239               | 164.1        | 0.000         | 0.000         | 0.014       | 0.014        | 201               | 180.0        | 0.000         | 0.000         | 0.016       | 0.016        | 243               |
| 11             | 208.4        | 0.000         | 0.000         | 0.017       | 0.017        | 302               | 180.8        | 0.000         | 0.000         | 0.022       | 0.022        | 336               | 186.8        | 0.000         | 0.000         | 0.016       | 0.016        | 262               |
| 12             | 211.3        | 0.000         | 0.000         | 0.017       | 0.017        | 311               | 175.9        | 0.000         | 0.000         | 0.021       | 0.021        | 318               | 178.2        | 0.000         | 0.000         | 0.015       | 0.015        | 238               |
| 13             | 225.2        | 0.000         | 0.000         | 0.018       | 0.018        | 353               | 168.5        | 0.000         | 0.000         | 0.020       | 0.020        | 292               | 175.5        | 0.000         | 0.000         | 0.015       | 0.015        | 231               |
| 14             | 188.6        | 0.000         | 0.000         | 0.020       | 0.020        | 326               | 176.9        | 0.000         | 0.000         | 0.021       | 0.021        | 321               | 173.0        | 0.000         | 0.000         | 0.015       | 0.015        | 224               |
| 15             | 183.6        | 0.000         | 0.000         | 0.019       | 0.019        | 309               | 157.9        | 0.000         | 0.000         | 0.019       | 0.019        | 256               | 183.4        | 0.000         | 0.000         | 0.016       | 0.016        | 252               |
| 16             | 174.3        | 0.000         | 0.000         | 0.018       | 0.018        | 278               | 112.1        | 0.000         | 0.000         | 0.013       | 0.013        | 129               | 175.8        | 0.000         | 0.000         | 0.014       | 0.014        | 213               |
| 17             | 169.0        | 0.000         | 0.000         | 0.018       | 0.018        | 262               | 107.4        | 0.000         | 0.000         | 0.013       | 0.013        | 118               | 173.0        | 0.000         | 0.000         | 0.014       | 0.014        | 206               |
| 18             | 143.1        | 0.000         | 0.000         | 0.015       | 0.015        | 188               | 164.9        | 0.000         | 0.000         | 0.012       | 0.012        | 168               | 175.3        | 0.000         | 0.000         | 0.014       | 0.014        | 211               |
| 19             | 141.1        | 0.000         | 0.000         | 0.015       | 0.015        | 182               | 172.0        | 0.000         | 0.000         | 0.012       | 0.012        | 183               | 178.5        | 0.000         | 0.000         | 0.014       | 0.014        | 219               |
| 20             | 140.0        | 0.000         | 0.000         | 0.015       | 0.015        | 180               | 183.4        | 0.000         | 0.000         | 0.013       | 0.013        | 208               | 178.3        | 0.000         | 0.000         | 0.014       | 0.014        | 219               |
| 21             | 140.9        | 0.000         | 0.000         | 0.014       | 0.014        | 170               | 174.9        | 0.000         | 0.000         | 0.013       | 0.013        | 189               | 190.1        | 0.000         | 0.000         | 0.015       | 0.015        | 249               |
| 22             | 131.8        | 0.000         | 0.000         | 0.013       | 0.013        | 149               | 180.4        | 0.000         | 0.000         | 0.013       | 0.013        | 201               | 190.1        | 0.000         | 0.000         | 0.015       | 0.015        | 249               |
| 23             | 160.3        | 0.000         | 0.000         | 0.016       | 0.016        | 221               | 180.2        | 0.000         | 0.000         | 0.013       | 0.013        | 201               | 172.4        | 0.000         | 0.000         | 0.013       | 0.013        | 194               |
| 24             | 164.1        | 0.000         | 0.000         | 0.016       | 0.016        | 231               | 193.5        | 0.000         | 0.000         | 0.014       | 0.014        | 231               | 170.8        | 0.000         | 0.000         | 0.013       | 0.013        | 190               |
| 25             | 145.8        | 0.000         | 0.000         | 0.014       | 0.014        | 183               | 188.6        | 0.000         | 0.000         | 0.019       | 0.019        | 310               | 180.3        | 0.000         | 0.000         | 0.014       | 0.014        | 212               |
| 26             | 136.6        | 0.000         | 0.000         | 0.014       | 0.014        | 160               | 180.4        | 0.000         | 0.000         | 0.018       | 0.018        | 283               | 175.5        | 0.000         | 0.000         | 0.013       | 0.013        | 201               |
| 27             | 134.3        | 0.000         | 0.000         | 0.013       | 0.013        | 155               | 175.4        | 0.000         | 0.000         | 0.018       | 0.018        | 268               | 175.3        | 0.000         | 0.000         | 0.013       | 0.013        | 200               |
| 28             | 131.6        | 0.000         | 0.000         | 0.011       | 0.011        | 125               | 175.9        | 0.000         | 0.000         | 0.018       | 0.018        | 269               | 172.5        | 0.000         | 0.000         | 0.013       | 0.013        | 194               |
| 29             | 131.6        | 0.000         | 0.000         | 0.011       | 0.011        | 125               | 176.2        | 0.000         | 0.000         | 0.018       | 0.018        | 270               | 183.4        | 0.000         | 0.000         | 0.014       | 0.014        | 219               |
| 30             | 129.3        | 0.000         | 0.000         | 0.011       | 0.011        | 121               | 172.5        | 0.000         | 0.000         | 0.017       | 0.017        | 259               | 178.2        | 0.000         | 0.000         | 0.015       | 0.015        | 231               |
| 31             | 130.3        | 0.000         | 0.000         | 0.011       | 0.011        | 123               |              |               |               |             |              |                   | 178.4        | 0.000         | 0.000         | 0.015       | 0.015        | 231               |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 144.8        | 0.000         | 0.000         | 0.011       | 0.011        | 144               | 154.8        | 0.000         | 0.000         | 0.013       | 0.013        | 179               | 178.1        | 0.000         | 0.000         | 0.015       | 0.015        | 237               |
| Ten Daily II   | 178.4        | 0.000         | 0.000         | 0.017       | 0.017        | 269               | 160.0        | 0.000         | 0.000         | 0.017       | 0.017        | 233               | 177.8        | 0.000         | 0.000         | 0.015       | 0.015        | 227               |
| Ten Daily III  | 139.7        | 0.000         | 0.000         | 0.013       | 0.013        | 160               | 179.8        | 0.000         | 0.000         | 0.016       | 0.016        | 248               | 178.8        | 0.000         | 0.000         | 0.014       | 0.014        | 215               |
| Monthly Total  |              |               |               |             |              | 5895              |              |               |               |             |              | 6603              |              |               |               |             |              | 7013              |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Hoshangabad ( 010215019) Division : Narmada Division, Bhopal

Local River : Narmada

SubDivision :MNSD-I, Hoshangabad

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 13696732          | 0                     | 13696732              | 12351                   |
| 1988-1989 | 21927043          | 0                     | 21927043              | 20561                   |
| 1989-1990 | 12260503          | 0                     | 12260503              | 12621                   |
| 1990-1991 | 28921421          | 0                     | 28921421              | 32525                   |
| 1991-1992 | 17163196          | 0                     | 17163196              | 21307                   |
| 1992-1993 | 22273546          | 0                     | 22273546              | 17083                   |
| 1993-1994 | 24945905          | 0                     | 24945905              | 21370                   |
| 1994-1995 | 41396876          | 0                     | 41396876              | 52525                   |
| 1995-1996 | 13478552          | 0                     | 13478552              | 19477                   |
| 1996-1997 | 1864008           | 0                     | 1864008               | 11102                   |
| 1997-1998 | 14386694          | 0                     | 14386694              | 22983                   |
| 1998-1999 | 6442728           | 0                     | 6442728               | 17077                   |
| 1999-2000 | 27754797          | 0                     | 27754797              | 43778                   |
| 2000-2001 | 5418046           | 0                     | 5418046               | 10985                   |
| 2001-2002 | 11518072          | 0                     | 11518072              | 17112                   |
| 2002-2003 | 12492177          | 0                     | 12492177              | 17532                   |
| 2003-2004 | 24976310          | 0                     | 24976310              | 29911                   |
| 2004-2005 | 11095494          | 0                     | 11095494              | 15602                   |
| 2005-2006 | 41754968          | 112666                | 41867634              | 29700                   |
| 2006-2007 | 21223787          | 63622                 | 21287409              | 20517                   |
| 2007-2008 | 3245231           | 48195                 | 3293426               | 12585                   |
| 2008-2009 | 8450881           | 43281                 | 8494162               | 12343                   |
| 2009-2010 | 14345893          | 12602                 | 14358495              | 13831                   |
| 2010-2011 | 2677514           | 84382                 | 2761896               | 12869                   |
| 2011-2012 | 11067511          | 122367                | 11189878              | 25203                   |
| 2012-2013 | 32740071          | 122954                | 32863024              | 21076                   |
| 2013-2014 | 338236903         | 74412                 | 338311315             | 38710                   |
| 2014-2015 | 13947824          | 91716                 | 14039540              | 12492                   |
| 2015-2016 | 5170582           | 37221                 | 5207803               | 12457                   |

# Sediment Data Year Book 2015-16

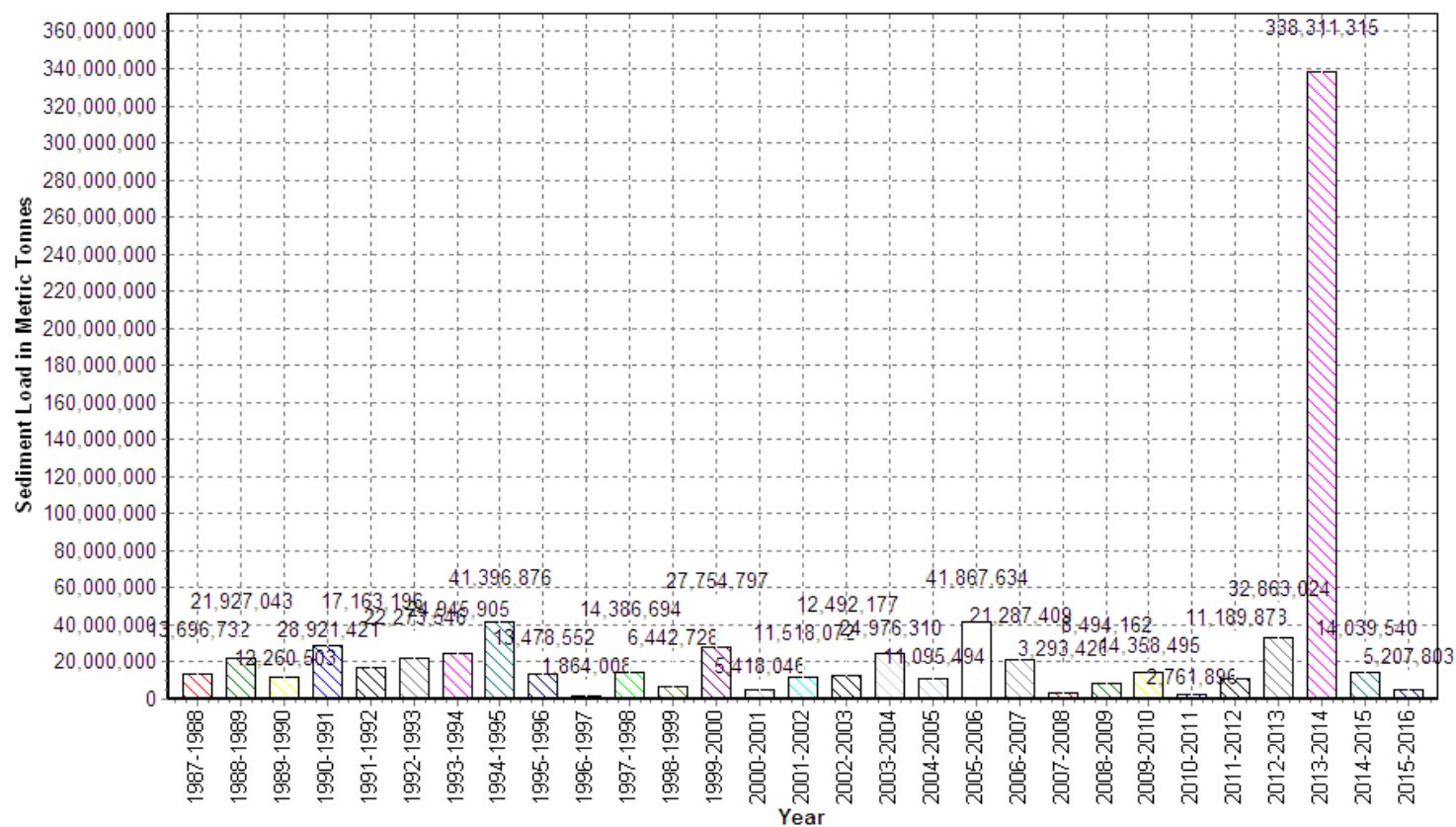
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad



Sediment Data Year Book 2015-16

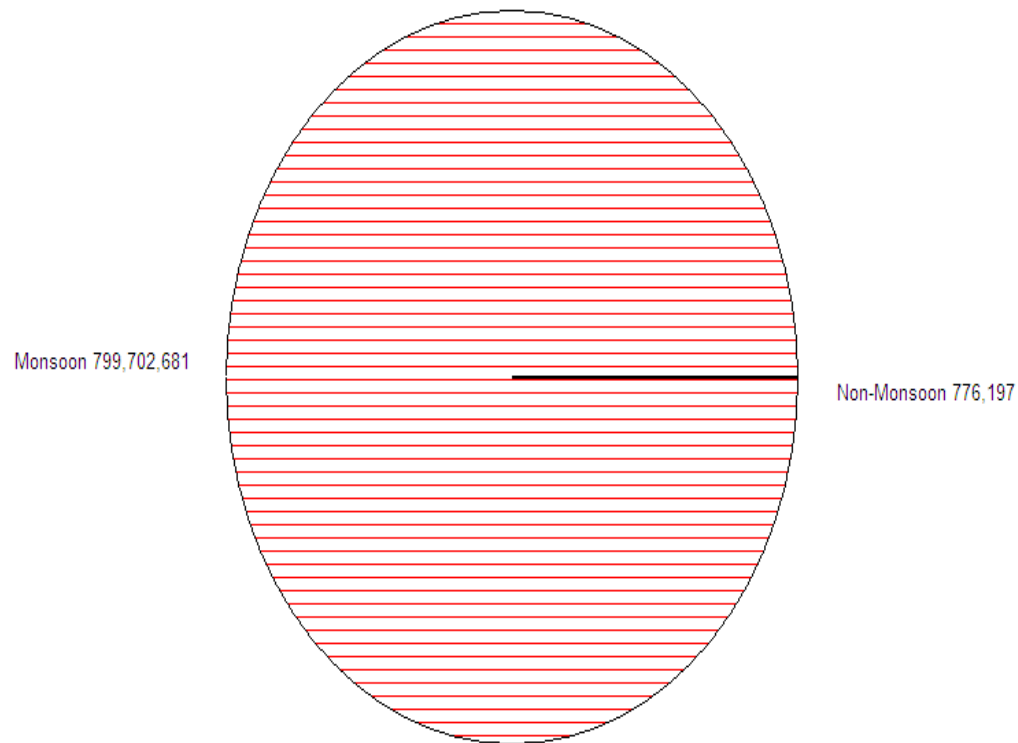
**Seasonal Sediment Load for the period : 1987-2016**

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad



Sediment Data Year Book 2015-16

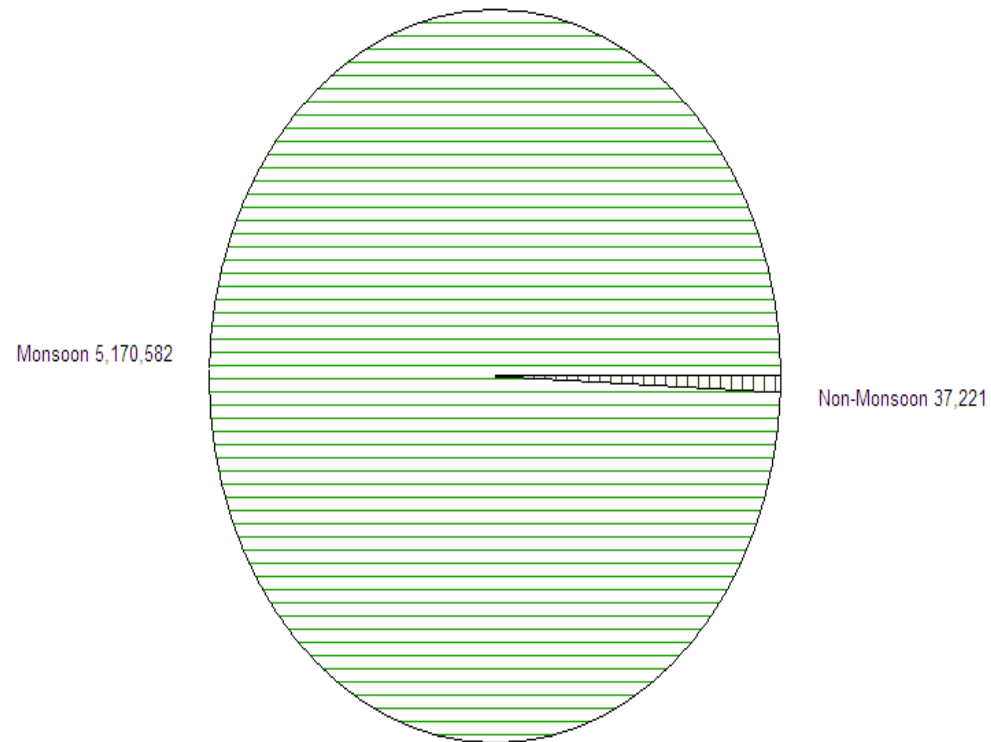
**Seasonal Sediment Load for the period : 2015-2016**

Station Name : Narmada at Hoshangabad ( 010215019)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad





**6.6 Narmada at Sandia****History sheet**

|                          |                            |                   |                       |
|--------------------------|----------------------------|-------------------|-----------------------|
|                          |                            | <b>Water Year</b> | <b>: 2015-2016</b>    |
| <b>Site</b>              | <b>: Narmada at Sandia</b> | <b>Code</b>       | <b>: 010215013</b>    |
| State                    | : Madhya Pradesh           | District          | Hoshangabad           |
| Basin                    | : Narmada                  | Independent River | : Narmada             |
| Tributary                | :                          | Sub Tributary     | :                     |
| Sub-Sub Tributary        | :                          | Local River       | : Narmada             |
| Division                 | : Narmada Division,Bhopal  | Sub-Division      | : MNSD-I, Hoshangabad |
| Drainage Area            | : 33953.5 Sq. Km.          | Bank              | : Left                |
| Latitude                 | : 22°54'57"                | Longitude         | : 78°20'51"           |
| <b>Zero of Gauge (m)</b> | <b>: 297 .000(M.S.L.)</b>  | 01/03/1978        |                       |
|                          | Opening Date               | Closing Date      |                       |
| Gauge                    | : 01/03/1978               |                   |                       |
| Discharge                | : 18/04/1978               |                   |                       |
| Sediment                 | : 09/08/1978               |                   |                       |
| Water Quality            | : 15/09/1979               |                   |                       |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Sandia ( 010215013)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad

| Day            | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 187.5        | 0.000         | 0.000         | 0.025       | 0.025        | 405               | 116.5        | 0.000         | 0.000         | 0.048       | 0.048        | 478               | 191.0        | 0.000         | 0.000         | 0.024       | 0.024        | 396               |
| 2              | 169.9        | 0.000         | 0.000         | 0.025       | 0.025        | 367               | 107.2        | 0.000         | 0.000         | 0.043       | 0.043        | 394               | 165.9        | 0.000         | 0.000         | 0.021       | 0.021        | 299               |
| 3              | 141.0        | 0.000         | 0.000         | 0.023       | 0.023        | 274               | 132.0        | 0.000         | 0.000         | 0.045       | 0.045        | 513               | 187.8        | 0.000         | 0.000         | 0.023       | 0.023        | 365               |
| 4              | 105.7        | 0.000         | 0.000         | 0.023       | 0.023        | 206               | 115.6        | 0.000         | 0.000         | 0.045       | 0.045        | 450               | 620.1        | 0.000         | 0.000         | 0.050       | 0.050        | 2679              |
| 5              | 101.8        | 0.000         | 0.000         | 0.020       | 0.020        | 176               | 87.89        | 0.000         | 0.000         | 0.034       | 0.034        | 260               | 2982         | 0.000         | 0.000         | 0.088       | 0.088        | 22546             |
| 6              | 111.8        | 0.000         | 0.000         | 0.020       | 0.020        | 193               | 100.1        | 0.000         | 0.000         | 0.043       | 0.043        | 368               | 1745         | 0.000         | 0.000         | 0.048       | 0.048        | 7160              |
| 7              | 132.5        | 0.000         | 0.000         | 0.024       | 0.024        | 271               | 126.4        | 0.000         | 0.000         | 0.048       | 0.048        | 519               | 902.9        | 0.000         | 0.000         | 0.045       | 0.045        | 3510              |
| 8              | 137.9        | 0.000         | 0.000         | 0.023       | 0.023        | 268               | 107.8        | 0.000         | 0.000         | 0.040       | 0.040        | 372               | 790.8        | 0.000         | 0.000         | 0.050       | 0.050        | 3416              |
| 9              | 141.0        | 0.000         | 0.000         | 0.008       | 0.008        | 91                | 108.4        | 0.000         | 0.000         | 0.050       | 0.050        | 468               | 625.8        | 0.000         | 0.000         | 0.040       | 0.040        | 2139              |
| 10             | 138.8        | 0.000         | 0.000         | 0.023       | 0.023        | 270               | 1782         | 0.000         | 0.000         | 0.822       | 0.822        | 126551            | 685.1        | 0.000         | 0.000         | 0.050       | 0.050        | 2930              |
| 11             | 113.7        | 0.000         | 0.000         | 0.020       | 0.020        | 196               | 1200         | 0.000         | 0.000         | 0.554       | 0.554        | 57371             | 596.0        | 0.000         | 0.000         | 0.045       | 0.045        | 2317              |
| 12             | 102.1        | 0.000         | 0.000         | 0.020       | 0.020        | 176               | 1259         | 0.000         | 0.000         | 0.581       | 0.581        | 63182             | 710.5        | 0.000         | 0.000         | 0.090       | 0.090        | 5525              |
| 13             | 98.24        | 0.000         | 0.000         | 0.020       | 0.020        | 170               | 669.2        | 0.000         | 0.000         | 0.309       | 0.309        | 17848             | 957.4        | 0.000         | 0.000         | 0.100       | 0.100        | 8272              |
| 14             | 70.96        | 0.000         | 0.000         | 0.014       | 0.014        | 89                | 330.2        | 0.000         | 0.000         | 0.073       | 0.073        | 2068              | 1031         | 0.000         | 0.000         | 0.120       | 0.120        | 10685             |
| 15             | 97.56        | 0.000         | 0.000         | 0.020       | 0.020        | 169               | 261.1        | 0.000         | 0.000         | 0.025       | 0.025        | 564               | 1736         | 0.000         | 0.000         | 0.202       | 0.202        | 30301             |
| 16             | 96.65        | 0.000         | 0.000         | 0.020       | 0.020        | 167               | 268.5        | 0.000         | 0.000         | 0.063       | 0.063        | 1450              | 696.8        | 0.000         | 0.000         | 0.081       | 0.081        | 4883              |
| 17             | 102.5        | 0.000         | 0.000         | 0.023       | 0.023        | 199               | 265.4        | 0.000         | 0.000         | 0.058       | 0.058        | 1318              | 726.5        | 0.000         | 0.000         | 0.113       | 0.113        | 7062              |
| 18             | 115.6        | 0.000         | 0.000         | 0.023       | 0.023        | 225               | 240.7        | 0.000         | 0.000         | 0.052       | 0.052        | 1085              | 660.3        | 0.000         | 0.000         | 0.105       | 0.105        | 5990              |
| 19             | 105.2        | 0.000         | 0.000         | 0.023       | 0.023        | 209               | 188.8        | 0.000         | 0.000         | 0.041       | 0.041        | 667               | 656.8        | 0.000         | 0.000         | 0.048       | 0.048        | 2696              |
| 20             | 95.50        | 0.000         | 0.000         | 0.020       | 0.020        | 165               | 202.4        | 0.000         | 0.000         | 0.053       | 0.053        | 918               | 532.4        | 0.000         | 0.000         | 0.043       | 0.043        | 1955              |
| 21             | 62.15        | 0.000         | 0.000         | 0.013       | 0.013        | 70                | 222.7        | 0.000         | 0.000         | 0.070       | 0.070        | 1347              | 407.1        | 0.000         | 0.000         | 0.038       | 0.038        | 1319              |
| 22             | 80.35        | 0.000         | 0.000         | 0.020       | 0.020        | 139               | 248.1        | 0.000         | 0.000         | 0.073       | 0.073        | 1554              | 317.2        | 0.000         | 0.000         | 0.045       | 0.045        | 1233              |
| 23             | 79.67        | 0.000         | 0.000         | 0.027       | 0.027        | 182               | 328.8        | 0.000         | 0.000         | 0.100       | 0.100        | 2841              | 345.1        | 0.000         | 0.000         | 0.049       | 0.049        | 1460              |
| 24             | 102.7        | 0.000         | 0.000         | 0.025       | 0.025        | 222               | 761.5        | 0.000         | 0.000         | 0.232       | 0.232        | 15238             | 316.4        | 0.000         | 0.000         | 0.045       | 0.045        | 1230              |
| 25             | 95.64        | 0.000         | 0.000         | 0.025       | 0.025        | 207               | 765.3        | 0.000         | 0.000         | 0.233       | 0.233        | 15391             | 297.9        | 0.000         | 0.000         | 0.038       | 0.038        | 965               |
| 26             | 93.92        | 0.000         | 0.000         | 0.033       | 0.033        | 264               | 775.1        | 0.000         | 0.000         | 0.236       | 0.236        | 15787             | 227.2        | 0.000         | 0.000         | 0.038       | 0.038        | 736               |
| 27             | 100.7        | 0.000         | 0.000         | 0.040       | 0.040        | 348               | 638.0        | 0.000         | 0.000         | 0.194       | 0.194        | 10696             | 210.8        | 0.000         | 0.000         | 0.048       | 0.048        | 865               |
| 28             | 78.32        | 0.000         | 0.000         | 0.031       | 0.031        | 211               | 230.4        | 0.000         | 0.000         | 0.070       | 0.070        | 1395              | 344.0        | 0.000         | 0.000         | 0.078       | 0.078        | 2304              |
| 29             | 90.39        | 0.000         | 0.000         | 0.038       | 0.038        | 293               | 238.3        | 0.000         | 0.000         | 0.072       | 0.072        | 1492              | 584.2        | 0.000         | 0.000         | 0.054       | 0.054        | 2715              |
| 30             | 106.8        | 0.000         | 0.000         | 0.045       | 0.045        | 415               | 258.3        | 0.000         | 0.000         | 0.025       | 0.025        | 558               | 542.1        | 0.000         | 0.000         | 0.050       | 0.050        | 2338              |
| 31             |              |               |               |             |              |                   | 223.4        | 0.000         | 0.000         | 0.025       | 0.025        | 483               | 584.2        | 0.000         | 0.000         | 0.050       | 0.050        | 2524              |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 136.8        | 0.000         | 0.000         | 0.021       | 0.021        | 252               | 278.4        | 0.000         | 0.000         | 0.122       | 0.122        | 13037             | 889.6        | 0.000         | 0.000         | 0.044       | 0.044        | 4544              |
| Ten Daily II   | 99.80        | 0.000         | 0.000         | 0.020       | 0.020        | 176               | 488.5        | 0.000         | 0.000         | 0.181       | 0.181        | 14647             | 830.3        | 0.000         | 0.000         | 0.095       | 0.095        | 7969              |
| Ten Daily III  | 89.06        | 0.000         | 0.000         | 0.030       | 0.030        | 235               | 426.4        | 0.000         | 0.000         | 0.121       | 0.121        | 6071              | 379.6        | 0.000         | 0.000         | 0.048       | 0.048        | 1608              |
| Monthly Total  |              |               |               |             |              | 6636              |              |               |               |             |              | 343627            |              |               |               |             |              | 142816            |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Sandia ( 010215013)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 735.8        | 0.000         | 0.000         | 0.122       | 0.122        | 7724              | 177.7        | 0.000         | 0.000         | 0.009       | 0.009        | 134               | 134.8        | 0.000         | 0.000         | 0.048       | 0.048        | 560               |
| 2              | 652.2        | 0.000         | 0.000         | 0.180       | 0.180        | 10142             | 175.9        | 0.000         | 0.000         | 0.009       | 0.009        | 131               | 137.4        | 0.000         | 0.000         | 0.031       | 0.031        | 372               |
| 3              | 549.9        | 0.000         | 0.000         | 0.133       | 0.133        | 6329              | 172.4        | 0.000         | 0.000         | 0.008       | 0.008        | 126               | 131.2        | 0.000         | 0.000         | 0.030       | 0.030        | 339               |
| 4              | 547.3        | 0.000         | 0.000         | 0.125       | 0.125        | 5910              | 156.0        | 0.000         | 0.000         | 0.008       | 0.008        | 103               | 126.6        | 0.000         | 0.000         | 0.029       | 0.029        | 315               |
| 5              | 526.4        | 0.000         | 0.000         | 0.090       | 0.090        | 4093              | 144.8        | 0.000         | 0.000         | 0.006       | 0.006        | 73                | 127.2        | 0.000         | 0.000         | 0.029       | 0.029        | 318               |
| 6              | 402.4        | 0.000         | 0.000         | 0.069       | 0.069        | 2392              | 139.9        | 0.000         | 0.000         | 0.002       | 0.002        | 27                | 117.4        | 0.000         | 0.000         | 0.027       | 0.027        | 271               |
| 7              | 349.6        | 0.000         | 0.000         | 0.094       | 0.094        | 2846              | 161.1        | 0.000         | 0.000         | 0.008       | 0.008        | 104               | 116.2        | 0.000         | 0.000         | 0.026       | 0.026        | 266               |
| 8              | 289.7        | 0.000         | 0.000         | 0.050       | 0.050        | 1257              | 215.6        | 0.000         | 0.000         | 0.013       | 0.013        | 233               | 116.9        | 0.000         | 0.000         | 0.027       | 0.027        | 269               |
| 9              | 263.8        | 0.000         | 0.000         | 0.076       | 0.076        | 1726              | 236.4        | 0.000         | 0.000         | 0.040       | 0.040        | 817               | 100.9        | 0.000         | 0.000         | 0.014       | 0.014        | 125               |
| 10             | 273.3        | 0.000         | 0.000         | 0.025       | 0.025        | 590               | 194.4        | 0.000         | 0.000         | 0.016       | 0.016        | 272               | 101.5        | 0.000         | 0.000         | 0.014       | 0.014        | 126               |
| 11             | 231.1        | 0.000         | 0.000         | 0.040       | 0.040        | 799               | 148.8        | 0.000         | 0.000         | 0.012       | 0.012        | 159               | 95.85        | 0.000         | 0.000         | 0.014       | 0.014        | 112               |
| 12             | 229.2        | 0.000         | 0.000         | 0.068       | 0.068        | 1337              | 146.0        | 0.000         | 0.000         | 0.026       | 0.026        | 332               | 92.83        | 0.000         | 0.000         | 0.013       | 0.013        | 106               |
| 13             | 240.7        | 0.000         | 0.000         | 0.071       | 0.071        | 1474              | 149.7        | 0.000         | 0.000         | 0.024       | 0.024        | 304               | 101.9        | 0.000         | 0.000         | 0.014       | 0.014        | 127               |
| 14             | 219.6        | 0.000         | 0.000         | 0.083       | 0.083        | 1565              | 171.3        | 0.000         | 0.000         | 0.023       | 0.023        | 333               | 97.83        | 0.000         | 0.000         | 0.014       | 0.014        | 117               |
| 15             | 211.4        | 0.000         | 0.000         | 0.023       | 0.023        | 411               | 214.9        | 0.000         | 0.000         | 0.028       | 0.028        | 524               | 99.92        | 0.000         | 0.000         | 0.014       | 0.014        | 122               |
| 16             | 203.7        | 0.000         | 0.000         | 0.073       | 0.073        | 1276              | 221.2        | 0.000         | 0.000         | 0.026       | 0.026        | 487               | 93.86        | 0.000         | 0.000         | 0.016       | 0.016        | 126               |
| 17             | 178.5        | 0.000         | 0.000         | 0.064       | 0.064        | 980               | 222.5        | 0.000         | 0.000         | 0.025       | 0.025        | 481               | 97.85        | 0.000         | 0.000         | 0.016       | 0.016        | 137               |
| 18             | 205.0        | 0.000         | 0.000         | 0.030       | 0.030        | 531               | 218.3        | 0.000         | 0.000         | 0.025       | 0.025        | 463               | 103.2        | 0.000         | 0.000         | 0.017       | 0.017        | 152               |
| 19             | 219.0        | 0.000         | 0.000         | 0.043       | 0.043        | 804               | 168.4        | 0.000         | 0.000         | 0.037       | 0.037        | 543               | 90.60        | 0.000         | 0.000         | 0.015       | 0.015        | 117               |
| 20             | 218.3        | 0.000         | 0.000         | 0.042       | 0.042        | 799               | 123.6        | 0.000         | 0.000         | 0.033       | 0.033        | 347               | 81.67        | 0.000         | 0.000         | 0.013       | 0.013        | 95                |
| 21             | 199.7        | 0.000         | 0.000         | 0.040       | 0.040        | 690               | 115.9        | 0.000         | 0.000         | 0.031       | 0.031        | 313               | 111.8        | 0.000         | 0.000         | 0.060       | 0.060        | 577               |
| 22             | 207.7        | 0.000         | 0.000         | 0.033       | 0.033        | 583               | 104.1        | 0.000         | 0.000         | 0.028       | 0.028        | 253               | 125.7        | 0.000         | 0.000         | 0.067       | 0.067        | 729               |
| 23             | 221.3        | 0.000         | 0.000         | 0.045       | 0.045        | 851               | 110.2        | 0.000         | 0.000         | 0.033       | 0.033        | 309               | 98.12        | 0.000         | 0.000         | 0.008       | 0.008        | 64                |
| 24             | 214.4        | 0.000         | 0.000         | 0.020       | 0.020        | 370               | 102.0        | 0.000         | 0.000         | 0.030       | 0.030        | 265               | 119.6        | 0.000         | 0.000         | 0.009       | 0.009        | 94                |
| 25             | 218.3        | 0.000         | 0.000         | 0.020       | 0.020        | 384               | 99.92        | 0.000         | 0.000         | 0.029       | 0.029        | 254               | 119.0        | 0.000         | 0.000         | 0.009       | 0.009        | 94                |
| 26             | 234.4        | 0.000         | 0.000         | 0.022       | 0.022        | 443               | 86.92        | 0.000         | 0.000         | 0.032       | 0.032        | 242               | 102.5        | 0.000         | 0.000         | 0.008       | 0.008        | 69                |
| 27             | 226.6        | 0.000         | 0.000         | 0.021       | 0.021        | 414               | 90.97        | 0.000         | 0.000         | 0.060       | 0.060        | 473               | 129.7        | 0.000         | 0.000         | 0.010       | 0.010        | 111               |
| 28             | 211.3        | 0.000         | 0.000         | 0.020       | 0.020        | 360               | 111.3        | 0.000         | 0.000         | 0.038       | 0.038        | 366               | 130.7        | 0.000         | 0.000         | 0.010       | 0.010        | 113               |
| 29             | 192.4        | 0.000         | 0.000         | 0.018       | 0.018        | 298               | 108.7        | 0.000         | 0.000         | 0.026       | 0.026        | 244               | 114.7        | 0.000         | 0.000         | 0.009       | 0.009        | 87                |
| 30             | 190.3        | 0.000         | 0.000         | 0.038       | 0.038        | 617               | 90.77        | 0.000         | 0.000         | 0.027       | 0.027        | 213               | 92.66        | 0.000         | 0.000         | 0.003       | 0.003        | 24                |
| 31             |              |               |               |             |              |                   | 83.17        | 0.000         | 0.000         | 0.030       | 0.030        | 213               |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 459.0        | 0.000         | 0.000         | 0.096       | 0.096        | 4301              | 177.4        | 0.000         | 0.000         | 0.012       | 0.012        | 202               | 121.0        | 0.000         | 0.000         | 0.028       | 0.028        | 296               |
| Ten Daily II   | 215.6        | 0.000         | 0.000         | 0.053       | 0.053        | 998               | 178.5        | 0.000         | 0.000         | 0.026       | 0.026        | 397               | 95.55        | 0.000         | 0.000         | 0.015       | 0.015        | 121               |
| Ten Daily III  | 211.6        | 0.000         | 0.000         | 0.028       | 0.028        | 501               | 100.4        | 0.000         | 0.000         | 0.033       | 0.033        | 286               | 114.4        | 0.000         | 0.000         | 0.019       | 0.019        | 196               |
| Monthly Total  |              |               |               |             |              | 57995             |              |               |               |             |              | 9138              |              |               |               |             |              | 6134              |





# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Sandia ( 010215013) Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division:MNSD-I, Hoshangabad

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 7529140           | 0                     | 7529140               | 7469                    |
| 1988-1989 | 16266197          | 0                     | 16266197              | 15401                   |
| 1989-1990 | 4764959           | 0                     | 4764959               | 7805                    |
| 1990-1991 | 16499579          | 0                     | 16499579              | 23713                   |
| 1991-1992 | 31100237          | 0                     | 31100237              | 16572                   |
| 1992-1993 | 7506724           | 0                     | 7506724               | 12999                   |
| 1993-1994 | 11324633          | 0                     | 11324633              | 15094                   |
| 1994-1995 | 43941942          | 0                     | 43941942              | 37107                   |
| 1995-1996 | 11257938          | 0                     | 11257938              | 16228                   |
| 1996-1997 | 2415023           | 0                     | 2415023               | 8959                    |
| 1997-1998 | 7382982           | 0                     | 7382982               | 16842                   |
| 1998-1999 | 5939963           | 0                     | 5939963               | 13090                   |
| 1999-2000 | 34685472          | 0                     | 34685472              | 31756                   |
| 2000-2001 | 10300014          | 0                     | 10300014              | 8791                    |
| 2001-2002 | 18040558          | 0                     | 18040558              | 14484                   |
| 2002-2003 | 13837434          | 0                     | 13837434              | 11487                   |
| 2003-2004 | 36417062          | 0                     | 36417062              | 23001                   |
| 2004-2005 | 11432445          | 0                     | 11432445              | 13284                   |
| 2005-2006 | 26940023          | 200265                | 27140288              | 24423                   |
| 2006-2007 | 17843016          | 125370                | 17968386              | 13936                   |
| 2007-2008 | 225892            | 11152                 | 237044                | 9305                    |
| 2008-2009 | 1249337           | 49464                 | 1298802               | 9914                    |
| 2009-2010 | 47170094          | 42441                 | 47212536              | 11271                   |
| 2010-2011 | 4083187           | 422459                | 4505647               | 9112                    |
| 2011-2012 | 37840545          | 497337                | 38337883              | 22368                   |
| 2012-2013 | 15153224          | 153017                | 15306241              | 13589                   |
| 2013-2014 | 15096652          | 132822                | 15229473              | 28654                   |
| 2014-2015 | 3320615           | 71095                 | 3391709               | 10500                   |
| 2015-2016 | 566346            | 58438                 | 624785                | 6318                    |

# Sediment Data Year Book 2015-16

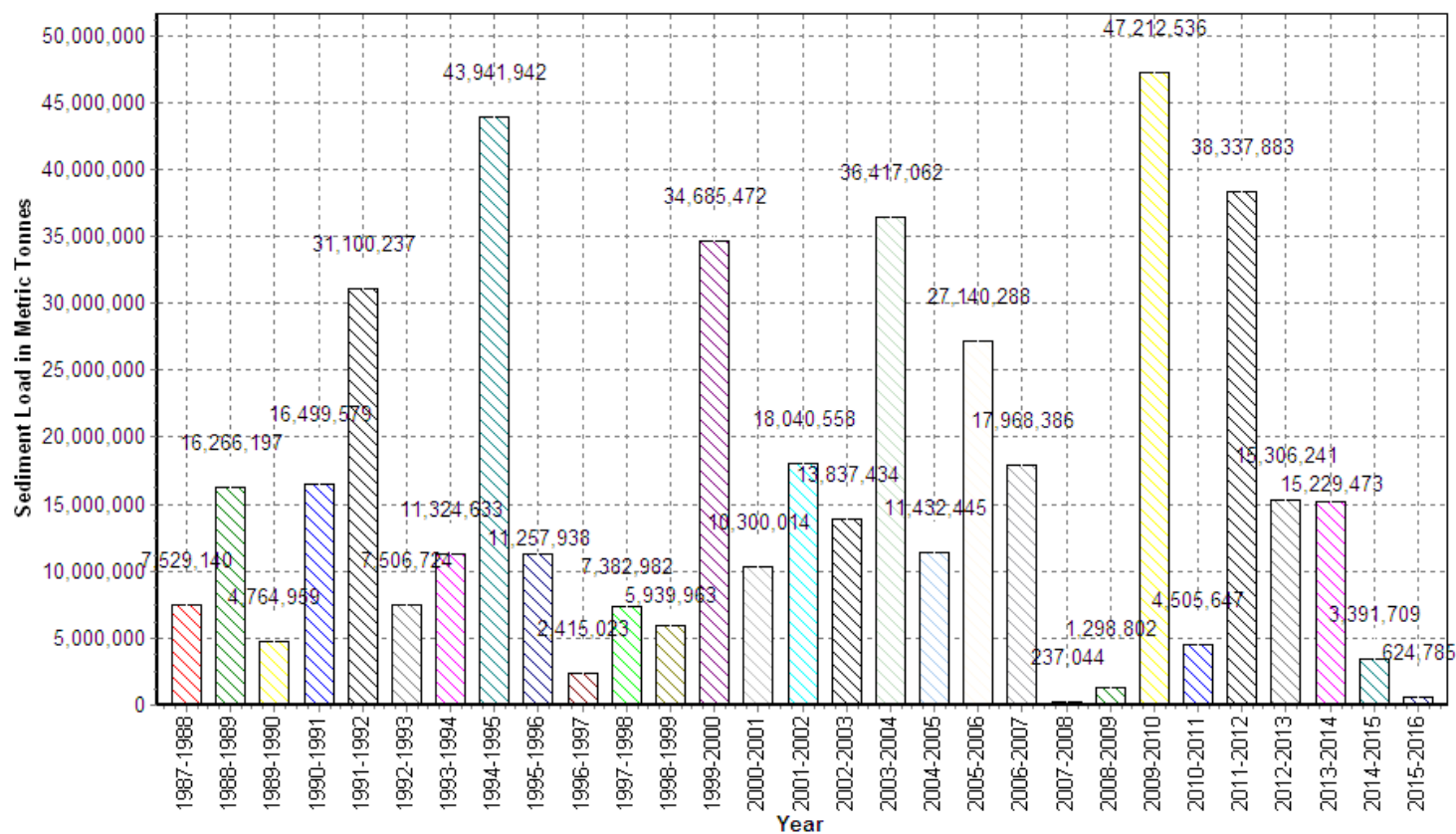
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Sandia ( 010215013)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad



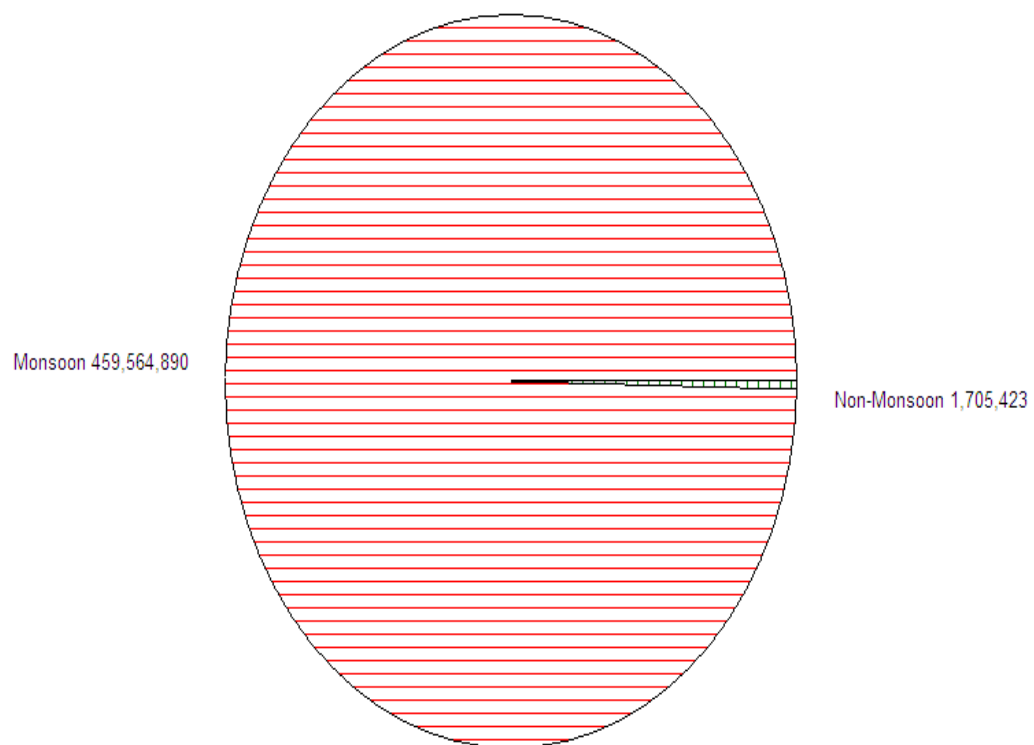
**Seasonal Sediment Load for period : 1987-2016**

Station Name : Narmada at Sandia ( 010215013)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad



Sediment Data Year Book 2015-16

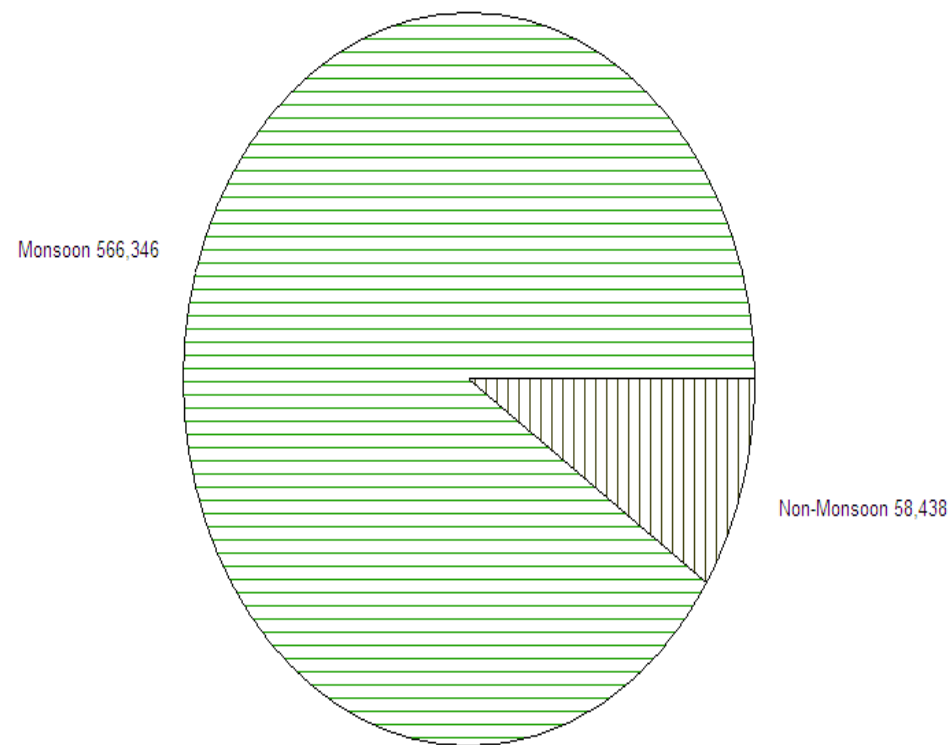
**Seasonal Sediment Load for period : 2015-2016**

Station Name : Narmada at Sandia ( 010215013)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-1 Hoshangabad





**6.7 Shakkar at Gadarwara****History sheet**

|                          |                               |                   |                       |
|--------------------------|-------------------------------|-------------------|-----------------------|
|                          |                               | <b>Water Year</b> | <b>: 2015-2016</b>    |
| <b>Site</b>              | <b>: Shakkar at Gadarwara</b> | <b>Code</b>       | <b>: 010215012</b>    |
| State                    | : Madhya Pradesh              | District          | Narsinghpur           |
| Basin                    | : Narmada                     | Independent River | : Narmada             |
| Tributary                | : Shakkar                     | Local River       | : Shakkar             |
| Division                 | : Narmada Division, Bhopal    | Sub-Division      | : MNSD-I, Hoshangabad |
| Drainage Area            | : 2270 Sq. Km.                | Bank              | : Left                |
| Latitude                 | : 22°55'26"                   | Longitude         | : 78°47'20"           |
| <b>Zero of Gauge (m)</b> | <b>: 321 .000(M.S.L.)</b>     | 01/02/1977        |                       |
|                          | Opening Date                  | Closing Date      |                       |
| Gauge                    | : 01/02/1977                  |                   |                       |
| Discharge                | : 01/02/1977                  |                   |                       |
| Sediment                 | : 15/06/1978                  |                   |                       |
| Water Quality            | : 16/08/1979                  |                   |                       |









# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Shakkar at Gadarwara ( 010215012)

Division : Narmada Division, Bhopal

Local River : Shakkar

Sub-Division : MNSD-I, Hoshangabad

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 558684            | 0                     | 558684                | 502                     |
| 1988-1989 | 2457908           | 0                     | 2457908               | 1534                    |
| 1989-1990 | 1131618           | 0                     | 1131618               | 1094                    |
| 1990-1991 | 2403873           | 0                     | 2403873               | 2210                    |
| 1991-1992 | 869283            | 0                     | 869283                | 725                     |
| 1992-1993 | 1509931           | 0                     | 1509931               | 1148                    |
| 1993-1994 | 1449469           | 0                     | 1449469               | 1411                    |
| 1994-1995 | 6473197           | 0                     | 6473197               | 3068                    |
| 1995-1996 | 1704168           | 0                     | 1704168               | 913                     |
| 1996-1997 | 343576            | 0                     | 343576                | 668                     |
| 1997-1998 | 1511294           | 0                     | 1511294               | 1312                    |
| 1998-1999 | 310187            | 0                     | 310187                | 808                     |
| 1999-2000 | 3802366           | 0                     | 3802366               | 3689                    |
| 2000-2001 | 524430            | 0                     | 524430                | 729                     |
| 2001-2002 | 421505            | 0                     | 421505                | 599                     |
| 2002-2003 | 814769            | 0                     | 814769                | 1225                    |
| 2003-2004 | 728251            | 0                     | 728251                | 1603                    |
| 2004-2005 | 157004            | 0                     | 157004                | 657                     |
| 2005-2006 | 745498            | 160                   | 745658                | 1411                    |
| 2006-2007 | 2654321           | 38                    | 2654359               | 2333                    |
| 2007-2008 | 739549            | 13                    | 739562                | 1630                    |
| 2008-2009 | 115482            | 2                     | 115485                | 796                     |
| 2009-2010 | 5461674           | 79                    | 5461752               | 2152                    |
| 2010-2011 | 663097            | 19                    | 663116                | 1598                    |
| 2011-2012 | 612288            | 5                     | 612293                | 1280                    |
| 2012-2013 | 1229000           | 46                    | 1229046               | 2222                    |
| 2013-2014 | 3562927           | 462                   | 3563388               | 2941                    |
| 2014-2015 | 436903            | 18                    | 436921                | 1066                    |
| 2015-2016 | 632929            | 0                     | 632929                | 1075                    |

# Sediment Data Year Book 2015-16

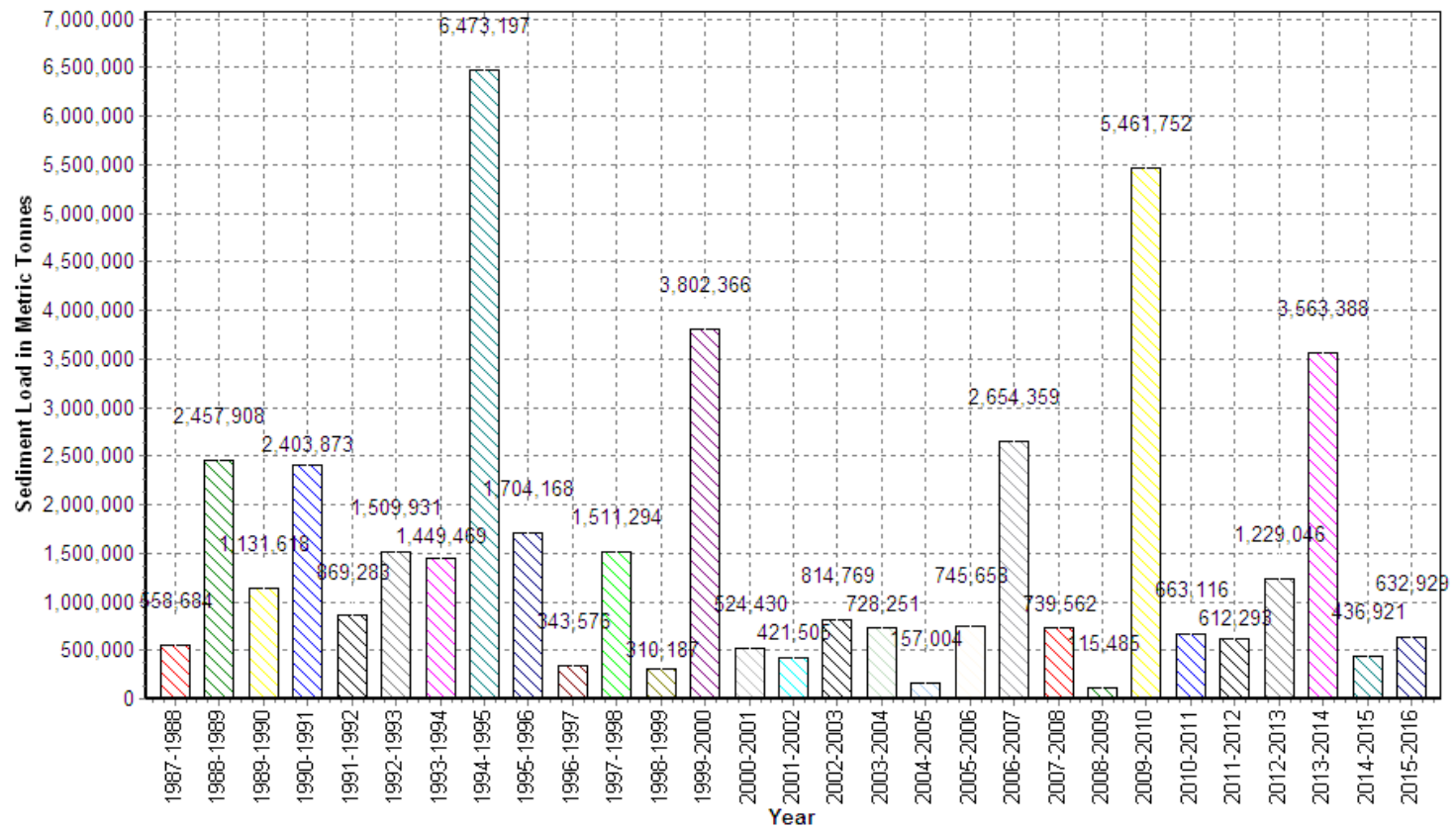
## Annual Sediment Load for period : 1987-2016

Station Name : Shakkar at Gadarwara ( 010215012)

Division : Narmada Division, Bhopal

Local River : Shakkar

Sub-Div : MNSD-I, Hoshangabad



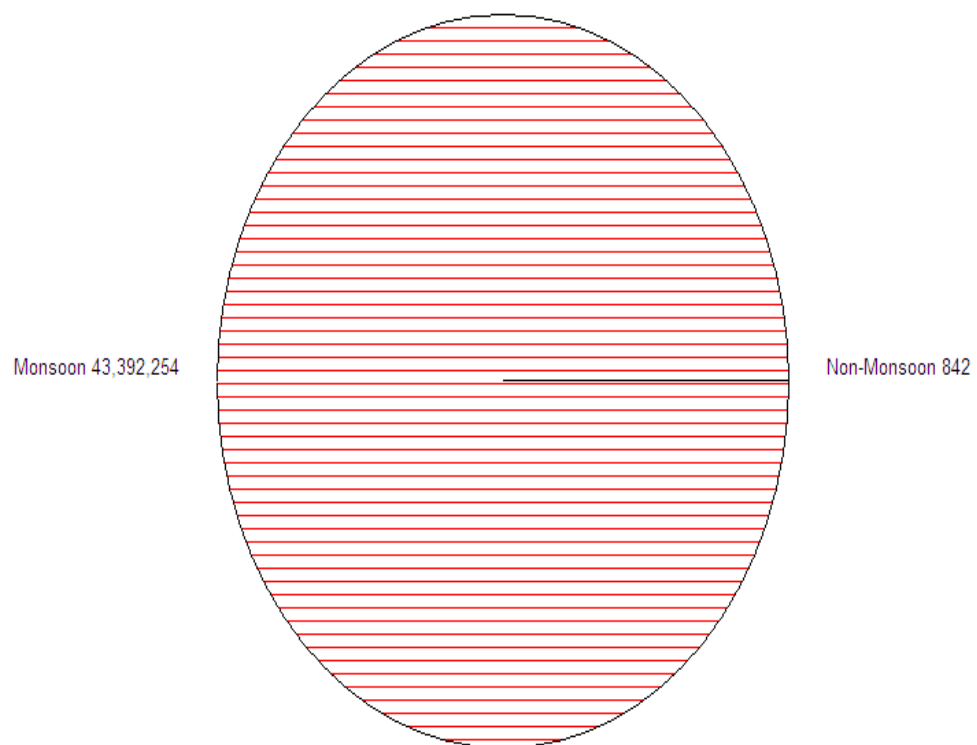
**Seasonal Sediment Load for the period : 1987-2016**

Station Name : Shakkar at Gadarwara ( 010215012)

Division : Narmada Division, Bhopal

Local River : Shakkar

Sub-Div : MNSD-I, Hoshangabad



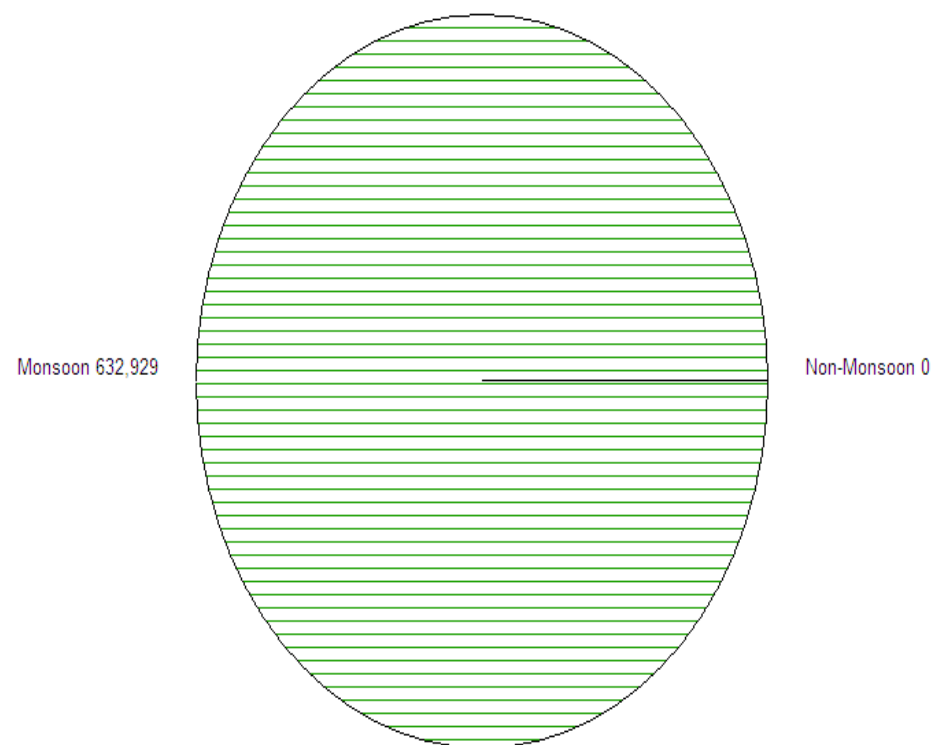
**Seasonal Sediment Load for the period : 2015-2016**

Station Name : Shakkar at Gadarwara ( 010215012)

Division : Narmada Division, Bhopal

Local River : Shakkar

Sub-Div : MNSD-I, Hoshangabad





**6.8 Narmada at Barman****History Sheet**

|                          |                            |                   |                       |
|--------------------------|----------------------------|-------------------|-----------------------|
|                          |                            | <b>Water Year</b> | <b>: 2015-2016</b>    |
| <b>Site</b>              | <b>: Narmada at Barman</b> | <b>Code</b>       | <b>: 010215011</b>    |
| State                    | : Madhya Pradesh           | District          | Narsinghpur           |
| Basin                    | : Narmada                  | Independent River | : Narmada             |
| Tributary                | :                          | Sub Tributary     | :                     |
| Sub-Sub Tributary        | :                          | Local River       | : Narmada             |
| Division                 | : Narmada Division, Bhopal | Sub-Division      | : MNSD-I, Hoshangabad |
| Drainage Area            | : 26453 Sq. Km.            | Bank              | : Right               |
| Latitude                 | : 23°01'52"                | Longitude         | : 79°00'56"           |
| <b>Zero of Gauge (m)</b> | <b>: 306 .000(M.S.L.)</b>  | 09/12/1970        |                       |
|                          | Opening Date               | Closing Date      |                       |
| Gauge                    | : 09/12/1970               |                   |                       |
| Discharge                | : 20/11/1971               |                   |                       |
| Sediment                 | : 27/08/1972               |                   |                       |
| Water Quality            | : 01/06/1979               |                   |                       |









# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Barman ( 010215011) Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division: MNSD-I, Hoshangabad

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 4381713           | 0                     | 4381713               | 7564                    |
| 1988-1989 | 8267376           | 0                     | 8267376               | 12872                   |
| 1989-1990 | 1419707           | 0                     | 1419707               | 4832                    |
| 1990-1991 | 20391794          | 0                     | 20391794              | 18200                   |
| 1991-1992 | 16865569          | 0                     | 16865569              | 13869                   |
| 1992-1993 | 9827990           | 0                     | 9827990               | 9791                    |
| 1993-1994 | 7409792           | 0                     | 7409792               | 11032                   |
| 1994-1995 | 60655649          | 0                     | 60655649              | 28471                   |
| 1995-1996 | 13038554          | 0                     | 13038554              | 13283                   |
| 1996-1997 | 733590            | 0                     | 733590                | 6450                    |
| 1997-1998 | 6005111           | 0                     | 6005111               | 13382                   |
| 1998-1999 | 1253537           | 0                     | 1253537               | 9392                    |
| 1999-2000 | 12801169          | 0                     | 12801169              | 23109                   |
| 2000-2001 | 1591162           | 0                     | 1591162               | 7140                    |
| 2001-2002 | 2438050           | 0                     | 2438050               | 12682                   |
| 2002-2003 | 8769326           | 0                     | 8769326               | 9000                    |
| 2003-2004 | 9592152           | 0                     | 9592152               | 17975                   |
| 2004-2005 | 2583378           | 0                     | 2583378               | 11171                   |
| 2005-2006 | 15179015          | 79830                 | 15258845              | 21038                   |
| 2006-2007 | 3190311           | 40541                 | 3230853               | 9268                    |
| 2007-2008 | 1070164           | 77035                 | 1147199               | 6154                    |
| 2008-2009 | 2081124           | 58625                 | 2139749               | 8569                    |
| 2009-2010 | 18820922          | 78878                 | 18899800              | 5718                    |
| 2010-2011 | 1663068           | 160332                | 1823400               | 7788                    |
| 2011-2012 | 3014422           | 29146                 | 3043568               | 17848                   |
| 2012-2013 | 1576091           | 35015                 | 1611106               | 10313                   |
| 2013-2014 | 20335632          | 77300                 | 20412932              | 22328                   |
| 2014-2015 | 4226014           | 60963                 | 4286977               | 8875                    |
| 2015-2016 | 847845            | 76717                 | 924562                | 4057                    |

# Sediment Data Year Book 2015-16

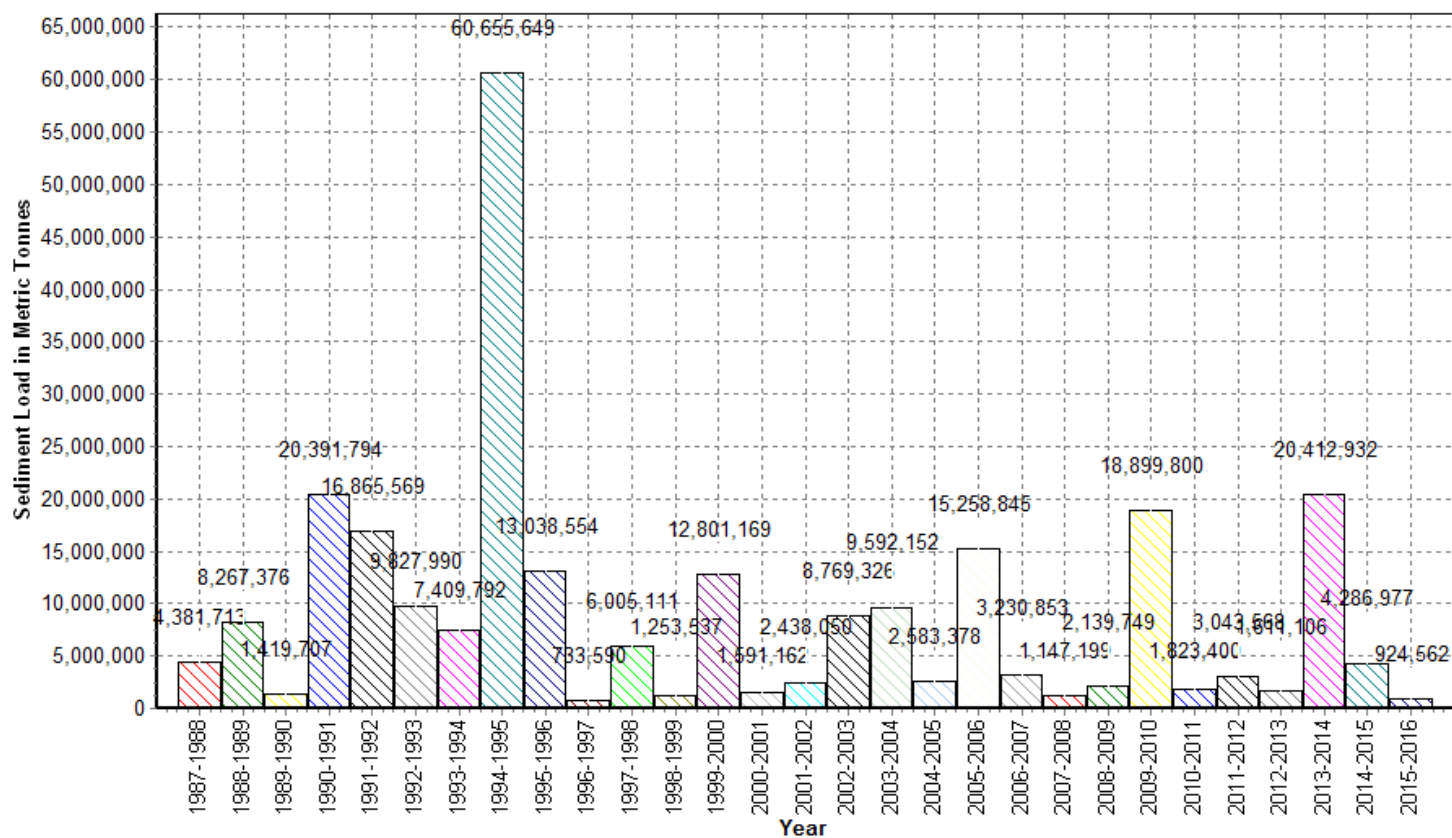
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Barman ( 010215011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad



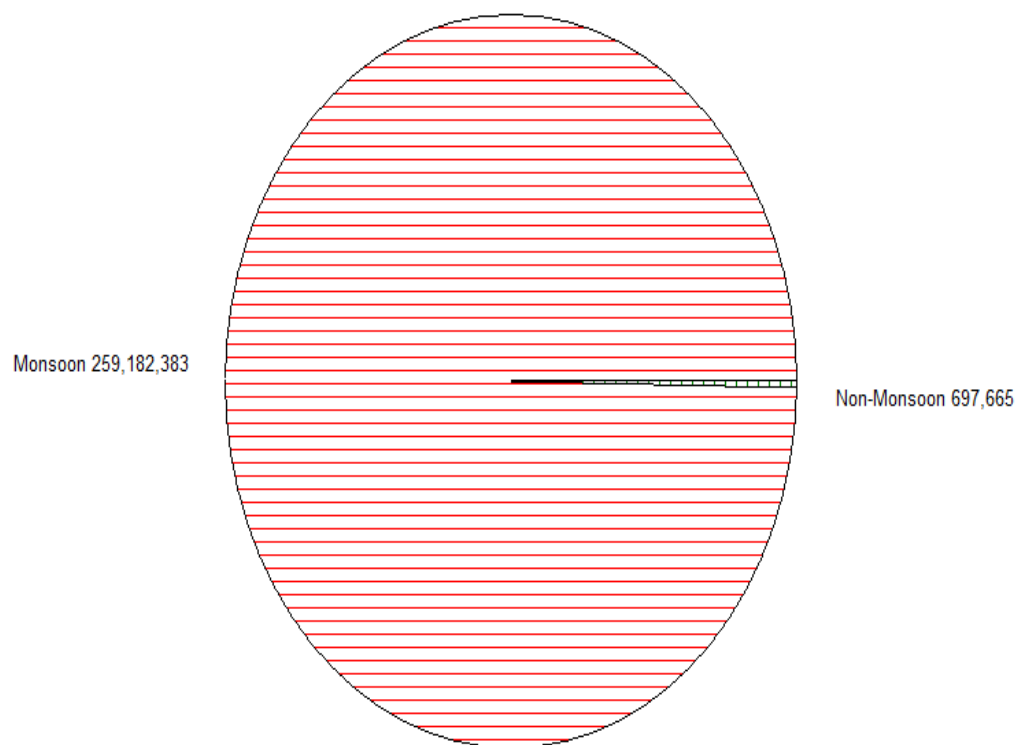
**Seasonal Sediment Load for period : 1987-2016**

Station Name : Narmada at Barman ( 010215011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad



Sediment Data Year Book 2015-16

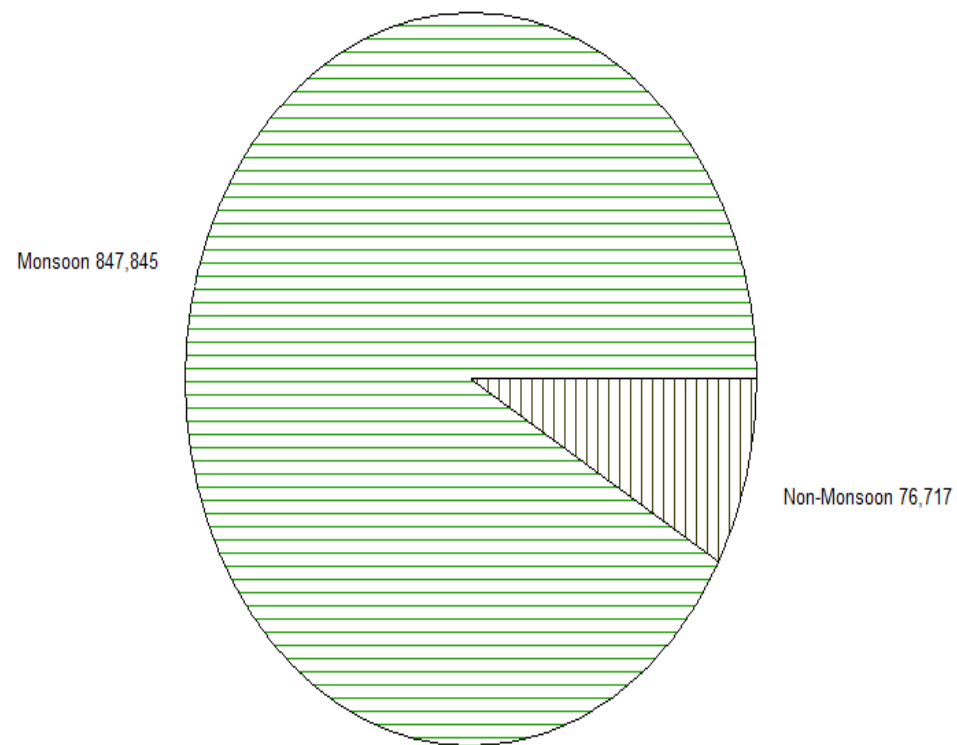
**Seasonal Sediment Load for period : 2015-2016**

Station Name : Narmada at Barman ( 010215011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Hoshangabad





**6.9 Banjar at Bamni****History sheet**

|                          |                            |                   |                    |
|--------------------------|----------------------------|-------------------|--------------------|
|                          |                            | <b>Water Year</b> | <b>: 2015-2016</b> |
| <b>Site</b>              | <b>: Banjar at Bamni</b>   | <b>Code</b>       | <b>: CWC SITE</b>  |
| State                    | : Madhya Pradesh           | District          | Mandla             |
| Basin                    | : Narmada                  | Independent River | : Narmada          |
| Tributary                | : Banjar                   | Sub Tributary     | :                  |
| Sub-Sub Tributary        | :                          | Local River       | : Banjar           |
| Division                 | : Narmada Division, Bhopal | Sub-Division      | : UNSD, Jabalpur   |
| Drainage Area            | : 1864 Sq. Km.             | Bank              | : Left             |
| Latitude                 | : 22°29'06"                | Longitude         | : 80°22'58"        |
| <b>Zero of Gauge (m)</b> | <b>: 440 .000(M.S.L.)</b>  | 20/06/1999        |                    |
|                          | Opening Date               | Closing Date      |                    |
| Gauge                    | : 20/06/1999               |                   |                    |
| Discharge                | : 30/11/1999               |                   |                    |
| Sediment                 | : 01/07/2002               |                   |                    |
| Water Quality            | : 01/07/2002               |                   |                    |







## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Banjar at Bamni

Division : Narmada Division, Bhopal

Local River : Banjar

Sub-Division : UNSD, Jabalpur

| Day                   | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|-----------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                       | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1                     | 0.332        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 2                     | 0.330        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 3                     | 0.309        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 4                     | 0.303        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 5                     | 0.282        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 6                     | 0.180        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 7                     | 0.431        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 8                     | 0.506        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 9                     | 0.502        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 10                    | 0.422        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 11                    | 0.324        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 12                    | 0.284        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 13                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 14                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 15                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 16                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 17                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 18                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 19                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 20                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 21                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 22                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 23                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 24                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 25                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 26                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 27                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 28                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 29                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 30                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| 31                    | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| <b>Ten Daily Mean</b> |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| <b>Ten Daily I</b>    | 0.360        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| <b>Ten Daily II</b>   | 0.061        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| <b>Ten Daily III</b>  | 0.000        |               |               |             |              |                   |              |               |               |             |              |                   | 0.000        |               |               |             |              |                   |
| <b>Monthly Total</b>  |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 2002-2016

Station Name : Banjar at Bamni

Division : Narmada Division, Bhopal

Local River : Banjar

Sub-Division : UNSD, Jabalpur

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 2002-2003 | 368398            | 0                     | 368398                | 607                     |
| 2003-2004 | 782914            | 0                     | 782914                | 1401                    |
| 2004-2005 | 323458            | 0                     | 323458                | 742                     |
| 2005-2006 | 1639533           | 0                     | 1639533               | 1467                    |
| 2006-2007 | 324825            | 0                     | 324825                | 697                     |
| 2007-2008 | 171622            | 133                   | 171755                | 568                     |
| 2008-2009 | 208836            | 0                     | 208836                | 472                     |
| 2009-2010 | 137064            | 103                   | 137167                | 272                     |
| 2010-2011 | 186273            | 0                     | 186273                | 477                     |
| 2011-2012 | 219514            | 1406                  | 220919                | 745                     |
| 2012-2013 | 84554             | 1107                  | 85661                 | 532                     |
| 2013-2014 | 209201            | 733                   | 209934                | 1376                    |
| 2014-2015 | 131573            | 3093                  | 134666                | 878                     |
| 2015-2016 | 73949             | 821                   | 74771                 | 527                     |

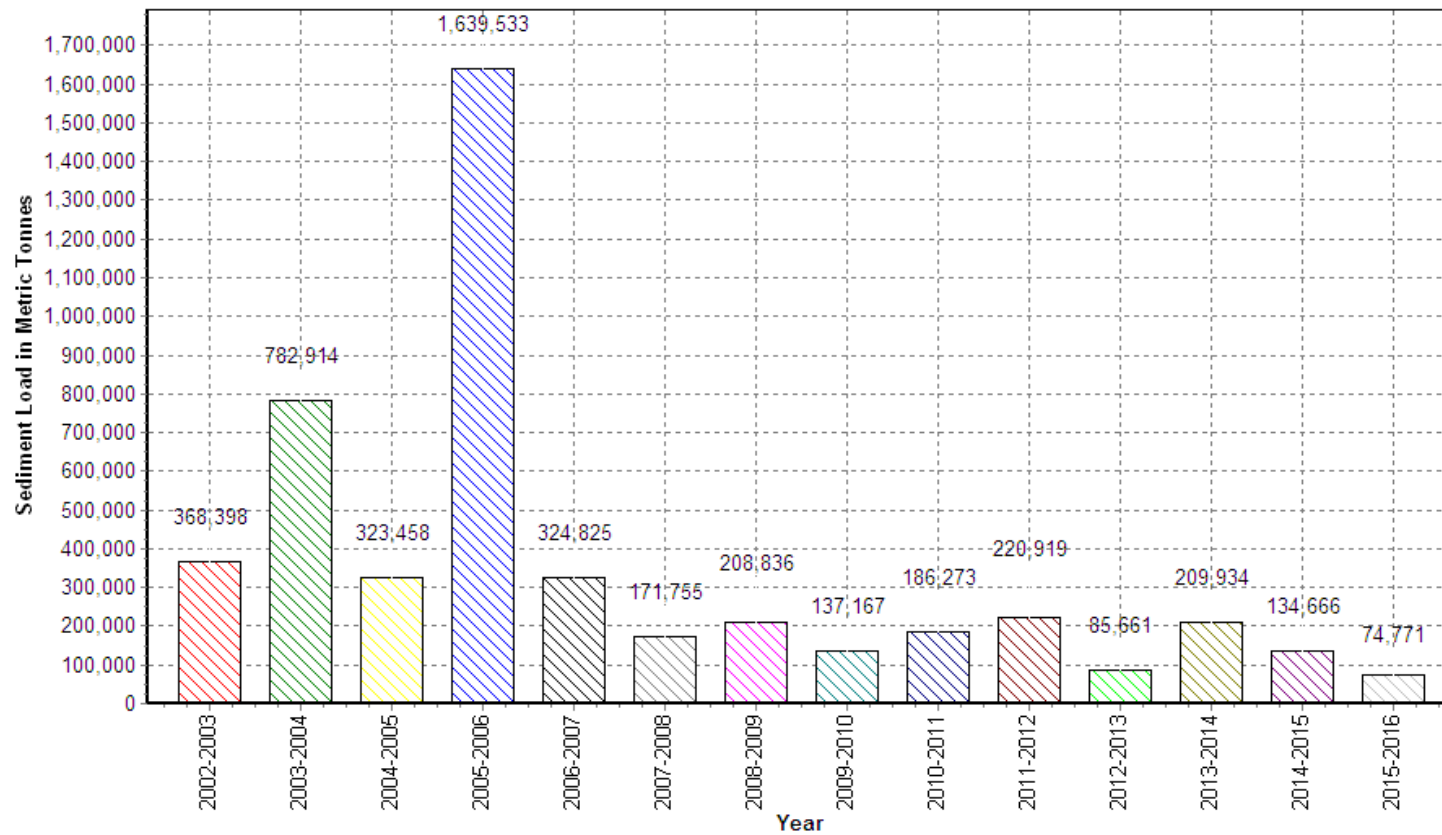
**Annual Sediment Load for period : 2002-2016**

Station Name : Banjar at Bamni

Division : Narmada Division, Bhopal

Local River : Banjar

Sub-Division : UNSD, Jabalpur



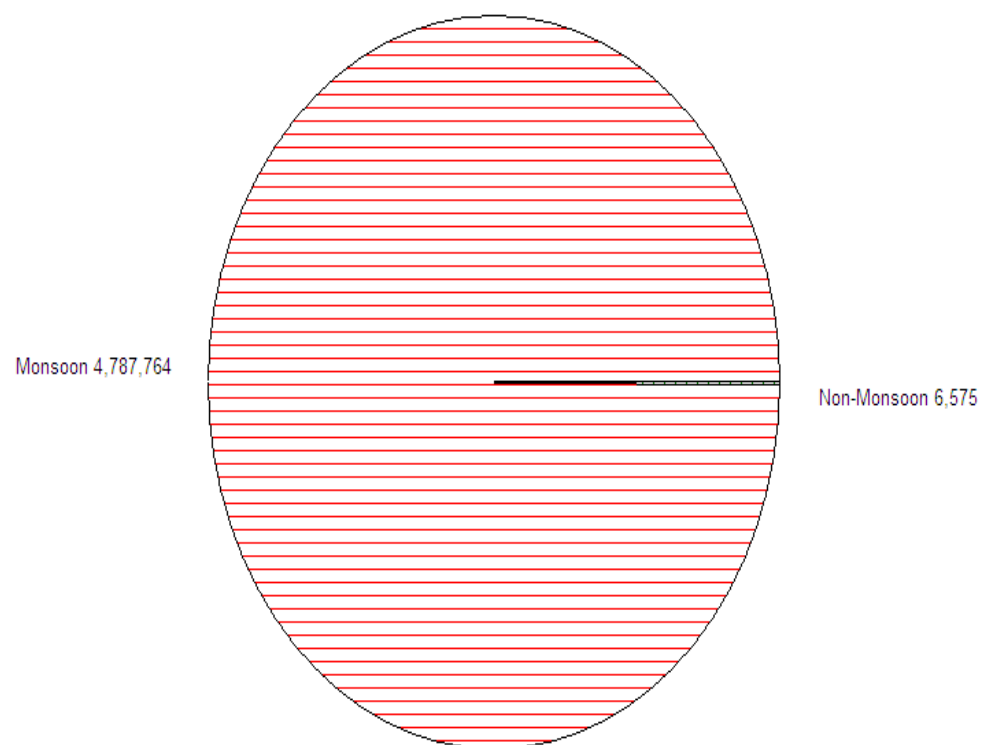
Station Name : Banjar at Bamni

Local River : Banjar

**Seasonal Sediment Load for period : 2002-2016**

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur



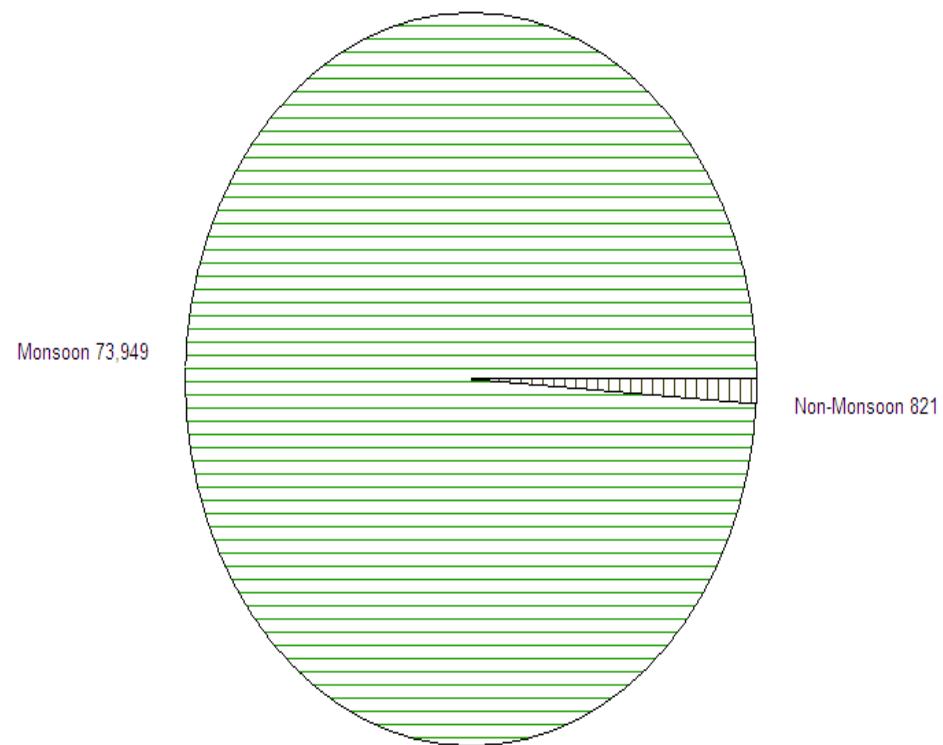
Station Name : Banjar at Bamni

Local River : Banjar

**Seasonal Sediment Load for period : 2015-2016**

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur





**6.10 Burhner at Mohgaon****History Sheet**

|                          |                             |                   |                    |
|--------------------------|-----------------------------|-------------------|--------------------|
|                          |                             | <b>Water Year</b> | <b>: 2015-2016</b> |
| <b>Site</b>              | <b>: Burhner at Mohgaon</b> | <b>Code</b>       | <b>: 010215004</b> |
| State                    | : Madhya Pradesh            | District          | Mandla             |
| Basin                    | : Narmada                   | Independent River | : Narmada          |
| Tributary                | : Burhner                   | Sub Tributary     | :                  |
| Sub-Sub Tributary        | :                           | Local River       | : Burhner          |
| Division                 | : Narmada Division, Bhopal  | Sub-Division      | : UNSD, Jabalpur   |
| Drainage Area            | : 3919 Sq. Km.              | Bank              | : Right            |
| Latitude                 | : 22°45'57"                 | Longitude         | : 80°37'22"        |
| <b>Zero of Gauge (m)</b> | <b>: 447 .000(M.S.L.)</b>   | 13/01/1977        |                    |
|                          | Opening Date                | Closing Date      |                    |
| Gauge                    | : 13/01/1977                |                   |                    |
| Discharge                | : 13/01/1977                |                   |                    |
| Sediment                 | : 27/08/1992                |                   |                    |
| Water Quality            | : 16/09/1986                |                   |                    |







# Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Burhner at Mohgaon ( 010215004)

Division : Narmada Division, Bhopal

Local River : Burhner

Sub-Division : UNSD, Jabalpur

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 2.460        | 0.000         | 0.000         | 0.032       | 0.032        | 7                 | 1.708        |               |               |             |              |                   | 0.339        |               |               |             |              |                   |
| 2              | 2.437        | 0.000         | 0.000         | 0.032       | 0.032        | 7                 | 1.609        |               |               |             |              |                   | 0.331        |               |               |             |              |                   |
| 3              | 2.171        | 0.000         | 0.000         | 0.029       | 0.029        | 5                 | 2.317        |               |               |             |              |                   | 0.316        |               |               |             |              |                   |
| 4              | 2.132        | 0.000         | 0.000         | 0.028       | 0.028        | 5                 | 1.530        |               |               |             |              |                   | 0.265        |               |               |             |              |                   |
| 5              | 2.119        | 0.000         | 0.000         | 0.028       | 0.028        | 5                 | 1.420        |               |               |             |              |                   | 0.237        |               |               |             |              |                   |
| 6              | 3.489        | 0.000         | 0.000         | 0.046       | 0.046        | 14                | 1.074        |               |               |             |              |                   | 0.225        |               |               |             |              |                   |
| 7              | 1.869        | 0.000         | 0.000         | 0.032       | 0.032        | 5                 | 0.997        |               |               |             |              |                   | 0.217        |               |               |             |              |                   |
| 8              | 1.862        | 0.000         | 0.000         | 0.031       | 0.031        | 5                 | 0.948        |               |               |             |              |                   | 0.281        |               |               |             |              |                   |
| 9              | 1.856        | 0.000         | 0.000         | 0.031       | 0.031        | 5                 | 0.891        |               |               |             |              |                   | 0.339        |               |               |             |              |                   |
| 10             | 1.662        | 0.000         | 0.000         | 0.028       | 0.028        | 4                 | 1.535        |               |               |             |              |                   | 0.333        |               |               |             |              |                   |
| 11             | 3.635        | 0.000         | 0.000         | 0.061       | 0.061        | 19                | 0.861        |               |               |             |              |                   | 0.289        |               |               |             |              |                   |
| 12             | 4.399        | 0.000         | 0.000         | 0.074       | 0.074        | 28                | 0.815        |               |               |             |              |                   | 0.252        |               |               |             |              |                   |
| 13             | 6.029        | 0.000         | 0.000         | 0.102       | 0.102        | 53                | 0.762        |               |               |             |              |                   | 0.242        |               |               |             |              |                   |
| 14             | 3.979        | 0.000         | 0.000         | 0.033       | 0.033        | 11                | 1.147        |               |               |             |              |                   | 0.207        |               |               |             |              |                   |
| 15             | 3.792        | 0.000         | 0.000         | 0.031       | 0.031        | 10                | 1.032        |               |               |             |              |                   | 0.140        |               |               |             |              |                   |
| 16             | 3.720        | 0.000         | 0.000         | 0.031       | 0.031        | 10                | 0.700        |               |               |             |              |                   | 0.205        |               |               |             |              |                   |
| 17             | 3.727        | 0.000         | 0.000         | 0.031       | 0.031        | 10                | 0.923        |               |               |             |              |                   | 0.185        |               |               |             |              |                   |
| 18             | 3.613        | 0.000         | 0.000         | 0.030       | 0.030        | 9                 | 0.666        |               |               |             |              |                   | 0.132        |               |               |             |              |                   |
| 19             | 3.603        | 0.000         | 0.000         | 0.030       | 0.030        | 9                 | 0.620        |               |               |             |              |                   | 0.168        |               |               |             |              |                   |
| 20             | 4.923        | 0.000         | 0.000         | 0.041       | 0.041        | 17                | 0.820        |               |               |             |              |                   | 0.156        |               |               |             |              |                   |
| 21             | 3.446        | 0.000         | 0.000         | 0.032       | 0.032        | 10                | 0.583        |               |               |             |              |                   | 0.050        |               |               |             |              |                   |
| 22             | 3.413        | 0.000         | 0.000         | 0.032       | 0.032        | 9                 | 0.606        |               |               |             |              |                   | 0.031        |               |               |             |              |                   |
| 23             | 3.360        | 0.000         | 0.000         | 0.031       | 0.031        | 9                 | 0.568        |               |               |             |              |                   | 0.098        |               |               |             |              |                   |
| 24             | 4.416        | 0.000         | 0.000         | 0.041       | 0.041        | 16                | 0.552        |               |               |             |              |                   | 0.094        |               |               |             |              |                   |
| 25             | 4.416        | 0.000         | 0.000         | 0.041       | 0.041        | 16                | 0.511        |               |               |             |              |                   | 0.110        |               |               |             |              |                   |
| 26             | 3.140        | 0.000         | 0.000         | 0.029       | 0.029        | 8                 | 0.486        |               |               |             |              |                   | 0.109        |               |               |             |              |                   |
| 27             | 4.173        | 0.000         | 0.000         | 0.039       | 0.039        | 14                | 0.456        |               |               |             |              |                   | 0.140        |               |               |             |              |                   |
| 28             | 2.975        | 0.000         | 0.000         | 0.032       | 0.032        | 8                 | 0.446        |               |               |             |              |                   | 0.075        |               |               |             |              |                   |
| 29             | 2.570        | 0.000         | 0.000         | 0.027       | 0.027        | 6                 | 0.440        |               |               |             |              |                   | 0.075        |               |               |             |              |                   |
| 30             | 2.247        | 0.000         | 0.000         | 0.024       | 0.024        | 5                 | 0.388        |               |               |             |              |                   | 0.148        |               |               |             |              |                   |
| 31             | 1.837        | 0.000         | 0.000         | 0.019       | 0.019        | 3                 |              |               |               |             |              |                   | 0.181        |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 2.206        | 0.000         | 0.000         | 0.032       | 0.032        | 6                 | 1.403        |               |               |             |              |                   | 0.288        |               |               |             |              |                   |
| Ten Daily II   | 4.142        | 0.000         | 0.000         | 0.046       | 0.046        | 18                | 0.835        |               |               |             |              |                   | 0.198        |               |               |             |              |                   |
| Ten Daily III  | 3.272        | 0.000         | 0.000         | 0.032       | 0.032        | 9                 | 0.503        |               |               |             |              |                   | 0.101        |               |               |             |              |                   |
| Monthly Total  |              |               |               |             |              | 343               |              |               |               |             |              |                   |              |               |               |             |              |                   |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1993-2016

Station Name : Burhner at Mohgaon ( 010215004)

Division : Narmada Division Bhopal

Local River : Burhner

Sub-Division : UNSD, Jabalpur

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1993-1994 | 2614919           | 0                     | 2614919               | 2054                    |
| 1994-1995 | 10303377          | 0                     | 10303377              | 4502                    |
| 1995-1996 | 4828060           | 0                     | 4828060               | 2574                    |
| 1996-1997 | 1409801           | 0                     | 1409801               | 1371                    |
| 1997-1998 | 4380351           | 0                     | 4380351               | 2632                    |
| 1998-1999 | 2103433           | 0                     | 2103433               | 2197                    |
| 1999-2000 | 3021686           | 0                     | 3021686               | 3179                    |
| 2000-2001 | 1855837           | 0                     | 1855837               | 1583                    |
| 2001-2002 | 2744673           | 0                     | 2744673               | 2847                    |
| 2002-2003 | 949968            | 0                     | 949968                | 1329                    |
| 2003-2004 | 4909521           | 0                     | 4909521               | 3558                    |
| 2004-2005 | 3346347           | 0                     | 3346347               | 3033                    |
| 2005-2006 | 9693524           | 2164                  | 9695688               | 3699                    |
| 2006-2007 | 3637425           | 3056                  | 3640481               | 2305                    |
| 2007-2008 | 1020925           | 1010                  | 1021935               | 1532                    |
| 2008-2009 | 705272            | 1920                  | 707192                | 1325                    |
| 2009-2010 | 645910            | 118                   | 646028                | 638                     |
| 2010-2011 | 2985568           | 483                   | 2986051               | 2014                    |
| 2011-2012 | 2679812           | 5483                  | 2685295               | 3386                    |
| 2012-2013 | 1718997           | 903                   | 1719901               | 2126                    |
| 2013-2014 | 2060996           | 1539                  | 2062535               | 3161                    |
| 2014-2015 | 1776997           | 7796                  | 1784793               | 2169                    |
| 2015-2016 | 1096956           | 1604                  | 1098559               | 1453                    |

# Sediment Data Year Book 2015-16

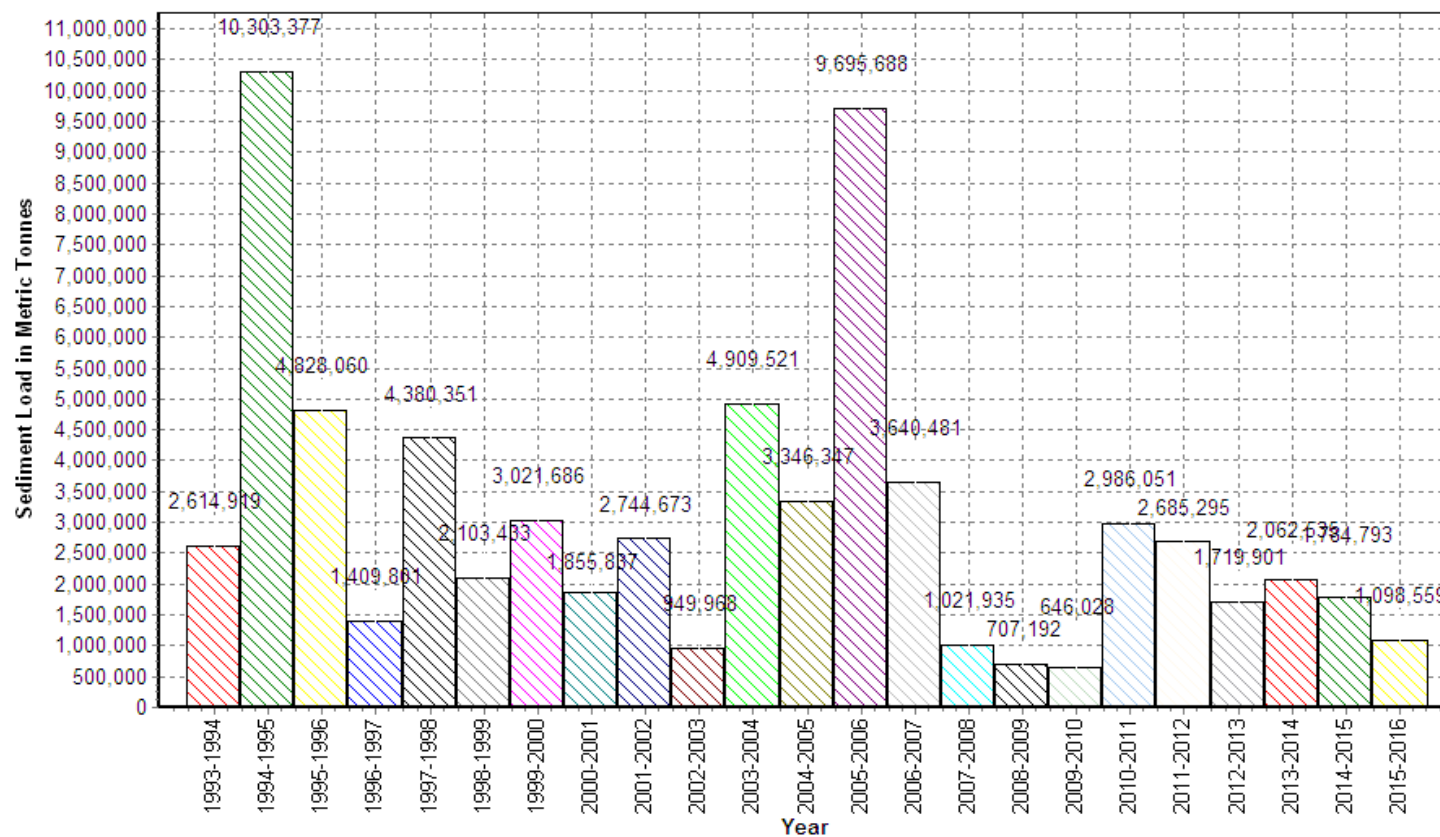
## Annual Sediment Load for period : 1993-2016

Station Name : Burhner at Mohgaon ( 010215004)

Division : Narmada Division, Bhopal

Local River : Burhner

Sub-Division : UNSD, Jabalpur



Sediment Data Year Book 2015-16

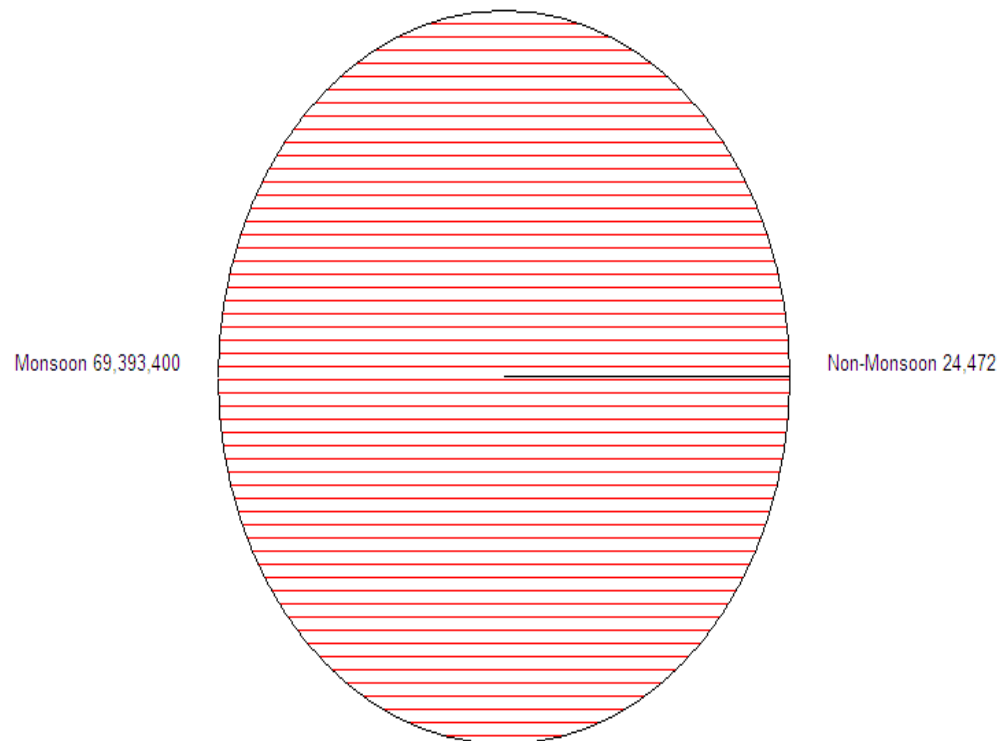
**Seasonal Sediment Load for period : 1993-2016**

Station Name : Burhner at Mohgaon ( 010215004)

Division : Narmada Division, Bhopal

Local River : Burhner

Sub-Division : UNSD, Jabalpur



Sediment Data Year Book 2015-16

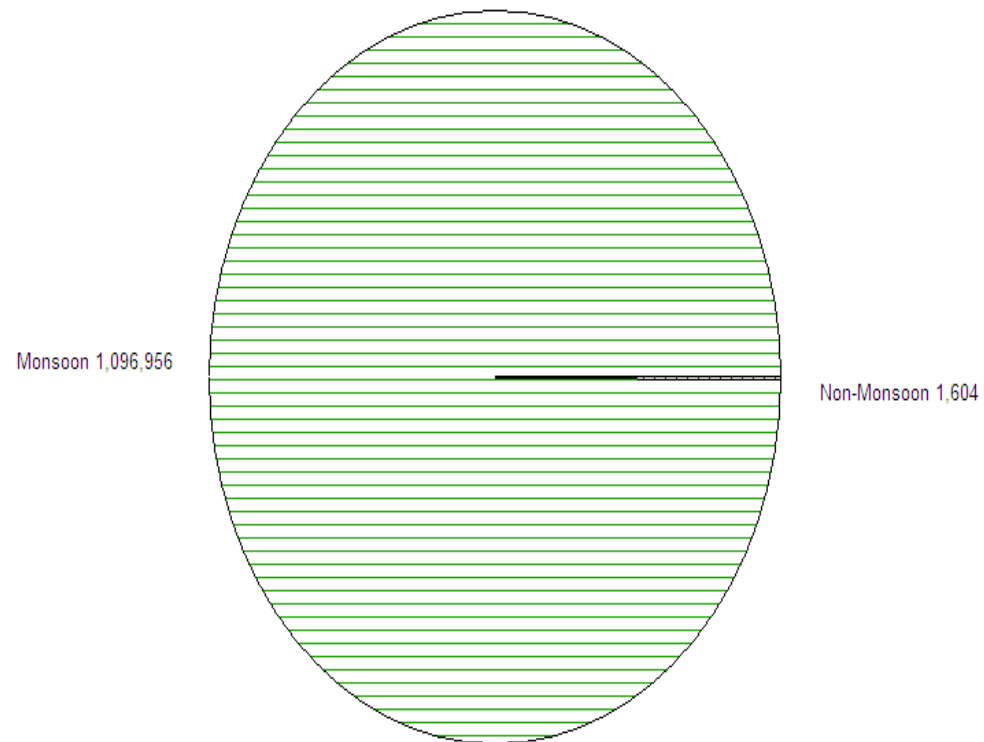
**Seasonal Sediment Load for period : 2015-2016**

Station Name : Burhner at Mohgaon ( 010215004)

Division : Narmada Division, Bhopal

Local River : Burhner

Sub-Division : UNSD, Jabalpur





**6.11 Narmada at Manot****History Sheet**

|                          |                            |                   |                    |
|--------------------------|----------------------------|-------------------|--------------------|
|                          |                            | <b>Water Year</b> | <b>: 2015-2016</b> |
| <b>Site</b>              | <b>: Narmada at Manot</b>  | <b>Code</b>       | <b>: 010215002</b> |
| State                    | : Madhya Pradesh           | District          | Mandla             |
| Basin                    | : Narmada                  | Independent River | : Narmada          |
| Tributary                | :                          | Sub Tributary     | :                  |
| Sub-Sub Tributary        | :                          | Local River       | : Narmada          |
| Division                 | : Narmada Division, Bhopal | Sub-Division      | : UNSD, Jabalpur   |
| Drainage Area            | : 4667 Sq. Km.             | Bank              | : Right            |
| Latitude                 | : 22°44'08"                | Longitude         | : 80°30'44"        |
| <b>Zero of Gauge (m)</b> | <b>: 442 .000(M.S.L.)</b>  |                   | 16/12/1976         |
|                          | Opening Date               |                   | Closing Date       |
| Gauge                    | : 16/12/1976               |                   |                    |
| Discharge                | : 16/12/1976               |                   |                    |
| Sediment                 | : 09/11/1979               |                   |                    |
| Water Quality            | : 01/01/1980               |                   |                    |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

| Day            | Jun          |               |               |             |              |                   | Jul          |               |               |             |              |                   | Aug          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 1.793        | 0.000         | 0.000         | 0.003       | 0.003        | 0                 | 50.31        | 0.000         | 0.000         | 0.356       | 0.356        | 1548              | 40.66        | 0.000         | 0.000         | 0.049       | 0.049        | 171               |
| 2              | 1.705        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 90.05        | 0.000         | 0.000         | 0.601       | 0.601        | 4678              | 41.65        | 0.000         | 0.000         | 0.050       | 0.050        | 180               |
| 3              | 1.490        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 94.37        | 0.000         | 0.000         | 0.630       | 0.630        | 5138              | 45.25        | 0.000         | 0.000         | 0.043       | 0.043        | 169               |
| 4              | 1.401        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 172.6        | 0.000         | 0.000         | 0.620       | 0.620        | 9240              | 1178         | 0.000         | 0.000         | 0.848       | 0.848        | 86290             |
| 5              | 1.256        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 96.79        | 0.000         | 0.000         | 0.348       | 0.348        | 2906              | 328.5        | 0.000         | 0.000         | 0.743       | 0.743        | 21072             |
| 6              | 1.153        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 53.28        | 0.000         | 0.000         | 0.593       | 0.593        | 2731              | 173.6        | 0.000         | 0.000         | 0.876       | 0.876        | 13145             |
| 7              | 1.200        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 46.41        | 0.000         | 0.000         | 0.235       | 0.235        | 943               | 155.5        | 0.000         | 0.000         | 0.623       | 0.623        | 8370              |
| 8              | 0.963        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 39.87        | 0.000         | 0.000         | 0.194       | 0.194        | 667               | 140.9        | 0.000         | 0.000         | 0.409       | 0.409        | 4981              |
| 9              | 0.890        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 65.59        | 0.000         | 0.000         | 0.318       | 0.318        | 1804              | 105.8        | 0.000         | 0.000         | 0.307       | 0.307        | 2807              |
| 10             | 0.818        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 285.0        | 0.000         | 0.000         | 0.602       | 0.602        | 14816             | 114.3        | 0.000         | 0.000         | 0.564       | 0.564        | 5569              |
| 11             | 1.217        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 280.2        | 0.000         | 0.000         | 0.598       | 0.598        | 14471             | 290.8        | 0.000         | 0.000         | 0.721       | 0.721        | 18117             |
| 12             | 1.474        | 0.000         | 0.000         | 0.003       | 0.003        | 0                 | 195.2        | 0.000         | 0.000         | 0.416       | 0.416        | 7021              | 270.8        | 0.000         | 0.000         | 0.453       | 0.453        | 10599             |
| 13             | 1.806        | 0.000         | 0.000         | 0.003       | 0.003        | 1                 | 142.4        | 0.000         | 0.000         | 0.597       | 0.597        | 7344              | 230.0        | 0.000         | 0.000         | 0.528       | 0.528        | 10485             |
| 14             | 0.419        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 105.6        | 0.000         | 0.000         | 0.598       | 0.598        | 5451              | 239.8        | 0.000         | 0.000         | 0.505       | 0.505        | 10461             |
| 15             | 27.59        | 0.000         | 0.000         | 0.005       | 0.005        | 13                | 93.56        | 0.000         | 0.000         | 0.538       | 0.538        | 4345              | 163.7        | 0.000         | 0.000         | 0.345       | 0.345        | 4876              |
| 16             | 27.76        | 0.000         | 0.000         | 0.006       | 0.006        | 14                | 56.79        | 0.000         | 0.000         | 0.331       | 0.331        | 1625              | 163.7        | 0.000         | 0.000         | 0.345       | 0.345        | 4876              |
| 17             | 25.08        | 0.000         | 0.000         | 0.005       | 0.005        | 11                | 46.99        | 0.000         | 0.000         | 0.319       | 0.319        | 1295              | 151.7        | 0.000         | 0.000         | 0.468       | 0.468        | 6140              |
| 18             | 18.62        | 0.000         | 0.000         | 0.005       | 0.005        | 8                 | 46.05        | 0.000         | 0.000         | 0.313       | 0.313        | 1244              | 153.9        | 0.000         | 0.000         | 0.457       | 0.457        | 6078              |
| 19             | 16.25        | 0.000         | 0.000         | 0.004       | 0.004        | 6                 | 88.18        | 0.000         | 0.000         | 0.599       | 0.599        | 4561              | 160.9        | 0.000         | 0.000         | 0.233       | 0.233        | 3238              |
| 20             | 15.38        | 0.000         | 0.000         | 0.004       | 0.004        | 5                 | 140.9        | 0.000         | 0.000         | 0.598       | 0.598        | 7282              | 157.9        | 0.000         | 0.000         | 0.179       | 0.179        | 2440              |
| 21             | 30.41        | 0.000         | 0.000         | 0.008       | 0.008        | 21                | 106.8        | 0.000         | 0.000         | 0.591       | 0.591        | 5454              | 140.9        | 0.000         | 0.000         | 0.179       | 0.179        | 2182              |
| 22             | 20.23        | 0.000         | 0.000         | 0.013       | 0.013        | 23                | 94.25        | 0.000         | 0.000         | 0.364       | 0.364        | 2960              | 107.0        | 0.000         | 0.000         | 0.152       | 0.152        | 1406              |
| 23             | 860.3        | 0.000         | 0.000         | 0.912       | 0.912        | 67814             | 97.02        | 0.000         | 0.000         | 0.384       | 0.384        | 3215              | 76.51        | 0.000         | 0.000         | 0.109       | 0.109        | 718               |
| 24             | 268.3        | 0.000         | 0.000         | 0.853       | 0.853        | 19775             | 296.3        | 0.000         | 0.000         | 0.598       | 0.598        | 15310             | 93.84        | 0.000         | 0.000         | 0.154       | 0.154        | 1249              |
| 25             | 103.0        | 0.000         | 0.000         | 0.737       | 0.737        | 6556              | 230.7        | 0.000         | 0.000         | 0.591       | 0.591        | 11773             | 82.47        | 0.000         | 0.000         | 0.279       | 0.279        | 1990              |
| 26             | 76.53        | 0.000         | 0.000         | 0.815       | 0.815        | 5386              | 121.9        | 0.000         | 0.000         | 0.312       | 0.312        | 3289              | 78.77        | 0.000         | 0.000         | 0.152       | 0.152        | 1031              |
| 27             | 46.51        | 0.000         | 0.000         | 0.561       | 0.561        | 2253              | 121.7        | 0.000         | 0.000         | 0.374       | 0.374        | 3932              | 92.41        | 0.000         | 0.000         | 0.152       | 0.152        | 1210              |
| 28             | 46.95        | 0.000         | 0.000         | 0.566       | 0.566        | 2295              | 102.4        | 0.000         | 0.000         | 0.367       | 0.367        | 3246              | 134.1        | 0.000         | 0.000         | 0.168       | 0.168        | 1946              |
| 29             | 46.09        | 0.000         | 0.000         | 0.545       | 0.545        | 2170              | 78.26        | 0.000         | 0.000         | 0.351       | 0.351        | 2375              | 142.5        | 0.000         | 0.000         | 0.172       | 0.172        | 2121              |
| 30             | 58.24        | 0.000         | 0.000         | 0.558       | 0.558        | 2805              | 51.60        | 0.000         | 0.000         | 0.345       | 0.345        | 1538              | 699.3        | 0.000         | 0.000         | 0.846       | 0.846        | 51087             |
| 31             |              |               |               |             |              |                   | 41.72        | 0.000         | 0.000         | 0.338       | 0.338        | 1217              | 293.3        | 0.000         | 0.000         | 0.598       | 0.598        | 15140             |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 1.267        | 0.000         | 0.000         | 0.002       | 0.002        | 0                 | 99.42        | 0.000         | 0.000         | 0.450       | 0.450        | 4447              | 232.4        | 0.000         | 0.000         | 0.451       | 0.451        | 14275             |
| Ten Daily II   | 13.56        | 0.000         | 0.000         | 0.004       | 0.004        | 6                 | 119.6        | 0.000         | 0.000         | 0.491       | 0.491        | 5464              | 198.3        | 0.000         | 0.000         | 0.423       | 0.423        | 7731              |
| Ten Daily III  | 155.7        | 0.000         | 0.000         | 0.557       | 0.557        | 10910             | 122.1        | 0.000         | 0.000         | 0.419       | 0.419        | 4937              | 176.5        | 0.000         | 0.000         | 0.269       | 0.269        | 7280              |
| Monthly Total  |              |               |               |             |              | 109158            |              |               |               |             |              | 153420            |              |               |               |             |              | 300145            |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

| Day            | Sep          |               |               |             |              |                   | Oct          |               |               |             |              |                   | Nov          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 156.5        | 0.000         | 0.000         | 0.105       | 0.105        | 1420              | 48.25        | 0.000         | 0.000         | 0.102       | 0.102        | 423               | 28.21        | 0.000         | 0.000         | 0.023       | 0.023        | 56                |
| 2              | 144.1        | 0.000         | 0.000         | 0.179       | 0.179        | 2232              | 49.71        | 0.000         | 0.000         | 0.105       | 0.105        | 449               | 20.34        | 0.000         | 0.000         | 0.016       | 0.016        | 28                |
| 3              | 156.3        | 0.000         | 0.000         | 0.180       | 0.180        | 2433              | 46.03        | 0.000         | 0.000         | 0.099       | 0.099        | 392               | 17.86        | 0.000         | 0.000         | 0.016       | 0.016        | 25                |
| 4              | 130.6        | 0.000         | 0.000         | 0.179       | 0.179        | 2020              | 50.64        | 0.000         | 0.000         | 0.108       | 0.108        | 474               | 17.38        | 0.000         | 0.000         | 0.015       | 0.015        | 23                |
| 5              | 104.8        | 0.000         | 0.000         | 0.152       | 0.152        | 1376              | 45.93        | 0.000         | 0.000         | 0.098       | 0.098        | 390               | 16.59        | 0.000         | 0.000         | 0.014       | 0.014        | 20                |
| 6              | 95.54        | 0.000         | 0.000         | 0.139       | 0.139        | 1144              | 44.32        | 0.000         | 0.000         | 0.073       | 0.073        | 280               | 16.35        | 0.000         | 0.000         | 0.011       | 0.011        | 16                |
| 7              | 94.80        | 0.000         | 0.000         | 0.154       | 0.154        | 1263              | 40.83        | 0.000         | 0.000         | 0.062       | 0.062        | 217               | 15.76        | 0.000         | 0.000         | 0.009       | 0.009        | 12                |
| 8              | 97.32        | 0.000         | 0.000         | 0.155       | 0.155        | 1299              | 39.55        | 0.000         | 0.000         | 0.064       | 0.064        | 219               | 22.70        | 0.000         | 0.000         | 0.013       | 0.013        | 25                |
| 9              | 104.6        | 0.000         | 0.000         | 0.153       | 0.153        | 1382              | 37.45        | 0.000         | 0.000         | 0.062       | 0.062        | 202               | 22.05        | 0.000         | 0.000         | 0.013       | 0.013        | 24                |
| 10             | 79.77        | 0.000         | 0.000         | 0.152       | 0.152        | 1044              | 36.07        | 0.000         | 0.000         | 0.054       | 0.054        | 169               | 21.41        | 0.000         | 0.000         | 0.012       | 0.012        | 23                |
| 11             | 56.25        | 0.000         | 0.000         | 0.079       | 0.079        | 384               | 39.95        | 0.000         | 0.000         | 0.060       | 0.060        | 207               | 20.78        | 0.000         | 0.000         | 0.012       | 0.012        | 21                |
| 12             | 50.52        | 0.000         | 0.000         | 0.047       | 0.047        | 204               | 31.66        | 0.000         | 0.000         | 0.054       | 0.054        | 146               | 20.15        | 0.000         | 0.000         | 0.012       | 0.012        | 20                |
| 13             | 54.46        | 0.000         | 0.000         | 0.050       | 0.050        | 237               | 29.88        | 0.000         | 0.000         | 0.043       | 0.043        | 112               | 19.54        | 0.000         | 0.000         | 0.011       | 0.011        | 19                |
| 14             | 48.55        | 0.000         | 0.000         | 0.346       | 0.346        | 1451              | 29.16        | 0.000         | 0.000         | 0.050       | 0.050        | 125               | 19.54        | 0.000         | 0.000         | 0.011       | 0.011        | 19                |
| 15             | 46.00        | 0.000         | 0.000         | 0.130       | 0.130        | 515               | 26.76        | 0.000         | 0.000         | 0.031       | 0.031        | 71                | 18.93        | 0.000         | 0.000         | 0.011       | 0.011        | 18                |
| 16             | 51.25        | 0.000         | 0.000         | 0.344       | 0.344        | 1525              | 23.97        | 0.000         | 0.000         | 0.026       | 0.026        | 54                | 18.93        | 0.000         | 0.000         | 0.011       | 0.011        | 18                |
| 17             | 56.41        | 0.000         | 0.000         | 0.379       | 0.379        | 1847              | 20.14        | 0.000         | 0.000         | 0.024       | 0.024        | 42                | 18.33        | 0.000         | 0.000         | 0.010       | 0.010        | 17                |
| 18             | 49.31        | 0.000         | 0.000         | 0.343       | 0.343        | 1461              | 26.78        | 0.000         | 0.000         | 0.032       | 0.032        | 74                | 17.74        | 0.000         | 0.000         | 0.010       | 0.010        | 16                |
| 19             | 104.1        | 0.000         | 0.000         | 0.311       | 0.311        | 2792              | 18.29        | 0.000         | 0.000         | 0.023       | 0.023        | 36                | 17.74        | 0.000         | 0.000         | 0.010       | 0.010        | 16                |
| 20             | 78.78        | 0.000         | 0.000         | 0.235       | 0.235        | 1599              | 17.59        | 0.000         | 0.000         | 0.019       | 0.019        | 29                | 17.16        | 0.000         | 0.000         | 0.010       | 0.010        | 15                |
| 21             | 98.37        | 0.000         | 0.000         | 0.065       | 0.065        | 552               | 16.76        | 0.000         | 0.000         | 0.019       | 0.019        | 28                | 17.16        | 0.000         | 0.000         | 0.010       | 0.010        | 15                |
| 22             | 278.9        | 0.000         | 0.000         | 0.340       | 0.340        | 8200              | 22.70        | 0.000         | 0.000         | 0.026       | 0.026        | 50                | 16.59        | 0.000         | 0.000         | 0.009       | 0.009        | 14                |
| 23             | 160.2        | 0.000         | 0.000         | 0.323       | 0.323        | 4464              | 15.78        | 0.000         | 0.000         | 0.019       | 0.019        | 26                | 11.76        | 0.000         | 0.000         | 0.009       | 0.009        | 9                 |
| 24             | 115.2        | 0.000         | 0.000         | 0.298       | 0.298        | 2970              | 21.41        | 0.000         | 0.000         | 0.026       | 0.026        | 48                | 11.67        | 0.000         | 0.000         | 0.009       | 0.009        | 9                 |
| 25             | 79.93        | 0.000         | 0.000         | 0.207       | 0.207        | 1429              | 20.78        | 0.000         | 0.000         | 0.025       | 0.025        | 45                | 16.02        | 0.000         | 0.000         | 0.012       | 0.012        | 17                |
| 26             | 95.09        | 0.000         | 0.000         | 0.237       | 0.237        | 1950              | 14.54        | 0.000         | 0.000         | 0.017       | 0.017        | 22                | 16.02        | 0.000         | 0.000         | 0.012       | 0.012        | 17                |
| 27             | 64.54        | 0.000         | 0.000         | 0.161       | 0.161        | 898               | 13.89        | 0.000         | 0.000         | 0.016       | 0.016        | 19                | 16.02        | 0.000         | 0.000         | 0.012       | 0.012        | 17                |
| 28             | 55.69        | 0.000         | 0.000         | 0.110       | 0.110        | 527               | 18.33        | 0.000         | 0.000         | 0.021       | 0.021        | 33                | 15.74        | 0.000         | 0.000         | 0.012       | 0.012        | 17                |
| 29             | 51.09        | 0.000         | 0.000         | 0.080       | 0.080        | 353               | 17.74        | 0.000         | 0.000         | 0.020       | 0.020        | 31                | 15.74        | 0.000         | 0.000         | 0.012       | 0.012        | 17                |
| 30             | 50.06        | 0.000         | 0.000         | 0.100       | 0.100        | 430               | 23.36        | 0.000         | 0.000         | 0.026       | 0.026        | 53                | 15.47        | 0.000         | 0.000         | 0.012       | 0.012        | 16                |
| 31             |              |               |               |             |              |                   | 17.05        | 0.000         | 0.000         | 0.014       | 0.014        | 21                |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 116.4        | 0.000         | 0.000         | 0.155       | 0.155        | 1561              | 43.88        | 0.000         | 0.000         | 0.083       | 0.083        | 321               | 19.87        | 0.000         | 0.000         | 0.014       | 0.014        | 25                |
| Ten Daily II   | 59.56        | 0.000         | 0.000         | 0.226       | 0.226        | 1202              | 26.42        | 0.000         | 0.000         | 0.036       | 0.036        | 90                | 18.88        | 0.000         | 0.000         | 0.011       | 0.011        | 18                |
| Ten Daily III  | 104.9        | 0.000         | 0.000         | 0.192       | 0.192        | 2177              | 18.40        | 0.000         | 0.000         | 0.021       | 0.021        | 34                | 15.22        | 0.000         | 0.000         | 0.011       | 0.011        | 15                |
| Monthly Total  |              |               |               |             |              | 49402             |              |               |               |             |              | 4484              |              |               |               |             |              | 575               |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

| Day            | Dec          |               |               |             |              |                   | Jan          |               |               |             |              |                   | Feb          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 15.47        | 0.000         | 0.000         | 0.012       | 0.012        | 16                | 7.764        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.465        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 2              | 15.47        | 0.000         | 0.000         | 0.012       | 0.012        | 16                | 7.675        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.183        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 3              | 10.96        | 0.000         | 0.000         | 0.008       | 0.008        | 8                 | 8.217        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.115        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 4              | 10.88        | 0.000         | 0.000         | 0.008       | 0.008        | 7                 | 7.516        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.032        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 5              | 10.66        | 0.000         | 0.000         | 0.008       | 0.008        | 7                 | 7.435        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 6.911        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 6              | 13.85        | 0.000         | 0.000         | 0.010       | 0.010        | 12                | 7.310        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.828        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 7              | 10.30        | 0.000         | 0.000         | 0.007       | 0.007        | 6                 | 7.162        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.634        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 8              | 10.18        | 0.000         | 0.000         | 0.007       | 0.007        | 6                 | 7.074        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.697        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 9              | 9.899        | 0.000         | 0.000         | 0.007       | 0.007        | 6                 | 6.903        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.604        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 |
| 10             | 9.850        | 0.000         | 0.000         | 0.007       | 0.007        | 6                 | 7.016        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.376        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 11             | 9.827        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 6.738        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.332        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 12             | 9.696        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 6.652        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 6.085        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 13             | 11.83        | 0.000         | 0.000         | 0.007       | 0.007        | 7                 | 6.583        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 5.992        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 14             | 9.590        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 6.391        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 5.900        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 15             | 9.451        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 6.321        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 5.759        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 16             | 9.297        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 6.212        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 5.660        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 17             | 9.198        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 5.900        | 0.000         | 0.000         | 0.003       | 0.003        | 1                 | 5.421        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 18             | 9.021        | 0.000         | 0.000         | 0.006       | 0.006        | 4                 | 6.075        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 5.338        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 19             | 8.938        | 0.000         | 0.000         | 0.006       | 0.006        | 4                 | 5.993        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 5.152        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 20             | 9.948        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 7.162        | 0.000         | 0.000         | 0.004       | 0.004        | 2                 | 4.839        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| 21             | 8.852        | 0.000         | 0.000         | 0.005       | 0.005        | 4                 | 8.599        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 3.933        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 22             | 8.756        | 0.000         | 0.000         | 0.005       | 0.005        | 4                 | 9.224        | 0.000         | 0.000         | 0.003       | 0.003        | 3                 | 4.063        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 23             | 8.578        | 0.000         | 0.000         | 0.005       | 0.005        | 4                 | 8.526        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 3.979        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 24             | 9.502        | 0.000         | 0.000         | 0.005       | 0.005        | 4                 | 9.064        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 4.609        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 25             | 9.064        | 0.000         | 0.000         | 0.005       | 0.005        | 4                 | 8.174        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 4.514        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 26             | 8.413        | 0.000         | 0.000         | 0.005       | 0.005        | 3                 | 8.635        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 4.293        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 27             | 9.064        | 0.000         | 0.000         | 0.005       | 0.005        | 4                 | 7.863        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 4.231        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 28             | 8.354        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.787        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 3.933        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 29             | 8.048        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.708        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 4.117        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| 30             | 7.997        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.535        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 |              |               |               |             |              |                   |
| 31             | 7.836        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 7.806        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 |              |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 11.75        | 0.000         | 0.000         | 0.009       | 0.009        | 9                 | 7.407        | 0.000         | 0.000         | 0.004       | 0.004        | 3                 | 6.885        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| Ten Daily II   | 9.679        | 0.000         | 0.000         | 0.006       | 0.006        | 5                 | 6.403        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 5.648        | 0.000         | 0.000         | 0.002       | 0.002        | 1                 |
| Ten Daily III  | 8.588        | 0.000         | 0.000         | 0.005       | 0.005        | 3                 | 8.266        | 0.000         | 0.000         | 0.003       | 0.003        | 2                 | 4.186        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |
| Monthly Total  |              |               |               |             |              | 179               |              |               |               |             |              | 67                |              |               |               |             |              | 23                |

## Sediment Data Year Book 2015-16

## Daily Observed Sediment Datasheet for period : 2015-2016

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

| Day            | Mar          |               |               |             |              |                   | Apr          |               |               |             |              |                   | May          |               |               |             |              |                   |
|----------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|--------------|---------------|---------------|-------------|--------------|-------------------|
|                | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day | Q<br>cumecs. | Coarse<br>g/l | Medium<br>g/l | Fine<br>g/l | Total<br>g/l | Total<br>M.T./day |
| 1              | 4.018        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 3.511        |               |               |             |              |                   | 0.780        |               |               |             |              |                   |
| 2              | 3.937        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 3.430        |               |               |             |              |                   | 0.650        |               |               |             |              |                   |
| 3              | 3.721        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 3.086        |               |               |             |              |                   | 0.845        |               |               |             |              |                   |
| 4              | 3.638        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 3.170        |               |               |             |              |                   | 0.614        |               |               |             |              |                   |
| 5              | 3.563        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 3.101        |               |               |             |              |                   | 0.547        |               |               |             |              |                   |
| 6              | 3.359        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.934        |               |               |             |              |                   | 0.512        |               |               |             |              |                   |
| 7              | 3.371        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.875        |               |               |             |              |                   | 0.452        |               |               |             |              |                   |
| 8              | 3.311        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.864        |               |               |             |              |                   | 0.450        |               |               |             |              |                   |
| 9              | 3.220        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.621        |               |               |             |              |                   | 0.389        |               |               |             |              |                   |
| 10             | 3.145        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.332        |               |               |             |              |                   | 0.334        |               |               |             |              |                   |
| 11             | 4.224        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.940        |               |               |             |              |                   | 0.296        |               |               |             |              |                   |
| 12             | 4.811        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.375        |               |               |             |              |                   | 0.293        |               |               |             |              |                   |
| 13             | 4.550        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.189        |               |               |             |              |                   | 0.283        |               |               |             |              |                   |
| 14             | 5.138        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.883        |               |               |             |              |                   | 0.239        |               |               |             |              |                   |
| 15             | 6.242        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 | 1.883        |               |               |             |              |                   | 0.230        |               |               |             |              |                   |
| 16             | 6.871        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 | 2.004        |               |               |             |              |                   | 0.184        |               |               |             |              |                   |
| 17             | 6.779        | 0.000         | 0.000         | 0.001       | 0.001        | 1                 | 1.675        |               |               |             |              |                   | 0.124        |               |               |             |              |                   |
| 18             | 5.528        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.875        |               |               |             |              |                   | 0.082        |               |               |             |              |                   |
| 19             | 5.074        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.713        |               |               |             |              |                   | 0.058        |               |               |             |              |                   |
| 20             | 4.872        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.478        |               |               |             |              |                   | 0.051        |               |               |             |              |                   |
| 21             | 4.830        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.691        |               |               |             |              |                   | 0.045        |               |               |             |              |                   |
| 22             | 4.764        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.671        |               |               |             |              |                   | 0.040        |               |               |             |              |                   |
| 23             | 4.543        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.284        |               |               |             |              |                   | 0.028        |               |               |             |              |                   |
| 24             | 4.237        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.954        |               |               |             |              |                   | 0.034        |               |               |             |              |                   |
| 25             | 4.237        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 1.379        |               |               |             |              |                   | 0.071        |               |               |             |              |                   |
| 26             | 4.318        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.662        |               |               |             |              |                   | 0.012        |               |               |             |              |                   |
| 27             | 3.933        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.535        |               |               |             |              |                   | 0.010        |               |               |             |              |                   |
| 28             | 4.084        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.419        |               |               |             |              |                   | 0.010        |               |               |             |              |                   |
| 29             | 4.003        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.317        |               |               |             |              |                   | 0.010        |               |               |             |              |                   |
| 30             | 3.756        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.110        |               |               |             |              |                   | 0.010        |               |               |             |              |                   |
| 31             | 3.680        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 |              |               |               |             |              |                   | 0.010        |               |               |             |              |                   |
| Ten Daily Mean |              |               |               |             |              |                   |              |               |               |             |              |                   |              |               |               |             |              |                   |
| Ten Daily I    | 3.528        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.992        |               |               |             |              |                   | 0.557        |               |               |             |              |                   |
| Ten Daily II   | 5.409        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 2.001        |               |               |             |              |                   | 0.184        |               |               |             |              |                   |
| Ten Daily III  | 4.217        | 0.000         | 0.000         | 0.001       | 0.001        | 0                 | 0.902        |               |               |             |              |                   | 0.025        |               |               |             |              |                   |
| Monthly Total  |              |               |               |             |              | 11                |              |               |               |             |              |                   |              |               |               |             |              |                   |

# Sediment Data Year Book 2015-16

## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Manot ( 010215002) Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

| Year      | Monsoon<br>(M.T.) | Non-Monsoon<br>(M.T.) | Annual Load<br>(M.T.) | Annual Run Off<br>(MCM) |
|-----------|-------------------|-----------------------|-----------------------|-------------------------|
| 1987-1988 | 10725744          | 0                     | 10725744              | 3916                    |
| 1988-1989 | 6696569           | 0                     | 6696569               | 3252                    |
| 1989-1990 | 2489833           | 0                     | 2489833               | 1423                    |
| 1990-1991 | 6352482           | 0                     | 6352482               | 4327                    |
| 1991-1992 | 4774264           | 0                     | 4774264               | 3270                    |
| 1992-1993 | 5297060           | 0                     | 5297060               | 2563                    |
| 1993-1994 | 8389055           | 0                     | 8389055               | 2849                    |
| 1994-1995 | 9782946           | 0                     | 9782946               | 5549                    |
| 1995-1996 | 6064747           | 0                     | 6064747               | 3479                    |
| 1996-1997 | 2765903           | 0                     | 2765903               | 2211                    |
| 1997-1998 | 4988927           | 0                     | 4988927               | 3859                    |
| 1998-1999 | 994318            | 0                     | 994318                | 2291                    |
| 1999-2000 | 7375323           | 0                     | 7375323               | 4115                    |
| 2000-2001 | 2429516           | 0                     | 2429516               | 2043                    |
| 2001-2002 | 2766792           | 0                     | 2766792               | 3725                    |
| 2002-2003 | 1840581           | 0                     | 1840581               | 2000                    |
| 2003-2004 | 4006296           | 0                     | 4006296               | 4442                    |
| 2004-2005 | 9624012           | 0                     | 9624012               | 3474                    |
| 2005-2006 | 10701534          | 2767                  | 10704300              | 4890                    |
| 2006-2007 | 2398636           | 2313                  | 2400949               | 2902                    |
| 2007-2008 | 1844237           | 1764                  | 1846001               | 1425                    |
| 2008-2009 | 1966444           | 746                   | 1967190               | 2225                    |
| 2009-2010 | 820714            | 2009                  | 822722                | 1223                    |
| 2010-2011 | 876002            | 2005                  | 878007                | 2023                    |
| 2011-2012 | 2758553           | 2653                  | 2761206               | 3878                    |
| 2012-2013 | 1085095           | 1391                  | 1086486               | 2178                    |
| 2013-2014 | 1628948           | 4325                  | 1633274               | 2874                    |
| 2014-2015 | 990486            | 1352                  | 991839                | 2158                    |
| 2015-2016 | 617184            | 280                   | 617465                | 1438                    |

# Sediment Data Year Book 2015-16

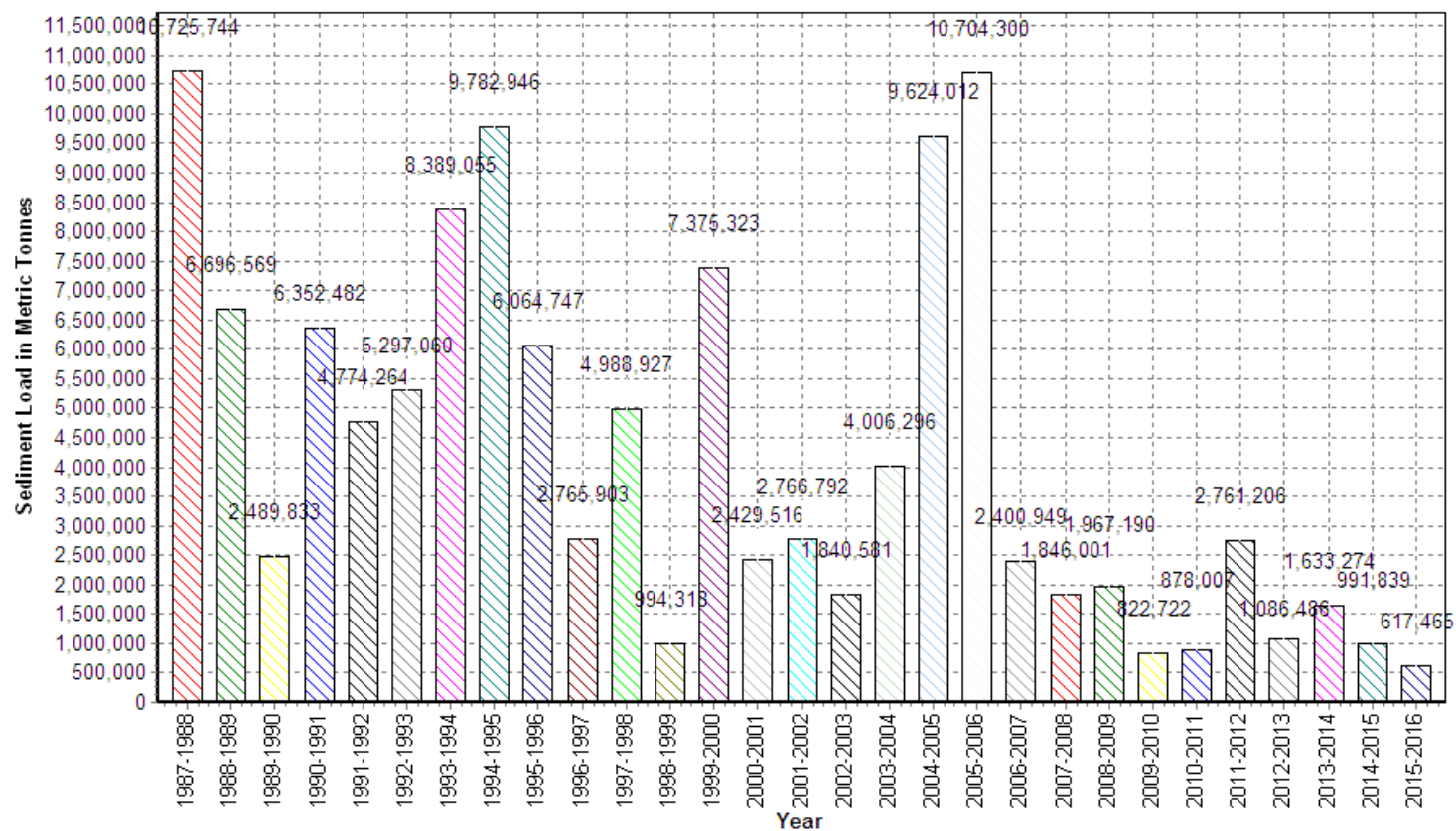
## Annual Sediment Load for period : 1987-2016

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur



Sediment Data Year Book 2015-16

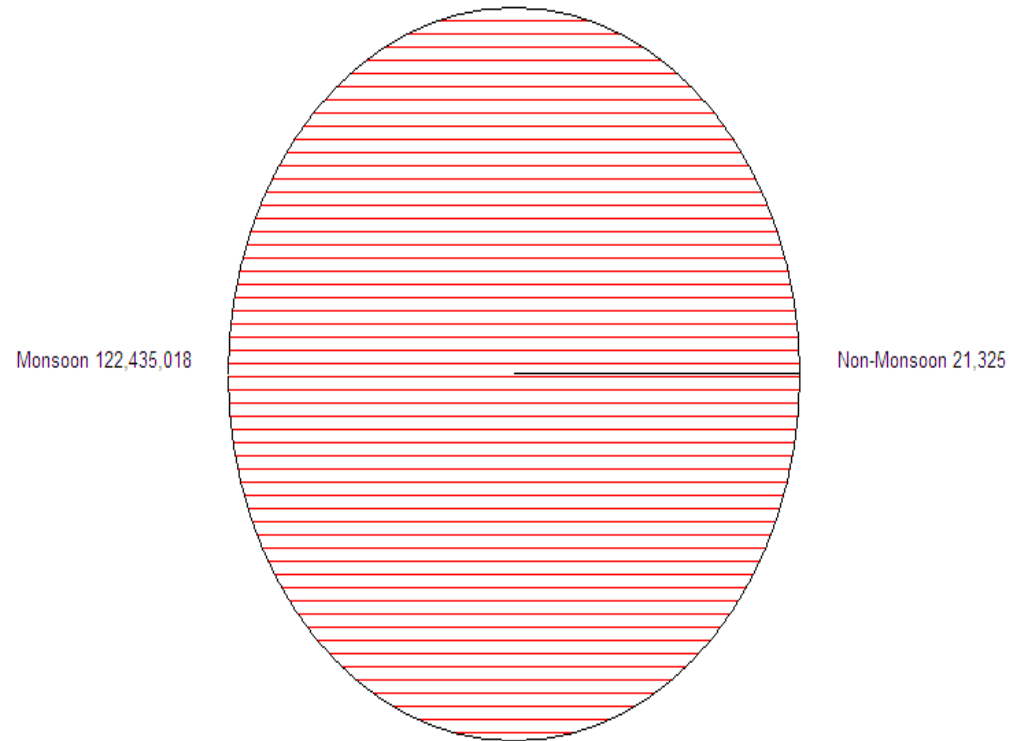
**Seasonal Sediment Load for period : 1987-2016**

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur



Sediment Data Year Book 2015-16

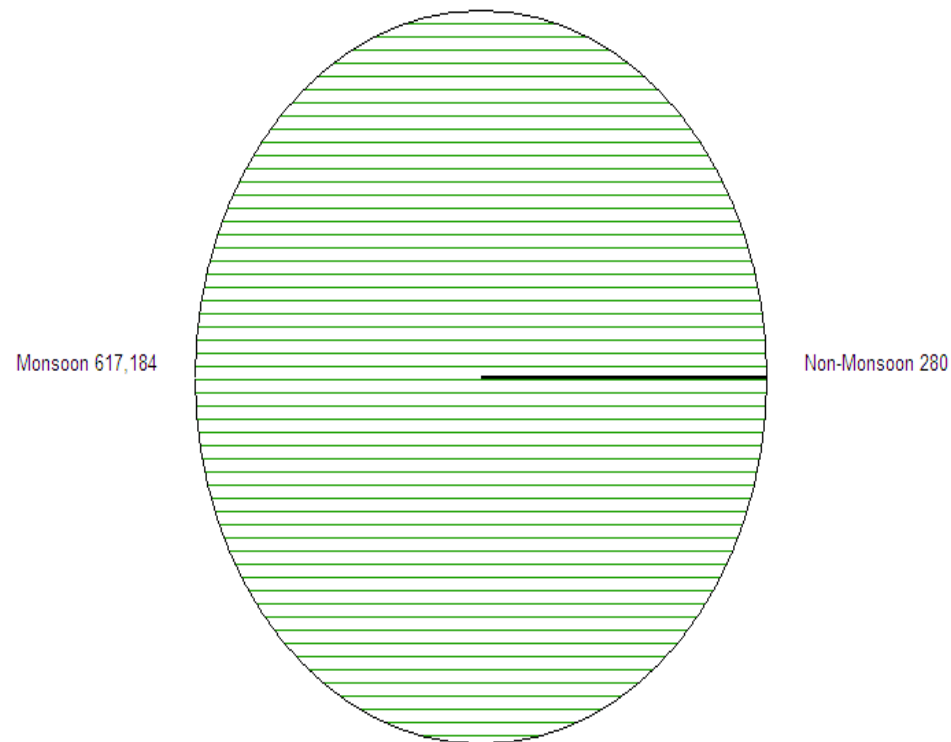
**Seasonal Sediment Load for period : 2015-2016**

Station Name : Narmada at Manot ( 010215002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur





## 7 Part – II Bed material Data

### 7.1 Orsang at Chandwada

#### BED MATERIAL DATA FOR THE YEAR 2015-2016

**SITE : ORSANG AT CHANDWADA**

CODE : 010215032

MEASURING AUTHORITY : TAPI DIVISION

W.YEAR : 2015-16

#### PRE MONSOON SURVEY ( DATE 21.04.2015 )

Discharge 'Q' : Nil - DRY m<sup>3</sup>/sec

Water edge: L.B m R.B m

Area of Section 'A' : m<sup>2</sup>

Mean Velocity 'V' : m/ sec

Wetted Perimeter 'P': m

Hydraulic Mean Depth 'R' : m

| Sample. No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|------------|---------------------------|------------------|----------------------|------------------------------|
| 1          | 0                         | 30.620           | 1.58                 | RIVER DRY                    |
| 2          | 80                        | 28.200           | 1.87                 | Av . Mean Dia "d"= 1.82 mm   |
| 3          | 165                       | 18.900           | 2.32                 |                              |
| 4          | 240                       | 18.185           | 3.04                 | Av .Silt Factor " f " = 2.37 |
| 5          | 360                       | 18.535           | 1.21                 |                              |
| 6          | 420                       | 25.300           | 1.17                 |                              |
| 7          | 480                       | 26.610           | 1.92                 |                              |
| 8          | 570                       | 31.210           | 1.41                 |                              |

#### MONSOON SURVEY ( DATE )

Discharge 'Q' : m<sup>3</sup>/sec

Water edge: L.B m R.B m

Area of Section 'A' : m<sup>2</sup>

Mean Velocity 'V' : m/ sec

Wetted Perimeter 'P': m

Hydraulic Mean Depth 'R' : m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                |
|-----------|---------------------------|------------------|----------------------|------------------------|
|           |                           |                  |                      | Av . Mean Dia "d" = mm |

SURVEY NOT DONE

Av .Silt Factor " f " =

#### POST MONSOON SURVEY ( DATE 21.12.2015 )

Discharge 'Q' : Nil,-Dry m<sup>3</sup>/sec

Water edge: L.B. m R.B. m

Area of Section 'A' : m<sup>2</sup>

Mean Velocity 'V' : m/ sec

Wetted Perimeter 'P': m

Hydraulic Mean Depth 'R' : m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 0                         | 30.580           | 1.89                 |                              |
| 2         | 80                        | 28.215           | 13.5                 | Av . Mean Dia "d" = 5.76 mm  |
| 3         | 165                       | 19.310           | 4.35                 |                              |
| 4         | 240                       | 17.860           | 3.5                  | Av .Silt Factor " f " = 4.22 |
| 5         | 360                       | 18.485           | 2.26                 |                              |
| 6         | 420                       | 25.600           | 14.19                |                              |
| 7         | 480                       | 26.120           | 3.97                 |                              |
| 8         | 570                       | 31.360           | 2.39                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

## 7.2 Narmada at Garudeshwar

## BED MATERIAL DATA FOR THE YEAR 2015-2016

SITE : NARMADA AT GARUDESHWAR

CODE : 010215030

MEASURING AUTHORITY : TAPI DIVISION

W.YEAR :2015-16

## PRE MONSOON SURVEY ( DATE 13.04.2015 )

Discharge 'Q' :26.88M<sup>3</sup>/sec

Water edge: L.B.:30.00m, R.B.:170.00 m

Area of Section 'A' :334.03 m<sup>2</sup>

Mean Velocity 'V' :0.080 m/ sec

Wetted Perimeter 'P' :328.78 m

Hydraulic Mean Depth 'R' :1.106 m

| Sample. No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|------------|---------------------------|------------------|----------------------|------------------------------|
| 1          | 0.00                      | 42.100           | 1.25                 |                              |
| 2          | 240.00                    | 11.070           | 9.49                 | Av . Mean Dia "d"=9.15 mm    |
| 3          | 270.00                    | 11.870           | 12.04                |                              |
| 4          | 300.00                    | 11.970           | 12.22                | Av .Silt Factor " f " = 5.32 |
| 5          | 360.00                    | 12.020           | 10.54                |                              |
| 6          | 390.00                    | 12.370           | 11.69                |                              |
| 7          | 420.00                    | 12.170           | 11.27                |                              |
| 8          | 450.00                    | 12.270           | 10.34                |                              |
| 9          | 570.00                    | 18.100           | 11.03                |                              |
| 10         | 650.00                    | 39.950           | 1.35                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

## MONSOON SURVEY ( DATE )

Discharge 'Q' : m<sup>3</sup>/sec

Water edge: L.B m R.B. m

Area of Section 'A' : m<sup>2</sup>

Mean Velocity 'V' : m/ sec

Wetted Perimeter 'P': m

Hydraulic Mean Depth 'R' : m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks |
|-----------|---------------------------|------------------|----------------------|---------|
|-----------|---------------------------|------------------|----------------------|---------|

Av . Mean Dia "d" = mm

SURVEY NOT TAKEN

Av .Silt Factor " f " =

## POST MONSOON SURVEY ( DATE 07.12.2015 )

Discharge 'Q' :27.78 m<sup>3</sup>/sec

Water edge: L.B.:20.00m, R.B.:170.00 m

Area of Section 'A' : 561.70 m<sup>2</sup>

Mean Velocity 'V' :0.049 m/ sec

Wetted Perimeter 'P':323.52 m

Hydraulic Mean Depth 'R': 1.736 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 0.00                      | 42.100           | 1.10                 |                              |
| 2         | 240.00                    | 11.025           | 11.30                | Av . Mean Dia "d" = 8.81 mm  |
| 3         | 270.00                    | 11.805           | 11.50                |                              |
| 4         | 300.00                    | 11.905           | 11.10                | Av .Silt Factor " f " = 5.22 |
| 5         | 360.00                    | 11.975           | 9.90                 |                              |
| 6         | 390.00                    | 12.305           | 13.57                |                              |
| 7         | 420.00                    | 12.115           | 9.34                 |                              |
| 8         | 450.00                    | 12.205           | 9.34                 |                              |
| 9         | 570.00                    | 18.050           | 9.76                 |                              |
| 10        | 645.00                    | 39.950           | 1.14                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

## 7.3 Narmada at Mandleshwar

## BED MATERIAL DATA FOR THE YEAR 2015-2016

SITE : NARMADA AT MANDLESHWER

CODE : 010215026

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

## PRE MONSOON SURVEY ( DATE 22.05.2015 )

Discharge 'Q' : 445.43

m<sup>3</sup>/sec

Water edge: L.B.:194.30m, R.B: 762.0m

Area of Section 'A':850.82 m<sup>2</sup>

Mean Velocity' V ' : 0.524 m/ sec

Wetted Perimeter 'P':578.06 m

Hydraulic Mean Depth'R': 1.472 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 50                        | 146.250          | 3.05                 |                              |
| 2         | 100                       | 138.980          | 0.67                 | Av . Mean Dia "d"= 2.92 mm   |
| 3         | 200                       | 139.100          | 6.09                 |                              |
| 4         | 300                       | 138.210          | 1.92                 | Av .Silt Factor " f " = 3.01 |
| 5         | 400                       | 139.420          | 1.74                 |                              |
| 6         | 500                       | 138.390          | 1.60                 |                              |
| 7         | 600                       | 139.520          | 4.14                 |                              |
| 8         | 700                       | 141.570          | 4.16                 |                              |

## MONSOON SURVEY ( DATE )

Discharge 'Q' :

m<sup>3</sup>/sec

Water edge: L.B. m R.B.

Area of Section 'A' m<sup>2</sup>

Mean Velocity' V ' : m/ sec

Wetted Perimeter 'P' m

Hydraulic Mean Depth'R' m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                 |
|-----------|---------------------------|------------------|----------------------|-------------------------|
| 1         | 50                        |                  |                      |                         |
| 2         | 100                       |                  |                      |                         |
| 3         | 200                       |                  |                      | Av . Mean Dia "d"= mm   |
| 4         | 300                       | NOT COLLECTED    |                      |                         |
| 5         | 400                       |                  |                      | Av .Silt Factor " f " = |

## POST MONSOON SURVEY ( DATE )

Discharge 'Q' : m<sup>3</sup>/sec

Water edge: L.B. m R.B. M

Area of Section 'A' : m<sup>2</sup>

Mean Velocity' V ' : m/ sec

Wetted Perimeter 'P' : m

Hydraulic Mean Depth'R' : m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                 |
|-----------|---------------------------|------------------|----------------------|-------------------------|
| 1         | 50                        |                  |                      |                         |
| 2         | 100                       |                  |                      | Av . Mean Dia "d"= mm   |
| 3         | 200                       |                  |                      |                         |
| 4         | 300                       | NOT COLLECTED    |                      | Av .Silt Factor " f " = |
| 5         | 400                       |                  |                      |                         |
| 6         | 500                       |                  |                      |                         |
| 7         | 600                       |                  |                      |                         |
| 8         | 700                       |                  |                      |                         |

## 7.4 Narmada at Handia

## BED MATERIAL DATA FOR THE YEAR 2015-2016

SITE :NARMADA AT HANDIA

CODE :010215022

MEASURING AUTHORITY : DN

W.YEAR :2015-16

## PRE MONSOON SURVEY ( DATE 10.06.2015)

Discharge 'Q' : 180.0 m<sup>3</sup>/sec

Water edge: L.B.:m, R.B: m

Area of Section 'A' :370.30 m<sup>2</sup>

Mean Velocity' V ' : 0.486 m/ sec

Wetted Perimeter 'P': 191.70 m

Hydraulic Mean Depth'R' : 1.932m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 60                        | 260.180          | 0.74                 |                              |
| 2         | 180                       | 258.150          | 1.00                 | Av . Mean Dia "d"= 1.52mm    |
| 3         | 300                       | 260.810          | 0.9                  |                              |
| 4         | 420                       | 260.140          | 1.00                 | Av .Silt Factor " f " = 2.17 |
| 5         | 540                       | 260.880          | 1.05                 |                              |
| 6         | 660                       | 263.220          | 4.41                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

## MONSOON SURVEY ( DATE 14.09.2015)

Discharge 'Q' :284.0 m<sup>3</sup>/sec

Water edge: L.B.: m, R.B:m

Area of Section 'A' :690.40 m<sup>2</sup>

Mean Velocity' V ' :0.411 m/ sec

Wetted Perimeter 'P':408.90 m

Hydraulic Mean Depth'R' :1.688 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 60                        | 261.900          | 1.28                 |                              |
| 2         | 180                       | 258.150          | 1.05                 | Av . Mean Dia "d"= 1.65 mm   |
| 3         | 300                       | 260.800          | 0.97                 |                              |
| 4         | 420                       | 260.130          | 1.04                 | Av .Silt Factor " f " = 2.26 |
| 5         | 540                       | 260.870          | 1.17                 |                              |
| 6         | 660                       | 263.260          | 4.38                 |                              |

## POST MONSOON SURVEY ( DATE 11.01.2016 )

Discharge 'Q' : 139.0 m<sup>3</sup>/sec

Water edge: L.B.: m, R.B: m

Area of Section 'A' :366.60 m<sup>2</sup>

Mean Velocity' V ' : 0.379 m/ sec

Wetted Perimeter 'P':228.50 m

Hydraulic Mean Depth'R' :1.604 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 60                        | 260.200          | 1.11                 |                              |
| 2         | 180                       | 258.390          | 0.94                 | Av . Mean Dia "d"= 1.06 mm   |
| 3         | 300                       | 260.910          | 0.93                 |                              |
| 4         | 420                       | 260.440          | 1.05                 | Av .Silt Factor " f " = 1.81 |
| 5         | 540                       | 260.980          | 1.11                 |                              |
| 6         | 660                       | 263.400          | 1.21                 |                              |

## 7.5 Narmada at Hoshangabad

**BED MATERIAL DATA FOR THE YEAR 2015-16****SITE:NARMADA AT HOSHANGABAD**

CODE : 010215019

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

**PRE MONSOON SURVEY ( DATE 13.05.2015 )**Discharge 'Q' :187.25m<sup>3</sup>/sec

Water edge: L.B 48.00m,R.B.:465.00m

Area of Section 'A' :557.38m<sup>2</sup>

Mean Velocity' V ':0.336m/sec

Wetted Perimeter 'P':417.10m

Hydraulic Mean Depth'R' :1.336 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 100                       | 283.990          | 5.77                 |                              |
| 2         | 200                       | 282.840          | 0.93                 | Av . Mean Dia "d" = 2.19 mm  |
| 3         | 300                       | 282.980          | 0.85                 |                              |
| 4         | 400                       | 283.730          | 0.92                 | Av .Silt Factor " f " = 2.60 |
| 5         | 500                       | 284.900          | 2.87                 |                              |
| 6         | 600                       | 286.610          | 2.88                 |                              |
| 7         | 700                       | 286.900          | 1.08                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**MONSOON SURVEY ( DATE 07.10.2015 )**Discharge 'Q':161.4m<sup>3</sup>/sec

Water edge:L.B:48.40m,R.B:452.00m

Area of Section 'A':536.34m<sup>2</sup>

Mean Velocity' V ':0.301m/sec

Wetted Perimeter 'P':403.7m

Hydraulic Mean Depth'R':1.328 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 100                       | 283.990          | 2.18                 |                              |
| 2         | 200                       | 282.850          | 0.74                 | Av . Mean Dia "d"= 1.05 mm   |
| 3         | 300                       | 282.750          | 0.85                 |                              |
| 4         | 400                       | 283.670          | 0.61                 | Av .Silt Factor " f " = 1.80 |
| 5         | 500                       | 284.900          | 0.53                 |                              |
| 6         | 600                       | 286.608          | 0.60                 |                              |
| 7         | 700                       | 286.900          | 1.85                 |                              |

**POST MONSOON SURVEY ( DATE 17.12.2015 )**Discharge 'Q' :115.48m<sup>3</sup>/sec

Water edge:L.B.:49.90m,R.B.:439.80m

Area of Section 'A':439.11m<sup>2</sup>

Mean Velocity' V ':0.263m/sec

Wetted Perimeter 'P' :390.02 m

Hydraulic Mean Depth'R':1.126m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 100                       | 283.850          | 0.47                 |                              |
| 2         | 200                       | 282.100          | 1.04                 | Av . Mean Dia "d"= 1.36 mm   |
| 3         | 300                       | 282.100          | 0.71                 |                              |
| 4         | 400                       | 283.870          | 0.73                 | Av .Silt Factor " f " = 2.05 |
| 5         | 500                       | 284.910          | 0.5                  |                              |
| 6         | 600                       | 286.600          | 3.37                 |                              |
| 7         | 700                       | 286.905          | 2.69                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**7.6 Narmada at Sandia****BED MATERIAL DATA FOR THE YEAR 2015-2016****SITE :NARMADA AT SANDIA**

CODE : 010215013

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

**PRE MONSOON SURVEY ( DATE 21.05.2015 )**Discharge 'Q' : 123.95 m<sup>3</sup>/sec

Water edge: L.B.:166.40m, R.B.:442.70 m

Area of Section 'A' :241.65 m<sup>2</sup>

Mean Velocity' V ' : 0.513 m/ sec

Wetted Perimeter 'P': 276.46m

Hydraulic Mean Depth'R' : 0.874 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 100                       | 306.630          | 3.90                 |                              |
| 2         | 200                       | 298.530          | 0.55                 | Av . Mean Dia "d"= 1.63 mm   |
| 3         | 300                       | 298.250          | 0.9                  |                              |
| 4         | 400                       | 299.150          | 1.31                 | Av .Silt Factor " f " = 2.25 |
| 5         | 500                       | 301.950          | 1.20                 |                              |
| 6         | 600                       | 301.940          | 0.90                 |                              |
| 7         | 700                       | 309.450          | 2.67                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel

Flow

**MONSOON SURVEY ( DATE 27.10.2015 )**Discharge 'Q' : 90.97 m<sup>3</sup>/sec

Water edge: L.B.:195.80m, R.B.:450.00 m

Area of Section 'A' :139.64 m<sup>2</sup>

Mean Velocity' V ' : 0.652 m/ sec

Wetted Perimeter 'P':254.30 m

Hydraulic Mean Depth'R' : 0.549m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 100                       | 306.650          | 4.83                 |                              |
| 2         | 200                       | 298.720          | 0.84                 | Av . Mean Dia "d"= 2.06 mm   |
| 3         | 300                       | 299.030          | 0.84                 |                              |
| 4         | 400                       | 299.180          | 0.93                 | Av .Silt Factor " f " = 2.53 |
| 5         | 500                       | 301.890          | 0.80                 |                              |
| 6         | 600                       | 301.850          | 1.01                 |                              |
| 7         | 700                       | 309.680          | 5.2                  |                              |

**POST MONSOON SURVEY ( DATE 25.01.2016 )**Discharge 'Q' : 107.26 m<sup>3</sup>/sec

Water edge: L.B.:194.00 m, R.B.:445.20m

Area of Section 'A' :179.63 m<sup>2</sup>

Mean Velocity' V ' : 0.597 m/ sec

Wetted Perimeter 'P': 251.30 m

Hydraulic Mean Depth'R' : 0.715 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 100                       | 306.630          | 0.70                 |                              |
| 2         | 200                       | 298.670          | 0.82                 | Av . Mean Dia "d"= 0.74 mm   |
| 3         | 300                       | 298.970          | 0.63                 |                              |
| 4         | 400                       | 298.860          | 0.80                 | Av .Silt Factor " f " = 1.51 |
| 5         | 500                       | 301.930          | 0.74                 |                              |
| 6         | 600                       | 301.980          | 0.73                 |                              |
| 7         | 700                       | 309.730          | 0.77                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel

Flow

## 7.7 Shakkar at Gadarwara

**BED MATERIAL DATA FOR THE YEAR 2015-2016****SITE :SHAKKAR AT GADARWARA**

CODE : 010215012

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

**PRE MONSOON SURVEY ( DATE 29.05.2015)**Discharge 'Q' : 0.293 m<sup>3</sup>/sec

Water edge: L.B.: m, R.B: m

Area of Section 'A':15.06 m<sup>2</sup>

Mean Velocity' V ' :0.019 m/ sec

Wetted Perimeter 'P':48.89 m

Hydraulic Mean Depth'R':.0.308 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 30                        | 322.560          | 2.76                 |                              |
| 2         | 60                        | 323.240          | 2.94                 | Av . Mean Dia "d"= 2.16 mm   |
| 3         | 90                        | 323.490          | 2.82                 |                              |
| 4         | 120                       | 323.350          | 2.77                 | Av .Silt Factor " f " = 2.59 |
| 5         | 150                       | 322.820          | 2.31                 |                              |
| 6         | 180                       | 322.010          | 1.03                 |                              |
| 7         | 210                       | 323.050          | 0.47                 |                              |

**MONSOON SURVEY ( DATE 16.10.2015 )**Discharge 'Q' : 7.17m<sup>3</sup>/sec

Water edge: L.B.:116.00 m, R.B.:197.00 m

Area of Section 'A' :24.72 m<sup>2</sup>

Mean Velocity' V ' : 0.290 m/ sec

Wetted Perimeter 'P': 81.08m

Hydraulic Mean Depth'R' : 0.305 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 30                        | 322.590          | 1.79                 |                              |
| 2         | 60                        | 323.290          | 4.04                 | Av . Mean Dia "d"= 1.91 mm   |
| 3         | 90                        | 323.530          | 2.05                 |                              |
| 4         | 120                       | 322.600          | 3.44                 | Av .Silt Factor " f " = 2.43 |
| 5         | 150                       | 322.300          | 0.91                 |                              |
| 6         | 180                       | 322.320          | 0.66                 |                              |
| 7         | 210                       | 322.980          | 0.45                 |                              |

**POST MONSOON SURVEY ( DATE 19.01.2016)**Discharge 'Q' : .585 m<sup>3</sup>/sec

Water edge: L.B.: m, R.B.:m

Area of Section 'A' :14.23 m<sup>2</sup>

Mean Velocity' V ' : .041 m/ sec

Wetted Perimeter 'P' : 40.65 m

Hydraulic Mean Depth'R' : 0.348m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 30                        | 322.610          | 4.07                 |                              |
| 2         | 60                        | 323.310          | 3.33                 | Av . Mean Dia "d"= 3.19 mm   |
| 3         | 90                        | 323.540          | 3.13                 |                              |
| 4         | 120                       | 323.720          | 4.59                 | Av .Silt Factor " f " = 3.14 |
| 5         | 150                       | 322.320          | 2.57                 |                              |
| 6         | 180                       | 322.330          | 1.42                 |                              |
| 7         | 210                       | 323.890          | 3.25                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

## 7.8 Narmada at Barman

## BED MATERIAL DATA FOR THE YEAR 2015-2016

SITE :NARMADA AT BARMAN

CODE : 010215011

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

## PRE MONSOON SURVEY ( DATE 26.05.2015 )

Discharge 'Q' :122.00 m<sup>3</sup>/sec

Water edge: L.B. m R.B. m

Area of Section 'A' :228.70 m<sup>2</sup>

Mean Velocity 'V' : 0.533m/ sec

Wetted Perimeter 'P':138.10m

Hydraulic Mean Depth'R':1.656 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 60                        | 312.011          | 0.27                 |                              |
| 2         | 120                       | 310.705          | 2.42                 | Av . Mean Dia "d" = 1.26 mm  |
| 3         | 180                       | 307.770          | 1.29                 |                              |
| 4         | 240                       | 306.450          | 1.18                 | Av .Silt Factor " f " = 1.98 |
| 5         | 300                       | 307.910          | 1.65                 |                              |
| 6         | 350                       | 322.420          | 0.34                 |                              |
| 7         | 400                       | 327.860          | 1.69                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

## MONSOON SURVEY ( DATE )

Discharge 'Q' : m<sup>3</sup>/sec

Water edge: L.B m R.B.m

Area of Section 'A' : m<sup>2</sup>

Mean Velocity' V ' m/ sec

Wetted Perimeter 'P' m

Hydraulic Mean Depth'R' m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                 |
|-----------|---------------------------|------------------|----------------------|-------------------------|
| 1         |                           |                  |                      |                         |
| 2         |                           |                  |                      | Av . Mean Dia "d" = mm  |
| 3         |                           |                  |                      |                         |
| 4         |                           |                  |                      | Av .Silt Factor " f " = |
| 5         |                           | NOT COLLECTED    |                      |                         |
| 6         |                           |                  |                      |                         |
| 7         |                           |                  |                      |                         |

## POST MONSOON SURVEY ( DATE 25.01.2016 )

Discharge 'Q' 98.70 m<sup>3</sup>/sec

Water edge: L.B. m R.B m

Area of Section 'A' :172.90 m<sup>2</sup>

Mean Velocity' V ' : 0.571 m/ sec

Wetted Perimeter 'P':

Hydraulic Mean Depth'R' : 1.286

134.40m

m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 60.00                     | 312.015          | 1.32                 |                              |
| 2         | 120.00                    | 310.800          | 4.07                 | Av . Mean Dia "d" = 1.94 mm  |
| 3         | 180.00                    | 307.570          | 1.90                 |                              |
| 4         | 240.00                    | 306.770          | 1.87                 | Av .Silt Factor " f " = 2.45 |
| 5         | 300.00                    | 307.830          | 1.20                 |                              |
| 6         | 350.00                    | 322.420          | 1.13                 |                              |
| 7         | 400.00                    | 327.860          | 2.10                 |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**7.9 Banjar at Bamni****BED MATERIAL DATA FOR THE YEAR 2015-2016****SITE :BANJAR AT BAMNI**

CODE : 010215006

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

**PRE MONSOON SURVEY ( DATE 15.05.2015 )**Discharge 'Q' : 0.0 m<sup>3</sup>/sec

Water edge: L.B.: m , R.B : m

Area of Section 'A' : m<sup>2</sup>

Mean Velocity' V ' : 0.0 m/ sec

Wetted Perimeter 'P':0.0 m

Hydraulic Mean Depth'R' : 0.0 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm )              | Remarks |
|-----------|---------------------------|------------------|-----------------------------------|---------|
| 1         | 50                        | 441.250          | 0.90                              |         |
| 2         | 100                       | 441.330          | 0.78 Av . Mean Dia "d"= 0.89 mm   |         |
| 3         | 150                       | 441.690          | 0.81                              |         |
| 4         | 200                       | 441.180          | 1.07 Av .Silt Factor " f " = 1.66 |         |

Note : River Dry

**MONSOON SURVEY ( DATE 28.10.2015 )**Discharge 'Q' :9.765 m<sup>3</sup>/sec

Water edge: L.B.:31.90m, R.B.:197.50m

Area of Section 'A' :30.51 m<sup>2</sup>

Mean Velocity' V ' : 0.320m/ sec

Wetted Perimeter 'P':91.97 m

Hydraulic Mean Depth'R' : 0.332 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm )             | Remarks |
|-----------|---------------------------|------------------|----------------------------------|---------|
| 1         | 50                        | 440.130          | 1.51                             |         |
| 2         | 100                       | 441.320          | 0.73 Av .Mean Dia"d" = 1.17 mm   |         |
| 3         | 150                       | 440.900          | 1.24                             |         |
| 4         | 200                       | 440.590          | 1.2 Av .Silt Factor " f " = 1.90 |         |

**POST MONSOON SURVEY ( DATE 03.02.2016 )**Discharge 'Q' :0.648 m<sup>3</sup>/sec

Water edge: L.B.:169.55 m, R.B.:195.55m

Area of Section 'A' :5.37 m<sup>2</sup>

Mean Velocity' V ' :0.121 m/ sec

Wetted Perimeter 'P' : 91.77 m

Hydraulic Mean Depth'R' :0.21 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm )              | Remarks |
|-----------|---------------------------|------------------|-----------------------------------|---------|
| 1         | 50                        | 440.100          | 0.74                              |         |
| 2         | 100                       | 440.300          | 1.05 Av . Mean Dia "d"= 1.10 mm   |         |
| 3         | 150                       | 440.230          | 1.14                              |         |
| 4         | 200                       | 440.130          | 1.45 Av .Silt Factor " f " = 1.85 |         |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**7.10 Burhner at Mohgaon****BED MATERIAL DATA FOR THE YEAR 2015-2016****SITE :BURHNER AT MOHGAON**

CODE : 010215004

MEASURING AUTHORITY : NDN

W.YEAR :2015-16

**PRE MONSOON SURVEY (DATE 05.05.2015)**Discharge 'Q' :1.886 m<sup>3</sup>/sec

Water edge: L.B.:103.00m, R.B.:123.50m

Area of Section 'A' :5.18 m<sup>2</sup>

Mean Velocity' V ' :0.364 m/ sec

Wetted Perimeter 'P' :20.54 m

Hydraulic Mean Depth'R ' :0.252 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 50                        | 450.620          | 3.49                 |                              |
| 2         | 100                       | 449.110          | 3.16                 | Av . Mean Dia "d"= 2.60 mm   |
| 3         | 150                       | 452.400          | 1.99                 |                              |
| 4         | 200                       | 462.200          | 1.77                 | Av .Silt Factor " f " = 2.84 |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**MONSOON SURVEY ( DATE 28.11.2015 )**Discharge 'Q' :9.117 m<sup>3</sup>/sec

Water edge: L.B.:60.00 m, R.B.:125.00m

Area of Section 'A' :24.10 m<sup>2</sup>

Mean Velocity' V ' : 0.378 m/ sec

Wetted Perimeter 'P':27.91 m

Hydraulic Mean Depth'R ' : 0.086m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 50                        | 450.610          | 6.10                 |                              |
| 2         | 100                       | 449.070          | 0.53                 | Av . Mean Dia "d" =2.15 mm   |
| 3         | 150                       | 452.460          | 0.79                 |                              |
| 4         | 200                       | 462.210          | 1.18                 | Av .Silt Factor " f " = 2.59 |

**POST MONSOON SURVEY ( DATE 27.02.2016)**Discharge 'Q' :2.911 m<sup>3</sup>/sec

Water edge: L.B.:103.50 m, R.B.:124.50 m

Area of Section 'A' :18.79 m<sup>2</sup>

Mean Velocity' V ' :0.155 m/ sec

Wetted Perimeter 'P ' :26.00 m

Hydraulic Mean Depth'R ' :0.722 m

| Sample No | R.D. sampling point ( m ) | R.L.of Bed ( m ) | Mean Diameter ( mm ) | Remarks                      |
|-----------|---------------------------|------------------|----------------------|------------------------------|
| 1         | 50                        | 450.390          | 7.67                 |                              |
| 2         | 100                       | 448.960          | 4.60                 | Av . Mean Dia "d" =3.51mm    |
| 3         | 150                       | 452.000          | 0.77                 |                              |
| 4         | 200                       | 462.010          | 1.01                 | Av .Silt Factor " f " = 3.30 |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**7.11 Narmada at Manot****BED MATERIAL DATA FOR THE YEAR 2015-2016****SITE :NARMADA AT MANOT****CODE : 010215002****MEASURING AUTHORITY : NDN****W.YEAR :2015-16****PRE MONSOON SURVEY ( DATE 08.05.2015 )**Discharge 'Q' :4.550 m<sup>3</sup>/secArea of Section 'A' :21.78 m<sup>2</sup>

Wetted Perimeter 'P': 54.72 m

Water edge: L.B.:64.00m,

R.B.:106.40m

Mean Velocity' V ' : 0.209m/ sec

Hydraulic Mean Depth 'R' :0.396 m

| Sample. No | R.D.<br>sampling<br>point ( m ) | R.L.of Bed<br>( m ) | Mean Diameter<br>( mm ) | Remarks                      |
|------------|---------------------------------|---------------------|-------------------------|------------------------------|
| 1          | 50                              | 444.180             | 5.95                    |                              |
| 2          | 100                             | 443.550             | 0.83                    | Av . Mean Dia "d"= 2.19mm    |
| 3          | 150                             |                     |                         | ROCKY BED                    |
| 4          | 200                             | 453.000             | 0.83                    | Av .Silt Factor " f " = 2.60 |
| 5          | 250                             | 459.500             | 1.14                    |                              |

**MONSOON SURVEY ( DATE 23.11.2015 )**Discharge 'Q' : 11.76 m<sup>3</sup>/secArea of Section 'A' :30.22 m<sup>2</sup>

Wetted Perimeter 'P':58.03 m

Water edge: L.B.:54.00 m,

R.B.:108.00m

Mean Velocity' V ' :0.389 m/ sec

Hydraulic Mean Depth'R' :0.521 m

| Sample<br>No | R.D.<br>sampling<br>point ( m ) | R.L.of Bed<br>( m ) | Mean Diameter<br>( mm ) | Remarks                      |
|--------------|---------------------------------|---------------------|-------------------------|------------------------------|
| 1            | 50                              | 444.260             | 2.56                    |                              |
| 2            | 100                             | 443.540             | 1.12                    | Av . Mean Dia "d" = 1.56 mm  |
| 3            | 150                             |                     |                         | ROCKY BED                    |
| 4            | 200                             | 442.610             | 1.61                    | Av .Silt Factor " f " = 2.20 |
| 5            | 250                             | 459.500             | 0.93                    |                              |

**POST MONSOON SURVEY ( DATE 23.02.2016 )**Discharge 'Q' : 3.979m<sup>3</sup>/secArea of Section 'A' :10.37 m<sup>2</sup>

Wetted Perimeter 'P': 29.88m

Water edge: L.B.:64.00m,

R.B.:105.40m

Mean Velocity' V ' : 0.154 m/ sec

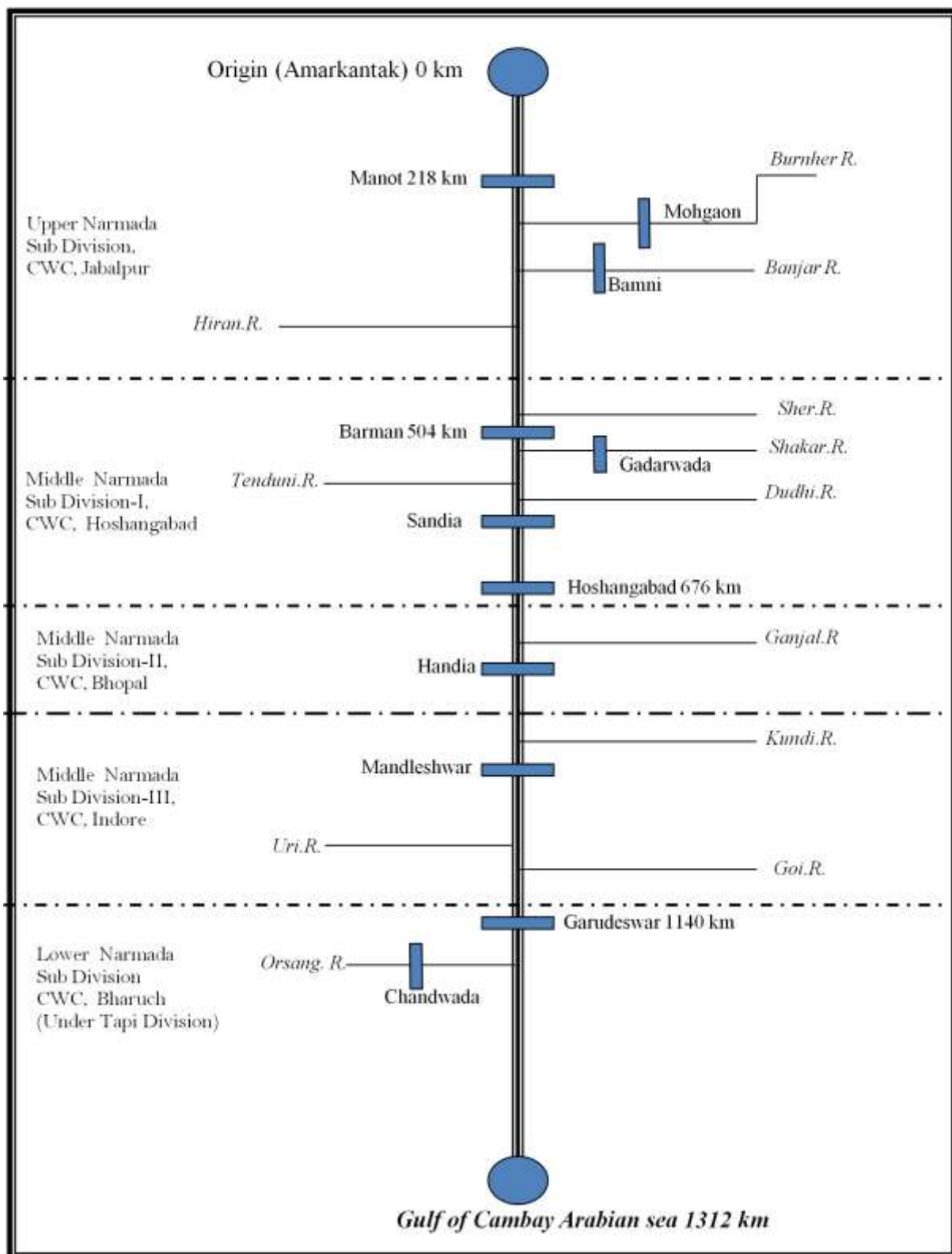
Hydraulic Mean Depth'R' : 0.347 m

| Sample<br>No | R.D.<br>sampling<br>point ( m ) | R.L.of Bed<br>( m ) | Mean Diameter<br>( mm ) | Remarks                      |
|--------------|---------------------------------|---------------------|-------------------------|------------------------------|
| 1            | 50                              | 443.290             | 4.02                    |                              |
| 2            | 100                             | 444.980             | 0.57                    | Av . Mean Dia "d" = 1.44mm   |
| 3            | 150                             |                     |                         | ROCKY BED                    |
| 4            | 200                             | 446.545             | 0.62                    | Av .Silt Factor " f " = 2.11 |
| 5            | 250                             | 449.970             | 0.53                    |                              |

Note ; 1) Discharge was observed at S / G section 2) Single Channel Flow

**Plate 1: Line Diagram of Narmada Basin**

**Silt observation stations under Narmada Basin Organisation, Bhopal**



### Plate 2: Index Map of Narmada Basin

