सत्यमेव जयते

नर्मदा व तापी बेसिन संगठन

NARMADA & TAPI BASIN ORGANIZATION

केन्द्रीय जल आयोग

CENTRAL WATER COMMISSION

गाँधीनगर (गुजरात)

GANDHINAGAR (GUJARAT)

गाद आँकडे वार्षिकी (तलछट पदार्थ सहित)

SEDIMENT DATA YEAR BOOK (INCLUDING BED MATERIAL)

(2011-12)

माही, साबरमती, तापी एवं अन्य पश्चिम प्रवाही नदियाँ

Mahi, Sabarmati, Tapi & Other West Flowing Rivers

प्रकाशक **PUBLISHED BY**

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नर्मदा व तापी बेसिन संगठन **Narmada & Tapi Basin Organization**

केन्द्रीय जल आयोग **Central Water Commission**

गाँधीनगर (गुजरात) **Gandhinagar (Gujarat)**

मार्च 2013 **March 2013**

प्रस्तावना

मृदाक्षरण स्थलमण्डल पर होने वाली एक प्राकृतिक प्रकिया है। पानी और हवा मृदाक्षरण के कारक हैं, इन्हीं की वजह से प्रतिवर्ष मृदा के बहुत बडे हिस्से का नुकसान होता है। मृदाक्षरण एक धीमी किन्तु निरंतर जारी प्रकिया हो सकती है, जिस पर सामान्यतया ध्यान नहीं जाता या यह खतरनाक दर से होकर मृदा की ऊपरी सतह को गंभीर हानि पहुँचा सकती है। कृषि क्षेत्रों से होने वाला मृदा का नुकसान फसल की उत्पादकता में कमी, सतही जल की गुणवत्ता का हास और जल निकास की व्यवस्था के क्षतिग्रस्त होने के रूपों में परिलक्षित होता है। कुछ क्षेत्रों में मृदाक्षरण और गुणवत्ता में गिरावट इतनी गंभीर है कि वह हमारी कृषि के आधार एवं प्राकृतिक जलनिकास प्रणाली के लिए खतरा बन गई है।

मृदाक्षरण की मात्रा और दर वर्षा की तीव्रता, अपवाह, मृदा कटाव प्रवणता, ढलान का अनुपात एवं लम्बाई तथा वनस्पति इत्यादि कारकों से प्रभावित होती है। अनेक गतिविधियों जैसे कृषि, जंगलों का विनाश, शहरीकरण, खनन, यातायात इत्यादि के लिए भूमि का अत्यधिक उपयोग मृदाक्षरण की प्रकिया को त्वरित करता है। पानी द्वारा मृदाक्षरण के कारण जलधारा तथा झीलों में गंदलापन पैदा होता है और समय के साथ तलछट के क्रमशः भराव से झीलों एवं जलाशयों में जल संग्रहण की क्षमता असमय कम हो जाती है। क्षरित मृदा से जुडे पादप पोषक तत्व और कीटनाशक जलधारा में घुलकर सतही जल को प्रदूषित करते हैं।

यह "तलछट वार्षिकी" एक वार्षिक प्रकाशन है जो केन्द्रीय जल आयोग के नर्मदा एवं तापी बेसिन संगठन के अन्तर्गत **9** नदी बेसिनों पर स्थित **14** स्थलों का वार्षिक तलछट भार और तल सामग्री के आंकडे प्रस्तुत करता है। प्रकाशन में विभिन्न बेसिनों में स्थित प्रेक्षण स्थलों का तलछट भार, मृदा की गुणवत्ता एवं तलछट का प्रतिशत शामिल है। ये आंकड़े मृदाक्षरण को नियंत्रित करने, जलाशयों के अभिकल्पन और इस क्षेत्र की मूलभूत परियोजनाओं में उपयोगी हैं।

यह आशा की जाती है कि यहाँ जो जानकारी एवं आंकड़े दर्शाऐ गये हैं, वे इस क्षेत्र में काम करने वाली ऐजेन्सियों के लिए उपयोगी होंगे। मैं जल विज्ञानीय प्रेक्षण परिमण्डल और माही एवं तापी मंडलों के उन कर्मचारियों एवं अधिकारियों, जिन्होंने आंकडे इकट्ठे करने, जॉच करने एवं इस वार्षिकी को तैयार करने में समर्पण के साथ कार्य किया है, की प्रशंसा करता हूँ।

(रामकृष्ण सूर्यवंशी)
मुख्य अभियंता

गॉधीनगर

15 मार्च 2013

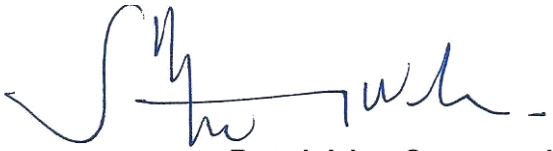
F O R E W O R D

Soil erosion is a naturally occurring process on the lithosphere. The agents of soil erosion are water and wind, each contributing a significant amount of soil loss each year. Soil erosion may be a slow process that continues relatively unnoticed, or it may occur at an alarming rate causing serious loss of topsoil. The loss of soil from farmland may be reflected in reduced crop production potential, lower surface water quality and damaged drainage networks. In some areas, soil erosion and degradation are so severe that it threatens our agricultural base as well as natural drainage system.

The rate and magnitude of soil erosion by water is controlled by factors like rainfall intensity, runoff, soil erodability, slope gradient as well as length, vegetation etc. Extensive land use for various activities like agriculture, deforestation, urbanization, mining, transportation etc has accelerated the process of soil erosion. Soil erosion by water generates sediment causing turbidity in streams as well as lakes and accumulation of sediment over time may reduce the water storage capacity of lakes and reservoirs. Plant nutrients and pesticides attached to eroded soil get dissolved in runoff and may pollute surface water.

This ***"Sediment Year Book"*** an annual publication, presents the sediment load and bed material data of 14 stations in 9 river basins during the year 2011-12 collected by various offices under Narmada &Tapi Basin Organization. The publication includes basin wise yearly sediment load at the observation stations, grading of the sediments as well as the trends in rate of sedimentation. These data are useful for implementing erosion control measures, design of storage reservoirs as well as other water infrastructure projects in the region.

It is hoped that the information and data compiled herein will be useful to user agencies working in this field. I would like to put on record my appreciation of the dedicated efforts put in by the officers and staff of Hydrological Observation Circle as well as Mahi and Tapi Divisions in collection, compilation and analysis of the data as well as preparation of this year book.



Ramakrishna Suryawanshi
Chief Engineer

Gandhinagar
15 March 1013

आमुख

भूक्षरण, पर्यावरण संतुलन को प्रभावित करने वाला एक मुख्य घटक है। यह अन्य कारकों जैसे जलवायु, भौगोलिक स्थिति, वनस्पति तथा भूमि के प्रकार तथा प्रकृति आदि पर निर्भर करता है। तीव्र वर्षा के फलस्वरूप, क्षरित भूमि के कण बहते हुए जल के साथ नदियों में चले जाते हैं। इस तरह नदियेां में गाद की मात्रा में वृद्धि होती है। अतः गाद की मात्रा की उपस्थिति के अनुसार किसी नदी बेसिन में होने वाले भूक्षरण का गुणात्मक अनुमान लगाया जा सकता है। नदियों में पहुँचने वाली क्षरित मिट्टी अर्थात गाद निलंबित भार के रूप में पानी के साथ बहती है तथा नदी की स्थलाकृति तथा बहाव के अनुसार जगह –जगह तल में बैठ जाती है। इस तरह भूक्षरण नदियों के बहाव एवं प्रवृत्ति को भी प्रभावित करता है। नदी में पाए जाने वाले गाद कणों के शैल वर्गीय अभिलक्षण तथा आकार, जल संसाधन परियोजनाओं कें नियोजन का एक अभिन्न अंग है। उपरोक्त तथा अन्य कारणों से गाद की मात्रा का प्रेक्षण तथा आकलन बहुत महत्वपूर्ण हो जाता है।

जल विज्ञानीय प्रेक्षण परिमंडल, गाँधीनगर, नर्मदा व ताापी बेसिन संगठन के अन्तर्गत केन्द्रीय जल आयोग की एक क्षेत्रीय ईकाई है जिसके अन्तर्गत माही मंडल गाँधीनगर एवं तापी मंडल सूरत द्वारा मध्य प्रदेश, महाराष्ट्र,राजस्थान एवं गुजरात से होकर पश्चिम की ओर बहने वाली नदियों पर **16** अधिसूचित कार्यस्थलों पर नदियों के तलछट पदार्थ एवं गाद के नमूने एकत्रित किए जा रहे हैं। नमूनों का परीक्षण / विश्लेषण भारतीय मानक ब्यूरो द्वारा निर्धारित रीति एवं मानकों के अनुसार किया जाता है।

इनमें से तलछट के नमूनों का परीक्षण तथा विश्लेषण़ मण्डल मुख्यालय स्थित, स्तर–II (Level –II) प्रयोगशालाओं में किया जाता है। निलंबित गाद के नमूनों का परीक्षण तथा विश्लेषण कार्यस्थल स्थित प्रयोगशालाओं में किया जाता है। निलंबित गाद तथा तलछट पदार्थ की नदियों में उपस्थिति के प्रभावी प्रबोधन हेतु, माही, साबरमती, तापी एवं पश्चिम की ओर प्रवाहित मुख्य नौ नदियों पर स्थापित कुल **14** कार्य स्थलों के वर्ष **2011-12** के आँकडे इस वार्षिकी द्वारा प्रकाशित किए जा रहे हैं। शेष **2** कार्य स्थलों के आँकडे जो नर्मदा नदी से संबंधित हैं , नर्मदा बेसिन संगठऩ, केन्द्रीय जल आयोग़, भोपाल को भेज दिए जाते हैं जहाँ से उनका प्रकाशन किया जाता है। इसके अतिरिक्त, प्रेक्षण तकनीक, विश्लेषण रीति आदि का वर्णन इस वार्षिकी में उल्लेखित हैं।

आशा है इस वार्षिकी में दी गयी सूचना एवं संकलित आँकड़े जल संसाधन परियोजनाओं के नियोजन, अभिकल्पन, विकास एवं अन्य जलवायवीय अध्ययनों के लिये उपयोगी होंगे।

वार्षिकी में प्रकाशित आँकडों के संकलन, विश्लेषण तथा प्रकाशन का कार्य नर्मदा व तापी बेसिन संगठन के अधिकारियों एवं कर्मचारियों ने सराहनीय समर्पण एवं लगन से संपादित किया है। मैं उनका आभारी हूँ।

गाँधीनगर (गुजरात)
15 मार्च **2013**

(धीरेन्द्र कुमार तिवारी)
अधीक्षण अभियंता

P R E F A C E

Soil erosion is one of the main factors affecting the environment. It depends upon factors like weather, geographical location, vegetation and type and ecological balance of soil etc. Fractions of top soil of a river basin are dislodged with the impact of rain water and are carried by water, flowing on surface, into the river. Thus quantity of silt in the river may lead to a qualitative assessment of soil erosion in the river basin. The eroded soil reaching the river is transported as suspended load till it is deposited in various reaches of river, which in turn, affects the characteristics of river flow and regime. Petrographic characteristics and size of silt particles in flowing water are extensively used for design of water resources structures especially penstocks and turbines.

Hydrological Observation Circle, Gandhinagar is a field office under Narmada & Tapi Basin Organisation of Central Water Commission, under which, Mahi Division, Gandhinagar and Tapi Division, Surat are collecting samples of sediment load data and bed material data of West flowing rivers, draining through the States of Madhya Pradesh, Maharashtra, Rajasthan and Gujarat at 16 identified sites. Samples of river bed material, collected at sites, are tested and analysed at level-II, Divisional laboratories and the suspended sediment samples are tested and analysed at site laboratories. All these tests and analyses including sample collection are carried out as per the standards laid down by Bureau of Indian Standards.

This annual publication presents the Sediment Load and Bed Material data for 14 sites from 9 river basins for the year 2011-12. Such data of 2 sites, located in Narmada basin are sent to Narmada Basin Organisation, C.W.C. Bhopal, which publishes them separately. Short notes on methodology adopted, basin description, site history and index map are also described in this volume.

I hope that this publication will be useful for planning, design and development of water resources as well as other climatic studies.

Dedication and devotion, with which, the work of analysis and compilation of data has been accomplished by the officers and staff of Narmada Tapi Basin Organisation is highly appreciated and acknowledged.

(Dhirendra Kumar Tiwary)
Superintending Engineer

15th March 2013
Gandhinagar

List of Officers

1	Shri. R.K. Suryavanshi	:	Chief Engineer, NTBO, Gandhinagar
2	Shri. D.K. Tiwary	:	Superintending Engineer, HOC, Gandhinagar
3	Shri. Y.S. Varshney	:	Executive Engineer, Mahi Divi, Gandhinagar
4	Shri. S.K. Mishra	:	Executive Engineer, Tapi Div, Surat
5	Shri. Satish Dave	:	Junior Engineer, HOC, Gandhinagar
6	Shri. A.R. Patel	:	Draftsman Gr- II, HOC, Gandhinagar
7	Shri. K. P. Gireendran	:	Sr. Research Assistant, Mahi Div, Gandhinagar
8	Shri. K.J. Mehta	:	Observer Gr- II, MD, Gandhinagar
9	Shri. Krishna Choudary	:	Sr. Research Assistant, Tapi Division, Surat
10	Shri. D.S. Rajput	:	Observer Gr- II, Tapi Division, Surat
11	Shri. R.R. Parmar	:	SWA, MD, Gandhinagar

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Abbreviations and Symbols

AV	:	Average
C	:	Coarse Sediment
Con.	:	Concentration
cumec , m^3/s	:	Cubic meter per second
cum, m^3	:	Cubic meter
D	:	Day
Dis, Q	:	Discharge
F	:	Fine Sediment
G	:	Gauge
GD	:	Gauge and Discharge
GDS	:	Gauge, Discharge and Sediment
MDN, MD	:	Mahi Division
MSD	:	Mahi Sub Division
SSD	:	Sabarmati Sub Division
NWRSD	:	North Western River Sub Division
BLSD	:	Banas Luni Sub Division
TDN, TD	:	Tapi Division
UTSD	:	Upper Tapi Sub Division
MTSD	:	Middle Tapi Sub Division
LTSD	:	Lower Tapi Sub Division
DSD	:	Damanganga Sub Division
LNSD	:	Lower Narmada Sub Division
g/l	:	Gramm per liter
km	:	Kilometer
M	:	Medium Sediment
m	:	Meter
mm	:	Millimeter

%	:	Percentage
R. Days	:	Remaining Days
RL	:	Reduced Level
sec., S	:	Second
Sed.	:	Sediment
T/ D	:	Tonnes per Day
W.L.	:	Water Level
WY	:	Water Year
WQ	:	Water Quality
RB	:	Right Bank
sq m	:	Square Meter
A	:	Area of section
V	:	Mean velocity
P	:	Wetted Perimeter
R	:	Hydraulic Mean Depth
f	:	Average Silt Factor
LB	:	Left Bank
RD	:	Reduced Distance
S/G	:	Station Gauge Line
°	:	Degree
'	:	Minute
*	:	Estimated value from graph
**	:	Estimated value by interpolation

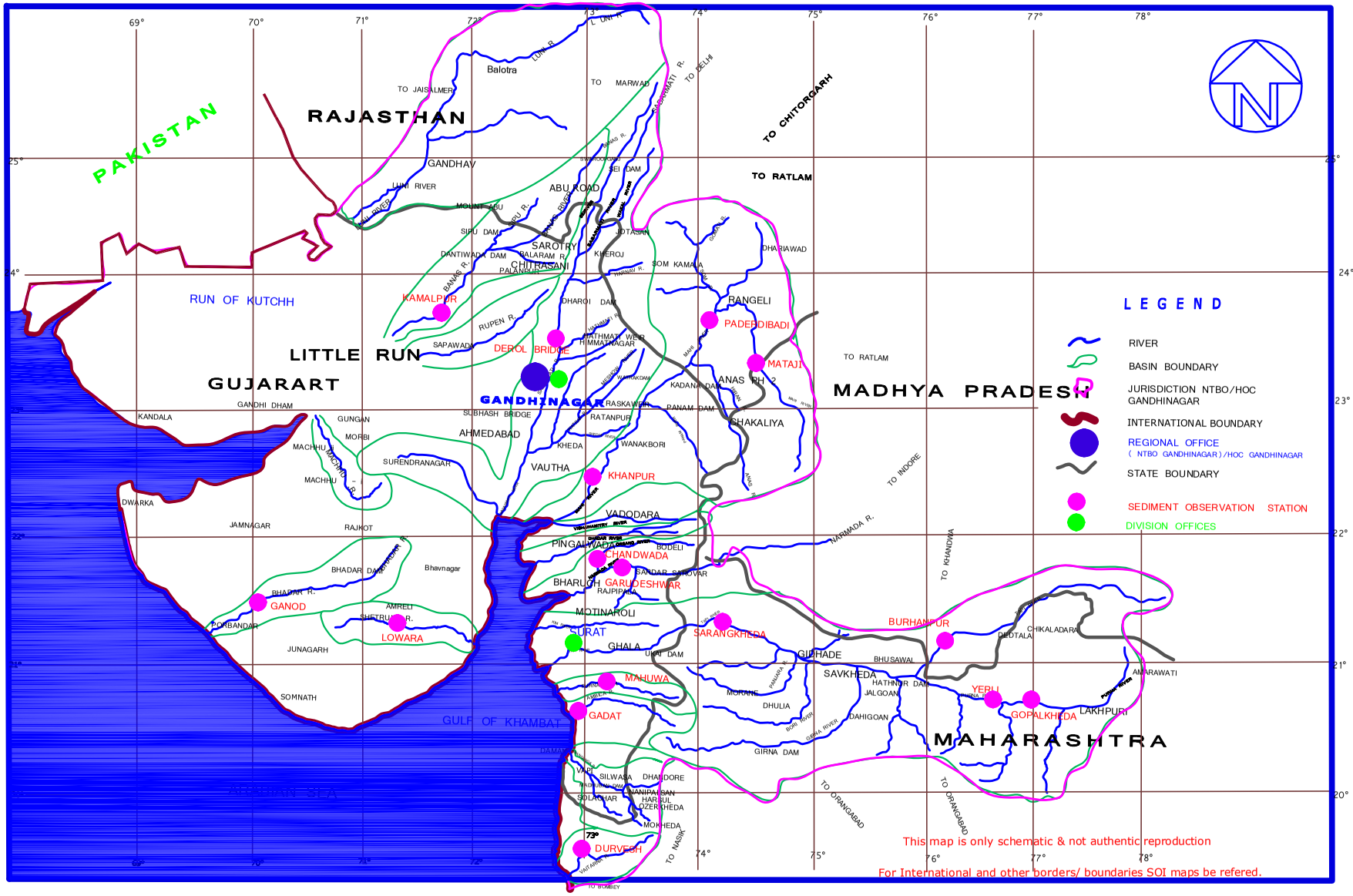
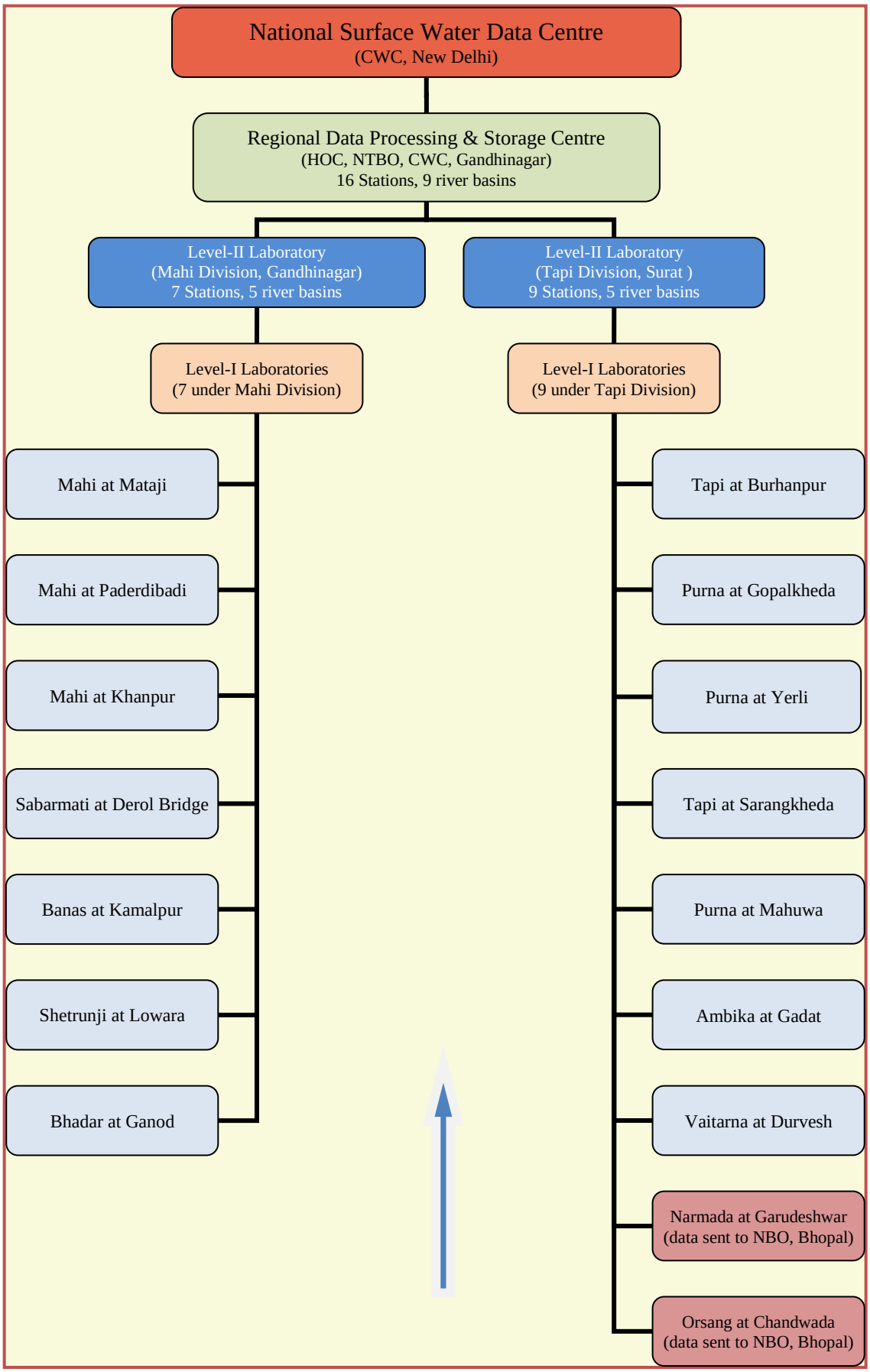


Plate-I Sediment Observation Stations under NTBO CWC Gandhinagar

Sediment Analysis- Flow of Data



1.0 Introduction

1.1 Scope

Central Water Commission conducts observations of Suspended Sediment and bed material loads at selected locations on river along with discharge and water quality observations. During the year 2011-12, sediment observations were carried out at 16 stations under the jurisdiction of Hydrological Observation Circle, Narmada Tabi Basin Organisation, Gandhinagar. These stations were opened under three schemes viz. National Network (NNW), 80-key hydrological stations (80-key) and flood forecasting (FF) Scheme. These stations are located on ten west flowing river basins in the States of Madhya Pradesh, Maharashtra, Gujarat and Rajasthan. Data collected from these stations is compiled and presented in this Year Book with analysis consisting of sediment rating curves, annual sediment yields, trends, etc.

The data has been compiled basin-wise. Names of the stations where suspended sediment and bed material load observation were conducted during the year 2011-12 are given, in **Table-1** and their location is shown in **Plate-1.**

Table-1: Stations where suspended sediment observations and bed material studies were conducted during the water year 2011-12

Sl. No.	Name of station	Station Code No	Scheme
1.	Mahi at Mataji	01 02 13 001	NNW
2.	Mahi at Paderdibadi	01 02 13 006	80Key
3.	Mahi at Khanpur	01 02 13 012	80Key
4.	Tapi at Burhanpur	01 02 17 002	NNW
5.	Purna at Gopalkheda	01 02 17 004	80 Key
6.	Purna at Yerli	01 02 17 005	80 Key
7.	Tapi at Sarangkheda	01 02 17 015	80 Key
8.	Banas at Kamalpur	01 02 02 007	NNW
9.	Bhadar at Ganod	01 02 07 001	NNW

10.	Shetrunji at Luwara	01 02 09 001	NNW
11.	Sabarmati at Derol Bridge	01 02 12 006	FF
12.	Purna at Mahuwa	01 02 19 001	NNW
13.	Ambika at Gadat	01 02 20 001	80 Key
14.	Vaitarna at Durvesh	01 02 25 001	NNW
15.	Narmada at Garudeshwar	01 02 15 030	NNW
16.	Orsang at Chandwada	01 02 15 032	80 Key

1.2 Source of information

Data has been collected by the field offices of two divisions, viz. Mahi Division, Gandhinagar and Tapi Division, Surat under the Hydrological Observation Circle, Gandhinagar. The Division wise distribution of stations is as under:

Sl.No.	Name of Division	No. of Stations
1.	Mahi Division, Gandhinagar	7
2.	Tapi Division, Surat	9 *

(* Data of two sites at Garudeshwar and Chandwada collected by Tapi Division are being published by NBO, CWC, Bhopal**)**

Division wise list of the sediment monitoring stations is as under

A: Mahi Division, Gandhinagar		**B: Tapi Division, Surat**	
Sl. No.	Name of Station	Sl. No.	Name of Station
1.	Mahi at Mataji	1.	Tapi at Burhanpur
2.	Mahi at Paderdibadi	2.	Purna at Gopalkheda
3.	Mahi at Khanpur	3.	Purna at Yerli
4.	Banas at Kamalpur	4.	Tapi at Sarangkheda
5.	Bhadar at Ganod	5.	Purna at Mahuwa
6.	Shetrunji at Luwara	6.	Ambika at Gadat
7.	Sabarmati at Derol Bridge	7.	Vaitarna at Durvesh
		8	Narmada at Garudeshwar *
		9	Orsang at Chandwada *

(* Data of Garudeshwar and Chandwada sites are being published by NBO, CWC, Bhopal**)**

2.0 Suspended Sediment Observation

2.1 Observation Technique

2.1.1 Collection of Sediment Samples

Suspended sediment observations are conducted simultaneously with discharge observation once a day starting at 08:00 hours except on Sundays and holidays. The observations are conducted at station gauge line under normal conditions. However, when the conditions become unsuitable for observations, say due to pooling, shallow depths, multi channel formation etc, 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 depth from each vertical where velocity observation is done for computation of discharge, provided depth of flow is greater than 0.3m. The samples thus collected from each vertical are grouped in 1, 2, 3, 4 or 5 composite groups depending on the width of river in such a way that each composite group discharge is almost nearly equal or within the limit of average discharge $\pm$10 % of the total discharge. Punjab type bottle sampler is commonly used for collection of water sample for suspended sediment analysis. A uniform practice of holding the bottle in vertical position only is adopted. The samples from shallow depths (water depth less than 0.8m but more than 0.3m) are collected from the surface. These surface samples, at shallow depths are presumed to be of 0.6 depth sampling. The water samples collected are kept in composite groups based on the data observed on previous day and carried to the site office for analysis. Sometimes these observations at higher stages may not be made as per standard procedure due to infeasibility of observation by boat under such circumstances water samples are collected at the surface.

2.1.2 Analysis of Suspended Sediment samples

Analysis of the suspended sediment samples is carried out for three different grades viz. coarse sediment with 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. Sediment samples from each group (as stated in section- 2.1.1) is passed through 212- micron mesh sieve. Residue on the sieve is washed with clean water several times, transferred to a pre-weighted crucible and its oven- dried weight is

determined. This gives the course sediment from which sediment intensity in g/l for a groups is worked out.

After removal of coarse sediment, the filtrate and washings which now contain medium and fine sediment is similarly passed through 75-micron mesh sieve. Residue on the sieve is washed with clean water several times and is transferred to pre-weighted crucible. After drying, the quantity is measured to work out the sediment intensity in g/l for that particular group.

The filtrate and washings after separation of coarse and medium grade now contain only fine sediment. All the filtrate and washings from different composite groups are kept overnight to allow them to settle down. About 5 to 10 ml of 10% alum solution is added to hasten the coagulation of colloidal silt. After the settlement, the supernatant liquid is siphoned off carefully and the remaining volume of suspension is filtered in pre-weighted filter paper (Whatman grade 2) and the transfer of entire settled silt is ensured by additional washing with clean water. The filter paper along with the sediment is dried and weighed to obtain the amount of sediment intensity in g/l for the composite group.

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

2.2 Explanatory Notes

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

1. Water year covers the period from 1st June of one calendar year to 31st May of the next calendar year and includes one complete hydrological cycle

2. The water year is further subdivided as

(a) Monsoon Period from June to November

(b) Non-monsoon period From December to May

3. Discharge

(a) Discharge is given in cubic meters per second.

(b) Discharges given are daily actual observed / estimated at 08.00 hours

4. Discharges are rounded off to

(a) Nearest full integer when more than 1000.

(b) Nearest first decimal figures when between 100 and 1000.

(c) Nearest two decimal figures when between 10 and 100.

(d) Nearest three decimal figures when less than 10.

5. Measuring authority refers to the field division responsible for the operation of the gauging station.

6. The gauging station code number is a unique nine figures numeric reference number, which facilitates storage and retrieval of flow data in data banks. The first two digit indicates the measuring authority who is hole responsible for R & M of sites, next two digit indicates the Basin/Zone and the river identification i.e. 01 for West coast of Gujarat, and 02 for West coast Maharastra, the next two digits indicates the name of river in basin like 13 is for Mahi basin, the last three digits will represents the site number, viz 001 is for Mataji site of Mahi basin.

7. Sediment is classified as coarse, medium and fine according to diameter as indicated below.

Coarse	- Sediment above 0.20 mm diameter.
Medium	- Sediment between 0.20 & 0.075 mm diameter.
Fine	- Sediment below 0.075 mm diameter.

8. The sediment load reported in the daily observed sediment data sheet indicates daily sediment load, 10 daily mean and monthly sediment load

9. When the sediment samples collected give non-measurable sediment, it is presumed to be of nil value.

10. In daily observed sediment data sheet, values are rounded off to

a) – Nearest full integer when more than 1000.

b) – Nearest first decimal figure when between 100 and 1000.

c) – Nearest two decimal figures when less than 100.

11. Annual / seasonal sediment yield in mm is the notional depths of soil in millimeters over the catchment equivalent to annual/seasonal suspended sediment run off calculated at the sediment observation station. It is computed using the relation

$$\text{Sediment yield (mm)} = \frac{\text{Total suspended Load (T)}}{\text{1400 x catchment area (sq km)}}$$

This is only an approximation as no specific consideration has been given to intercepted catchment.

2.3 Method of Presentation

In the succeeding pages, station wise suspended sediment data is presented as Section 4.0 of this year book which comprises history sheet and Daily Observed Sediment Datasheet and Seasonal Sediment load tables. Suspended sediment observation stations are arranged beginning from the origin of the river to downstream giving inter-se priority to an intermediate tributary station in similar fashion

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

1. Daily observed sediment flow tables for the period from June to May.

2. Ten daily mean of coarse, medium and fine sediment for the full year.

3. Monthly sediment load and Annual Sediment load are shown in the Daily Observed Sediment Datasheet.

4. Seasonal Sediment load for the year are shown in the form of pie chart.

2.4 Summary- Suspended Sediment

A summary at a glance for the year 2011-12 for all sites for suspended sediment data is shown in the Table-2 Annual sediment load at these sites is also shown by an

adjoining chart on the following page. Detailed data are given in Section-4 of this Year Book.

Table 2: Sediment Load at a Glance for the water year 2011-12

Sl. No	Name of Site	Catchment Area	Maximum Sediment Concentration Observed		Annual Sediment Load	Sediment Yield in mm	% in Mon-soon
		in sq km	g/l	Date	in metric tonnes		
1	Mahi at Mataji	3880	0.363	11.08.2011	230840	0.0425	100.0
2	Mahi at Paderdibadi	16247	0.040	10.08.2011	45508	0.0020	100.0
3	Mahi at Khanpur	32510	0.655	31.08.2011	904834	0.0199	99.99
4	Tapi at Burhanpur	8487	2.523	27.08.2011	4788652	0.4030	100.0
5	Purna at Gopalkheda	9500	7.500	29.08.2011	2016382	0.1516	100.0
6	Purna at Yerli	16517	3.280	30.08.2011	1281173	0.0554	100.0
7	Tapi at Sarangkheda	58400	4.166	15.07.2011	5232408	0.0640	100.0
8	Banas at Kamalpur	6960	2.770	13.09.2011	42838	0.0044	100.0
9	Bhadar at Ganod	6266	0.098	26.08.2011	6547	0.0007	100.0
10	Shetrunji at Luwara	3953	6.590	18.07.2011	1198984	0.2166	100.0
11	Derol Bridge at Sabarmati	6724	0.166	09.07.2011	15728	0.0017	100.0
12	Purna at Mahuwa	1995	0.806	15.07.2011	137169	0.0491	100.0
13	Ambika at Gadat	1510	1.500	29.08.2011	426955	0.2020	100.0
14	Vaitarna at Durvesh	2019	1.470	31.07.2011	2257267	0.7986	100.0

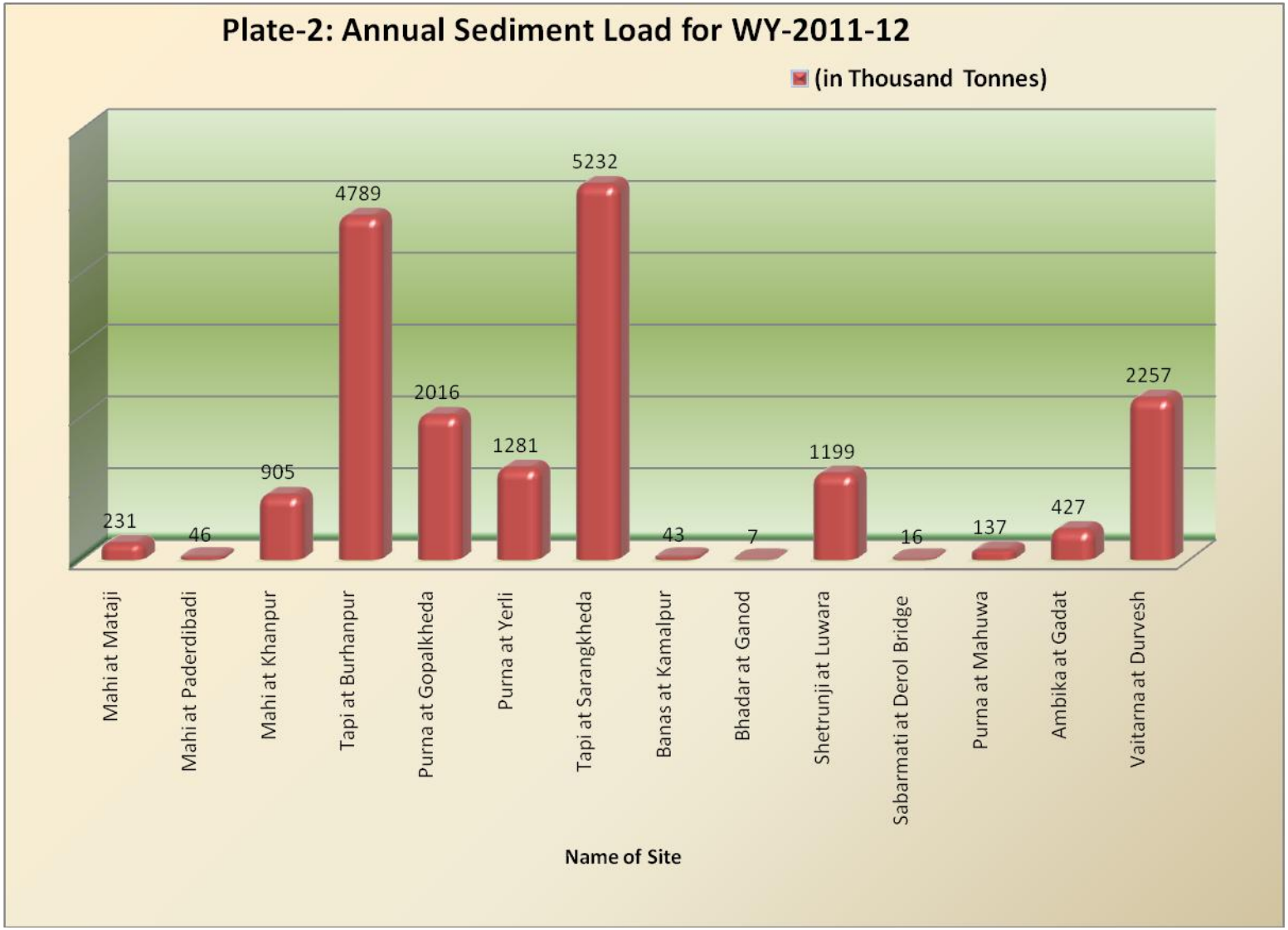


Plate-2: Annual Sediment Load for WY-2011-12
(in Thousand Tonnes)
231
46
905
4789
2016
1281
5232
43
7
1199
16
137
427
2257
Mahi at Mataji
Mahi at Paderdibadi
Mahi at Khanpur
Tapi at Burhanpur
Purna at Gopalkheda
Purna at Yerli
Tapi at Sarangkheda
Banas at Kamalpur
Bhadar at Ganod
Shetrunji at Luwara
Sabarmati at Derol Bridge
Purna at Mahuwa
Ambika at Gadat
Vaitarna at Durvesh
Name of Site

3. Bed Material

3.1 Collection of Samples

Bed material surveys are being carried out at the suspended sediment observation sites regularly thrice a year pre- monsoon, monsoon and post monsoon periods. 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 samples from flowing portion of the channel and where the bed is dry, samples are collected manually after scraping the upper layer of the bed to avoid local surface contamination. After drying the samples, about 1 kg of the sample is taken by coning and quartering process.

3.2 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.

3.3 Analysis of Samples

In the laboratory, analysis of samples is done by two methods:

i) Analysis by sieve for Bed material Particles above 0.6 mm size and
ii) Analysis by wet process using Puri's Siltometer for Particles below 0.6 mm size.

3.3.1 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 sieve. The portion of the materials 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.

3.3.2 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 deposited 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 down.

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 the formula:

$$\mathbf{f = 1.76 \sqrt{m}}$$

Where, 'm' is the mean diameter of the particles in mm.

3.4 Presentation of Bed Material Data

The bed material data is presented in section 5.0 of this year book that gives average mean diameter and silt factor for the pre and post monsoon periods.

4.1 Mahi Basin

The river Mahi is third major west flowing interstate river of India, draining into the Gulf of Cambay. It originates in the northern slopes of Vindhya hill range near village Sardarpur in Dhar district of Madhya Pradesh at an elevation of 500 m above mean sea level. Its length is 583 km, traversing 167 km in Madhya Pradesh, 174 km in Rajasthan and the remaining 242 km in Gujarat. It flows initially in North West direction through Dhar and Jhabua districts of Madhya Pradesh. Thereafter, it takes turn to the left and flows in south – west direction through Banswara district of Rajasthan, Panchmahal and Kheda districts of Gujarat State before draining into Gulf of Cambay. It drains an area of 34,842 sq.km, spread over Rajasthan (47%), Madhya Pradesh (19%) and Gujarat (34%). The basin lies between the geographical co-ordinates of 73^0 00' to 74^0 20' east longitudes and 22^0 30' to 24^0 20' north latitudes. The basin is bounded by the Aravalli hills in north and north-west, by the ridge separating it from Chambal basin in the east, by the Vindhya hill range in the south and finally by Gulf of Cambay in the west. In Rajasthan, the basin consists of hills, forests and eroded terrain. In Gujarat upto the confluence of Mahi and Panam, the basin comprises semi developed lands. Below Wanakbori Weir and up to the mouth, the basin is flat, fertile and well developed alluvial track.

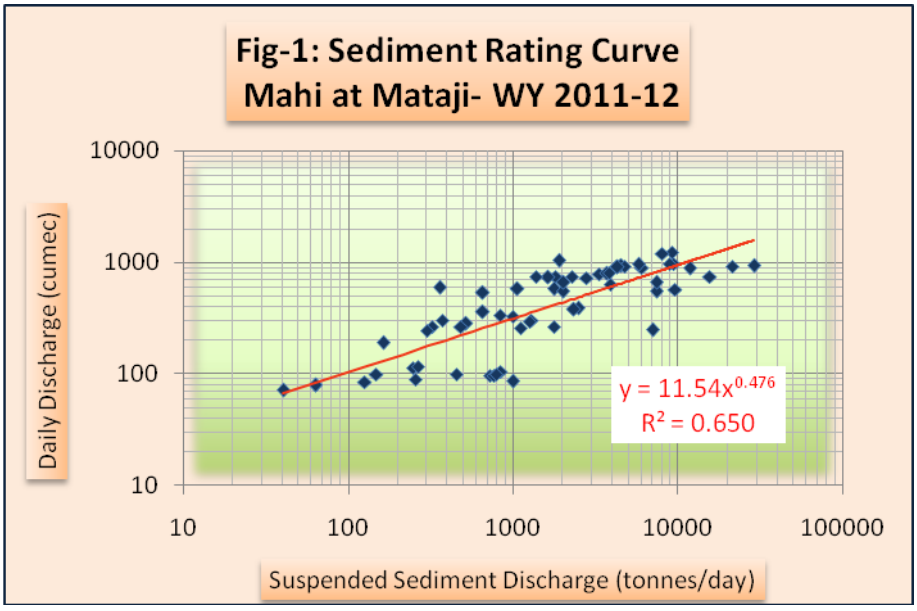
The Mahi river receives several tributaries on both banks out of which the main tributaries are Som, Anas and Panam. The Som River joins the main river on the right Bank in Rajasthan. The Anas and Panam join the main river on the left Bank in the Rajasthan & Gujarat respectively.

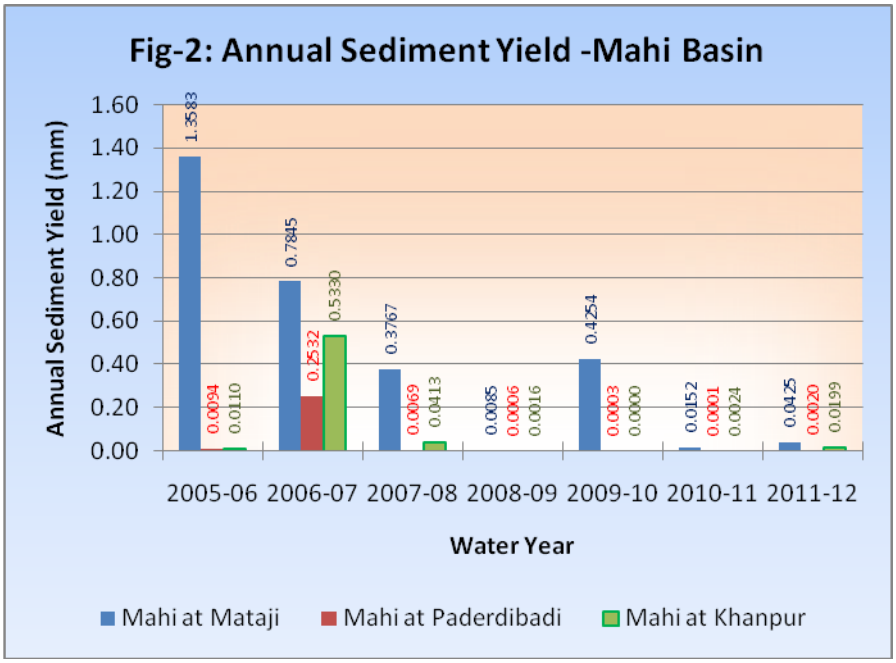
The average rainfall in Mahi basin 785 mm. In the dry cool winter,the minimum temperature varies from 5°C to 20°C. Maximum temperature varies from 30°c to 50°c during the hottest month of May.

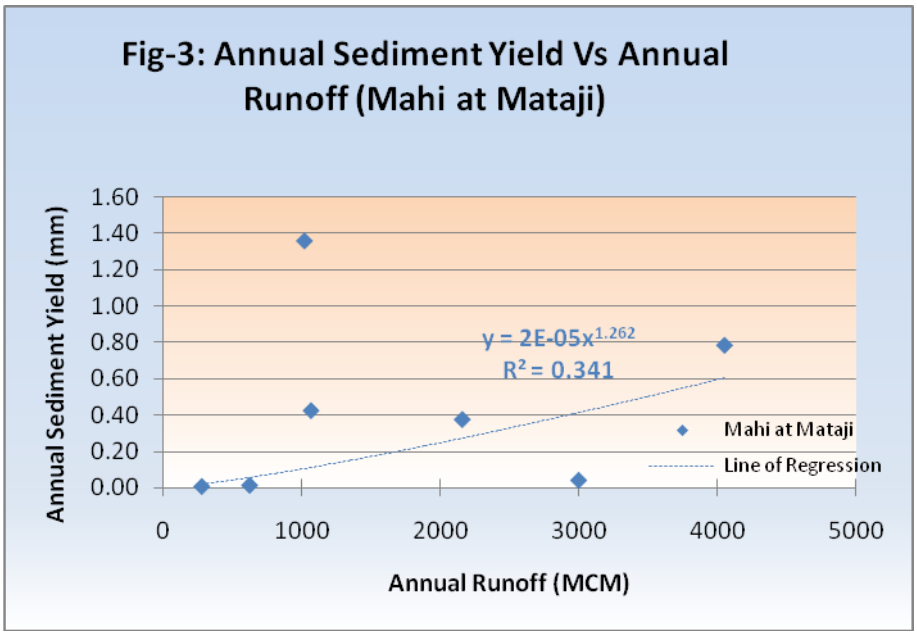
At present there are 15 completed major / medium projects in Mahi basin. The two main projects across Mahi are Mahi Bajaj Sagar and Kadana reservoir. A weir at Wanakbori is also constructed across the main river. Other 11 projects are on different tributaries of Mahi River. There are three Silt Monitoring Station in this basin, all the three stations are located on main river Mahi and a brief of the Sediment stations is given in the section- 4.1.1 to 4.1.3.

4.1.1. Mahi at Mataji

The station has a Catchment area of 3,880 sq km. The sediment rating curve at the site is given in **Fig-1**. The maximum sediment concentration of 0.363 g/l was observed on 11.08.2011. The total sediment load during the year is 2,30,840 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0425 mm. Annual sediment yield over the period of observations is given in **Fig-2**. It is seen from the analysis that sediment yield reflects a gradually decreasing trend over the years. Annual yield is also very poorly correlated with annual runoff as shown in **Fig-3.**



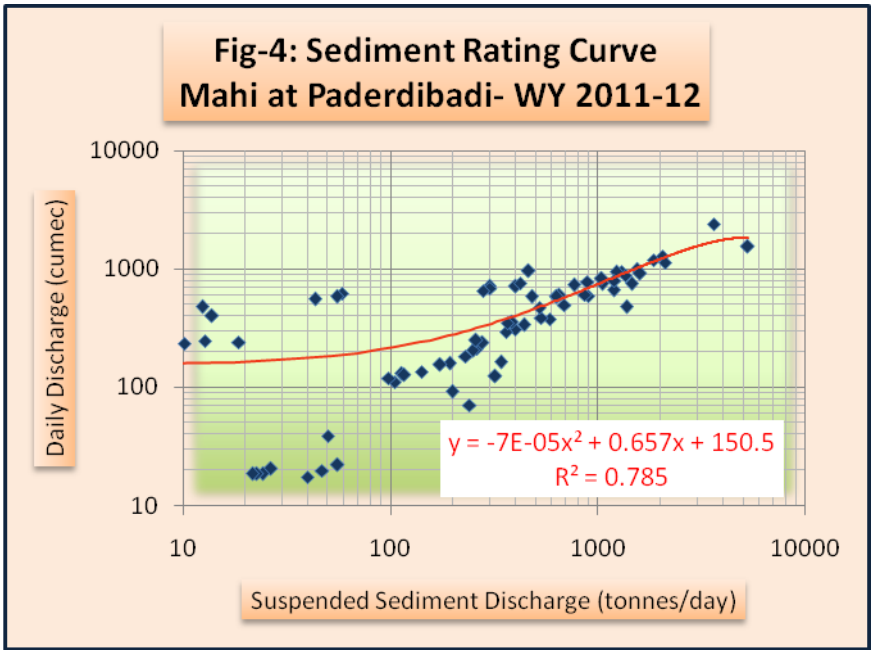


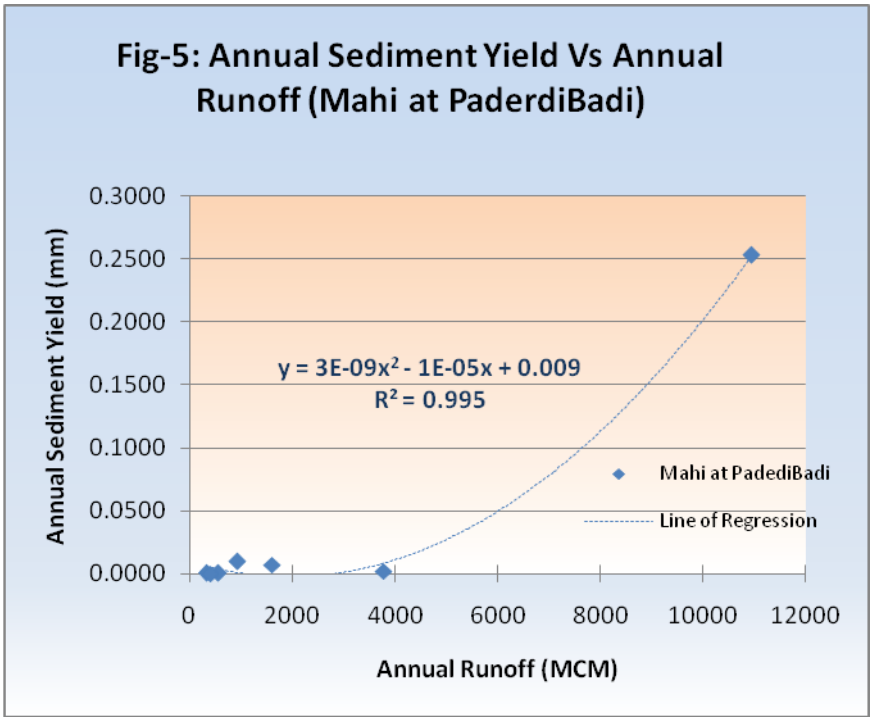


4.1.2. Mahi at Paderdibadi

The station has a Catchment area of 16,247 sq km. The sediment rating curve at the site is given in **Fig-4**. The maximum sediment concentration of 0.040 g/l was observed on 10.08.2011. The total sediment load during the year is 45,508 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the

catchment during water year 2011-12 is 0.0020 mm. Annual sediment yield over the period of observations is given in **Fig-2.** It is seen that **Fig-5** reveals a very strong positive correlation of annual yield with annual runoff.

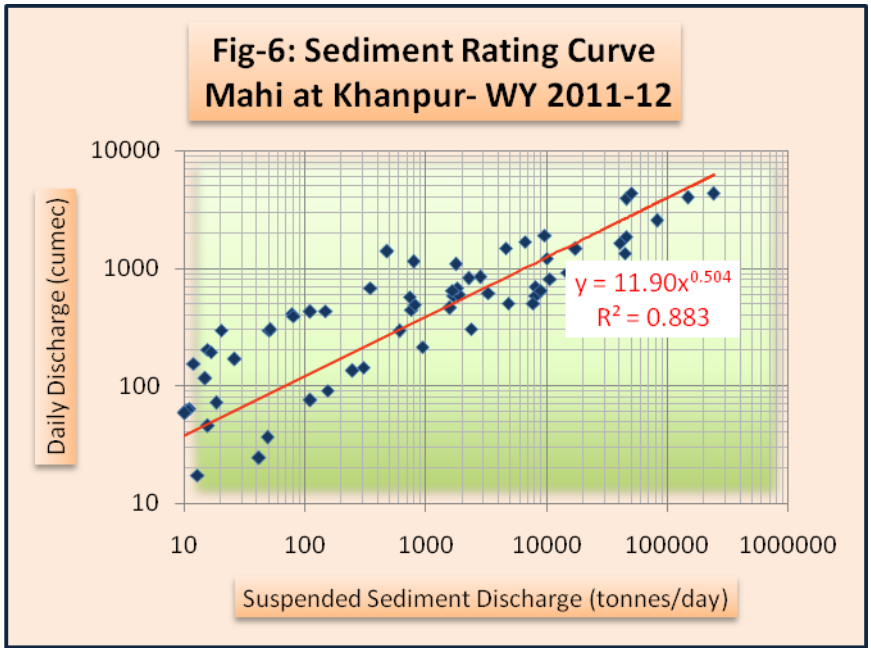




4.1.3 Mahi at Khanpur

The station has a Catchment area of 32,510 sq km. The sediment rating curve at the site is given in **Fig-6**. The maximum sediment concentration of 0.655 g/l was observed on 31.08.2011. The total sediment load during the year is 9,04,834 metric tons. The

monsoon load constitutes 99.998 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0199 mm. Annual sediment yield over the period of observations is given in **Fig-2**. It is seen that a very strong positive correlation exists between annual yield and annual runoff as shown in **Fig-7**.



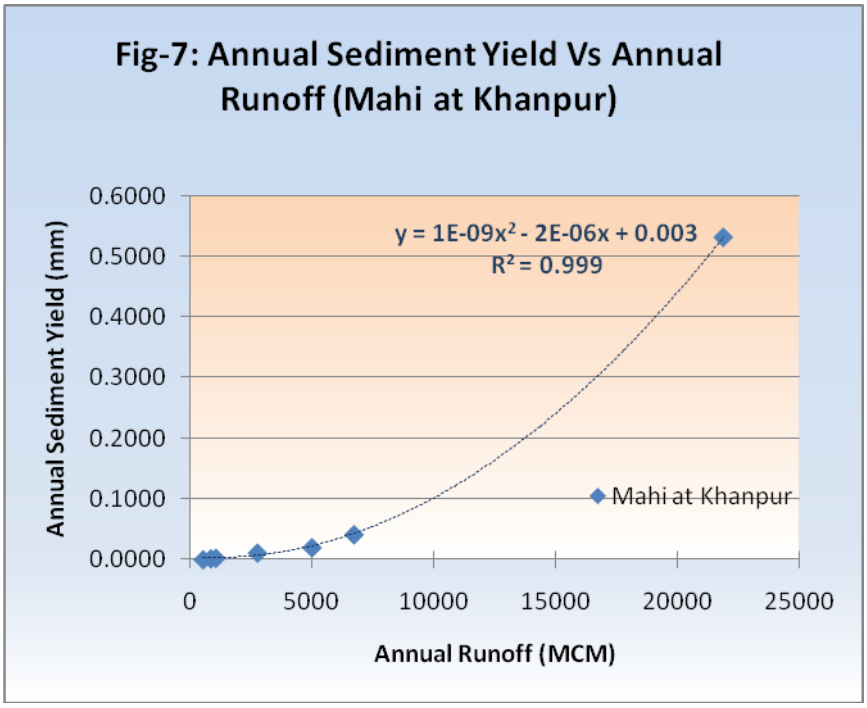


Plate - 4.1 Mahi Basin

HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Mahi at Mataji**	**Code**	**: 01 02 13 001**
State	: Madhya Pradesh	District	Ratlam
Basin	: Mahi	Independent River	: Mahi
Tributary	: Mahi	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Mahi
Division	: Mahi Division, Gandhinagar	Sub-Division	: Mahi Sub Divn., Kadana
Drainage Area	: 3880 Sq. Km.	Bank	: Left
Latitude	: 23°20'57" N	Longitude	: 74°43'31" E
Zero of Gauge (m)	: 295 (m.s.l)	01-01-1982	- 31-12-2003
	284 (m.s.l)	01-01-2004	-
	Opening Date	Closing Date	
Gauge	: 21-07-1982		
Discharge	: 21-07-1982		
Sediment	: 21-07-1982		
Water Quality	: 21-07-1982		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						741.3	0.003	0.007	0.234	0.244	15648
2	0.000						0.000						246.4	0.000	0.003	0.329	0.332	7056
3	0.000						0.000						98.77	0.000	0.000	0.093	0.093	793
4	0.000						0.000						565.8	0.000	0.004	0.193	0.197	9640
5	0.000						0.000						545.4	0.000	0.001	0.157	0.159	7469
6	0.000						0.000						301.9	0.000	0.000	0.050	0.050	1304
7	0.000						0.000						294.3	0.000	0.000	0.050	0.050	1271
8	0.000						0.000						262.7	0.000	0.000	0.079	0.079	1784
9	0.000						0.000						661.1	0.000	0.006	0.124	0.130	7426
10	0.000						0.000						1227	0.000	0.009	0.079	0.087	9247
11	0.000						0.000						931.0	0.000	0.000	0.363	0.363	29190
12	0.000						0.000						740.4	0.000	0.000	0.029	0.029	1830
13	0.000						0.000						577.0	0.000	0.000	0.021	0.021	1067
14	0.000						0.000						905.6	0.000	0.000	0.055	0.055	4303
15	0.000						0.000						732.4	0.000	0.000	0.026	0.026	1645
16	0.000						0.000						578.1	0.000	0.000	0.036	0.036	1783
17	0.000						79.21	0.000	0.000	0.009	0.009	64	1030	0.000	0.000	0.021	0.021	1905
18	0.000						86.11	0.000	0.000	0.134	0.134	998	926.3	0.000	0.000	0.057	0.057	4570
19	0.000						104.2	0.000	0.000	0.094	0.094	843	742.5	0.000	0.000	0.036	0.036	2290
20	0.000						257.5	0.000	0.000	0.050	0.050	1113	778.7	0.000	0.000	0.050	0.050	3364
21	0.000						96.92	0.000	0.000	0.087	0.087	725	920.3	0.000	0.000	0.060	0.060	4771
22	0.000						98.77	0.000	0.000	0.053	0.053	454	905.6	0.000	0.000	0.055	0.055	4303
23	0.000						96.92	0.000	0.000	0.092	0.092	772	634.0	0.000	0.000	0.071	0.071	3911
24	0.000						114.2	0.000	0.000	0.025	0.025	247	326.0	0.000	0.000	0.036	0.036	1006
25	0.000						116.2	0.000	0.000	0.027	0.027	267	380.0	0.000	0.000	0.071	0.071	2344
26	0.000						98.77	0.000	0.000	0.017	0.017	148	891.6	0.000	0.000	0.079	0.079	6055
27	0.000						89.65	0.000	0.000	0.033	0.033	257	545.1	0.000	0.000	0.043	0.043	2020
28	0.000						84.36	0.000	0.000	0.017	0.017	126	955.1	0.000	0.000	0.070	0.070	5776
29	0.000						79.21	0.000	0.000	0.009	0.009	64	1194	0.000	0.000	0.079	0.079	8109
30	0.000						70.95	0.000	0.000	0.007	0.007	40	962.8	0.000	0.000	0.114	0.114	9508
31							386.8	0.000	0.000	0.075	0.075	2506	723.5	0.000	0.000	0.045	0.045	2813
Ten Daily Mean																		
Ten Daily I	0.000						0.000	0.000	0.000	0.000	0.000	0	494.5	0.000	0.003	0.139	0.142	6164
Ten Daily II	0.000						52.71	0.000	0.000	0.029	0.029	302	794.2	0.000	0.000	0.069	0.069	5195
Ten Daily III	0.000						121.1	0.000	0.000	0.040	0.040	510	767.1	0.000	0.000	0.066	0.066	4602
Monthly Total												8624						164200

Annual Sediment Load (Metric Tonnes) : 230840

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Mataji (01 02 13 001) **Division : Mahi Division, Gandhinagar**

Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	916.2	0.000	0.000	0.271	0.271	21485	47.23	0.000	0.000	0.000	0.000	0	3.087	0.000	0.000	0.000	0.000	0
2	962.8	0.000	0.000	0.107	0.107	8909	41.96	0.000	0.000	0.000	0.000	0	3.077	0.000	0.000	0.000	0.000	0
3	795.9	0.000	0.000	0.054	0.054	3734	23.30	0.000	0.000	0.000	0.000	0	3.066	0.000	0.000	0.000	0.000	0
4	810.0	0.000	0.000	0.055	0.055	3849	22.58	0.000	0.000	0.000	0.000	0	2.856	0.000	0.000	0.000	0.000	0
5	747.3	0.000	0.000	0.021	0.021	1382	20.80	0.000	0.000	0.000	0.000	0	2.847	0.000	0.000	0.000	0.000	0
6	356.8	0.000	0.000	0.021	0.021	660	26.76	0.000	0.000	0.000	0.000	0	1.250	0.000	0.000	0.000	0.000	0
7	281.5	0.000	0.000	0.021	0.021	520	11.94	0.000	0.000	0.000	0.000	0	1.250	0.000	0.000	0.000	0.000	0
8	262.8	0.000	0.000	0.021	0.021	486	11.57	0.000	0.000	0.000	0.000	0	2.434	0.000	0.000	0.000	0.000	0
9	263.2	0.000	0.000	0.014	0.014	325	18.91	0.000	0.000	0.000	0.000	0	2.434	0.000	0.000	0.000	0.000	0
10	244.6	0.000	0.000	0.014	0.014	302	11.10	0.000	0.000	0.000	0.000	0	1.540	0.000	0.000	0.000	0.000	0
11	190.1	0.000	0.000	0.010	0.010	164	9.892	0.000	0.000	0.000	0.000	0	2.412	0.000	0.000	0.000	0.000	0
12	878.9	0.000	0.000	0.157	0.157	11930	9.613	0.000	0.000	0.000	0.000	0	0.436	0.000	0.000	0.000	0.000	0
13	661.1	0.000	0.000	0.036	0.036	2039	9.471	0.000	0.000	0.000	0.000	0	0.750	0.000	0.000	0.000	0.000	0
14	589.8	0.000	0.000	0.007	0.007	362	9.471	0.000	0.000	0.000	0.000	0	0.435	0.000	0.000	0.000	0.000	0
15	533.2	0.000	0.000	0.014	0.014	659	9.293	0.000	0.000	0.000	0.000	0	0.438	0.000	0.000	0.000	0.000	0
16	337.6	0.000	0.000	0.029	0.029	834	6.930	0.000	0.000	0.000	0.000	0	0.422	0.000	0.000	0.000	0.000	0
17	303.8	0.000	0.000	0.014	0.014	375	4.514	0.000	0.000	0.000	0.000	0	0.501	0.000	0.000	0.000	0.000	0
18	276.5	0.000	0.000	0.000	0.000	0	4.456	0.000	0.000	0.000	0.000	0	0.539	0.000	0.000	0.000	0.000	0
19	289.6	0.000	0.000	0.000	0.000	0	4.279	0.000	0.000	0.000	0.000	0	0.524	0.000	0.000	0.000	0.000	0
20	281.3	0.000	0.000	0.000	0.000	0	4.275	0.000	0.000	0.000	0.000	0	0.540	0.000	0.000	0.000	0.000	0
21	275.1	0.000	0.000	0.000	0.000	0	4.279	0.000	0.000	0.000	0.000	0	0.537	0.000	0.000	0.000	0.000	0
22	242.6	0.000	0.000	0.000	0.000	0	4.103	0.000	0.000	0.000	0.000	0	0.522	0.000	0.000	0.000	0.000	0
23	122.2	0.000	0.000	0.000	0.000	0	4.760	0.000	0.000	0.000	0.000	0	0.501	0.000	0.000	0.000	0.000	0
24	96.92	0.000	0.000	0.000	0.000	0	3.725	0.000	0.000	0.000	0.000	0	0.398	0.000	0.000	0.000	0.000	0
25	93.25	0.000	0.000	0.000	0.000	0	3.899	0.000	0.000	0.000	0.000	0	0.168	0.000	0.000	0.000	0.000	0
26	87.87	0.000	0.000	0.000	0.000	0	3.810	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
27	80.91	0.000	0.000	0.000	0.000	0	3.745	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
28	70.95	0.000	0.000	0.000	0.000	0	3.769	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
29	64.63	0.000	0.000	0.000	0.000	0	3.555	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
30	52.76	0.000	0.000	0.000	0.000	0	2.960	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
31							3.387	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	564.1	0.000	0.000	0.060	0.060	4165	23.62	0.000	0.000	0.000	0.000	0	2.384	0.000	0.000	0.000	0.000	0
Ten Daily II	434.2	0.000	0.000	0.027	0.027	1636	7.219	0.000	0.000	0.000	0.000	0	0.700	0.000	0.000	0.000	0.000	0
Ten Daily III	118.7	0.000	0.000	0.000	0.000	0	3.817	0.000	0.000	0.000	0.000	0	0.213	0.000	0.000	0.000	0.000	0
Monthly Total						58015						0						0

Annual Sediment Load (Metric Tonnes) : 230840

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 230840

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 230840

Annual Sediment Load for period : 2005-2012

Station Name : Mahi at Mataji (01 02 13 001) **Division : Mahi Division, Gandhinagar**

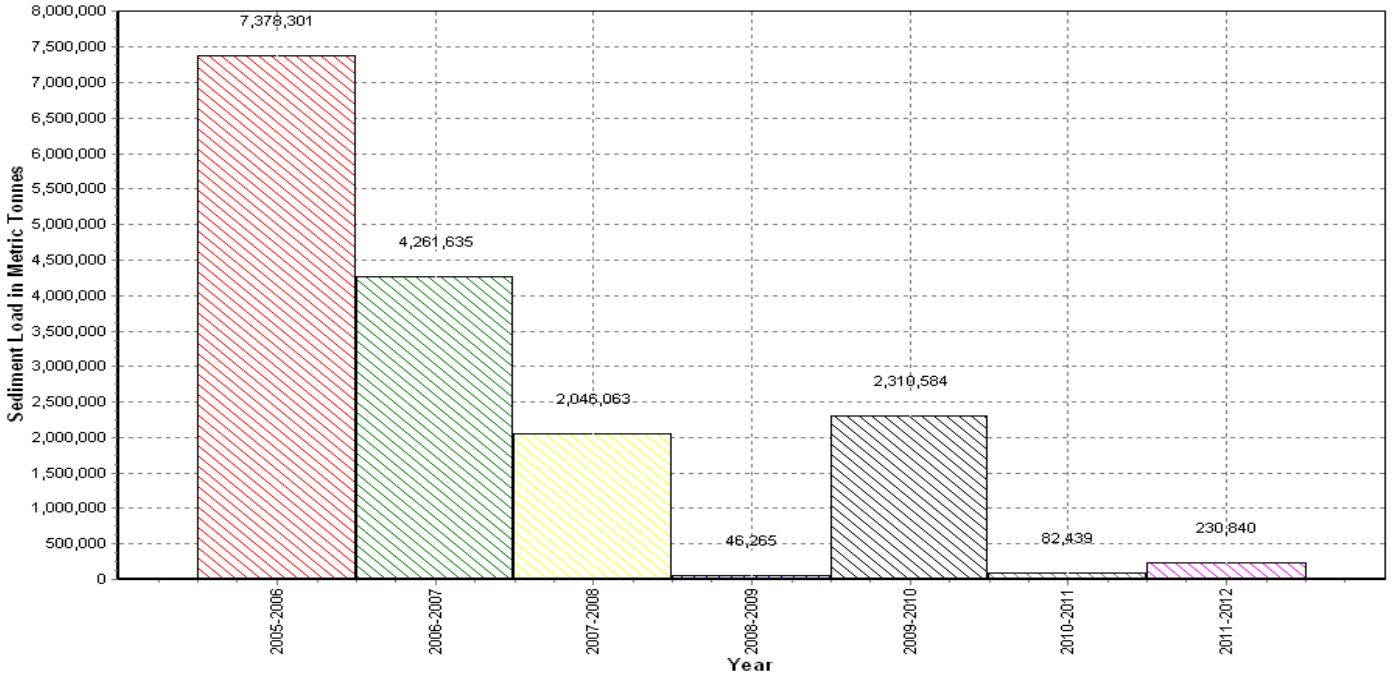
Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

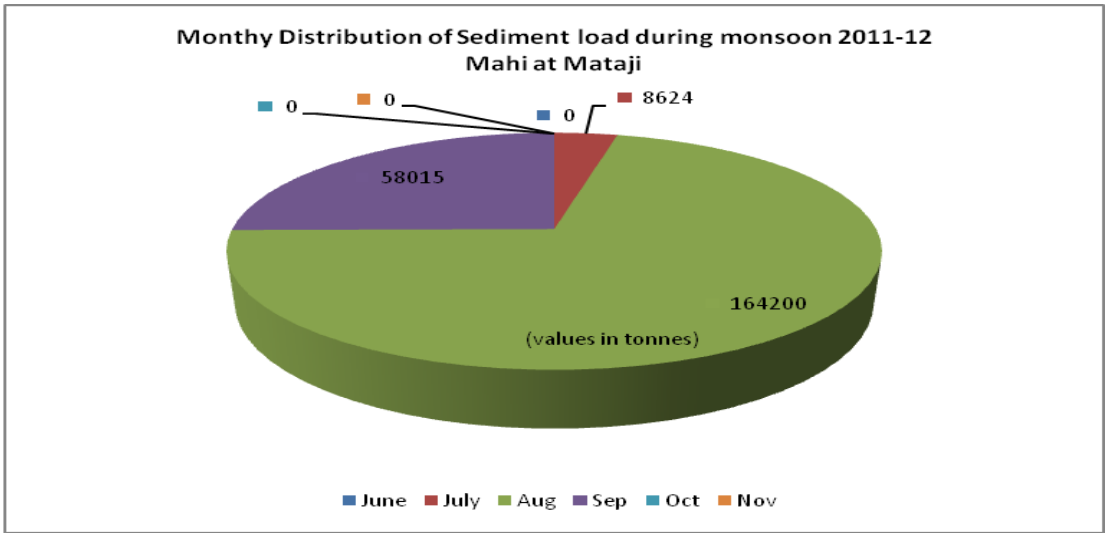
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	7378301	0	7378301	1019	1.3583
2006-07	4261635	0	4261635	4055	0.7845
2007-08	2046059	4	2046063	2160	0.3767
2008-09	46265	0	46265	278	0.0085
2009-10	2310584	0	2310584	1067	0.4254
2010-11	82439	0	82439	623	0.0152
2011-12	230840	0	230840	3001	0.0425

Annual Sediment Load for the period: 2005-2012

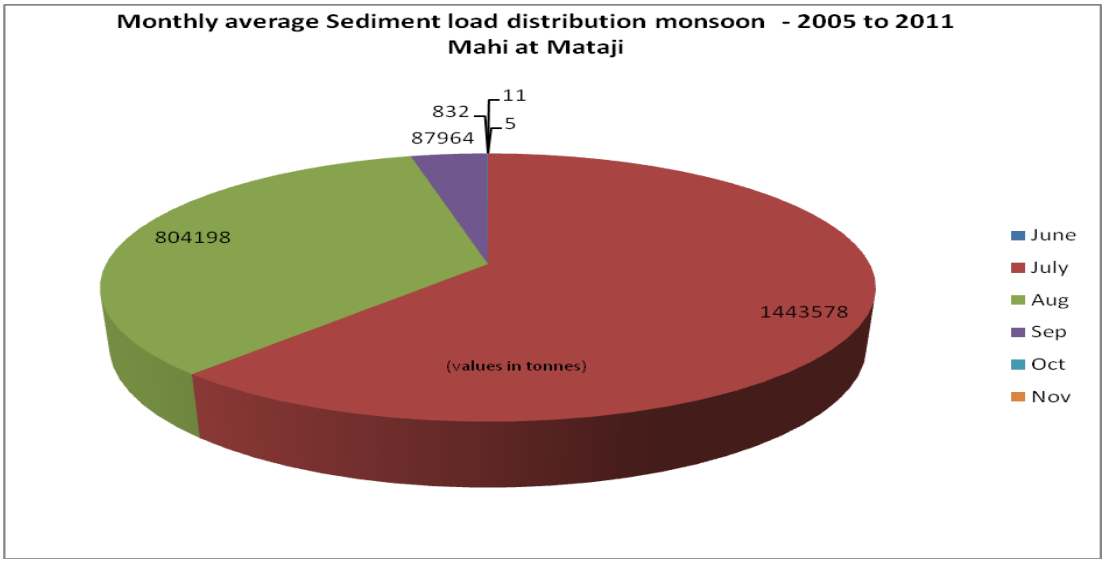
Station Name : Mahi at Mataji (01 02 13 001) **Division : Mahi Division, Gandhinagar**

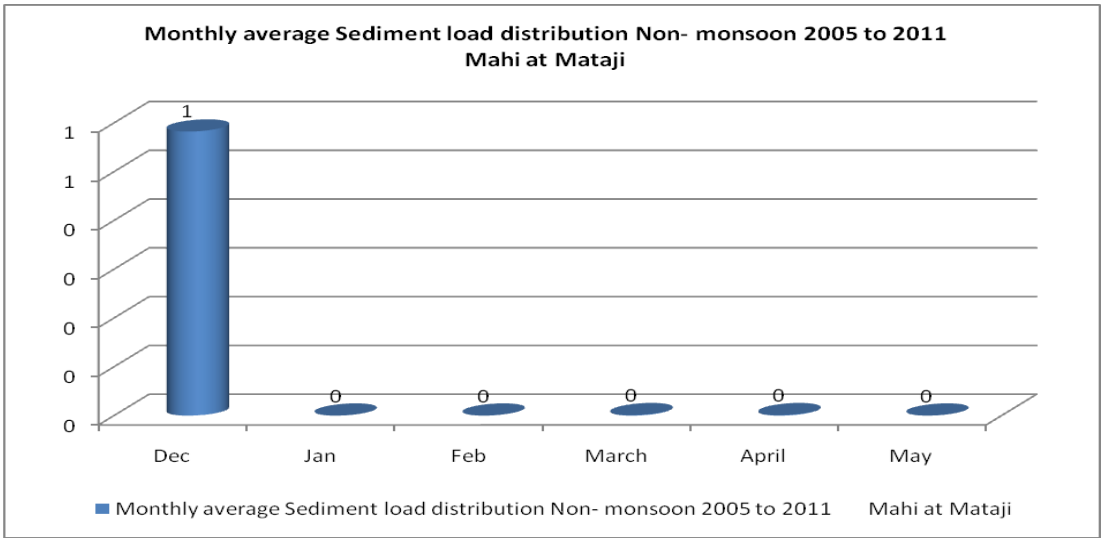
Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Mahi at Mataji
No sediment was observed in any month...





HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Mahi at Paderdibadi**	**Code**	**: 01 02 13 006**
State	: Rajasthan	District	Dungarpur
Basin	: Mahi	Independent River	: Mahi
Tributary	: Mahi	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Mahi
Division	: Mahi Division, Gandhinagar	Sub-Division	: Mahi Sub Divn., Kadana
Drainage Area	: 16247 Sq. Km.	Bank	: Right
Latitude	: 23°46'02" N	Longitude	: 74°08'12" E
Zero of Gauge (m)	: 131 (m.s.l)	17-09-1977	-
	Opening Date	Closing Date	
Gauge	: 17-09-1977		
Discharge	: 24-06-1978		
Sediment	: 21-07-1980		
Water Quality	: 01-07-1978		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Paderdibadi (01 02 13 006)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						130.4	0.000	0.000	0.010	0.010	113
2	0.000						0.000						127.3	0.000	0.000	0.011	0.011	117
3	0.000						0.000						110.0	0.000	0.000	0.011	0.011	105
4	0.000						0.000						120.0	0.000	0.000	0.009	0.009	98
5	0.000						0.000						210.9	0.000	0.000	0.014	0.014	260
6	0.000						0.000						204.4	0.000	0.000	0.014	0.014	250
7	0.000						0.000						154.5	0.000	0.000	0.013	0.013	174
8	0.000						0.000						135.1	0.000	0.000	0.012	0.012	141
9	0.000						0.000						479.4	0.005	0.006	0.023	0.033	1379
10	0.000						0.000						1542	0.001	0.002	0.037	**0.040**	5288
11	0.000						0.000						750.7	0.000	0.002	0.021	0.022	1455
12	0.000						0.000						729.0	0.000	0.003	0.010	0.012	770
13	0.000						0.000						657.6	0.000	0.004	0.017	0.021	1199
14	0.000						0.000						376.6	0.000	0.002	0.016	0.018	586
15	0.000						0.000						309.6	0.000	0.000	0.015	0.015	401
16	0.000						0.000						337.8	0.000	0.000	0.015	0.015	443
17	0.000						9.620	0.000	0.000	0.010	0.010	8	295.0	0.000	0.000	0.014	0.014	363
18	0.000						70.65	0.008	0.015	0.017	0.039	241	354.3	0.000	0.000	0.013	0.013	386
19	0.000						21.98	0.000	0.014	0.015	0.029	56	237.4	0.000	0.000	0.014	0.014	277
20	0.000						20.42	0.000	0.000	0.015	0.015	27	347.0	0.000	0.000	0.012	0.012	367
21	0.000						18.45	0.000	0.000	0.015	0.015	24	249.0	0.000	0.000	0.012	0.012	258
22	0.000						18.47	0.000	0.000	0.014	0.014	23	387.2	0.000	0.000	0.016	0.016	535
23	0.000						19.78	0.000	0.000	0.027	0.027	47	493.5	0.000	0.000	0.016	0.016	692
24	0.000						38.47	0.000	0.000	0.015	0.015	50	473.4	0.000	0.000	0.013	0.013	524
25	0.000						18.49	0.000	0.000	0.013	0.013	22	586.4	0.000	0.000	0.018	0.018	902
26	0.000						17.28	0.000	0.000	0.027	0.027	40	604.6	0.000	0.000	0.017	0.017	868
27	0.000						163.6	0.000	0.000	0.024	0.024	343	581.9	0.000	0.000	0.013	0.013	635
28	0.000						124.0	0.000	0.000	0.030	0.030	320	943.4	0.000	0.000	0.016	0.016	1304
29	0.000						183.2	0.000	0.000	0.015	0.015	232	932.9	0.000	0.000	0.015	0.015	1234
30	0.000						158.2	0.000	0.000	0.014	0.014	193	1285	0.000	0.000	0.018	0.018	2047
31							91.76	0.000	0.000	0.025	0.025	198	1195	0.000	0.000	0.018	0.018	1858
Ten Daily Mean																		
Ten Daily I	0.000						0.000						321.4	0.001	0.001	0.015	0.017	792
Ten Daily II	0.000						12.27	0.002	0.007	0.014	0.023	83	439.5	0.000	0.001	0.015	0.016	625
Ten Daily III	0.000						77.42	0.000	0.000	0.020	0.020	136	702.9	0.000	0.000	0.016	0.016	987
Monthly Total												1822						25028

Annual Sediment Load (Metric Tonnes) : 45508

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Paderdibadi (01 02 13 006) **Division : Mahi Division, Gandhinagar**

Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	744.9	0.000	0.000	0.016	0.016	1049	218.3	0.000	0.000	0.000	0.000	6	99.05	0.000	0.000	0.000	0.000	0
2	984.7	0.000	0.000	0.018	0.018	1540	144.4	0.000	0.000	0.000	0.000	4	89.85	0.000	0.000	0.000	0.000	0
3	910.3	0.000	0.000	0.020	0.020	1598	187.9	0.000	0.000	0.000	0.000	6	89.99	0.000	0.000	0.000	0.000	0
4	874.9	0.000	0.000	0.018	0.018	1361	170.5	0.000	0.000	0.000	0.000	4	90.04	0.000	0.000	0.000	0.000	0
5	796.8	0.000	0.000	0.017	0.017	1203	166.8	0.000	0.000	0.000	0.000	3	94.84	0.000	0.000	0.000	0.000	0
6	826.1	0.000	0.000	0.015	0.015	1042	113.5	0.000	0.000	0.000	0.000	1	58.79	0.000	0.000	0.000	0.000	0
7	777.2	0.000	0.000	0.013	0.013	895	159.0	0.000	0.000	0.000	0.000	2	58.79	0.000	0.000	0.000	0.000	0
8	598.9	0.000	0.000	0.013	0.013	652	157.8	0.000	0.000	0.000	0.000	3	96.46	0.000	0.000	0.000	0.000	0
9	584.5	0.000	0.000	0.013	0.013	632	107.9	0.000	0.000	0.000	0.000	1	96.42	0.000	0.000	0.000	0.000	0
10	584.1	0.000	0.000	0.010	0.010	479	145.0	0.000	0.000	0.001	0.001	8	60.34	0.000	0.000	0.000	0.000	0
11	715.0	0.000	0.000	0.007	0.007	402	141.1	0.000	0.000	0.000	0.000	2	93.42	0.000	0.000	0.000	0.000	0
12	2382	0.002	0.008	0.008	0.018	3622	137.6	0.000	0.000	0.001	0.001	6	32.09	0.000	0.000	0.000	0.000	0
13	1123	0.000	0.010	0.012	0.022	2115	134.9	0.000	0.000	0.000	0.000	3	19.80	0.000	0.000	0.000	0.000	0
14	958.0	0.000	0.000	0.006	0.006	464	134.8	0.000	0.000	0.000	0.000	2	14.68	0.000	0.000	0.000	0.000	0
15	756.4	0.000	0.000	0.007	0.007	425	130.4	0.000	0.000	0.000	0.000	2	13.30	0.000	0.000	0.000	0.000	0
16	708.7	0.000	0.000	0.005	0.005	300	86.55	0.000	0.000	0.000	0.000	1	13.76	0.000	0.000	0.000	0.000	0
17	687.7	0.000	0.000	0.005	0.005	303	123.4	0.000	0.000	0.000	0.000	1	14.91	0.000	0.000	0.000	0.000	0
18	650.7	0.000	0.000	0.005	0.005	281	120.3	0.000	0.000	0.000	0.000	1	15.16	0.000	0.000	0.000	0.000	0
19	617.7	0.000	0.000	0.001	0.001	59	117.9	0.000	0.000	0.000	0.000	1	15.45	0.000	0.000	0.000	0.000	0
20	581.7	0.000	0.000	0.001	0.001	55	116.6	0.000	0.000	0.000	0.000	0	12.45	0.000	0.000	0.000	0.000	0
21	557.2	0.000	0.000	0.001	0.001	43	114.9	0.000	0.000	0.000	0.000	0	13.71	0.000	0.000	0.000	0.000	0
22	478.1	0.000	0.000	0.000	0.000	12	113.8	0.000	0.000	0.000	0.000	0	13.94	0.000	0.000	0.000	0.000	0
23	398.6	0.000	0.000	0.000	0.000	14	71.47	0.000	0.000	0.000	0.000	0	14.59	0.000	0.000	0.000	0.000	0
24	281.7	0.000	0.000	0.000	0.000	5	110.5	0.000	0.000	0.000	0.000	0	14.28	0.000	0.000	0.000	0.000	0
25	194.7	0.000	0.000	0.000	0.000	2	69.84	0.000	0.000	0.000	0.000	0	13.91	0.000	0.000	0.000	0.000	0
26	245.1	0.000	0.000	0.001	0.001	13	68.23	0.000	0.000	0.000	0.000	0	13.80	0.000	0.000	0.000	0.000	0
27	239.3	0.000	0.000	0.001	0.001	19	106.2	0.000	0.000	0.000	0.000	0	13.44	0.000	0.000	0.000	0.000	0
28	234.9	0.000	0.000	0.001	0.001	10	66.63	0.000	0.000	0.000	0.000	0	14.55	0.000	0.000	0.000	0.000	0
29	233.5	0.000	0.000	0.000	0.000	6	99.93	0.000	0.000	0.000	0.000	0	14.43	0.000	0.000	0.000	0.000	0
30	220.5	0.000	0.000	0.000	0.000	2	61.89	0.000	0.000	0.000	0.000	0	16.93	0.000	0.000	0.000	0.000	0
31							60.34	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	768.2	0.000	0.000	0.015	0.015	1045	157.1	0.000	0.000	0.000	0.000	4	83.46	0.000	0.000	0.000	0.000	0
Ten Daily II	918.1	0.000	0.002	0.006	0.008	803	124.4	0.000	0.000	0.000	0.000	2	24.50	0.000	0.000	0.000	0.000	0
Ten Daily III	308.4	0.000	0.000	0.000	0.000	13	85.79	0.000	0.000	0.000	0.000	0	14.36	0.000	0.000	0.000	0.000	0
Monthly																		
Total						18601						57						0

Annual Sediment Load (Metric Tonnes) : 45508

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Paderdibadi (01 02 13 006) **Division : Mahi Division, Gandhinagar**

Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	19.03	0.000	0.000	0.000	0.000	0	20.93	0.000	0.000	0.000	0.000	0	14.59	0.000	0.000	0.000	0.000	0
2	20.07	0.000	0.000	0.000	0.000	0	19.49	0.000	0.000	0.000	0.000	0	15.55	0.000	0.000	0.000	0.000	0
3	19.25	0.000	0.000	0.000	0.000	0	19.01	0.000	0.000	0.000	0.000	0	18.30	0.000	0.000	0.000	0.000	0
4	17.60	0.000	0.000	0.000	0.000	0	17.55	0.000	0.000	0.000	0.000	0	18.88	0.000	0.000	0.000	0.000	0
5	19.39	0.000	0.000	0.000	0.000	0	18.39	0.000	0.000	0.000	0.000	0	22.08	0.000	0.000	0.000	0.000	0
6	17.60	0.000	0.000	0.000	0.000	0	19.40	0.000	0.000	0.000	0.000	0	18.78	0.000	0.000	0.000	0.000	0
7	18.64	0.000	0.000	0.000	0.000	0	18.90	0.000	0.000	0.000	0.000	0	18.24	0.000	0.000	0.000	0.000	0
8	18.51	0.000	0.000	0.000	0.000	0	24.42	0.000	0.000	0.000	0.000	0	17.37	0.000	0.000	0.000	0.000	0
9	18.26	0.000	0.000	0.000	0.000	0	18.63	0.000	0.000	0.000	0.000	0	18.56	0.000	0.000	0.000	0.000	0
10	18.17	0.000	0.000	0.000	0.000	0	19.03	0.000	0.000	0.000	0.000	0	18.35	0.000	0.000	0.000	0.000	0
11	18.69	0.000	0.000	0.000	0.000	0	19.10	0.000	0.000	0.000	0.000	0	17.91	0.000	0.000	0.000	0.000	0
12	20.31	0.000	0.000	0.000	0.000	0	19.10	0.000	0.000	0.000	0.000	0	25.62	0.000	0.000	0.000	0.000	0
13	20.17	0.000	0.000	0.000	0.000	0	18.51	0.000	0.000	0.000	0.000	0	17.48	0.000	0.000	0.000	0.000	0
14	19.72	0.000	0.000	0.000	0.000	0	19.52	0.000	0.000	0.000	0.000	0	16.98	0.000	0.000	0.000	0.000	0
15	18.76	0.000	0.000	0.000	0.000	0	28.07	0.000	0.000	0.000	0.000	0	16.81	0.000	0.000	0.000	0.000	0
16	19.02	0.000	0.000	0.000	0.000	0	18.78	0.000	0.000	0.000	0.000	0	16.88	0.000	0.000	0.000	0.000	0
17	18.36	0.000	0.000	0.000	0.000	0	18.30	0.000	0.000	0.000	0.000	0	16.71	0.000	0.000	0.000	0.000	0
18	17.60	0.000	0.000	0.000	0.000	0	17.70	0.000	0.000	0.000	0.000	0	16.68	0.000	0.000	0.000	0.000	0
19	18.20	0.000	0.000	0.000	0.000	0	17.86	0.000	0.000	0.000	0.000	0	23.24	0.000	0.000	0.000	0.000	0
20	18.69	0.000	0.000	0.000	0.000	0	17.91	0.000	0.000	0.000	0.000	0	22.08	0.000	0.000	0.000	0.000	0
21	18.69	0.000	0.000	0.000	0.000	0	17.61	0.000	0.000	0.000	0.000	0	15.85	0.000	0.000	0.000	0.000	0
22	18.69	0.000	0.000	0.000	0.000	0	25.62	0.000	0.000	0.000	0.000	0	15.74	0.000	0.000	0.000	0.000	0
23	18.69	0.000	0.000	0.000	0.000	0	17.38	0.000	0.000	0.000	0.000	0	15.58	0.000	0.000	0.000	0.000	0
24	17.60	0.000	0.000	0.000	0.000	0	17.19	0.000	0.000	0.000	0.000	0	15.08	0.000	0.000	0.000	0.000	0
25	17.60	0.000	0.000	0.000	0.000	0	17.18	0.000	0.000	0.000	0.000	0	14.98	0.000	0.000	0.000	0.000	0
26	17.60	0.000	0.000	0.000	0.000	0	25.62	0.000	0.000	0.000	0.000	0	19.80	0.000	0.000	0.000	0.000	0
27	17.60	0.000	0.000	0.000	0.000	0	18.39	0.000	0.000	0.000	0.000	0	14.67	0.000	0.000	0.000	0.000	0
28	17.60	0.000	0.000	0.000	0.000	0	19.34	0.000	0.000	0.000	0.000	0	14.68	0.000	0.000	0.000	0.000	0
29	17.60	0.000	0.000	0.000	0.000	0	15.48	0.000	0.000	0.000	0.000	0	14.63	0.000	0.000	0.000	0.000	0
30	19.80	0.000	0.000	0.000	0.000	0	16.07	0.000	0.000	0.000	0.000	0						
31	19.80	0.000	0.000	0.000	0.000	0	15.18	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	18.65	0.000	0.000	0.000	0.000	0	19.58	0.000	0.000	0.000	0.000	0	18.07	0.000	0.000	0.000	0.000	0
Ten Daily II	18.95	0.000	0.000	0.000	0.000	0	19.49	0.000	0.000	0.000	0.000	0	19.04	0.000	0.000	0.000	0.000	0
Ten Daily III	18.30	0.000	0.000	0.000	0.000	0	18.64	0.000	0.000	0.000	0.000	0	15.67	0.000	0.000	0.000	0.000	0
Monthly Total						0						0						0

Annual Sediment Load (Metric Tonnes) : 45508

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Paderdibadi (01 02 13 006) **Division : Mahi Division, Gandhinagar**

Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	14.58	0.000	0.000	0.000	0.000	0	20.93	0.000	0.000	0.000	0.000	0	2.971	0.000	0.000	0.000	0.000	0
2	17.23	0.000	0.000	0.000	0.000	0	12.93	0.000	0.000	0.000	0.000	0	2.540	0.000	0.000	0.000	0.000	0
3	17.13	0.000	0.000	0.000	0.000	0	12.28	0.000	0.000	0.000	0.000	0	2.387	0.000	0.000	0.000	0.000	0
4	22.08	0.000	0.000	0.000	0.000	0	11.86	0.000	0.000	0.000	0.000	0	2.215	0.000	0.000	0.000	0.000	0
5	17.81	0.000	0.000	0.000	0.000	0	16.53	0.000	0.000	0.000	0.000	0	2.090	0.000	0.000	0.000	0.000	0
6	17.68	0.000	0.000	0.000	0.000	0	15.48	0.000	0.000	0.000	0.000	0	0.000					
7	17.40	0.000	0.000	0.000	0.000	0	11.32	0.000	0.000	0.000	0.000	0	0.000					
8	23.24	0.000	0.000	0.000	0.000	0	14.45	0.000	0.000	0.000	0.000	0	0.000					
9	17.72	0.000	0.000	0.000	0.000	0	10.84	0.000	0.000	0.000	0.000	0	0.000					
10	17.61	0.000	0.000	0.000	0.000	0	11.71	0.000	0.000	0.000	0.000	0	0.000					
11	23.24	0.000	0.000	0.000	0.000	0	9.060	0.000	0.000	0.000	0.000	0	0.000					
12	17.23	0.000	0.000	0.000	0.000	0	8.459	0.000	0.000	0.000	0.000	0	0.000					
13	17.05	0.000	0.000	0.000	0.000	0	7.277	0.000	0.000	0.000	0.000	0	0.000					
14	16.78	0.000	0.000	0.000	0.000	0	10.54	0.000	0.000	0.000	0.000	0	0.000					
15	16.72	0.000	0.000	0.000	0.000	0	9.620	0.000	0.000	0.000	0.000	0	0.000					
16	16.62	0.000	0.000	0.000	0.000	0	7.790	0.000	0.000	0.000	0.000	0	0.000					
17	16.30	0.000	0.000	0.000	0.000	0	7.520	0.000	0.000	0.000	0.000	0	0.000					
18	22.08	0.000	0.000	0.000	0.000	0	7.101	0.000	0.000	0.000	0.000	0	0.000					
19	15.89	0.000	0.000	0.000	0.000	0	6.914	0.000	0.000	0.000	0.000	0	0.000					
20	15.67	0.000	0.000	0.000	0.000	0	6.072	0.000	0.000	0.000	0.000	0	0.000					
21	15.49	0.000	0.000	0.000	0.000	0	6.111	0.000	0.000	0.000	0.000	0	0.000					
22	14.97	0.000	0.000	0.000	0.000	0	3.280	0.000	0.000	0.000	0.000	0	0.000					
23	14.14	0.000	0.000	0.000	0.000	0	2.640	0.000	0.000	0.000	0.000	0	0.000					
24	13.63	0.000	0.000	0.000	0.000	0	2.640	0.000	0.000	0.000	0.000	0	0.000					
25	16.53	0.000	0.000	0.000	0.000	0	5.464	0.000	0.000	0.000	0.000	0	0.000					
26	13.41	0.000	0.000	0.000	0.000	0	4.591	0.000	0.000	0.000	0.000	0	0.000					
27	13.07	0.000	0.000	0.000	0.000	0	3.808	0.000	0.000	0.000	0.000	0	0.000					
28	12.57	0.000	0.000	0.000	0.000	0	3.535	0.000	0.000	0.000	0.000	0	0.000					
29	14.56	0.000	0.000	0.000	0.000	0	1.490	0.000	0.000	0.000	0.000	0	0.000					
30	15.10	0.000	0.000	0.000	0.000	0	3.162	0.000	0.000	0.000	0.000	0	0.000					
31	14.71	0.000	0.000	0.000	0.000	0							0.000					
Ten Daily Mean																		
Ten Daily I	18.25	0.000	0.000	0.000	0.000	0	13.83	0.000	0.000	0.000	0.000	0	1.220	0.000	0.000	0.000	0.000	0
Ten Daily II	17.76	0.000	0.000	0.000	0.000	0	8.035	0.000	0.000	0.000	0.000	0	0.000					
Ten Daily III	14.38	0.000	0.000	0.000	0.000	0	3.672	0.000	0.000	0.000	0.000	0	0.000					
Monthly Total						0						0						0

Annual Sediment Load (Metric Tonnes) : 45508

Annual Sediment Load for period : 2005-2012

Station Name : Mahi at Paderdibadi (01 02 13 006) **Division : Mahi Division, Gandhinagar**

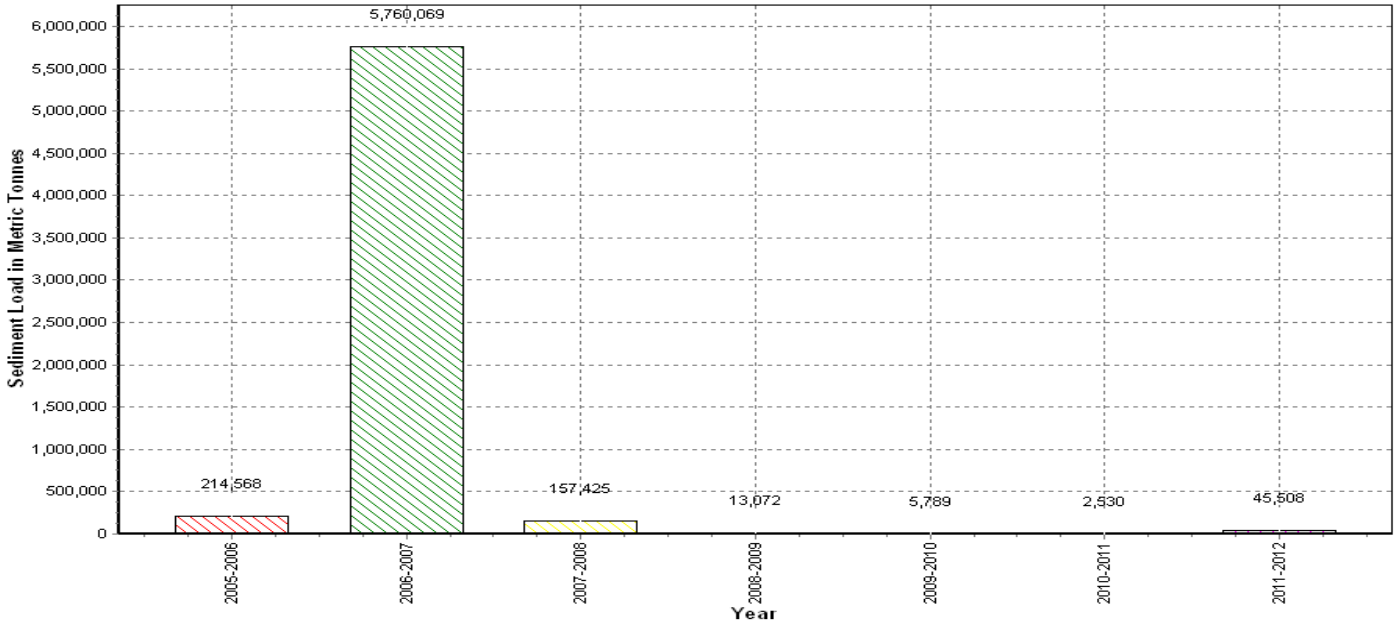
Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

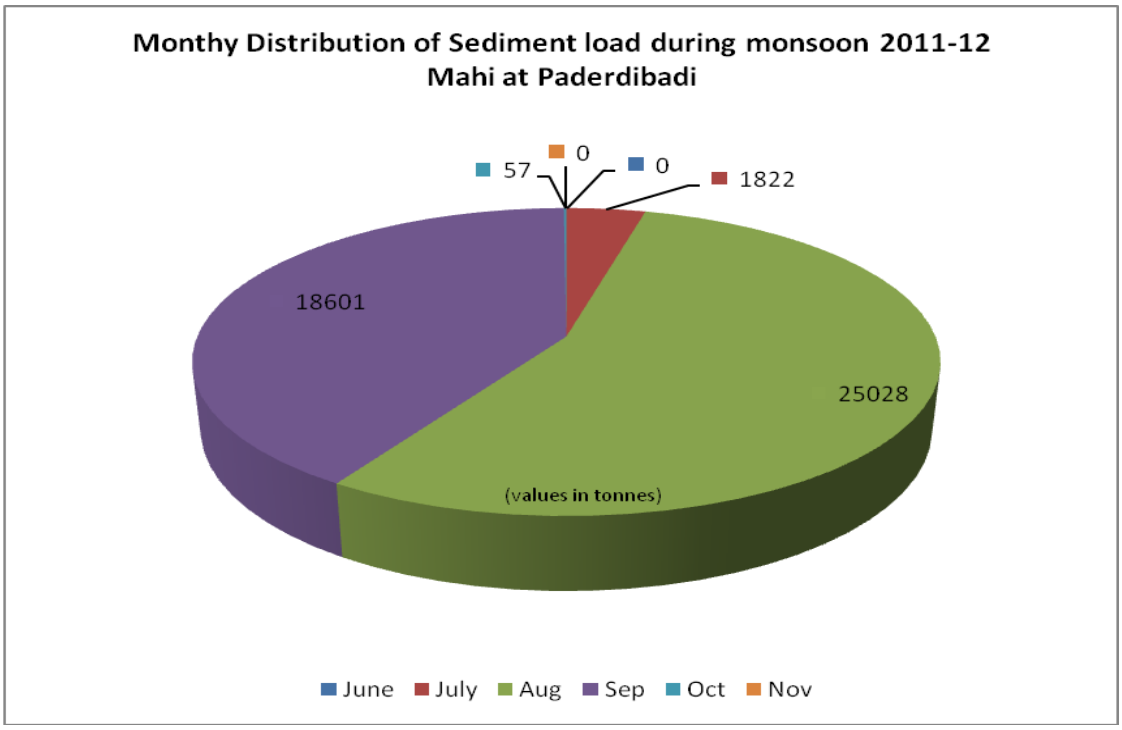
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	214390	178	214568	930	0.0094
2006-07	5759652	418	5760069	10946	0.2532
2007-08	157170	255	157425	1600	0.0069
2008-09	13064	8	13072	314	0.0006
2009-10	5751	38	5789	552	0.0003
2010-11	2525	5	2530	407	0.0001
2011-12	45508	0	45508	3777	0.0020

Annual Sediment Load for the period: 2005-2012

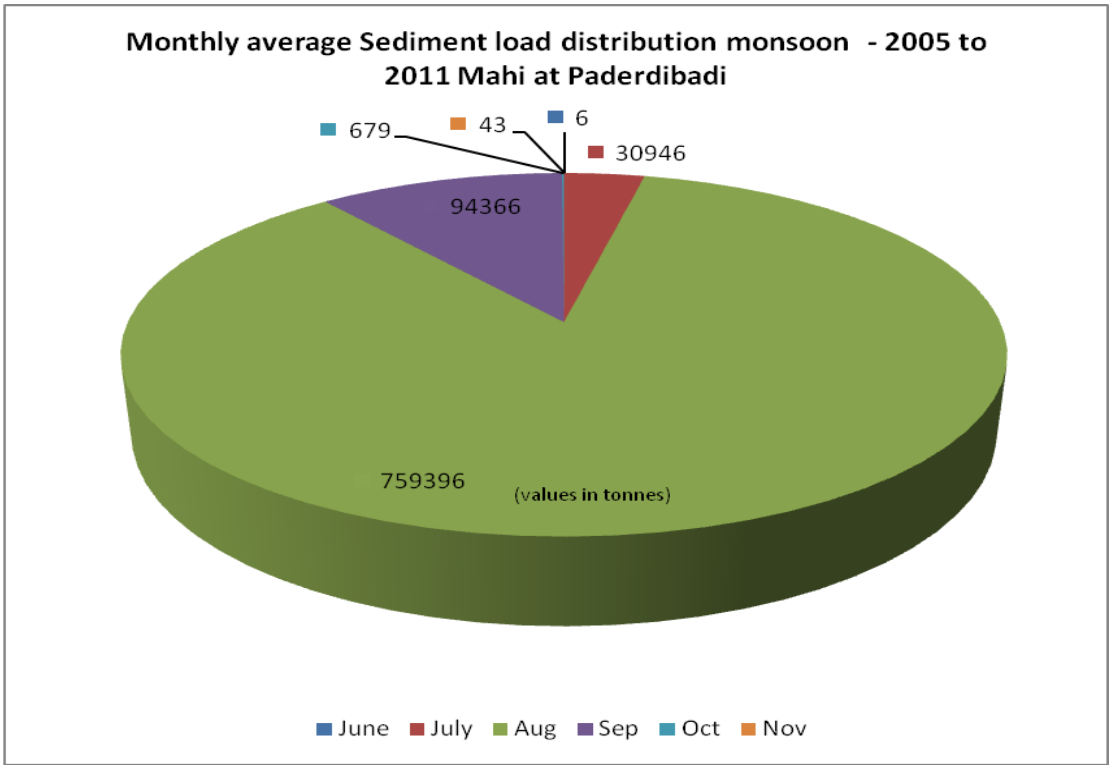
Station Name : Mahi at Paderdibadi (01 02 13 006) **Division : Mahi Division, Gandhinagar**

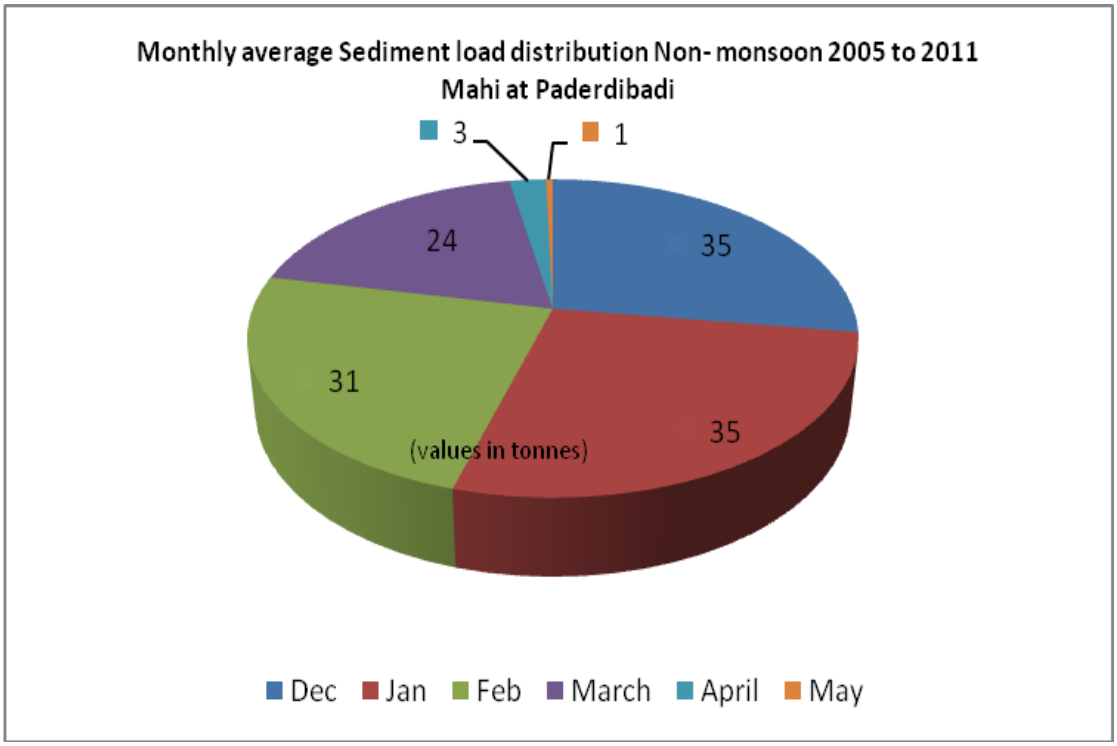
Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Mahi at Paderdibadi No sediment was observed in any month...




Monthly average Sediment load distribution Non- monsoon 2005 to 2011
Mahi at Paderdibadi
3
1
24
35
31
35
(values in tonnes)
Dec
Jan
Feb
March
April
May

HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Mahi at Khanpur**	**Code**	**: 01 02 13 012**
State	: Gujarat	District	Anand
Basin	: Mahi	Independent River	: Mahi
Tributary	: Mahi	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Mahi
Division	: Mahi Division, Gandhinagar	Sub-Division	: Mahi Sub Divn., Kadana
Drainage Area	: 32510 Sq. Km.	Bank	: Right
Latitude	: 22°31'55" N	Longitude	: 73°08'27" E
Zero of Gauge (m)	: 8.22 (m.s.l)	21-12-1978	-
	Opening Date	Closing Date	
Gauge	: 21-12-1978		
Discharge	: 21-12-1978		
Sediment	: 01-05-1988		
Water Quality	: 01-01-1979		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Khanpur (01 02 13 012)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	3.265	0.000	0.000	0.000	0.000	0	6.047	0.000	0.000	0.002	0.002	1	16.32	0.000	0.000	0.002	0.002	3
2	3.508	0.000	0.000	0.000	0.000	0	8.232	0.000	0.000	0.001	0.001	1	12.36	0.000	0.000	0.001	0.001	1
3	3.524	0.000	0.000	0.000	0.000	0	13.28	0.000	0.000	0.001	0.001	1	11.40	0.000	0.000	0.002	0.002	2
4	3.504	0.000	0.000	0.000	0.000	0	7.989	0.000	0.000	0.001	0.001	1	7.919	0.000	0.000	0.003	0.003	2
5	2.610	0.000	0.000	0.000	0.000	0	8.041	0.000	0.000	0.001	0.001	1	7.435	0.000	0.000	0.001	0.001	1
6	4.578	0.000	0.000	0.001	0.001	0	7.913	0.000	0.000	0.001	0.001	1	6.341	0.000	0.000	0.002	0.002	1
7	4.607	0.000	0.000	0.001	0.001	0	7.073	0.000	0.000	0.001	0.001	1	11.24	0.000	0.000	0.002	0.002	2
8	4.580	0.000	0.000	0.001	0.001	0	7.970	0.000	0.000	0.002	0.002	2	5.866	0.000	0.000	0.004	0.004	2
9	4.511	0.000	0.000	0.001	0.001	0	133.8	0.000	0.000	0.022	0.022	248	8.167	0.000	0.000	0.009	0.009	6
10	4.524	0.000	0.000	0.001	0.001	0	142.4	0.000	0.000	0.025	0.025	308	36.49	0.000	0.000	0.016	0.016	49
11	4.054	0.000	0.000	0.001	0.001	0	90.89	0.000	0.000	0.020	0.020	154	426.5	0.001	0.004	0.577	0.582	21433
12	3.270	0.000	0.000	0.001	0.001	0	75.13	0.000	0.000	0.017	0.017	111	477.2	0.005	0.009	0.627	0.641	26409
13	4.049	0.000	0.000	0.001	0.001	0	24.31	0.000	0.000	0.020	0.020	42	301.3	0.000	0.003	0.089	0.092	2387
14	4.291	0.000	0.000	0.001	0.001	0	17.23	0.000	0.000	0.009	0.009	13	212.6	0.000	0.001	0.050	0.051	937
15	4.489	0.000	0.000	0.001	0.001	0	13.11	0.000	0.000	0.001	0.001	1	504.2	0.000	0.010	0.100	0.110	4792
16	4.623	0.000	0.000	0.001	0.001	0	15.66	0.000	0.000	0.001	0.001	2	292.7	0.000	0.000	0.024	0.024	607
17	5.171	0.000	0.000	0.002	0.002	1	18.68	0.000	0.000	0.002	0.002	3	673.2	0.000	0.003	0.003	0.006	349
18	5.346	0.000	0.000	0.001	0.001	0	10.05	0.000	0.000	0.001	0.001	0	569.4	0.000	0.007	0.008	0.015	738
19	5.700	0.000	0.000	0.001	0.001	1	49.60	0.000	0.000	0.001	0.001	6	581.2	0.000	0.004	0.030	0.034	1707
20	5.198	0.000	0.000	0.001	0.001	0	25.92	0.000	0.000	0.003	0.003	7	591.9	0.000	0.005	0.032	0.037	1892
21	4.593	0.000	0.000	0.001	0.001	0	10.89	0.000	0.000	0.002	0.002	2	915.4	0.010	0.020	0.160	0.190	15027
22	4.321	0.000	0.000	0.001	0.001	0	11.26	0.000	0.000	0.003	0.003	3	697.0	0.000	0.004	0.130	0.134	8070
23	4.010	0.000	0.000	0.001	0.001	0	11.16	0.000	0.000	0.005	0.005	5	581.4	0.000	0.004	0.159	0.163	8188
24	3.746	0.000	0.000	0.002	0.002	1	17.04	0.000	0.000	0.002	0.002	3	807.8	0.000	0.005	0.148	0.153	10679
25	3.730	0.000	0.000	0.002	0.002	1	10.06	0.000	0.000	0.001	0.001	1	640.0	0.000	0.014	0.148	0.162	8958
26	3.270	0.000	0.000	0.001	0.001	0	9.301	0.000	0.000	0.003	0.003	2	497.6	0.000	0.040	0.140	0.180	7738
27	4.247	0.000	0.000	0.001	0.001	0	7.824	0.000	0.000	0.003	0.003	2	1337	0.005	0.046	0.336	0.387	44710
28	4.713	0.000	0.000	0.001	0.001	0	8.087	0.000	0.000	0.002	0.002	1	1861	0.003	0.060	0.220	0.283	45415
29	5.160	0.000	0.000	0.002	0.002	1	7.893	0.000	0.000	0.003	0.003	2	1639	0.004	0.074	0.209	0.287	40642
30	5.156	0.000	0.000	0.002	0.002	1	8.010	0.000	0.000	0.002	0.002	1	2529	0.003	0.094	0.278	0.375	81924
31							18.68	0.000	0.000	0.002	0.002	3	4268	0.005	0.200	0.450	**0.655**	241527
Ten Daily Mean																		
Ten Daily I	3.921	0.000	0.000	0.001	0.001	0	34.27	0.000	0.000	0.006	0.006	56	12.35	0.000	0.000	0.004	0.004	7
Ten Daily II	4.619	0.000	0.000	0.001	0.001	0	34.06	0.000	0.000	0.007	0.007	34	463.0	0.001	0.005	0.154	0.159	6125
Ten Daily III	4.295	0.000	0.000	0.001	0.001	0	10.93	0.000	0.000	0.003	0.003	2	1434	0.003	0.051	0.216	0.270	46625
Monthly Total						11						929						574198

Annual Sediment Load (Metric Tonnes) : 904834

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Khanpur (01 02 13 012) **Division : Mahi Division, Gandhinagar**

Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	1451	0.003	0.003	0.132	0.138	17298	168.6	0.000	0.000	0.002	0.002	26	22.30	0.000	0.000	0.001	0.001	2
2	615.6	0.000	0.017	0.045	0.062	3298	115.7	0.000	0.000	0.002	0.002	15	19.73	0.000	0.000	0.001	0.001	2
3	3893	0.003	0.007	0.125	0.135	45407	79.74	0.000	0.000	0.001	0.001	4	18.71	0.000	0.000	0.001	0.001	2
4	1661	0.003	0.003	0.040	0.046	6601	51.90	0.000	0.000	0.001	0.001	2	19.90	0.000	0.000	0.001	0.001	2
5	1392	0.000	0.002	0.002	0.004	481	50.00	0.000	0.000	0.002	0.002	7	19.88	0.000	0.000	0.001	0.001	2
6	1469	0.002	0.005	0.029	0.036	4569	10.60	0.000	0.000	0.001	0.001	1	20.63	0.000	0.000	0.001	0.001	2
7	1215	0.000	0.002	0.093	0.095	9973	30.37	0.000	0.000	0.002	0.002	5	23.87	0.000	0.000	0.002	0.002	4
8	1082	0.000	0.001	0.018	0.019	1777	23.42	0.000	0.000	0.002	0.002	4	21.03	0.000	0.000	0.002	0.002	3
9	839.6	0.000	0.004	0.035	0.039	2829	34.53	0.000	0.000	0.002	0.002	6	21.02	0.000	0.000	0.001	0.001	2
10	815.1	0.000	0.008	0.024	0.032	2254	59.82	0.000	0.000	0.002	0.002	10	21.68	0.000	0.000	0.001	0.001	2
11	681.5	0.000	0.001	0.030	0.031	1825	71.44	0.000	0.000	0.003	0.003	19	20.03	0.000	0.000	0.001	0.001	2
12	3976	0.000	0.011	0.415	0.426	146334	59.94	0.000	0.000	0.002	0.002	10	19.60	0.000	0.000	0.001	0.001	2
13	4363	0.003	0.041	0.090	0.134	50511	45.60	0.000	0.000	0.004	0.004	16	20.63	0.000	0.000	0.001	0.001	2
14	1899	0.003	0.012	0.044	0.059	9683	63.78	0.000	0.000	0.002	0.002	11	19.49	0.000	0.000	0.001	0.001	2
15	1139	0.000	0.002	0.006	0.008	787	57.21	0.000	0.000	0.001	0.001	5	19.57	0.000	0.000	0.001	0.001	2
16	461.3	0.000	0.002	0.038	0.040	1594	62.69	0.000	0.000	0.002	0.002	11	19.29	0.000	0.000	0.001	0.001	2
17	928.6	0.000	0.002	0.252	0.254	20379	58.75	0.000	0.000	0.002	0.002	10	19.18	0.000	0.000	0.001	0.001	2
18	640.9	0.000	0.000	0.030	0.030	1661	41.60	0.000	0.000	0.002	0.002	7	19.20	0.000	0.000	0.001	0.001	2
19	442.8	0.000	0.000	0.020	0.020	765	36.77	0.000	0.000	0.001	0.001	4	18.99	0.000	0.000	0.001	0.001	2
20	485.8	0.000	0.000	0.019	0.019	814	32.13	0.000	0.000	0.001	0.001	2	15.86	0.000	0.000	0.001	0.001	1
21	429.9	0.000	0.000	0.004	0.004	149	29.77	0.000	0.000	0.001	0.001	3	18.98	0.000	0.000	0.001	0.001	2
22	427.6	0.000	0.000	0.003	0.003	111	26.51	0.000	0.000	0.001	0.001	2	18.41	0.000	0.000	0.001	0.001	2
23	407.7	0.000	0.000	0.002	0.002	78	21.68	0.000	0.000	0.001	0.001	2	16.06	0.000	0.000	0.001	0.001	1
24	390.4	0.000	0.000	0.002	0.002	81	21.67	0.000	0.000	0.001	0.001	2	16.24	0.000	0.000	0.001	0.001	1
25	293.7	0.000	0.000	0.002	0.002	51	21.60	0.000	0.000	0.001	0.001	3	15.17	0.000	0.000	0.001	0.001	1
26	299.6	0.000	0.000	0.002	0.002	52	17.68	0.000	0.000	0.001	0.001	2	15.04	0.000	0.000	0.001	0.001	1
27	202.0	0.000	0.000	0.001	0.001	16	21.46	0.000	0.000	0.001	0.001	2	13.35	0.000	0.000	0.001	0.001	1
28	192.3	0.000	0.000	0.001	0.001	17	21.44	0.000	0.000	0.001	0.001	1	15.05	0.000	0.000	0.001	0.001	1
29	295.3	0.000	0.000	0.001	0.001	20	21.72	0.000	0.000	0.002	0.002	4	16.29	0.000	0.000	0.001	0.001	1
30	155.0	0.000	0.000	0.001	0.001	12	17.68	0.000	0.000	0.001	0.001	2	23.61	0.000	0.000	0.001	0.001	2
31							22.17	0.000	0.000	0.001	0.001	1						
Ten Daily Mean																		
Ten Daily I	1443	0.001	0.005	0.054	0.061	9449	62.47	0.000	0.000	0.002	0.002	8	20.87	0.000	0.000	0.001	0.001	2
Ten Daily II	1502	0.001	0.007	0.094	0.102	23435	52.99	0.000	0.000	0.002	0.002	10	19.18	0.000	0.000	0.001	0.001	2
Ten Daily III	309.3	0.000	0.000	0.002	0.002	59	22.12	0.000	0.000	0.001	0.001	2	16.82	0.000	0.000	0.001	0.001	1
Monthly Total						329425						200						53

Annual Sediment Load (Metric Tonnes) : 904834

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Khanpur (01 02 13 012)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	15.91	0.000	0.000	0.001	0.001	1	15.86	0.000	0.000	0.000	0.000	0	15.48	0.000	0.000	0.000	0.000	0
2	16.23	0.000	0.000	0.001	0.001	1	15.72	0.000	0.000	0.000	0.000	0	17.92	0.000	0.000	0.000	0.000	0
3	34.67	0.000	0.000	0.001	0.001	3	15.66	0.000	0.000	0.000	0.000	0	16.73	0.000	0.000	0.000	0.000	0
4	25.01	0.000	0.000	0.001	0.001	2	18.49	0.000	0.000	0.000	0.000	0	16.68	0.000	0.000	0.000	0.000	0
5	21.67	0.000	0.000	0.001	0.001	2	16.77	0.000	0.000	0.000	0.000	0	15.86	0.000	0.000	0.000	0.000	0
6	19.62	0.000	0.000	0.001	0.001	2	17.70	0.000	0.000	0.000	0.000	0	17.32	0.000	0.000	0.000	0.000	0
7	19.84	0.000	0.000	0.001	0.001	2	18.34	0.000	0.000	0.000	0.000	0	20.14	0.000	0.000	0.000	0.000	0
8	19.58	0.000	0.000	0.001	0.001	2	17.68	0.000	0.000	0.000	0.000	0	13.74	0.000	0.000	0.000	0.000	0
9	19.65	0.000	0.000	0.001	0.001	2	15.68	0.000	0.000	0.000	0.000	0	14.05	0.000	0.000	0.000	0.000	0
10	19.69	0.000	0.000	0.001	0.001	2	20.12	0.000	0.000	0.000	0.000	0	16.27	0.000	0.000	0.000	0.000	0
11	16.75	0.000	0.000	0.001	0.001	1	19.93	0.000	0.000	0.000	0.000	0	16.35	0.000	0.000	0.000	0.000	0
12	19.52	0.000	0.000	0.000	0.000	0	18.04	0.000	0.000	0.000	0.000	0	17.68	0.000	0.000	0.000	0.000	0
13	20.16	0.000	0.000	0.000	0.000	0	35.54	0.000	0.000	0.000	0.000	0	14.20	0.000	0.000	0.000	0.000	0
14	20.33	0.000	0.000	0.000	0.000	0	20.00	0.000	0.000	0.000	0.000	0	14.52	0.000	0.000	0.000	0.000	0
15	20.04	0.000	0.000	0.000	0.000	0	26.18	0.000	0.000	0.000	0.000	0	13.61	0.000	0.000	0.000	0.000	0
16	17.89	0.000	0.000	0.000	0.000	0	21.03	0.000	0.000	0.000	0.000	0	14.02	0.000	0.000	0.000	0.000	0
17	17.01	0.000	0.000	0.000	0.000	0	16.29	0.000	0.000	0.000	0.000	0	25.27	0.000	0.000	0.000	0.000	0
18	16.75	0.000	0.000	0.000	0.000	0	18.03	0.000	0.000	0.000	0.000	0	16.97	0.000	0.000	0.000	0.000	0
19	15.95	0.000	0.000	0.000	0.000	0	18.09	0.000	0.000	0.000	0.000	0	16.75	0.000	0.000	0.000	0.000	0
20	15.99	0.000	0.000	0.000	0.000	0	18.08	0.000	0.000	0.000	0.000	0	15.86	0.000	0.000	0.000	0.000	0
21	16.05	0.000	0.000	0.000	0.000	0	16.38	0.000	0.000	0.000	0.000	0	14.37	0.000	0.000	0.000	0.000	0
22	16.00	0.000	0.000	0.000	0.000	0	15.86	0.000	0.000	0.000	0.000	0	13.46	0.000	0.000	0.000	0.000	0
23	18.21	0.000	0.000	0.000	0.000	0	16.48	0.000	0.000	0.000	0.000	0	13.50	0.000	0.000	0.000	0.000	0
24	16.62	0.000	0.000	0.000	0.000	0	16.34	0.000	0.000	0.000	0.000	0	13.54	0.000	0.000	0.000	0.000	0
25	15.86	0.000	0.000	0.000	0.000	0	16.30	0.000	0.000	0.000	0.000	0	10.66	0.000	0.000	0.000	0.000	0
26	18.31	0.000	0.000	0.000	0.000	0	15.86	0.000	0.000	0.000	0.000	0	12.57	0.000	0.000	0.000	0.000	0
27	17.66	0.000	0.000	0.000	0.000	0	16.30	0.000	0.000	0.000	0.000	0	10.39	0.000	0.000	0.000	0.000	0
28	18.57	0.000	0.000	0.000	0.000	0	15.82	0.000	0.000	0.000	0.000	0	10.53	0.000	0.000	0.000	0.000	0
29	18.44	0.000	0.000	0.000	0.000	0	14.99	0.000	0.000	0.000	0.000	0	10.41	0.000	0.000	0.000	0.000	0
30	16.72	0.000	0.000	0.000	0.000	0	15.78	0.000	0.000	0.000	0.000	0						
31	16.70	0.000	0.000	0.000	0.000	0	15.68	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	21.19	0.000	0.000	0.001	0.001	2	17.20	0.000	0.000	0.000	0.000	0	16.42	0.000	0.000	0.000	0.000	0
Ten Daily II	18.04	0.000	0.000	0.000	0.000	0	21.12	0.000	0.000	0.000	0.000	0	16.52	0.000	0.000	0.000	0.000	0
Ten Daily III	17.19	0.000	0.000	0.000	0.000	0	15.98	0.000	0.000	0.000	0.000	0	12.16	0.000	0.000	0.000	0.000	0
Monthly Total						19						0						0

Annual Sediment Load (Metric Tonnes) : 904834

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Mahi at Khanpur (01 02 13 012)
Local River : Mahi

Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	10.62	0.000	0.000	0.000	0.000	0	6.760	0.000	0.000	0.000	0.000	0	3.698	0.000	0.000	0.000	0.000	0
2	10.15	0.000	0.000	0.000	0.000	0	6.760	0.000	0.000	0.000	0.000	0	3.796	0.000	0.000	0.000	0.000	0
3	9.903	0.000	0.000	0.000	0.000	0	4.048	0.000	0.000	0.000	0.000	0	8.116	0.000	0.000	0.000	0.000	0
4	14.16	0.000	0.000	0.000	0.000	0	5.760	0.000	0.000	0.000	0.000	0	7.458	0.000	0.000	0.000	0.000	0
5	9.919	0.000	0.000	0.000	0.000	0	5.760	0.000	0.000	0.000	0.000	0	4.179	0.000	0.000	0.000	0.000	0
6	9.021	0.000	0.000	0.000	0.000	0	5.760	0.000	0.000	0.000	0.000	0	4.420	0.000	0.000	0.000	0.000	0
7	9.126	0.000	0.000	0.000	0.000	0	5.760	0.000	0.000	0.000	0.000	0	3.816	0.000	0.000	0.000	0.000	0
8	11.09	0.000	0.000	0.000	0.000	0	5.760	0.000	0.000	0.000	0.000	0	3.221	0.000	0.000	0.000	0.000	0
9	8.936	0.000	0.000	0.000	0.000	0	3.861	0.000	0.000	0.000	0.000	0	3.267	0.000	0.000	0.000	0.000	0
10	9.089	0.000	0.000	0.000	0.000	0	3.827	0.000	0.000	0.000	0.000	0	3.140	0.000	0.000	0.000	0.000	0
11	11.09	0.000	0.000	0.000	0.000	0	3.831	0.000	0.000	0.000	0.000	0	3.150	0.000	0.000	0.000	0.000	0
12	9.039	0.000	0.000	0.000	0.000	0	3.852	0.000	0.000	0.000	0.000	0	3.171	0.000	0.000	0.000	0.000	0
13	9.435	0.000	0.000	0.000	0.000	0	3.847	0.000	0.000	0.000	0.000	0	2.650	0.000	0.000	0.000	0.000	0
14	9.203	0.000	0.000	0.000	0.000	0	4.420	0.000	0.000	0.000	0.000	0	3.183	0.000	0.000	0.000	0.000	0
15	7.161	0.000	0.000	0.000	0.000	0	4.420	0.000	0.000	0.000	0.000	0	2.510	0.000	0.000	0.000	0.000	0
16	7.187	0.000	0.000	0.000	0.000	0	4.025	0.000	0.000	0.000	0.000	0	2.527	0.000	0.000	0.000	0.000	0
17	7.225	0.000	0.000	0.000	0.000	0	4.052	0.000	0.000	0.000	0.000	0	2.466	0.000	0.000	0.000	0.000	0
18	8.460	0.000	0.000	0.000	0.000	0	4.356	0.000	0.000	0.000	0.000	0	2.428	0.000	0.000	0.000	0.000	0
19	7.183	0.000	0.000	0.000	0.000	0	4.071	0.000	0.000	0.000	0.000	0	2.409	0.000	0.000	0.000	0.000	0
20	7.015	0.000	0.000	0.000	0.000	0	3.943	0.000	0.000	0.000	0.000	0	2.650	0.000	0.000	0.000	0.000	0
21	7.303	0.000	0.000	0.000	0.000	0	4.021	0.000	0.000	0.000	0.000	0	2.846	0.000	0.000	0.000	0.000	0
22	6.796	0.000	0.000	0.000	0.000	0	4.030	0.000	0.000	0.000	0.000	0	2.659	0.000	0.000	0.000	0.000	0
23	6.779	0.000	0.000	0.000	0.000	0	4.018	0.000	0.000	0.000	0.000	0	2.670	0.000	0.000	0.000	0.000	0
24	6.784	0.000	0.000	0.000	0.000	0	3.996	0.000	0.000	0.000	0.000	0	2.505	0.000	0.000	0.000	0.000	0
25	7.870	0.000	0.000	0.000	0.000	0	4.129	0.000	0.000	0.000	0.000	0	2.551	0.000	0.000	0.000	0.000	0
26	6.729	0.000	0.000	0.000	0.000	0	4.177	0.000	0.000	0.000	0.000	0	2.557	0.000	0.000	0.000	0.000	0
27	4.771	0.000	0.000	0.000	0.000	0	4.168	0.000	0.000	0.000	0.000	0	2.090	0.000	0.000	0.000	0.000	0
28	4.849	0.000	0.000	0.000	0.000	0	4.123	0.000	0.000	0.000	0.000	0	2.494	0.000	0.000	0.000	0.000	0
29	4.444	0.000	0.000	0.000	0.000	0	4.420	0.000	0.000	0.000	0.000	0	2.371	0.000	0.000	0.000	0.000	0
30	6.760	0.000	0.000	0.000	0.000	0	3.988	0.000	0.000	0.000	0.000	0	2.383	0.000	0.000	0.000	0.000	0
31	4.082	0.000	0.000	0.000	0.000	0							2.377	0.000	0.000	0.000	0.000	0
Ten Daily Mean																		
Ten Daily I	10.20	0.000	0.000	0.000	0.000	0	5.406	0.000	0.000	0.000	0.000	0	4.511	0.000	0.000	0.000	0.000	0
Ten Daily II	8.300	0.000	0.000	0.000	0.000	0	4.082	0.000	0.000	0.000	0.000	0	2.714	0.000	0.000	0.000	0.000	0
Ten Daily III	6.106	0.000	0.000	0.000	0.000	0	4.107	0.000	0.000	0.000	0.000	0	2.500	0.000	0.000	0.000	0.000	0
Monthly Total						0						0						0

Annual Sediment Load (Metric Tonnes) : 904834

Annual Sediment Load for period : 2005-2012

Station Name : Mahi at Khanpur (01 02 13 012) **Division : Mahi Division, Gandhinagar**

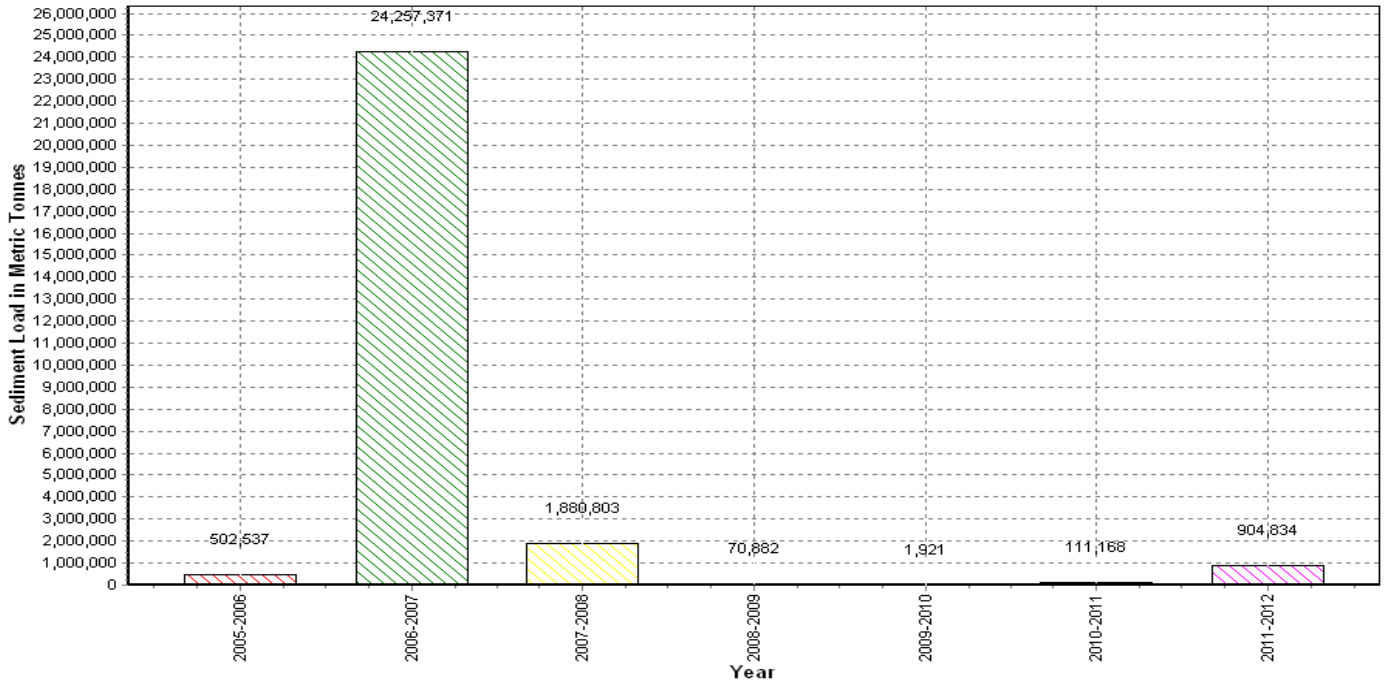
Local River : Mahi **Sub-Division : Mahi Sub Divn., Kadana**

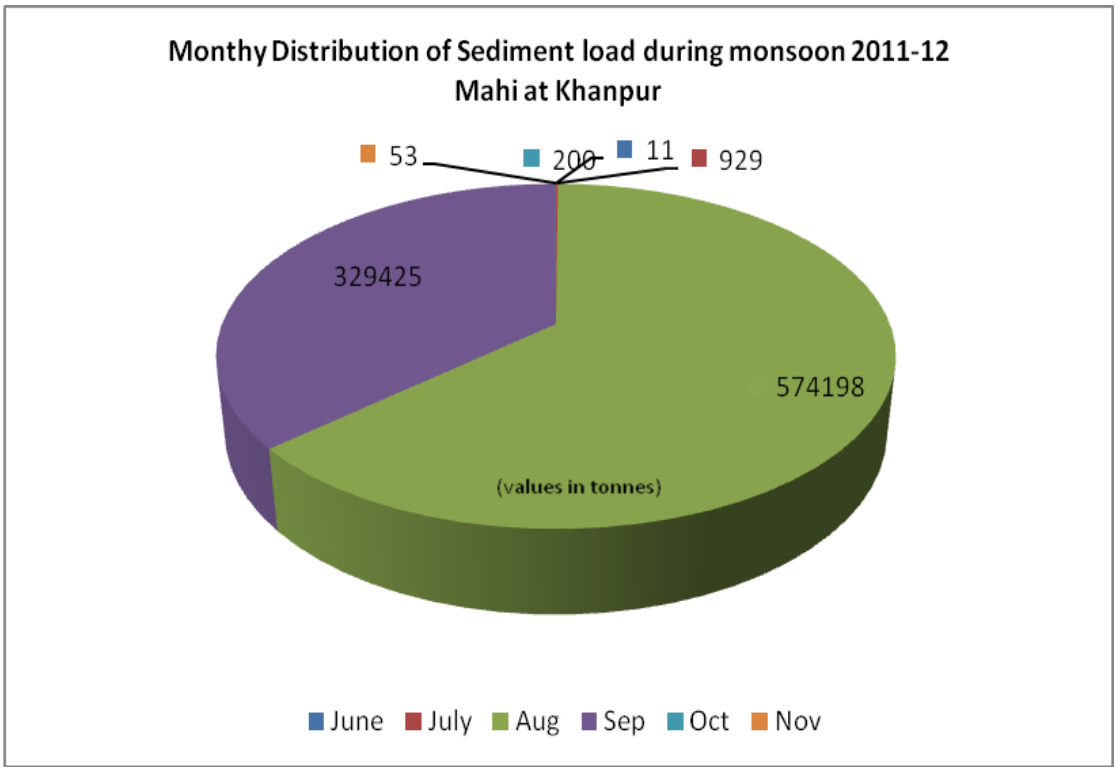
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	497519	5018	502537	2779	0.0110
2006-07	24257371	0	24257371	21880	0.5330
2007-08	1876145	4657	1880803	6737	0.0413
2008-09	68954	1928	70882	868	0.0016
2009-10	1776	145	1921	553	0.00004
2010-11	111057	111	111168	1078	0.0024
2011-12	904816	19	904834	5014	0.0199

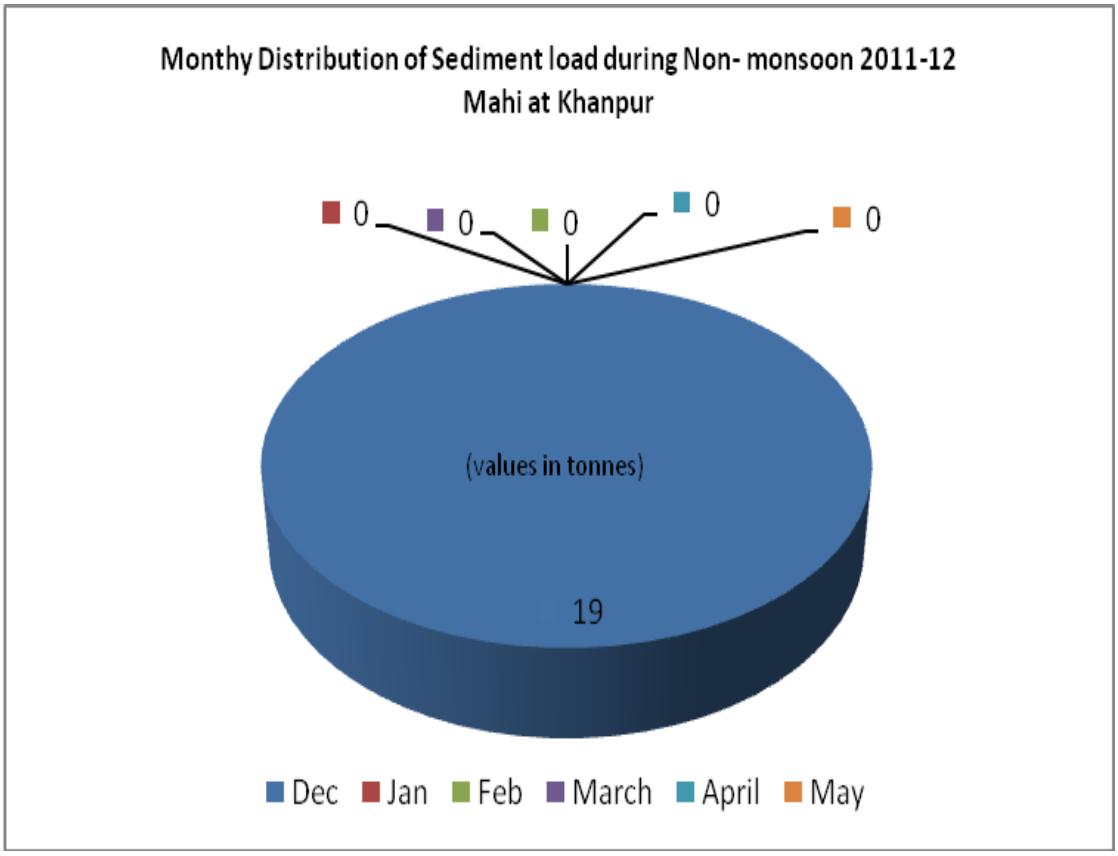
Annual Sediment Load for the period: 2005-2012

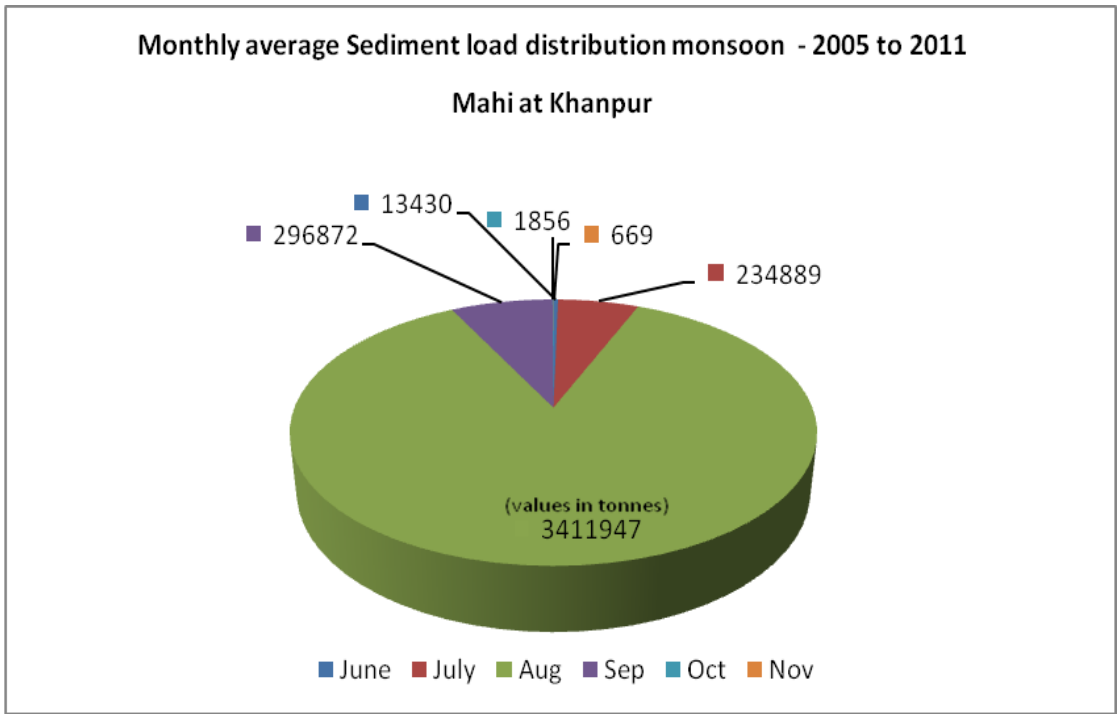
Station Name : Mahi at Khanpur (01 02 13 012)
Local River : Mahi

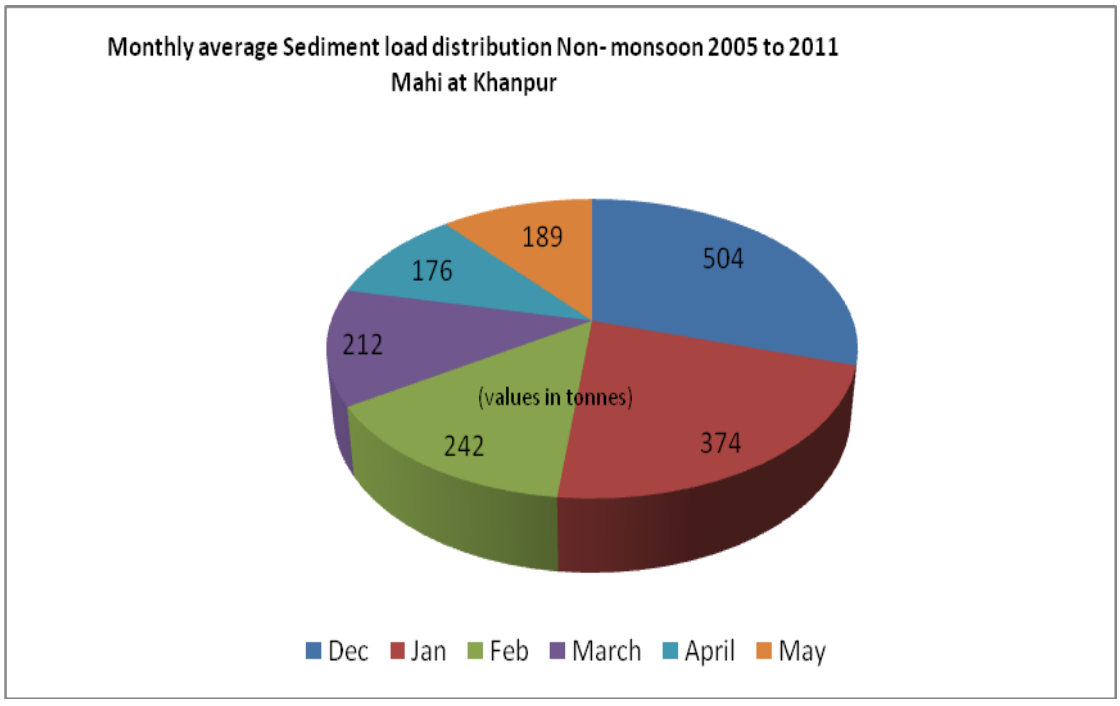
Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana




Monthy Distribution of Sediment load during monsoon 2011-12
Mahi at Khanpur
53
200
11
929
329425
574198
(values in tonnes)
June
July
Aug
Sep
Oct
Nov


Monthy Distribution of Sediment load during Non- monsoon 2011-12
Mahi at Khanpur
0
0
0
0
0
(values in tonnes)
19
Dec
Jan
Feb
March
April
May


Monthly average Sediment load distribution monsoon - 2005 to 2011
Mahi at Khanpur
13430
1856
669
296872
234889
(values in tonnes)
3411947
June
July
Aug
Sep
Oct
Nov


Monthly average Sediment load distribution Non- monsoon 2005 to 2011
Mahi at Khanpur
189
504
176
212
(values in tonnes)
242
374
Dec
Jan
Feb
March
April
May

4.2 Tapi Basin

The Tapi is the second largest westward draining interstate river basin. It originates near Multai in Betul district at an elevation of 752 m above *msl*. The total length of this west flowing river from its origin to its out- fall into gulf of Cambay is 724 km. It drains an area of 65,145 sq.km, out of which nearly 80% lies in Maharashtra, 15% in Madhya Pradesh and rest 5% in Gujarat .The Tapi basin is the northern most basin of Deccan Plateau and is situated between latitudes 20°N to 22°N approximately. The Satpura range forms its northern boundary and the Ajanta and Satmala hills forms its southern extremity. Mahadeo hills form its eastern boundary and its outlet into the Arabian sea is in the west. Bounded by three sides by the hill ranges, the river Tapi, along with its tributaries flows more or less over the plains of Vidarbha, Khandesh and Gujarat

The Tapi receives several tributaries on both the banks. There are 14 major tributaries having length more than 50 km. Out of which 4 tributaries viz. Vaki, Gomi, Arunavati and Aner join on the right bank. Other 10 tributaries viz. Nesu, Amaravati, Buray, Panjhra, Bori, Girna, Vaghur, Purna, Mona and Sipna drain on left bank of the main channel. The drainage system on the left bank of Tapi is, therefore, more extensive as compared to the right bank area

The Purna and Girna, two important left bank tributaries, together account for nearly 45% of the total catchment area of the Tapi. The Purna is the principal tributary of the Tapi and originates in Betul district near Gawilgarh hills of Satpura range at an elevation of 900 m. It traverses 274 km having catchments area of about 18929 sq km. The Girna, another major tributary, rises in the hill ranges of Western Ghats at an elevation of 900 m. It traverses a distance of about 260 km having a catchment area about 10061 sq km.

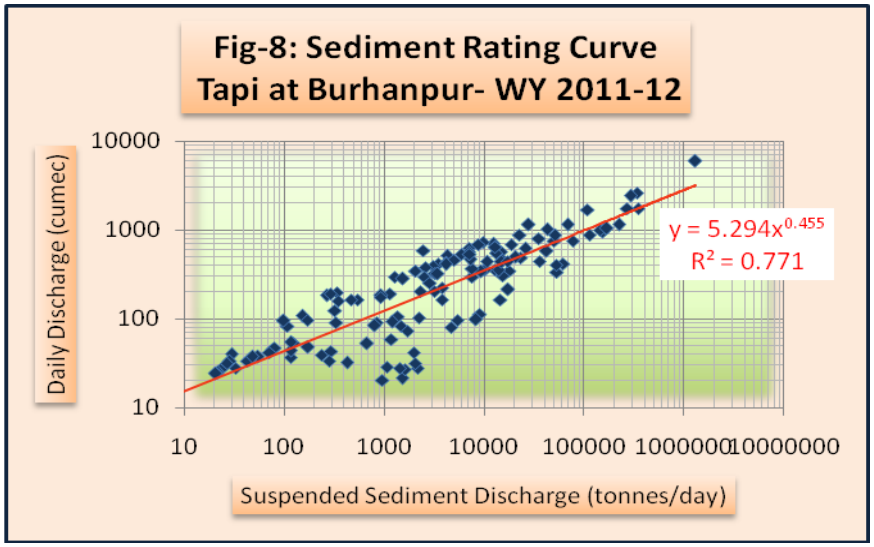
The average rainfall in the Tapi basin is 830 mm, Owing to topographical characteristics, the climate is variable. The Purna Sub catchment in the upper half of the Tapi basin is one of the hottest regions in India

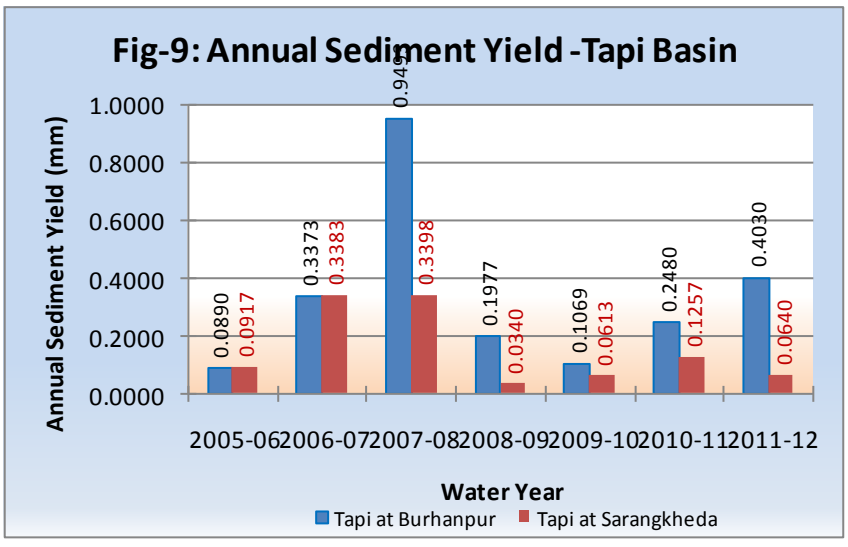
At present, there are 40 major and medium Irrigation schemes completed and 15 ongoing schemes in the form of reservoirs or weirs in the Tapi catchment. The main projects on main river are Kakrapar weir, Ukai Dam and Hathnur Dam. The upper Tapi Stage- II project is under progress at Nawtha.

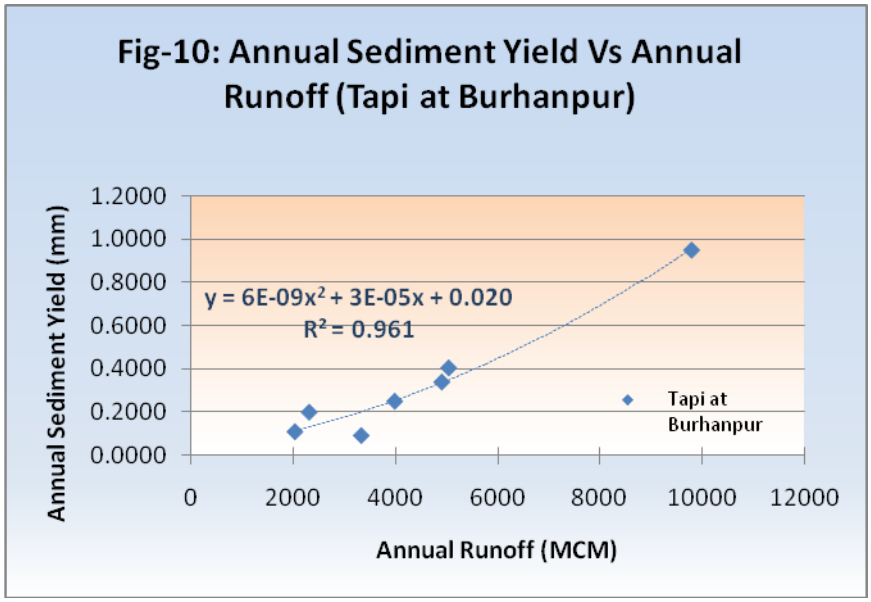
There are four silt monitoring stations in this basin, out of which two stations are on the main river and the other two stations are located on tributary of Purna. A brief of the Sediment stations is given in section- 4.2.1 to 4.2.4.

4.2.1. Tapi at Burhanpur

The station has a Catchment area of 8487 sq.km. The sediment rating curve at the site is given in **Fig-8**. The maximum sediment concentration of 2.523 g/l was observed on 27.08.2011. The total sediment load during the year is 47,88,652 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.403 mm. Annual sediment yield over the period of observations is given in **Fig-9**. It is seen that annual yield is very strongly positively correlated with annual runoff as shown in **Fig-10**.

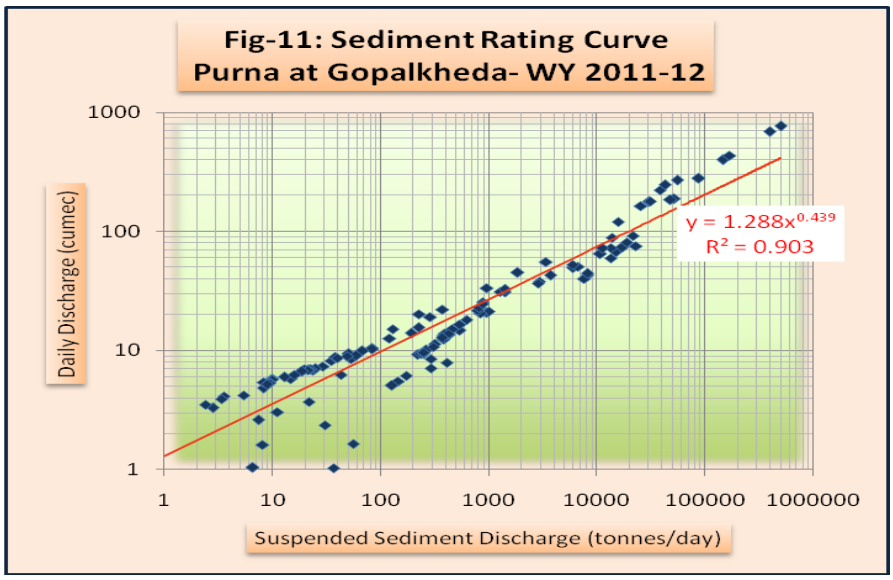


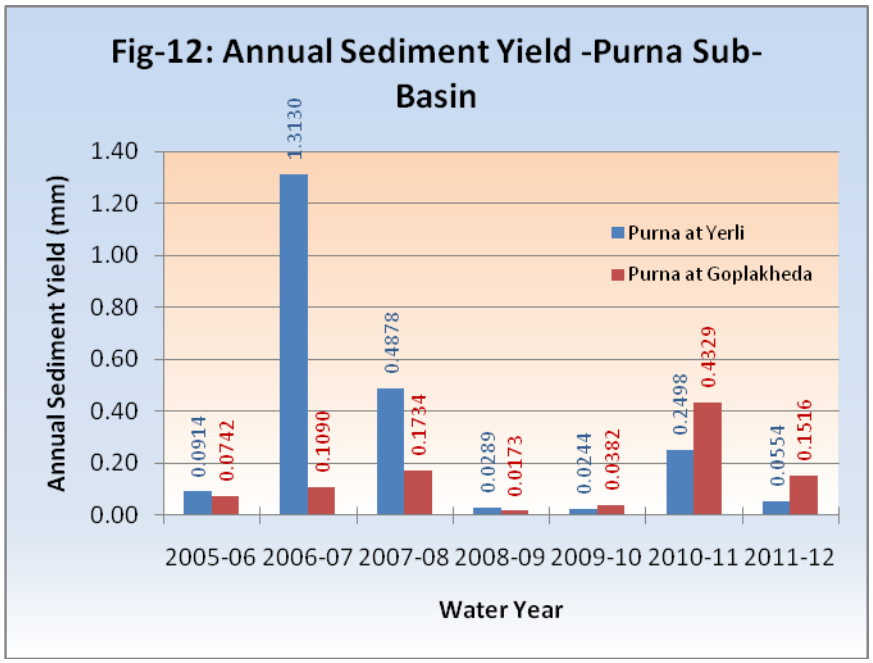


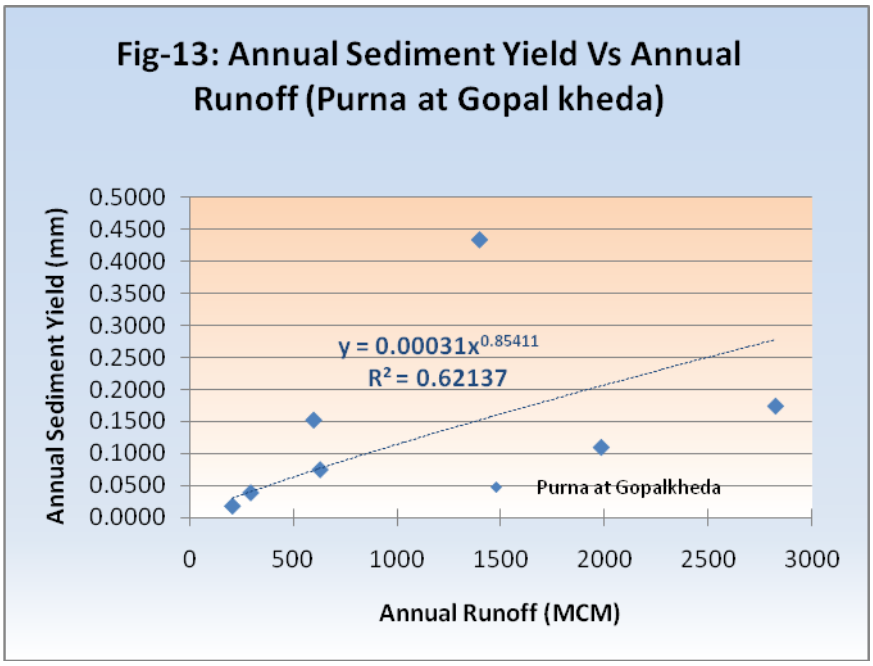


4.2.2. Purna at Gopalkheda

The station has a Catchment area of 9,500 sq km. The sediment rating curve at the site is given in **Fig-11**.The maximum sediment concentration of 7.500 g/l was observed on 29.08.2011. The total sediment load during the year is 20,16,382 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.1516 mm. Annual sediment yield over the period of observations in the Purna sub-basin of Tapi basin is given in **Fig-12**. It is seen from **Fig-13** that only a moderately strong positive correlation exists between annual yield and annual runoff.



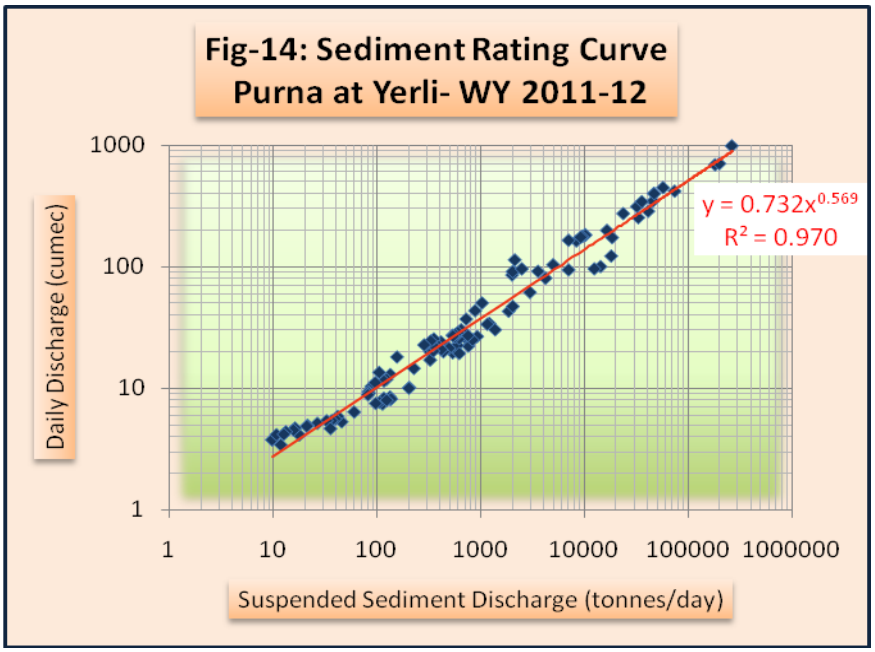




4.2.3. Purna at Yerli

The station has a Catchment area of 16,517 sq km. The sediment rating curve at the site is given in **Fig-14**. The maximum sediment concentration of 3.280 g/l was observed on 30.08.2011. The total sediment load during the year is 12,81,173 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0554 mm. Annual sediment yield over the period of observations is given in **Fig-12**. It is seen from the analysis

that sediment yield does not follow any trend over the years. It is seen from **Fig-15** that a strong positive correlation exists between annual yield and annual runoff.



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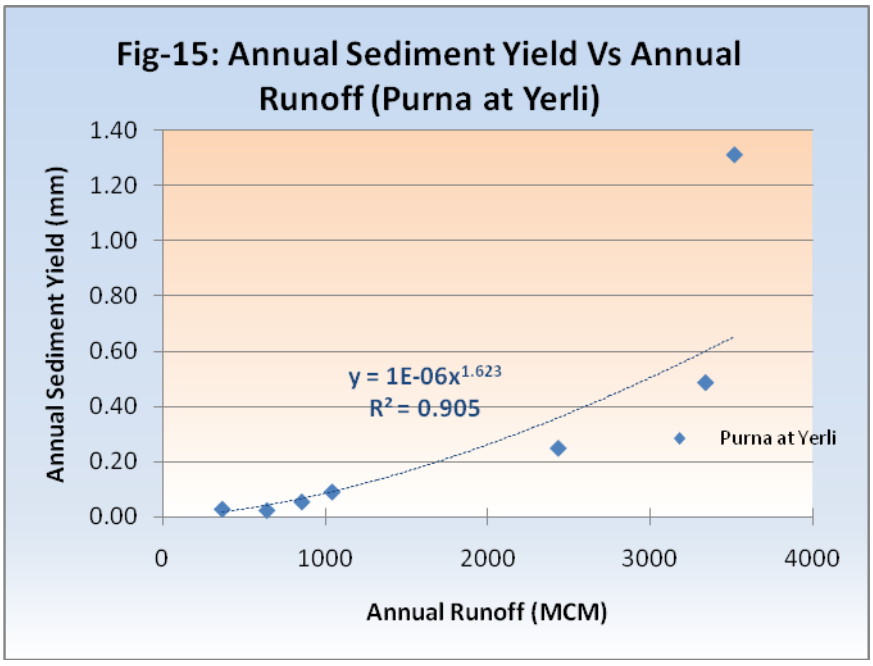
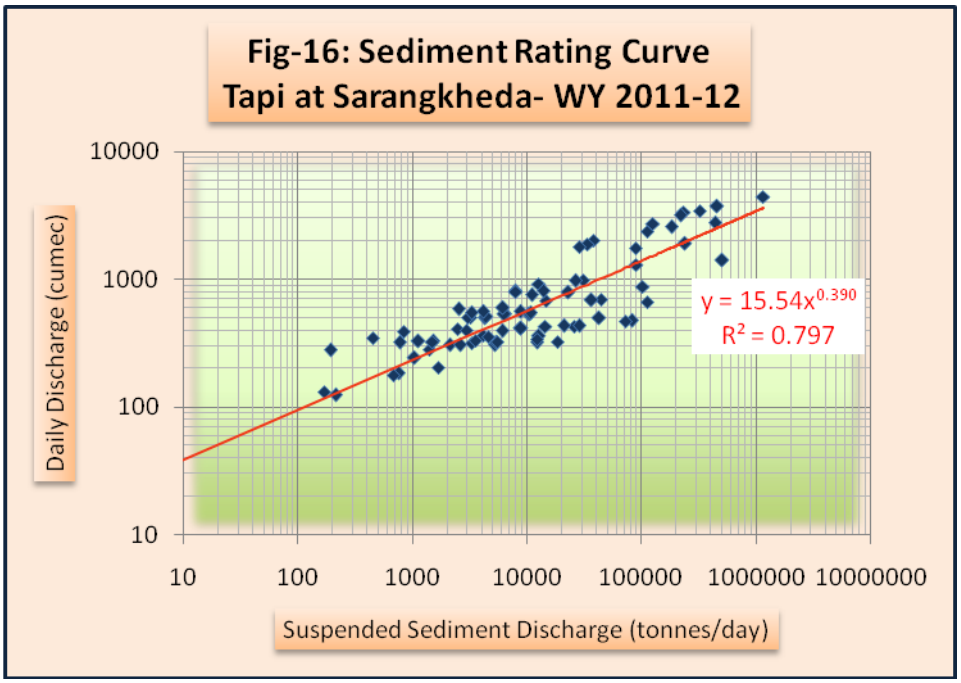


4.2.4. Tapi at Sarangkheda

The station has a Catchment area of 58,400 sq km. The sediment rating curve at the site is given in **Fig-16**.The maximum sediment concentration of 4.166 g/l was observed on 15.07.2011. The total sediment load during the year is 52,32,408 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0640 mm. Annual sediment

yield over the period of observations is given in **Fig-9**. It is seen from the analysis that sediment yield does not follow any trend over the years. It is seen from **Fig-17** that fairly strong positive correlation exists between annual yield and annual runoff.



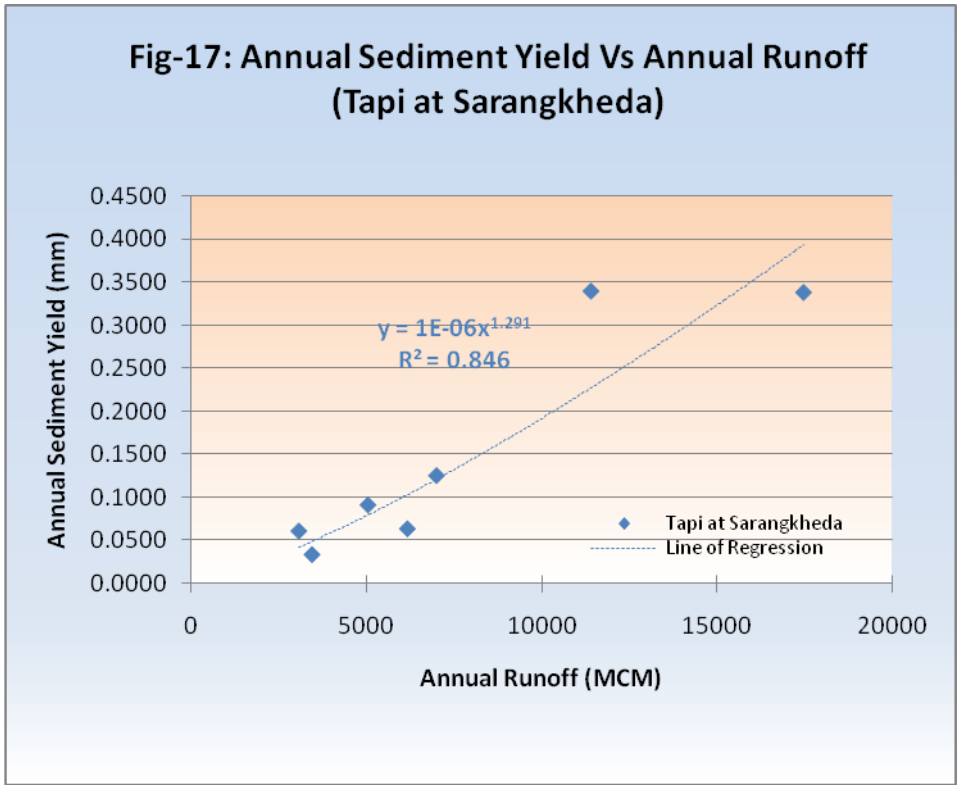
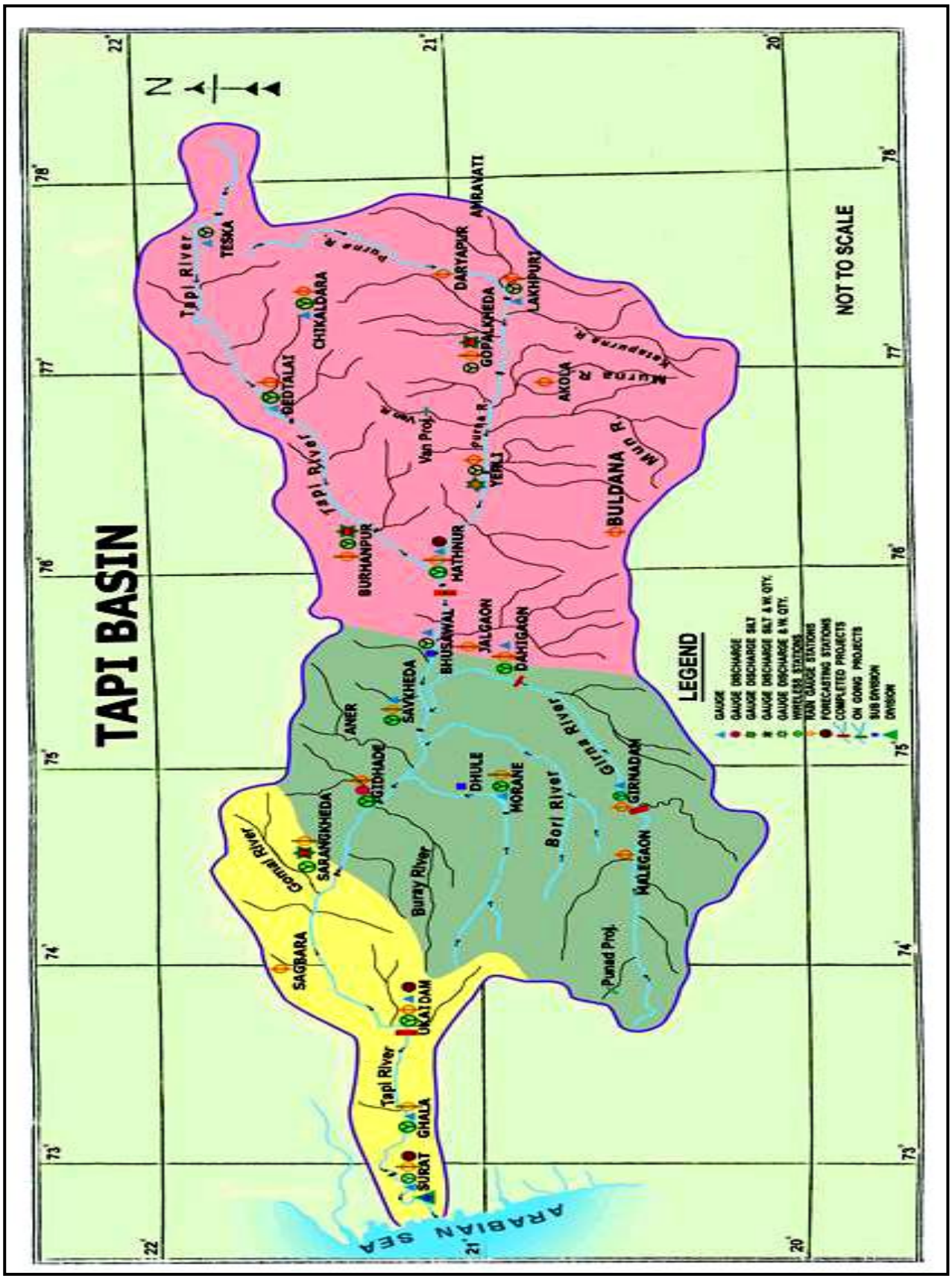


Plate - 4.2 Tapi Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Tapi at Burhanpur**	**Code**	**: 01 02 17 002**
State	: Madhya Pradesh	District	Khandwa
Basin	: Tapi	Independent River	: Tapi
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Tapi
Division	: Tapi Div., Surat	Sub-Division	: UTSD, Bhusawal
Drainage Area	: 8487 Sq. Km.	Bank	: Right
Latitude	: 21°17'12" N	Longitude	: 76°13'18" E
Zero of Gauge (m)	: 213 (m.s.l)	16-06-1972	-
	Opening Date	Closing Date	
Gauge	: 16-06-1972		
Discharge	: 14-09-1972		
Sediment	: 23-12-1972		
Water Quality	: 01-06-1977		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Burhanpur (01 02 17 002) **Division : Tapi Div., Surat**

Local River : Tapi **Sub-Division : UTSD, Bhusawal**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						58.70	0.000	0.000	0.233	0.233	1183	433.9	0.000	0.000	0.286	0.286	10733
2	0.000						52.42	0.000	0.000	0.150	0.150	679	369.3	0.000	0.000	0.238	0.238	7604
3	0.000						42.54	0.000	0.000	0.080	0.080	294	204.9	0.000	0.000	0.180	0.180	3182
4	0.000						36.50	0.000	0.000	0.037	0.037	116	609.9	0.000	0.000	0.492	0.492	25910
5	0.000						31.67	0.000	0.000	0.155	0.155	424	755.8	0.000	0.000	0.772	0.772	50393
6	0.000						33.29	0.000	0.000	0.099	0.099	284	554.2	0.000	0.000	0.275	0.275	13168
7	0.000						82.16	0.000	0.000	0.015	0.015	109	570.9	0.000	0.000	0.300	0.300	14798
8	0.000						79.78	0.000	0.000	0.682	0.682	4701	1059	0.000	0.000	1.783	1.783	163033
9	0.000						356.3	0.000	0.000	0.413	0.413	12724	795.0	0.000	0.000	0.518	0.518	35601
10	0.000						221.8	0.000	0.000	0.200	0.200	3833	724.3	0.000	0.000	0.157	0.157	9806
11	0.000						112.2	0.000	0.000	0.941	0.941	9117	622.4	0.000	0.000	0.132	0.132	7114
12	0.000						96.58	0.000	0.000	0.645	0.645	5385	582.7	0.000	0.000	0.049	0.049	2477
13	7.887	0.000	0.000	0.024	0.024	16	97.44	0.000	0.000	0.986	0.986	8301	452.1	0.000	0.000	0.130	0.130	5066
14	7.503	0.000	0.000	0.015	0.015	10	1146	0.000	0.000	2.288	2.288	226589	874.3	0.000	0.000	1.500	1.500	113309
15	7.598	0.000	0.000	0.017	0.017	11	441.6	0.000	0.000	0.948	0.948	36161	990.4	0.000	0.000	1.700	1.700	145465
16	331.7	0.000	0.000	1.877	1.877	53787	413.8	0.000	0.000	1.733	1.733	61965	563.1	0.000	0.000	0.146	0.146	7118
17	211.9	0.000	0.000	0.955	0.955	17486	404.9	0.000	0.000	1.500	1.500	52480	393.6	0.000	0.000	0.091	0.091	3078
18	164.1	0.000	0.000	1.034	1.034	14667	345.8	0.000	0.000	0.604	0.604	18053	462.7	0.000	0.000	0.183	0.183	7296
19	27.69	0.000	0.000	0.900	0.900	2153	306.3	0.000	0.000	0.588	0.588	15559	324.4	0.000	0.000	0.115	0.115	3218
20	21.31	0.000	0.000	0.828	0.828	1524	749.6	0.000	0.000	1.198	1.198	77608	496.2	0.000	0.000	0.480	0.480	20587
21	28.41	0.000	0.000	0.436	0.436	1069	579.5	0.000	0.000	0.847	0.847	42396	450.5	0.000	0.000	0.400	0.400	15568
22	41.56	0.000	0.000	0.550	0.550	1975	489.8	0.000	0.000	0.551	0.551	23308	432.7	0.000	0.000	0.400	0.400	14955
23	31.41	0.000	0.000	0.757	0.757	2055	350.9	0.000	0.000	0.460	0.460	13944	445.2	0.000	0.000	0.446	0.446	17136
24	26.62	0.000	0.000	0.699	0.699	1607	946.1	0.000	0.000	1.900	1.900	155318	684.3	0.000	0.000	0.320	0.320	18920
25	20.16	0.000	0.000	0.550	0.550	957	690.5	0.000	0.000	0.209	0.209	12480	1034	0.000	0.000	1.902	1.902	169893
26	27.69	0.000	0.000	0.600	0.600	1436	507.4	0.000	0.000	0.098	0.098	4310	1739	0.000	0.000	2.313	2.313	347512
27	163.6	0.000	0.000	0.267	0.267	3777	413.8	0.000	0.000	0.097	0.097	3479	5965	0.000	0.000	2.523	2.523	1300479
28	103.3	0.000	0.000	0.249	0.249	2220	421.8	0.000	0.000	0.114	0.114	4148	2602	0.000	0.000	1.500	1.500	337252
29	82.09	0.000	0.000	0.208	0.208	1475	354.3	0.000	0.000	0.334	0.334	10215	2397	0.000	0.000	1.412	1.412	292319
30	72.07	0.000	0.000	0.275	0.275	1712	295.6	0.000	0.000	0.299	0.299	7632	1007	0.000	0.000	0.495	0.495	43031
31							338.9	0.000	0.000	0.320	0.320	9369	879.0	0.000	0.000	0.300	0.300	22784
Ten Daily Mean																		
Ten Daily I	0.000						99.52	0.000	0.000	0.206	0.206	2435	607.7	0.000	0.000	0.500	0.500	33423
Ten Daily II	77.97	0.000	0.000	0.706	0.706	11207	411.5	0.000	0.000	1.143	1.143	51122	576.2	0.000	0.000	0.453	0.453	31473
Ten Daily III	59.69	0.000	0.000	0.459	0.459	1828	489.9	0.000	0.000	0.475	0.475	26055	1603	0.000	0.000	1.092	1.092	234532
Monthly Total						107937						822165						3228805

Annual Sediment Load (Metric Tonnes) : 4788652

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Burhanpur (01 02 17 002) **Division : Tapi Div., Surat**

Local River : Tapi **Sub-Division : UTSD, Bhusawal**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	1143	0.000	0.000	0.284	0.284	28059	157.6	0.000	0.000	0.026	0.026	347	17.42	0.000	0.000	0.010	0.010	15
2	1747	0.000	0.000	1.812	1.812	273428	123.9	0.000	0.000	0.030	0.030	321	17.01	0.000	0.000	0.010	0.010	15
3	1683	0.000	0.000	0.753	0.753	109512	96.40	0.000	0.000	0.021	0.021	172	16.63	0.000	0.000	0.010	0.010	14
4	1149	0.000	0.000	0.700	0.700	69494	94.11	0.000	0.000	0.012	0.012	99	15.61	0.000	0.000	0.008	0.008	11
5	860.8	0.000	0.000	0.691	0.691	51407	90.34	0.000	0.000	0.043	0.043	332	14.28	0.000	0.000	0.008	0.008	10
6	682.5	0.000	0.000	0.149	0.149	8798	105.7	0.000	0.000	0.150	0.150	1370	23.34	0.000	0.000	0.020	0.020	40
7	634.4	0.000	0.000	0.233	0.233	12788	90.00	0.000	0.000	0.108	0.108	840	21.28	0.000	0.000	0.020	0.020	37
8	531.7	0.000	0.000	0.128	0.128	5894	84.11	0.000	0.000	0.111	0.111	809	12.40	0.000	0.000	0.020	0.020	21
9	548.5	0.000	0.000	0.276	0.276	13094	92.32	0.000	0.000	0.150	0.150	1196	12.30	0.000	0.000	0.015	0.015	16
10	532.9	0.000	0.000	0.157	0.157	7215	53.53	0.000	0.000	0.027	0.027	123	18.34	0.000	0.000	0.020	0.020	32
11	345.3	0.000	0.000	0.070	0.070	2088	47.97	0.000	0.000	0.042	0.042	173	10.99	0.000	0.000	0.008	0.008	8
12	295.6	0.000	0.000	0.050	0.050	1277	45.91	0.000	0.000	0.020	0.020	79	11.24	0.000	0.000	0.008	0.008	8
13	377.8	0.000	0.000	0.080	0.080	2611	43.76	0.000	0.000	0.031	0.031	116	16.49	0.000	0.000	0.008	0.008	11
14	280.2	0.000	0.000	0.064	0.064	1537	38.81	0.000	0.000	0.070	0.070	235	8.574	0.000	0.000	0.000	0.000	0
15	347.5	0.000	0.000	0.068	0.068	2051	39.49	0.000	0.000	0.009	0.009	30	8.302	0.000	0.000	0.000	0.000	0
16	411.4	0.000	0.000	0.118	0.118	4177	53.86	0.000	0.000	0.025	0.025	116	7.909	0.000	0.000	0.000	0.000	0
17	640.6	0.000	0.000	0.233	0.233	12913	37.34	0.000	0.000	0.017	0.017	55	7.569	0.000	0.000	0.000	0.000	0
18	292.6	0.000	0.000	0.100	0.100	2528	35.31	0.000	0.000	0.015	0.015	46	7.292	0.000	0.000	0.000	0.000	0
19	317.4	0.000	0.000	0.125	0.125	3428	35.05	0.000	0.000	0.015	0.015	45	7.138	0.000	0.000	0.000	0.000	0
20	252.6	0.000	0.000	0.132	0.132	2870	33.36	0.000	0.000	0.015	0.015	43	11.42	0.000	0.000	0.000	0.000	0
21	201.4	0.000	0.000	0.133	0.133	2309	32.98	0.000	0.000	0.010	0.010	28	6.452	0.000	0.000	0.000	0.000	0
22	190.1	0.000	0.000	0.070	0.070	1145	30.88	0.000	0.000	0.010	0.010	27	4.375	0.000	0.000	0.000	0.000	0
23	183.1	0.000	0.000	0.059	0.059	938	46.65	0.000	0.000	0.020	0.020	81	4.228	0.000	0.000	0.000	0.000	0
24	181.8	0.000	0.000	0.017	0.017	267	27.80	0.000	0.000	0.014	0.014	32	3.552	0.000	0.000	0.000	0.000	0
25	195.8	0.000	0.000	0.020	0.020	338	27.04	0.000	0.000	0.010	0.010	23	3.437	0.000	0.000	0.000	0.000	0
26	192.2	0.000	0.000	0.018	0.018	291	41.20	0.000	0.000	0.020	0.020	71	3.260	0.000	0.000	0.000	0.000	0
27	107.5	0.000	0.000	0.016	0.016	151	24.89	0.000	0.000	0.010	0.010	22	8.476	0.000	0.000	0.000	0.000	0
28	173.6	0.000	0.000	0.061	0.061	919	24.55	0.000	0.000	0.010	0.010	21	3.185	0.000	0.000	0.000	0.000	0
29	163.3	0.000	0.000	0.038	0.038	541	23.95	0.000	0.000	0.010	0.010	21	3.023	0.000	0.000	0.000	0.000	0
30	162.3	0.000	0.000	0.033	0.033	467	37.30	0.000	0.000	0.015	0.015	48	2.812	0.000	0.000	0.000	0.000	0
31							19.29	0.000	0.000	0.032	0.032	53						
Ten Daily Mean																		
Ten Daily I	951.2	0.000	0.000	0.518	0.518	57969	98.80	0.000	0.000	0.068	0.068	561	16.86	0.000	0.000	0.014	0.014	21
Ten Daily II	356.1	0.000	0.000	0.104	0.104	3548	41.09	0.000	0.000	0.026	0.026	94	9.691	0.000	0.000	0.002	0.002	3
Ten Daily III	175.1	0.000	0.000	0.047	0.047	737	30.59	0.000	0.000	0.015	0.015	39	4.280	0.000	0.000	0.000	0.000	0
Monthly Total						622534						6974						237

Annual Sediment Load (Metric Tonnes) : 4788652

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Burhanpur (01 02 17 002) **Division : Tapi Div., Surat**

Local River : Tapi **Sub-Division : UTSD, Bhusawal**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	3.139	0.000	0.000	0.000	0.000	0	1.994	0.000	0.000	0.000	0.000	0	0.000					
2	3.067	0.000	0.000	0.000	0.000	0	2.005	0.000	0.000	0.000	0.000	0	0.000					
3	2.863	0.000	0.000	0.000	0.000	0	1.891	0.000	0.000	0.000	0.000	0	0.000					
4	6.514	0.000	0.000	0.000	0.000	0	1.877	0.000	0.000	0.000	0.000	0	0.000					
5	2.730	0.000	0.000	0.000	0.000	0	1.807	0.000	0.000	0.000	0.000	0	0.000					
6	5.908	0.000	0.000	0.000	0.000	0	1.922	0.000	0.000	0.000	0.000	0	0.000					
7	2.517	0.000	0.000	0.000	0.000	0	1.858	0.000	0.000	0.000	0.000	0	0.000					
8	2.286	0.000	0.000	0.000	0.000	0	0.998	0.000	0.000	0.000	0.000	0	0.000					
9	2.304	0.000	0.000	0.000	0.000	0	1.748	0.000	0.000	0.000	0.000	0	0.000					
10	2.137	0.000	0.000	0.000	0.000	0	1.680	0.000	0.000	0.000	0.000	0	0.000					
11	3.737	0.000	0.000	0.000	0.000	0	1.658	0.000	0.000	0.000	0.000	0	0.000					
12	1.980	0.000	0.000	0.000	0.000	0	1.597	0.000	0.000	0.000	0.000	0	0.000					
13	1.933	0.000	0.000	0.000	0.000	0	1.547	0.000	0.000	0.000	0.000	0	0.000					
14	1.875	0.000	0.000	0.000	0.000	0	1.515	0.000	0.000	0.000	0.000	0	0.000					
15	1.771	0.000	0.000	0.000	0.000	0	0.731	0.000	0.000	0.000	0.000	0	0.000					
16	1.664	0.000	0.000	0.000	0.000	0	1.587	0.000	0.000	0.000	0.000	0	0.000					
17	1.689	0.000	0.000	0.000	0.000	0	1.481	0.000	0.000	0.000	0.000	0	0.000					
18	2.387	0.000	0.000	0.000	0.000	0	1.439	0.000	0.000	0.000	0.000	0	0.000					
19	3.934	0.000	0.000	0.000	0.000	0	1.453	0.000	0.000	0.000	0.000	0	0.000					
20	2.856	0.000	0.000	0.000	0.000	0	0.000						0.000					
21	2.179	0.000	0.000	0.000	0.000	0	0.000						0.000					
22	2.176	0.000	0.000	0.000	0.000	0	0.000						0.000					
23	2.005	0.000	0.000	0.000	0.000	0	0.000						0.000					
24	1.943	0.000	0.000	0.000	0.000	0	0.000						0.000					
25	1.994	0.000	0.000	0.000	0.000	0	0.000						0.000					
26	2.079	0.000	0.000	0.000	0.000	0	0.000						0.000					
27	2.016	0.000	0.000	0.000	0.000	0	0.000						0.000					
28	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
29	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
30	0.000	0.000	0.000	0.000	0.000	0	0.000											
31	2.841	0.000	0.000	0.000	0.000	0	0.000											
Ten Daily Mean																		
Ten Daily I	3.347	0.000	0.000	0.000	0.000	0	1.778	0.000	0.000	0.000	0.000	0	0.000					
Ten Daily II	2.383	0.000	0.000	0.000	0.000	0	1.301	0.000	0.000	0.000	0.000	0	0.000					
Ten Daily III	1.567	0.000	0.000	0.000	0.000	0	0.000						0.000					
Monthly Total						0						0						

Annual Sediment Load (Metric Tonnes) : 4788652

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Burhanpur (01 02 17 002) **Division : Tapi Div., Surat**

Local River : Tapi **Sub-Division : UTSD, Bhusawal**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 4788652

Annual Sediment Load for period : 2005-2012

Station Name : Tapi at Burhanpur (01 02 17 002) **Division : Tapi Div., Surat**

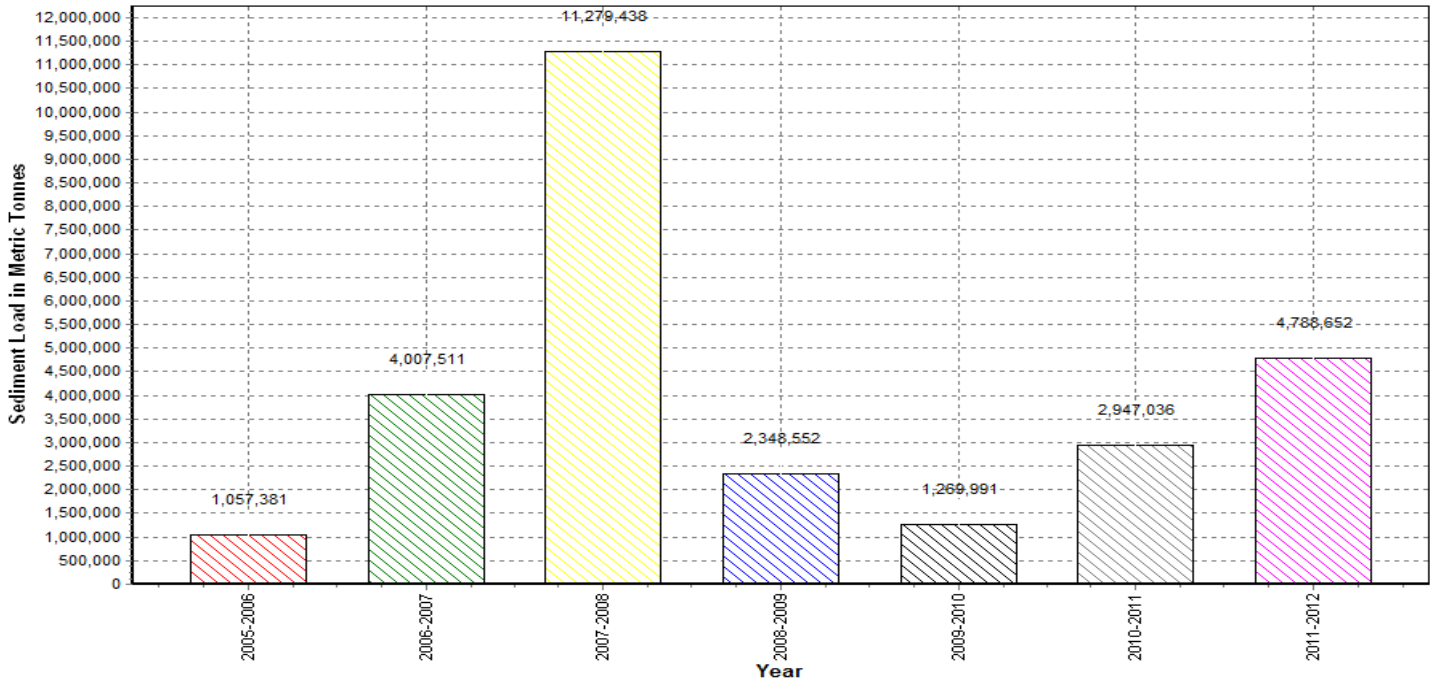
Local River : Tapi **Sub-Division : UTSD, Bhusawal**

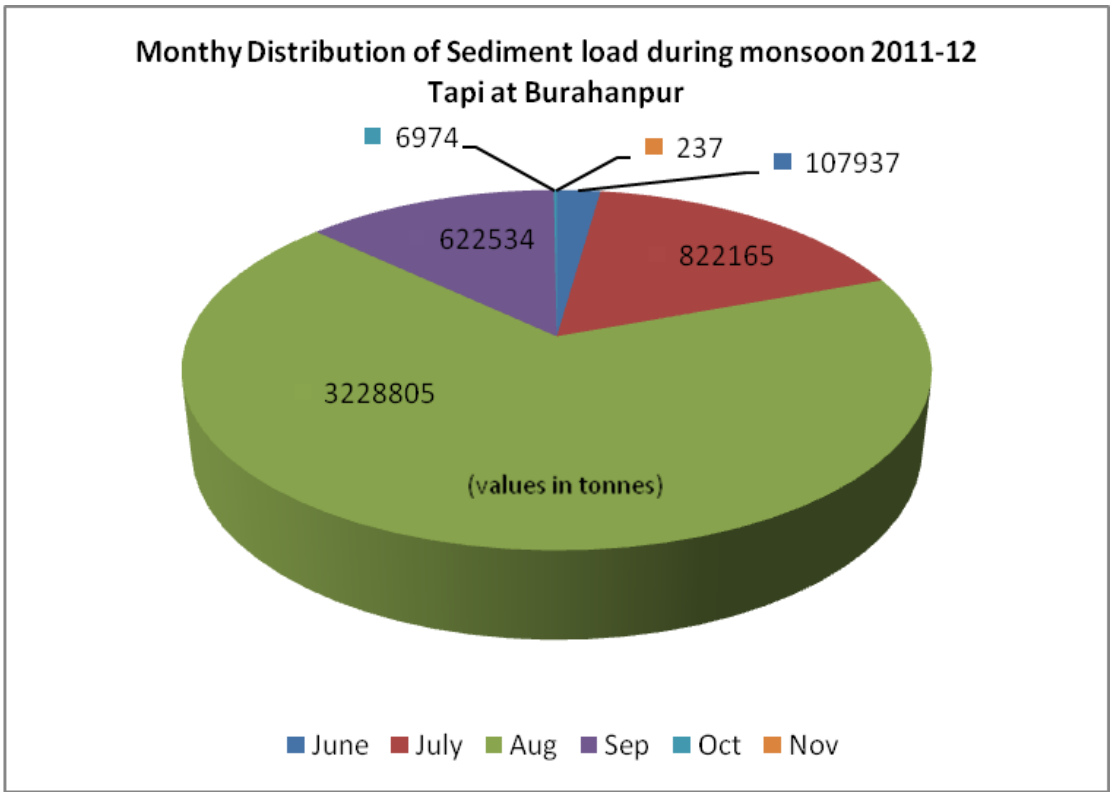
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	1056270	1110	1057381	3328	0.0890
2006-07	4006855	656	4007511	4905	0.3373
2007-08	11278315	1122	11279438	9797	0.9493
2008-09	2348162	390	2348552	2307	0.1977
2009-10	1268880	1111	1269991	2028	0.1069
2010-11	2946752	284	2947036	3983	0.2480
2011-12	4788652	0	4788652	5039	0.4030

Annual Sediment Load for the period: 2005-2012

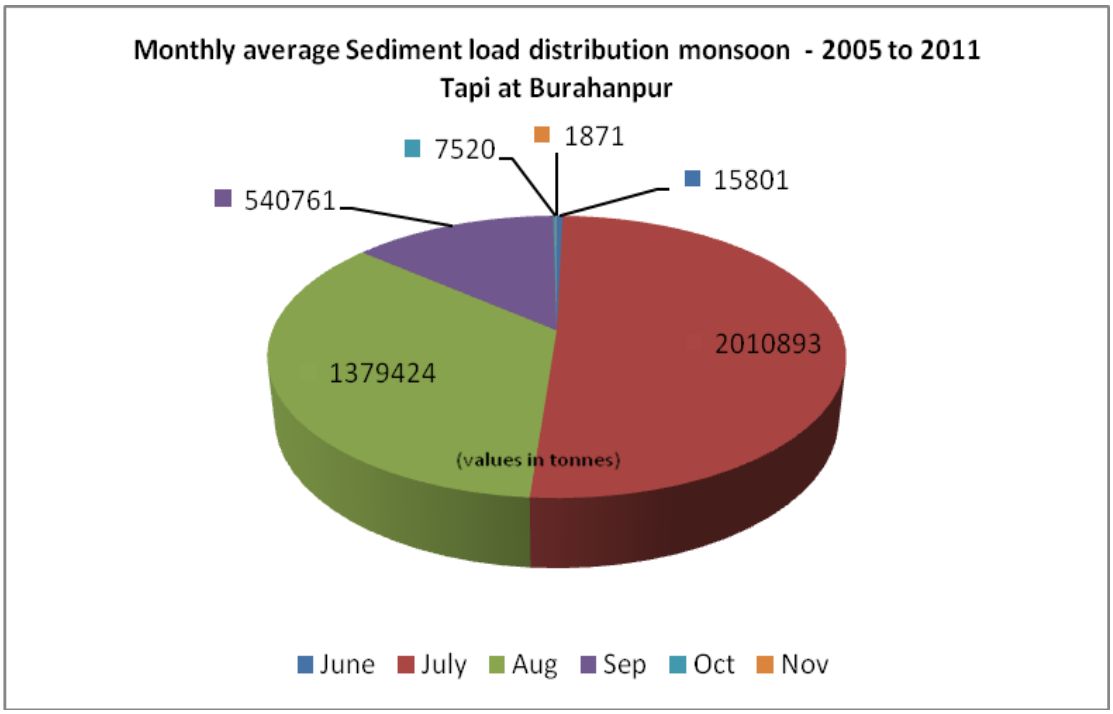
Station Name : Tapi at Burhanpur (01 02 17 002) **Division : Tapi Div., Surat**

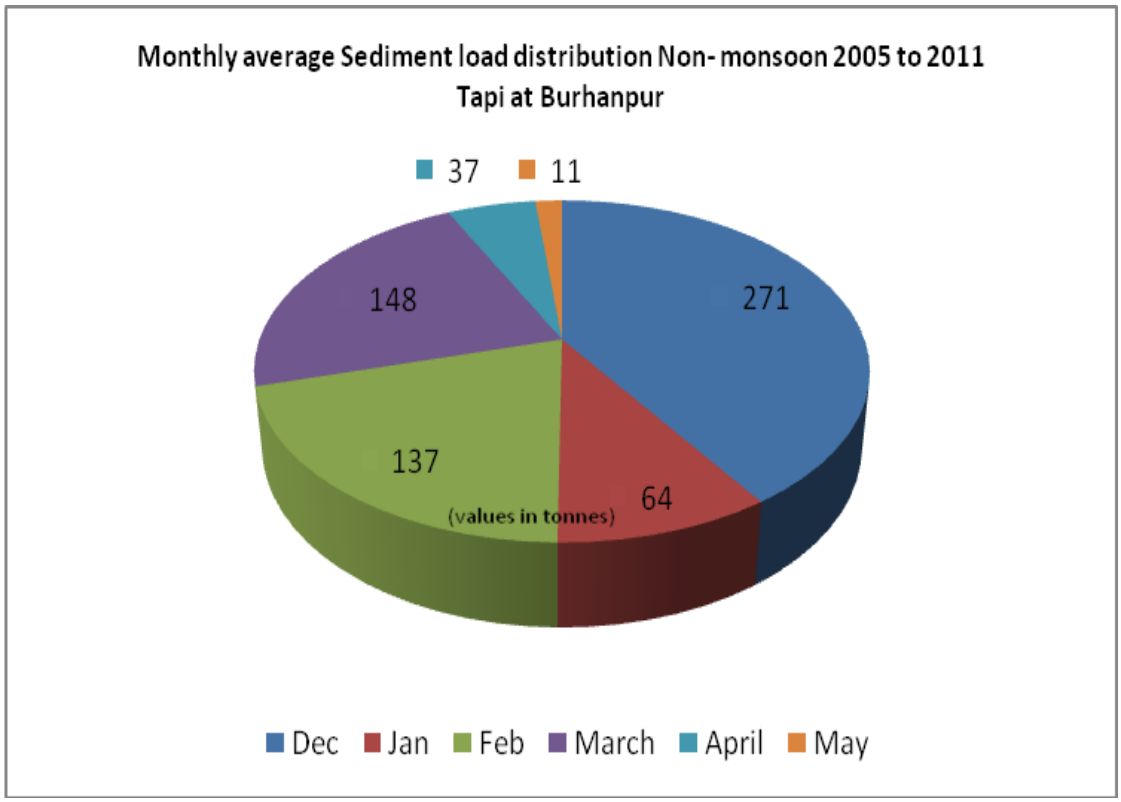
Local River : Tapi **Sub-Division : UTSD, Bhusawal**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Tapi at Burhanpur No sediment was observed in any month




Monthly average Sediment load distribution Non- monsoon 2005 to 2011
Tapi at Burhanpur
37
11
148
271
137
64
(values in tonnes)
Dec
Jan
Feb
March
April
May

HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Purna at Gopalkheda**	**Code**	**: 01 02 17 004**
State	: Maharashtra	District	Akola
Basin	: Tapi	Independent River	: Tapi
Tributary	: Purna	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Purna
Division	: Surat	Sub-Division	: Bhusawal
Drainage Area	: 9500 Sq. Km.	Bank	: Left
Latitude	: 20°52'35" N	Longitude	: 76°59'14" E
Zero of Gauge (m)	: 236 (m.s.l)	17-02-1977	-
	Opening Date	Closing Date	
Gauge	: 17-02-1977		
Discharge	: 17-02-1977		
Sediment	: 30-07-1979		
Water Quality	: 01-08-1979		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Gopalkheda (01 02 17 004) **Division : Surat**

Local River : Purna **Sub-Division : Bhusawal**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						44.30	0.000	0.000	2.146	2.146	8215
2	0.000						0.000						11.27	0.000	0.000	0.326	0.326	317
3	0.000						8.479	0.000	0.000	0.400	0.400	293	10.13	0.000	0.000	0.303	0.303	265
4	0.000						6.167	0.000	0.000	0.325	0.325	173	9.233	0.000	0.000	0.275	0.275	219
5	0.000						5.535	0.000	0.000	0.305	0.305	146	3.030	0.000	0.000	0.043	0.043	11
6	0.000						5.099	0.000	0.000	0.292	0.292	129	3.729	0.000	0.000	0.068	0.068	22
7	0.000						33.55	0.000	0.000	0.333	0.333	964	6.274	0.000	0.000	0.080	0.080	43
8	0.000						67.08	0.000	0.000	2.567	2.567	14876	9.379	0.000	0.000	0.296	0.296	240
9	0.000						73.36	0.000	0.000	2.717	2.717	17219	9.409	0.000	0.000	0.308	0.308	250
10	0.000						37.95	0.000	0.000	0.900	0.900	2951	13.39	0.000	0.000	0.334	0.334	386
11	0.000						9.173	0.000	0.000	0.075	0.075	59	14.72	0.000	0.000	0.423	0.423	538
12	0.000						2.608	0.000	0.000	0.033	0.033	8	13.68	0.000	0.000	0.334	0.334	395
13	0.000						1.625	0.000	0.000	0.058	0.058	8	10.79	0.000	0.000	0.330	0.330	307
14	0.000						2.363	0.000	0.000	0.150	0.150	31	9.680	0.000	0.000	0.300	0.300	251
15	0.000						222.8	0.000	0.000	2.000	2.000	38497	75.62	0.000	0.000	3.500	3.500	22868
16	0.000						55.82	0.000	0.000	0.700	0.700	3376	21.74	0.000	0.000	0.425	0.425	798
17	0.000						18.19	0.000	0.000	0.400	0.400	629	16.56	0.000	0.000	0.376	0.376	538
18	7.077	0.000	0.000	0.475	0.475	290	20.76	0.000	0.000	0.530	0.530	950	15.21	0.000	0.000	0.353	0.353	463
19	7.902	0.000	0.000	0.600	0.600	410	42.67	0.000	0.000	2.225	2.225	8202	13.83	0.000	0.000	0.358	0.358	428
20	1.650	0.000	0.000	0.392	0.392	56	21.39	0.000	0.000	0.543	0.543	1003	12.74	0.000	0.000	0.337	0.337	371
21	1.035	0.000	0.000	0.412	0.412	37	12.46	0.000	0.000	0.358	0.358	385	32.72	0.000	0.000	0.500	0.500	1413
22	1.041	0.000	0.000	0.074	0.074	7	20.68	0.000	0.000	0.475	0.475	849	25.48	0.000	0.000	0.400	0.400	881
23	0.000						10.57	0.000	0.000	0.091	0.091	83	22.99	0.000	0.000	0.411	0.411	816
24	0.000						8.188	0.000	0.000	0.050	0.050	35	81.49	0.000	0.000	2.674	2.674	18829
25	0.000						8.520	0.000	0.000	0.073	0.073	54	245.5	0.000	0.000	2.000	2.000	42418
26	0.000						13.44	0.000	0.000	0.368	0.368	427	400.3	0.000	0.000	4.200	4.200	145263
27	0.000						31.01	0.000	0.000	0.525	0.525	1406	164.8	0.000	0.000	1.800	1.800	25626
28	0.000						60.02	0.000	0.000	2.608	2.608	13526	401.9	0.000	0.000	4.200	4.200	145829
29	0.000						39.95	0.000	0.000	2.208	2.208	7622	768.2	0.000	0.000	7.500	7.500	497776
30	0.000						31.33	0.000	0.000	0.470	0.470	1271	268.5	0.000	0.000	2.400	2.400	55670
31							15.86	0.000	0.000	0.390	0.390	534	120.6	0.000	0.000	1.500	1.500	15633
Ten Daily Mean																		
Ten Daily I	0.000						23.72	0.000	0.000	0.980	0.980	4594	12.02	0.000	0.000	0.418	0.418	997
Ten Daily II	1.663	0.000	0.000	0.489	0.489	252	39.74	0.000	0.000	0.671	0.671	5276	20.46	0.000	0.000	0.674	0.674	2696
Ten Daily III	0.208	0.000	0.000	0.243	0.243	22	22.91	0.000	0.000	0.692	0.692	2381	230.2	0.000	0.000	2.508	2.508	86378
Monthly Total						799						115706						987082

Annual Sediment Load (Metric Tonnes) : 2016382

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Gopalkheda (01 02 17 004) **Division : Surat**

Local River : Purna **Sub-Division : Bhusawal**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	187.2	0.000	0.000	3.200	3.200	51763	9.362	0.000	0.000	0.063	0.063	51	1.629	0.000	0.000	0.003	0.003	0
2	177.9	0.000	0.000	2.000	2.000	30738	8.773	0.000	0.000	0.050	0.050	38	1.454	0.000	0.000	0.002	0.002	0
3	279.7	0.000	0.000	3.600	3.600	86994	9.036	0.000	0.000	0.076	0.076	60	1.246	0.000	0.000	0.000	0.000	0
4	184.3	0.000	0.000	3.000	3.000	47784	8.995	0.000	0.000	0.063	0.063	49	0.588	0.000	0.000	0.000	0.000	0
5	435.0	0.000	0.000	4.500	4.500	169141	8.668	0.000	0.000	0.053	0.053	40	0.411	0.000	0.000	0.000	0.000	0
6	690.7	0.000	0.000	6.600	6.600	393885	6.800	0.000	0.000	0.040	0.040	24	0.000					
7	179.5	0.000	0.000	2.000	2.000	31013	7.343	0.000	0.000	0.047	0.047	30	0.000					
8	92.40	0.000	0.000	2.711	2.711	21641	7.015	0.000	0.000	0.041	0.041	25	0.000					
9	72.79	0.000	0.000	2.141	2.141	13466	5.766	0.000	0.000	0.030	0.030	15	0.000					
10	64.98	0.000	0.000	1.908	1.908	10708	6.937	0.000	0.000	0.038	0.038	23	0.000					
11	49.33	0.000	0.000	1.400	1.400	5967	6.952	0.000	0.000	0.036	0.036	22	0.000					
12	50.94	0.000	0.000	1.521	1.521	6694	6.987	0.000	0.000	0.033	0.033	20	0.000					
13	45.19	0.000	0.000	0.475	0.475	1853	6.841	0.000	0.000	0.036	0.036	21	0.000					
14	24.77	0.000	0.000	0.408	0.408	874	6.651	0.000	0.000	0.033	0.033	19	0.000					
15	88.71	0.000	0.000	1.788	1.788	13703	6.279	0.000	0.000	0.030	0.030	16	0.000					
16	71.90	0.000	0.000	1.811	1.811	11252	4.803	0.000	0.000	0.020	0.020	8	0.000					
17	52.36	0.000	0.000	1.312	1.312	5934	5.986	0.000	0.000	0.025	0.025	13	0.000					
18	42.92	0.000	0.000	1.000	1.000	3708	5.800	0.000	0.000	0.020	0.020	10	0.000					
19	36.62	0.000	0.000	0.900	0.900	2848	5.746	0.000	0.000	0.020	0.020	10	0.000					
20	17.76	0.000	0.000	0.200	0.200	307	5.746	0.000	0.000	0.020	0.020	10	0.000					
21	15.73	0.000	0.000	0.180	0.180	245	5.406	0.000	0.000	0.018	0.018	8	0.000					
22	13.98	0.000	0.000	0.160	0.160	193	5.440	0.000	0.000	0.020	0.020	9	0.000					
23	22.21	0.000	0.000	0.196	0.196	376	4.128	0.000	0.000	0.010	0.010	4	0.000					
24	19.18	0.000	0.000	0.175	0.175	290	5.297	0.000	0.000	0.021	0.021	9	0.000					
25	15.12	0.000	0.000	0.100	0.100	131	5.198	0.000	0.000	0.020	0.020	9	0.000					
26	20.29	0.000	0.000	0.130	0.130	227	3.295	0.000	0.000	0.010	0.010	3	0.000					
27	15.63	0.000	0.000	0.166	0.166	225	4.188	0.000	0.000	0.015	0.015	5	0.000					
28	12.60	0.000	0.000	0.112	0.112	122	3.932	0.000	0.000	0.010	0.010	3	0.000					
29	10.29	0.000	0.000	0.094	0.094	84	3.503	0.000	0.000	0.008	0.008	2	0.000					
30	9.956	0.000	0.000	0.080	0.080	69	1.712	0.000	0.000	0.005	0.005	1	0.000					
31							1.845	0.000	0.000	0.020	0.020	3						
Ten Daily Mean																		
Ten Daily I	236.5	0.000	0.000	3.166	3.166	85713	7.870	0.000	0.000	0.050	0.050	35	0.533	0.000	0.000	0.001	0.001	0
Ten Daily II	48.05	0.000	0.000	1.081	1.081	5314	6.179	0.000	0.000	0.027	0.027	15	0.000					
Ten Daily III	15.50	0.000	0.000	0.139	0.139	196	3.995	0.000	0.000	0.014	0.014	5	0.000					
Monthly Total						912233						560						1

Annual Sediment Load (Metric Tonnes) : 2016382

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Gopalkheda (01 02 17 004) **Division : Surat**

Local River : Purna **Sub-Division : Bhusawal**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 2016382

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Gopalkheda (01 02 17 004) **Division : Surat**

Local River : Purna **Sub-Division : Bhusawal**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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					
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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																		

Annual Sediment Load (Metric Tonnes) : 2016382

Annual Sediment Load for period : 2005-2012

Station Name : Purna at Gopalkheda (01 02 17 004) **Division : Surat**

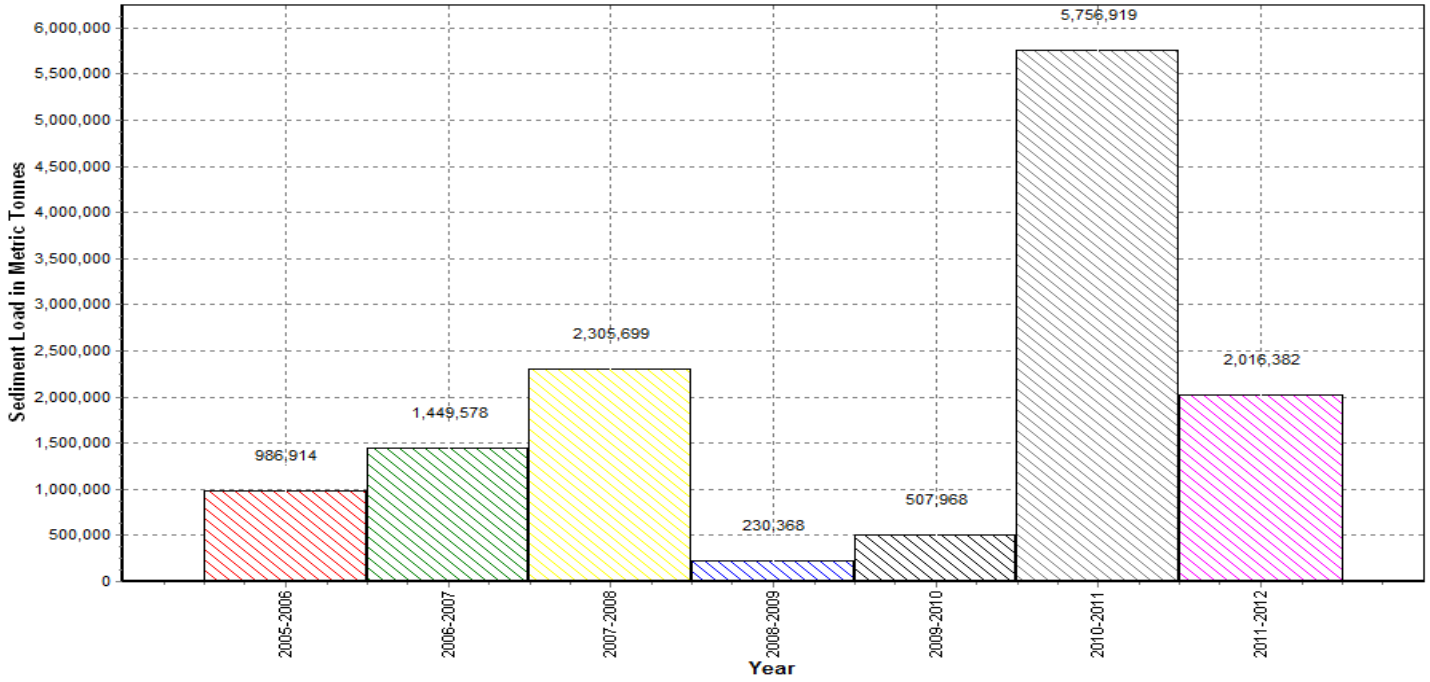
Local River : Purna **Sub-Division : Bhusawal**

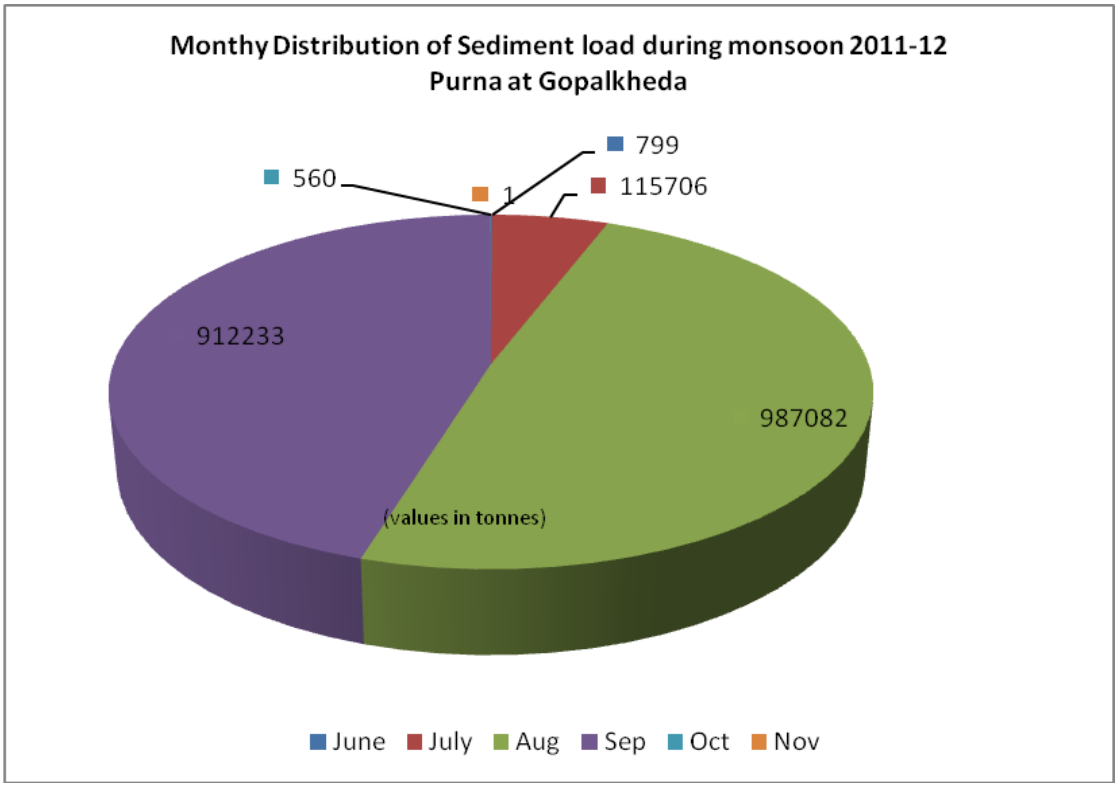
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	986687	227	986914	630	0.0742
2006-07	1449485	93	1449578	1986	0.1090
2007-08	2299615	6085	2305699	2827	0.1734
2008-09	230368	0	230368	211	0.0173
2009-10	507967	1	507968	295	0.0382
2010-11	5756871	48	5756919	1400	0.4329
2011-12	2016382	0	2016382	601	0.1516

Annual Sediment Load for the period: 2005-2012

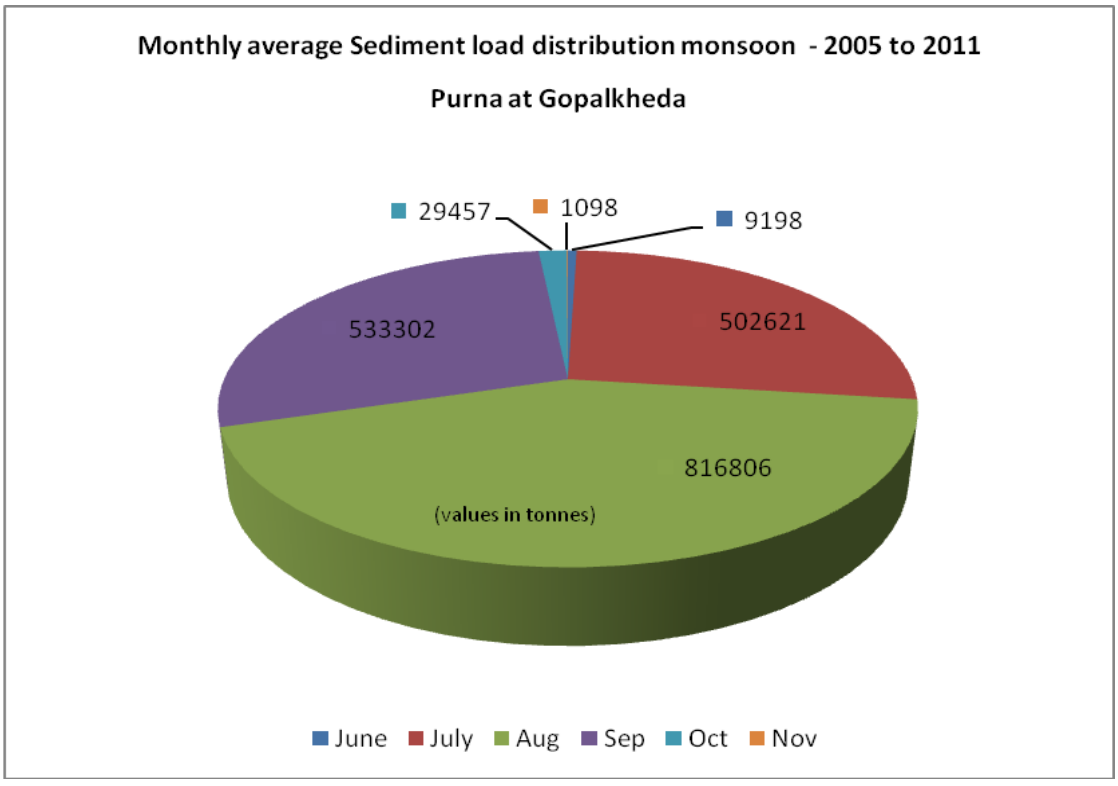
Station Name : Purna at Gopalkheda (01 02 17 004) **Division : Surat**

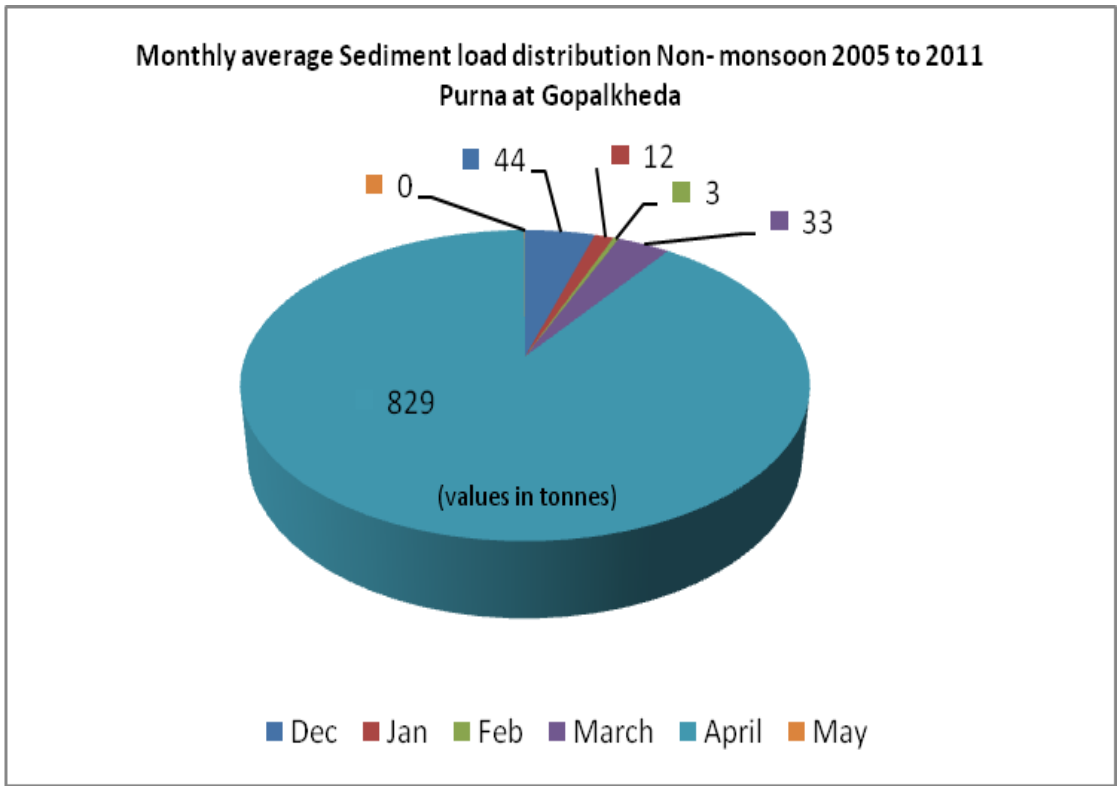
Local River : Purna **Sub-Division : Bhusawal**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Purna at Gopalkheda No sediment was observed in any month




Monthly average Sediment load distribution Non- monsoon 2005 to 2011
Purna at Gopalkheda
0
44
12
3
33
829
(values in tonnes)
Dec
Jan
Feb
March
April
May

HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Purna at Yerli**	**Code**	**: 01 02 17 005**
State	: Maharashtra	District	Buldana
Basin	: Tapi	Independent River	: Tapi
Tributary	: Purna	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Purna
Division	: Surat	Sub-Division	: Bhusawal
Drainage Area	: 16517 Sq. Km.	Bank	: Left
Latitude	: 20°56'11" N	Longitude	: 76°28'27" E
Zero of Gauge (m)	: 213 (m.s.l)	11-11-1971	-
	Opening Date	Closing Date	
Gauge	: 11-11-1971		
Discharge	: 01-03-1972		
Sediment	: 09-04-1973		
Water Quality	: 01-06-1977	31-05-2005	

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Yerli (01 02 17 005) **Division : Surat**

Local River : **Sub-Division : Bhusawal**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						25.12	0.000	0.000	0.387	0.387	839
2	0.000						0.000						27.31	0.000	0.000	0.320	0.320	755
3	0.000						0.000						21.46	0.000	0.000	0.269	0.269	498
4	0.000						0.000						20.06	0.000	0.000	0.254	0.254	440
5	0.000						0.000						10.07	0.000	0.000	0.235	0.235	204
6	0.000						0.000						7.979	0.000	0.000	0.176	0.176	121
7	0.000						0.000						5.322	0.000	0.000	0.100	0.100	46
8	0.000						0.000						8.527	0.000	0.000	0.182	0.182	134
9	0.000						100.8	0.000	0.000	1.647	1.647	14340	8.120	0.000	0.000	0.194	0.194	136
10	0.000						96.49	0.000	0.000	1.500	1.500	12504	7.459	0.000	0.000	0.177	0.177	114
11	0.000						22.32	0.000	0.000	0.397	0.397	765	8.314	0.000	0.000	0.163	0.163	117
12	0.000						19.67	0.000	0.000	0.318	0.318	540	8.227	0.000	0.000	0.194	0.194	138
13	0.000						420.2	0.000	0.000	2.045	2.045	74237	7.695	0.000	0.000	0.161	0.161	107
14	0.000						122.9	0.000	0.000	1.710	1.710	18158	8.025	0.000	0.000	0.180	0.180	125
15	0.000												7.541	0.000	0.000	0.150	0.150	98
16	0.000						94.57	0.000	0.000	0.864	0.864	7060	26.49	0.000	0.000	0.248	0.248	568
17	0.000						43.22	0.000	0.000	0.500	0.500	1867	20.93	0.000	0.000	0.232	0.232	419
18	0.000						174.6	0.000	0.000	1.228	1.228	18525	20.03	0.000	0.000	0.190	0.190	329
19	0.000						34.32	0.000	0.000	0.410	0.410	1216	17.19	0.000	0.000	0.220	0.220	327
20	0.000						26.38	0.000	0.000	0.311	0.311	710	14.66	0.000	0.000	0.180	0.180	228
21	0.000						22.68	0.000	0.000	0.304	0.304	596	20.33	0.000	0.000	0.200	0.200	351
22	0.000						22.00	0.000	0.000	0.251	0.251	476	47.39	0.000	0.000	0.500	0.500	2047
23	0.000						27.41	0.000	0.000	0.300	0.300	710	33.84	0.000	0.000	0.398	0.398	1163
24	0.000						25.76	0.000	0.000	0.280	0.280	623	30.48	0.000	0.000	0.525	0.525	1382
25	0.000						24.15	0.000	0.000	0.200	0.200	417	402.4	0.017	0.067	1.261	1.345	46773
26	0.000						10.18	0.000	0.000	0.234	0.234	206	184.5	0.000	0.000	0.640	0.640	10202
27	0.000						19.43	0.000	0.000	0.372	0.372	625	313.5	0.000	0.027	1.160	1.187	32160
28	0.000						80.71	0.000	0.000	0.607	0.607	4236	347.0	0.000	0.025	1.500	1.525	45726
29	0.000						61.72	0.000	0.000	0.562	0.562	2995	692.3	0.046	0.349	2.647	3.041	181920
30	0.000						26.77	0.000	0.000	0.401	0.401	928	707.6	0.050	0.360	2.870	3.280	200498
31							22.59	0.000	0.000	0.200	0.200	390	274.8	0.000	0.100	0.900	1.000	23740
Ten Daily Mean																		
Ten Daily I	0.000						19.73	0.000	0.000	1.573	1.573	13422	14.14	0.000	0.000	0.229	0.229	329
Ten Daily II	0.000						106.5	0.000	0.000	0.865	0.865	13675	13.91	0.000	0.000	0.192	0.192	246
Ten Daily III	0.000						31.22	0.000	0.000	0.337	0.337	1109	277.7	0.010	0.084	1.146	1.240	49633
Monthly Total												162127						551705

Annual Sediment Load (Metric Tonnes) : 1281173

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Yerli (01 02 17 005) **Division : Surat**

Local River : **Sub-Division : Bhusawal**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	254.2	0.000	0.000	1.510	1.510	33155	22.84	0.000	0.000	0.145	0.145	287	3.181	0.000	0.000	0.000	0.000	0
2	287.3	0.000	0.000	1.664	1.664	41305	18.18	0.000	0.000	0.100	0.100	157	3.056	0.000	0.000	0.000	0.000	0
3	199.7	0.000	0.000	0.958	0.958	16523	13.05	0.000	0.000	0.120	0.120	135	2.985	0.000	0.000	0.000	0.000	0
4	344.5	0.000	0.005	1.200	1.205	35868	11.90	0.000	0.000	0.121	0.121	125	2.928	0.000	0.000	0.000	0.000	0
5	400.9	0.030	0.156	1.173	1.359	47087	11.54	0.000	0.000	0.118	0.118	117	2.672	0.000	0.000	0.000	0.000	0
6	989.3	0.070	0.370	2.644	3.084	263598	13.57	0.000	0.000	0.090	0.090	105	0.000					
7	449.1	0.046	0.214	1.220	1.480	57439	10.82	0.000	0.000	0.101	0.101	95	0.000					
8	182.0	0.000	0.000	0.650	0.650	10227	10.38	0.000	0.000	0.099	0.099	89	0.000					
9	178.1	0.000	0.000	0.622	0.622	9570	11.20	0.000	0.000	0.100	0.100	97	0.000					
10	104.2	0.000	0.000	0.556	0.556	5007	9.436	0.000	0.000	0.102	0.102	83	0.000					
11	92.18	0.000	0.000	0.450	0.450	3584	9.131	0.000	0.000	0.107	0.107	84	0.000					
12	163.7	0.000	0.000	0.594	0.594	8396	8.883	0.000	0.000	0.107	0.107	82	0.000					
13	90.68	0.000	0.000	0.266	0.266	2086	6.413	0.000	0.000	0.110	0.110	61	0.000					
14	85.85	0.000	0.000	0.272	0.272	2018	5.907	0.000	0.000	0.083	0.083	42	0.000					
15	91.41	0.000	0.000	0.258	0.258	2040	5.629	0.000	0.000	0.082	0.082	40	0.000					
16	175.6	0.000	0.000	0.609	0.609	9237	4.154	0.000	0.000	0.050	0.050	18	0.000					
17	165.7	0.000	0.000	0.493	0.493	7061	5.446	0.000	0.000	0.078	0.078	37	0.000					
18	96.49	0.000	0.000	0.300	0.300	2501	5.439	0.000	0.000	0.070	0.070	33	0.000					
19	114.3	0.000	0.000	0.216	0.216	2136	5.173	0.000	0.000	0.060	0.060	27	0.000					
20	50.53	0.000	0.000	0.237	0.237	1035	4.993	0.000	0.000	0.050	0.050	22	0.000					
21	43.66	0.000	0.000	0.235	0.235	888	4.902	0.000	0.000	0.050	0.050	21	0.000					
22	37.27	0.000	0.000	0.226	0.226	728	4.736	0.000	0.000	0.040	0.040	16	0.000					
23	30.47	0.000	0.000	0.247	0.247	651	3.793	0.000	0.000	0.030	0.030	10	0.000					
24	27.45	0.000	0.000	0.227	0.227	538	4.684	0.000	0.000	0.089	0.089	36	0.000					
25	22.59	0.000	0.000	0.180	0.180	351	4.566	0.000	0.000	0.040	0.040	16	0.000					
26	28.89	0.000	0.000	0.242	0.242	604	3.793	0.000	0.000	0.030	0.030	10	0.000					
27	27.78	0.000	0.000	0.236	0.236	567	4.411	0.000	0.000	0.035	0.035	13	0.000					
28	27.10	0.000	0.000	0.232	0.232	544	4.181	0.000	0.000	0.030	0.030	11	0.000					
29	25.63	0.000	0.000	0.160	0.160	355	4.208	0.000	0.000	0.035	0.035	13	0.000					
30	24.56	0.000	0.000	0.156	0.156	331	3.447	0.000	0.000	0.040	0.040	12	0.000					
31							3.680	0.000	0.000	0.060	0.060	19						
Ten Daily Mean																		
Ten Daily I	338.9	0.015	0.075	1.220	1.309	51978	13.29	0.000	0.000	0.110	0.110	129	1.482	0.000	0.000	0.000	0.000	0
Ten Daily II	112.6	0.000	0.000	0.370	0.370	4009	6.117	0.000	0.000	0.080	0.080	45	0.000					
Ten Daily III	29.54	0.000	0.000	0.214	0.214	556	4.218	0.000	0.000	0.043	0.043	16	0.000					
Monthly Total						565429						1912						0

Annual Sediment Load (Metric Tonnes) : 1281173

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Yerli (01 02 17 005) **Division : Surat**

Local River : **Sub-Division : Bhusawal**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 1281173

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Yerli (01 02 17 005) **Division : Surat**

Local River : **Sub-Division : Bhusawal**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 1281173

Annual Sediment Load for period : 2005-2012

Station Name : Purna at Yerli (01 02 17 005) **Division : Surat**

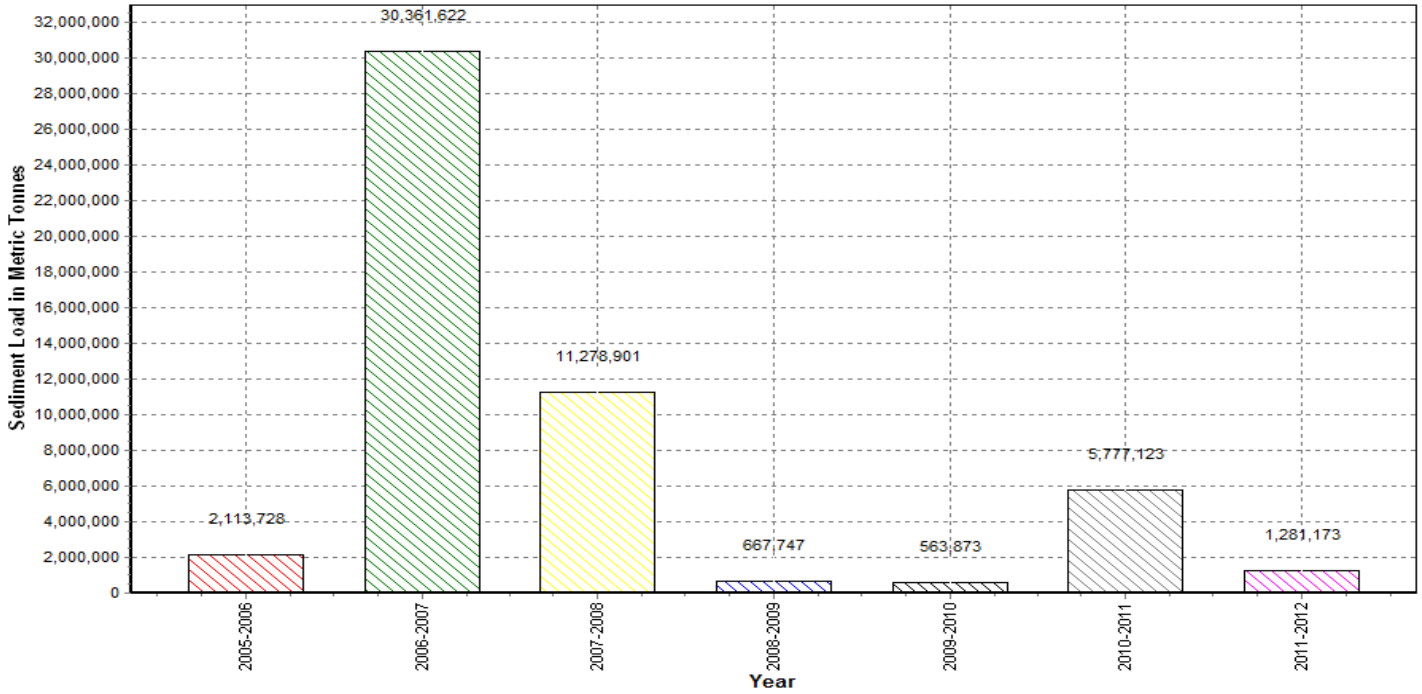
Local River : **Sub-Division : Bhusawal**

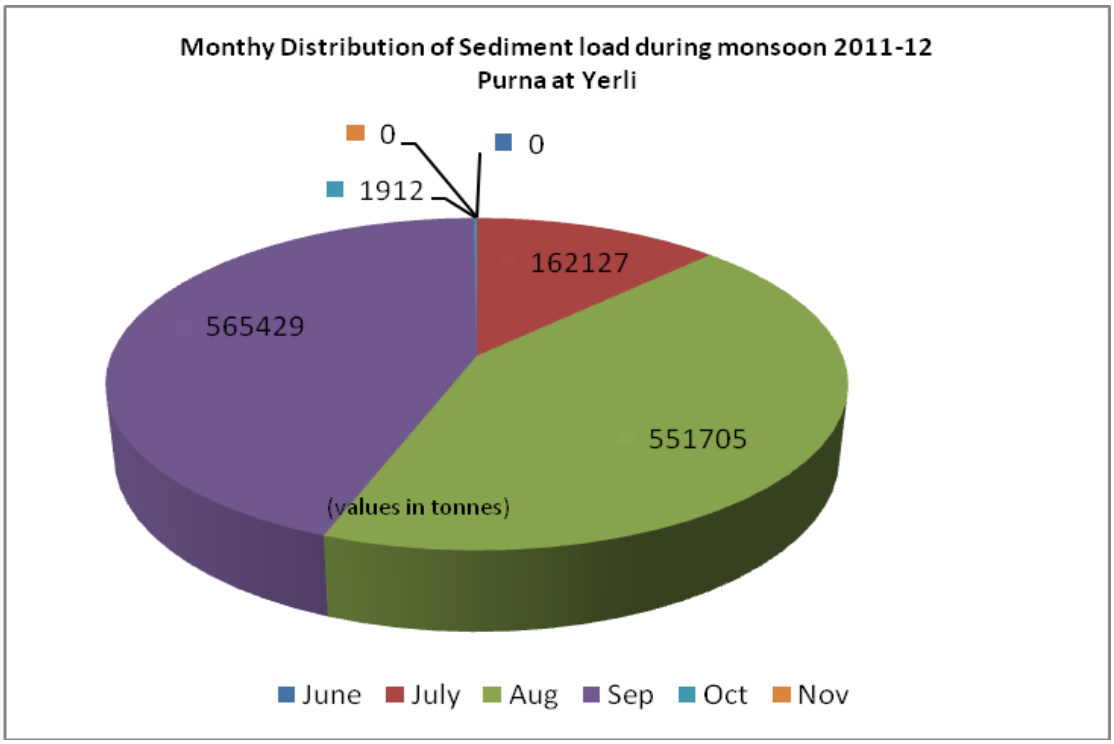
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	2110313	3415	2113728	1041	0.0914
2006-07	30361621	2	30361622	3518	1.3130
2007-08	11278856	45	11278901	3340	0.4878
2008-09	667747	0	667747	365	0.0289
2009-10	557587	6286	563873	640	0.0244
2010-11	5777103	20	5777123	2433	0.2498
2011-12	1281173	0	1281173	855	0.0554

Annual Sediment Load for the period: 2005-2012

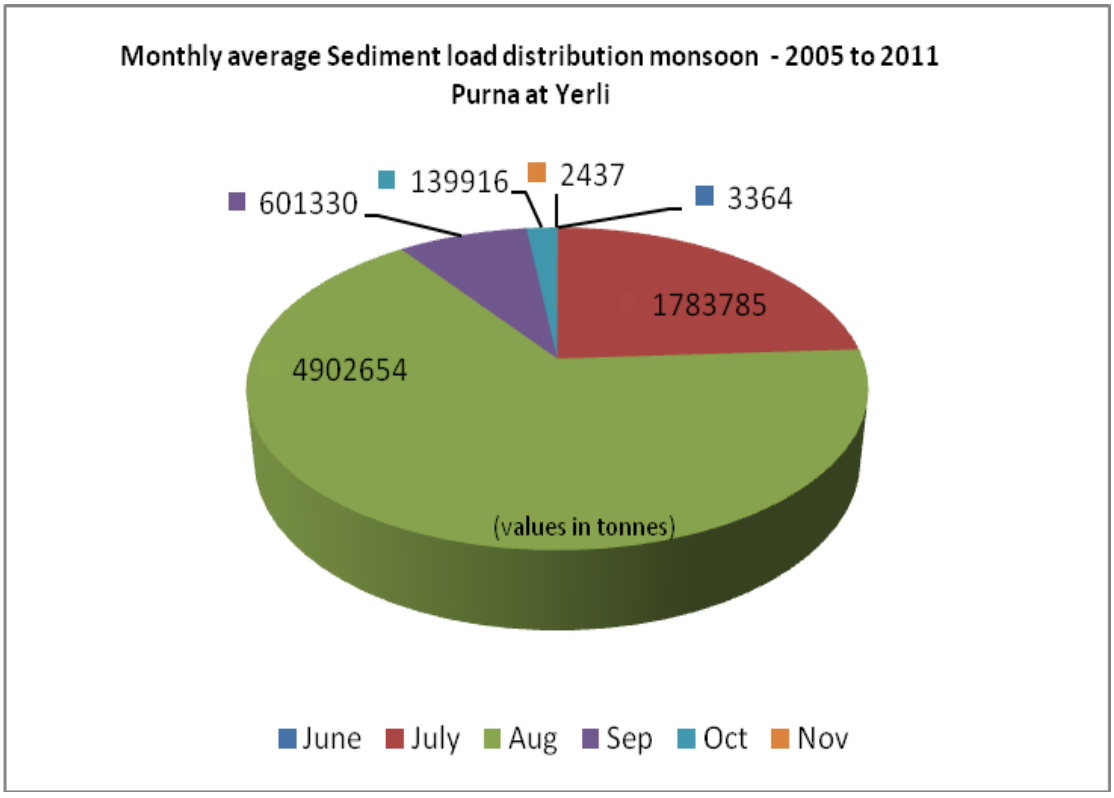
Station Name : Purna at Yerli (01 02 17 005) **Division : Surat**

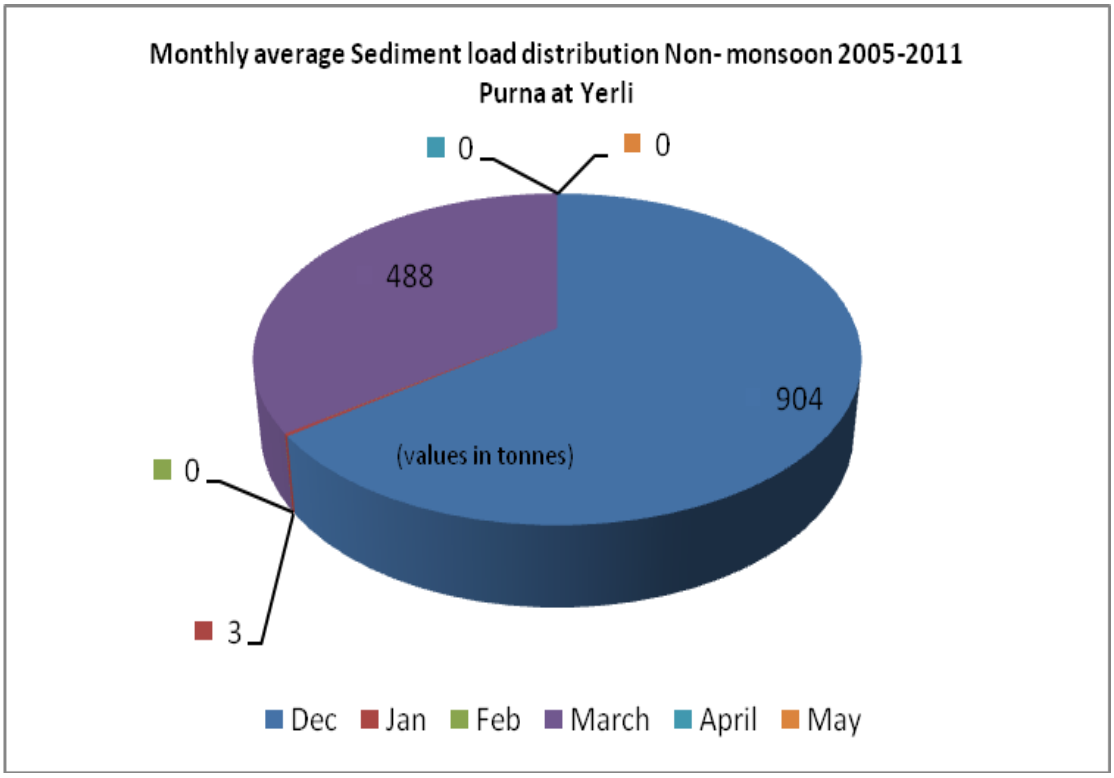
Local River : **Sub-Division : Bhusawal**




Monthy Distribution of Sediment load during monsoon 2011-12
Purna at Yerli
0
0
1912
162127
565429
551705
(values in tonnes)
June
July
Aug
Sep
Oct
Nov


Monthy Distribution of Sediment load during Non- monsoon 2011-12
Purna at Yerli No sediment was observed in any month


Monthly average Sediment load distribution monsoon - 2005 to 2011
Purna at Yerli
601330
139916
2437
3364
1783785
4902654
(values in tonnes)
June
July
Aug
Sep
Oct
Nov


Monthly average Sediment load distribution Non- monsoon 2005-2011
Purna at Yerli
0
0
488
904
(values in tonnes)
0
3
Dec
Jan
Feb
March
April
May

HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Tapi at Sarangkheda**	**Code**	**: 01 02 17 015**
State	: Maharashtra	District	Nandurbar
Basin	: Tapi	Independent River	: Tapi
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Tapi
Division	: Surat	Sub-Division	: MTSD, Dhule
Drainage Area	: 58400 Sq. Km.	Bank	: Right
Latitude	: 21°25'55" N	Longitude	: 74°31'37" E
Zero of Gauge (m)	: 108 (m.s.l)	21-09-1971	-
	Opening Date	Closing Date	
Gauge	: 29-07-1976		
Discharge	: 19-10-1977		
Sediment	: 13-07-1984		
Water Quality	: 01-01-1980		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Sarangkheda (01 02 17 015) **Division : Surat**

Local River : **Sub-Division : Dhule**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						16.60	0.000	0.000	0.005	0.005	7	319.5	0.000	0.000	0.198	0.198	5465
2	0.000						16.60	0.000	0.000	0.005	0.005	7	322.9	0.000	0.000	0.198	0.198	5523
3	0.000						0.000						318.2	0.000	0.000	0.120	0.120	3299
4	0.000						0.000						338.6	0.000	0.000	0.422	0.422	12346
5	0.000						0.000						282.3	0.000	0.000	0.058	0.058	1415
6	0.000						0.000						556.2	0.000	0.000	0.184	0.184	8843
7	0.000						79.55	0.000	0.000	0.013	0.013	89	680.0	0.000	0.000	0.250	0.250	14689
8	0.000						349.1	0.000	0.000	0.015	0.015	452	362.7	0.000	0.000	0.132	0.132	4137
9	0.000						305.9	0.000	0.000	0.081	0.081	2141	754.3	0.000	0.000	0.170	0.170	11080
10	0.000						497.4	0.000	0.000	1.000	1.000	42972	987.6	0.000	0.000	0.362	0.362	30888
11	0.000						387.7	0.000	0.000	0.025	0.025	838	535.2	0.000	0.000	0.222	0.222	10265
12	0.000						131.9	0.000	0.000	0.015	0.015	171	534.8	0.000	0.000	0.140	0.140	6468
13	0.000						202.8	0.000	0.000	0.096	0.096	1682	535.3	0.000	0.000	0.138	0.138	6382
14	0.000						176.9	0.000	0.000	0.045	0.045	688	497.4	0.000	0.000	0.100	0.100	4297
15	0.000						1409	0.000	0.000	4.166	4.166	507099	278.9	0.000	0.000	0.008	0.008	193
16	0.000						474.1	0.000	0.000	2.028	2.028	83070	969.5	0.000	0.000	0.318	0.318	26637
17	0.000						468.4	0.000	0.000	1.800	1.800	72842	532.0	0.000	0.000	0.230	0.230	10571
18	183.7	0.000	0.000	0.048	0.048	762	428.4	0.000	0.000	0.704	0.704	26059	319.8	0.000	0.000	0.028	0.028	774
19	304.4	0.000	0.000	0.200	0.200	5260	320.6	0.000	0.000	0.440	0.440	12189	327.0	0.000	0.000	0.054	0.054	1526
20	123.9	0.000	0.000	0.020	0.020	214	432.9	0.000	0.000	0.770	0.770	28798	330.1	0.000	0.000	0.124	0.124	3536
21	0.000						433.8	0.000	0.000	0.560	0.560	20991	357.0	0.000	0.000	0.150	0.150	4627
22	0.000						696.1	0.000	0.000	0.740	0.740	44505	304.4	0.000	0.000	0.100	0.100	2630
23	0.000						429.2	0.000	0.000	0.390	0.390	14461	545.3	0.000	0.000	0.230	0.230	10837
24	0.000						411.8	0.000	0.000	0.250	0.250	8894	392.6					
25	0.000						687.9	0.000	0.000	0.620	0.620	36851	1292	0.000	0.000	0.812	0.812	90635
26	0.000						788.3	0.000	0.000	0.340	0.340	23158	1907	0.000	0.060	1.400	1.460	240536
27	0.000						358.8	0.000	0.000	0.410	0.410	12710	2757	0.000	0.092	1.756	1.848	440280
28	0.000						322.8	0.000	0.000	0.660	0.660	18409	4404	0.000	0.100	2.945	3.045	1158687
29	16.60	0.000	0.000	0.005	0.005	7	667.4	0.000	0.000	1.946	1.946	112218	3736	0.000	0.090	1.336	1.426	460342
30	16.60	0.000	0.000	0.005	0.005	7	874.0	0.000	0.000	1.354	1.354	102240	3416	0.000	0.070	1.024	1.094	322875
31							411.8	0.000	0.000	0.250	0.250	8894	2573	0.000	0.030	0.800	0.830	184507
Ten Daily Mean																		
Ten Daily I	0.000						126.5	0.000	0.000	0.187	0.187	7612	492.2	0.000	0.000	0.209	0.209	9768
Ten Daily II	61.19	0.000	0.000	0.089	0.089	2078	443.3	0.000	0.000	1.009	1.009	73343	486.0	0.000	0.000	0.136	0.136	7065
Ten Daily III	3.321	0.000	0.000	0.005	0.005	7	552.9	0.000	0.000	0.684	0.684	36666	1971	0.000	0.044	1.055	1.100	291596
Monthly Total						6250						1182434						3084289

Annual Sediment Load (Metric Tonnes) : 5232408

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Sarangkheda (01 02 17 015) **Division : Surat**

Local River : **Sub-Division : Dhule**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	1766	0.000	0.000	0.582	0.582	88816	0.000						0.000					
2	2355	0.000	0.000	0.550	0.550	111906	0.000						0.000					
3	3342	0.000	0.000	0.814	0.814	235042	0.000						0.000					
4	3164	0.000	0.000	0.800	0.800	218716	0.000						0.000					
5	2734	0.000	0.000	0.532	0.532	125665	0.000						0.000					
6	2028	0.000	0.000	0.216	0.216	37850	0.000						0.000					
7	1875	0.000	0.000	0.210	0.210	34027	0.000						0.000					
8	1792	0.000	0.000	0.186	0.186	28795	0.000						0.000					
9	917.6	0.000	0.000	0.160	0.160	12685	0.000						0.000					
10	807.0	0.000	0.000	0.114	0.114	7948	0.000						0.000					
11	586.9	0.000	0.000	0.050	0.050	2535	0.000						0.000					
12	599.1	0.000	0.000	0.120	0.120	6211	0.000						0.000					
13	505.1	0.000	0.000	0.074	0.074	3229	0.000						0.000					
14	502.4	0.000	0.000	0.070	0.070	3039	0.000						0.000					
15	408.6	0.000	0.000	0.070	0.070	2471	0.000						0.000					
16	399.3	0.000	0.000	0.086	0.086	2967	0.000						0.000					
17	511.0	0.000	0.000	0.100	0.100	4415	0.000						0.000					
18	809.4	0.000	0.000	0.200	0.200	13986	0.000						0.000					
19	800.3	0.000	0.000	0.116	0.116	8021	0.000						0.000					
20	557.2	0.000	0.000	0.086	0.086	4141	0.000						0.000					
21	322.0	0.000	0.000	0.054	0.054	1502	0.000						0.000					
22	545.0	0.000	0.000	0.070	0.070	3296	0.000						0.000					
23	326.5	0.000	0.000	0.040	0.040	1128	0.000						0.000					
24	241.7	0.000	0.000	0.050	0.050	1044	0.000						0.000					
25	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
26	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
27	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
28	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
29	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
30	0.000	0.000	0.000	0.000	0.000	0	0.000						0.000					
31							0.000											
Ten Daily Mean																		
Ten Daily I	2078	0.000	0.000	0.416	0.416	90145	0.000						0.000					
Ten Daily II	567.9	0.000	0.000	0.097	0.097	5101	0.000						0.000					
Ten Daily III	143.5	0.000	0.000	0.021	0.021	697	0.000						0.000					
Monthly Total						959435												

Annual Sediment Load (Metric Tonnes) : 5232408

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Sarangkheda (01 02 17 015) **Division : Surat**

Local River : **Sub-Division : Dhule**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 5232408

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Tapi at Sarangkheda (01 02 17 015) **Division : Surat**

Local River : **Sub-Division : Dhule**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 5232408

Annual Sediment Load for period : 2005-2012

Station Name : Tapi at Sarangkheda (01 02 17 015) **Division : Surat**

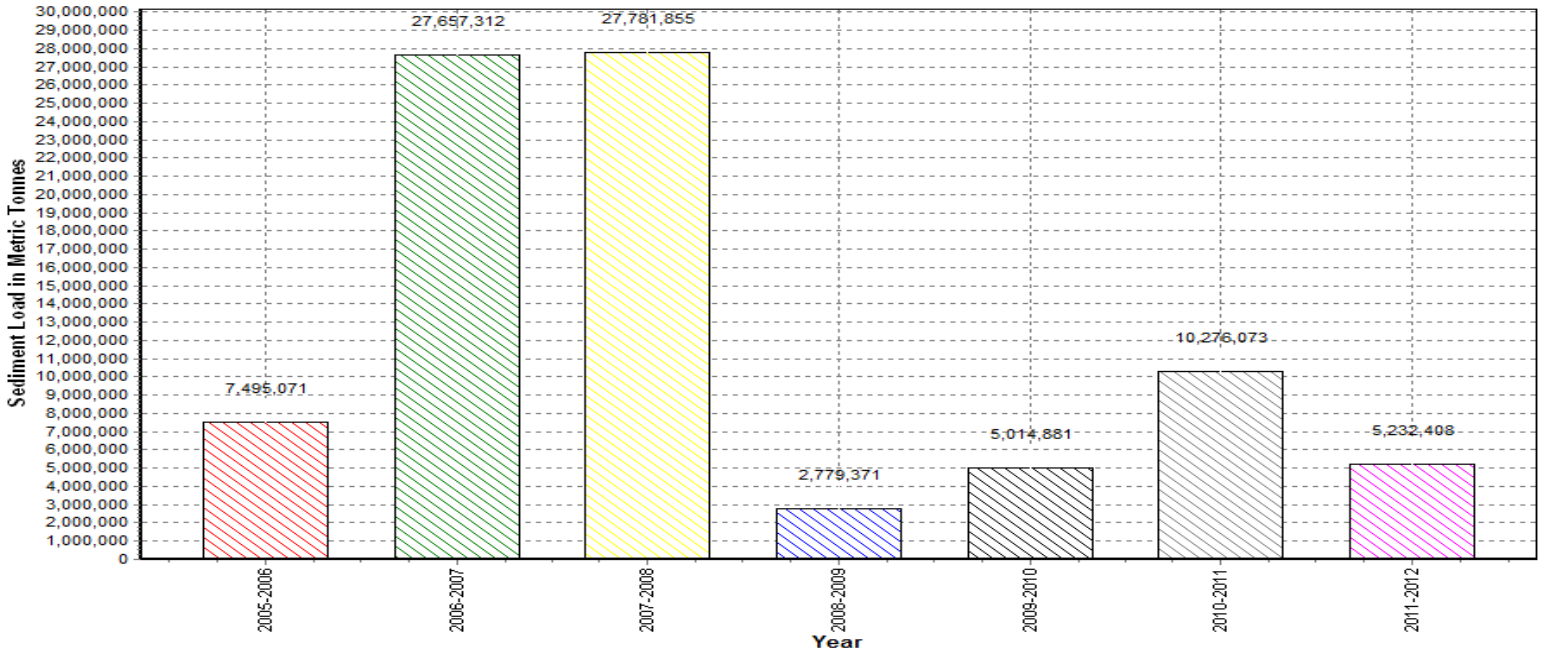
Local River : **Sub-Division : Dhule**

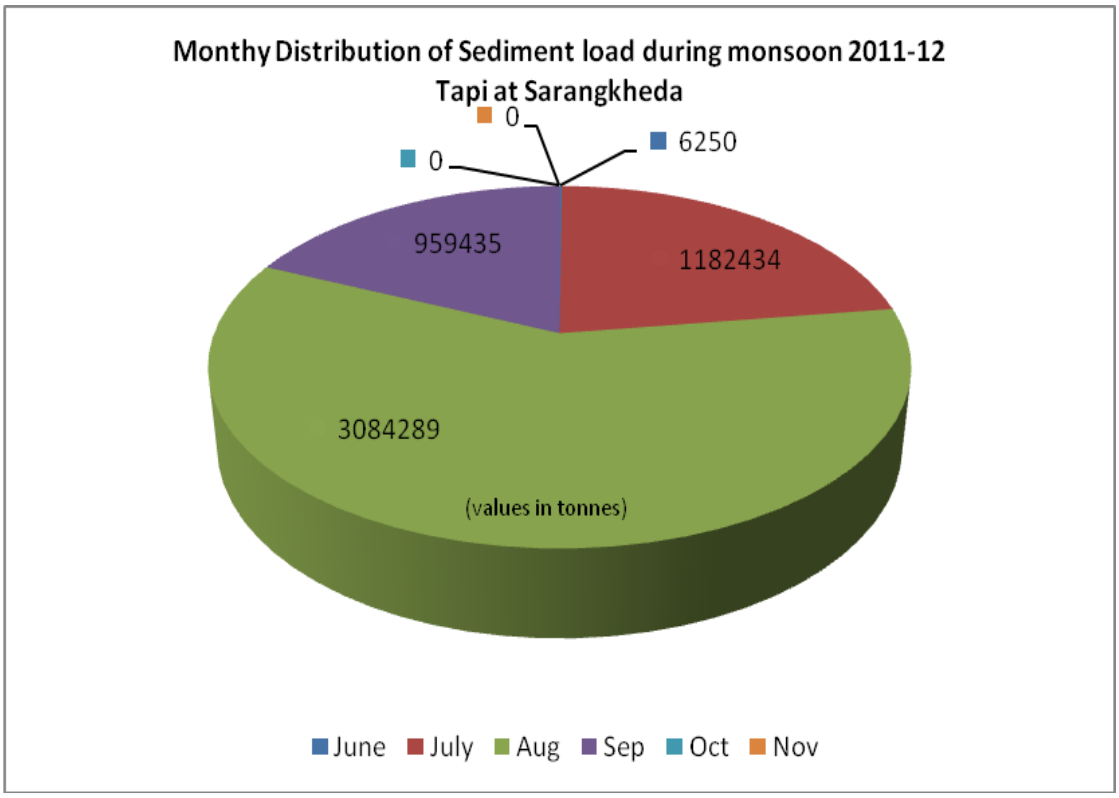
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	7495071	0	7495071	5043	0.0917
2006-07	27657085	227	27657312	17486	0.3383
2007-08	27781784	71	27781855	11414	0.3398
2008-09	2779371	0	2779371	3443	0.0340
2009-10	5014881	0	5014881	3071	0.0613
2010-11	10276073	0	10276073	7001	0.1257
2011-12	5232408	0	5232408	6202	0.0640

Annual Sediment Load for the period: 2005-2012

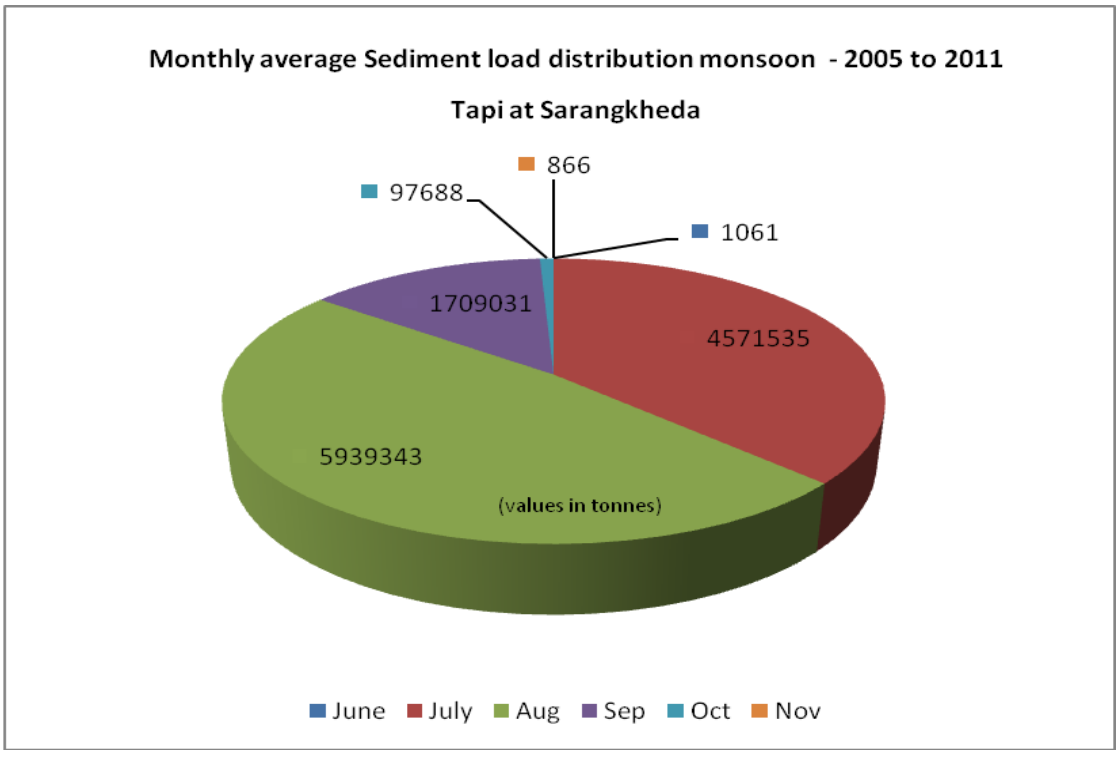
Station Name : Tapi at Sarangkheda (01 02 17 015) **Division : Surat**

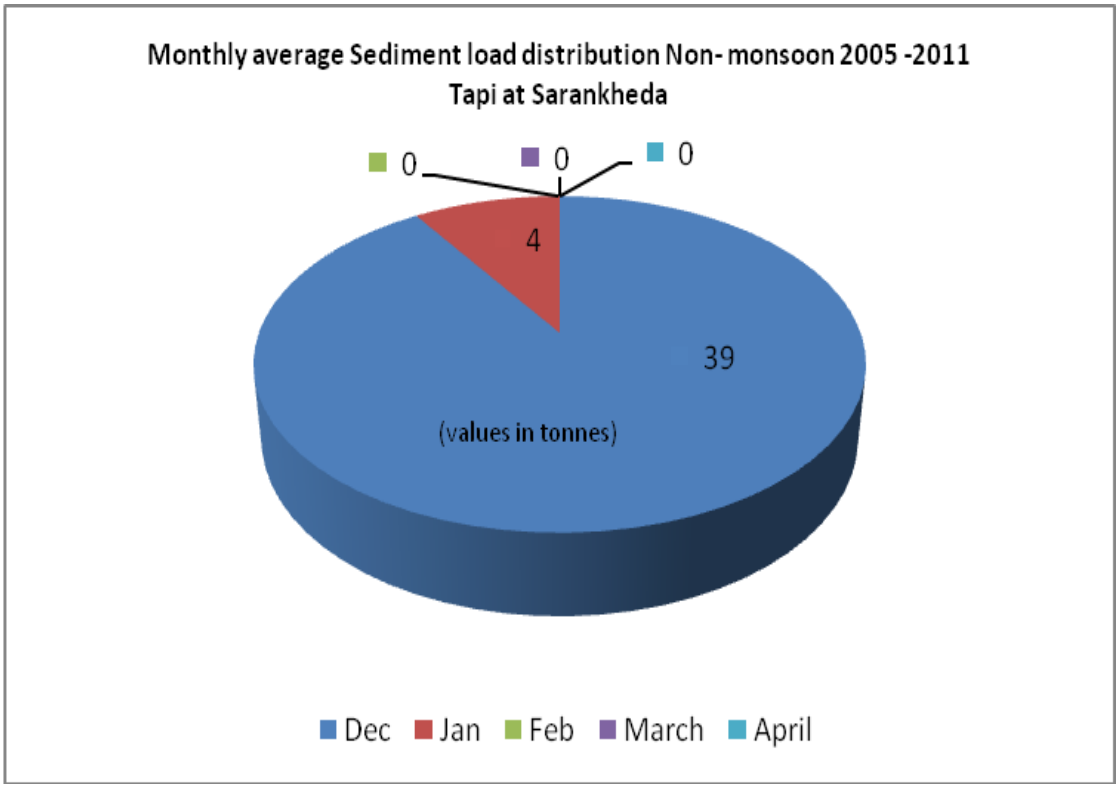
Local River : **Sub-Division : Dhule**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Tapi at Sarangkheda No sediment was observed in any month




Monthly average Sediment load distribution Non- monsoon 2005 -2011
Tapi at Sarankheda
0
0
0
4
39
(values in tonnes)
Dec
Jan
Feb
March
April

3 Banas Basin

The Banas river rises near Pindwara village in Sirohi district of Rajasthan at an elevation of 372.5 m above mean sea level. The total length of the river from origin to its outfall into the little Rann of Kachchh It drains an area of 8,674 sq km out of which nearly 38 % lies in Rajasthan State and the remaining 62 % falls in Gujarat state. The basin lies between the geographical co-ordinates of $71^0$15' to 73^0 15' east longitudes and 23^0 30' to 24^0 55' north latitudes. The river flows in a south – westerly direction and empties into little Rann of Kachchh. It is bounded by Luni basin in the north, Sarasvati basin in the south, Aravalli Hill ranges in the east and finally, Arabian Sea in the west.

The number of principal tributaries, which contribute significantly, is seven. Sipu is the only major tributary on the right bank. The other six tributaries namely Batria, Sukli, Sewaran, Suket, Balaram and Khari drain into the main channel from left bank. Hence draining system on the left bank of the Banas river is more extensive as compared to the right bank area.

The average rainfall in the Banas basin is 921 mm. Owing to topographical characteristics, the climate is variable. The Mount Abu is one of the coldest regions and is one of the famous hill stations of India.

The Dantiwada dam and Swaroopganj dam are two main irrigation structures existing on the main channel of Banas river. The earthen dam on river Sipu, a tributary of Banas, is another project, which is under progress.

There is one monitoring station at Kamalpur for analysis of sediment load of river Banas. A brief about the station is given in section- 4.3.1.

4.3.1. Banas at Kamalpur

The station has a Catchment area of 6,960 sq km. The sediment rating curve at the site is given in **Fig-18**.The maximum sediment concentration of 2.770 g/l was observed on 13.09.2011. The total sediment load during the year is 42,838 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0044 mm. Annual sediment yield over the period of observations is given in **Fig-19**. It is seen from the analysis that sediment yield does not follow any trend over the years. It is seen from **Fig-20** that only moderately strong positive correlation exists between annual yield and annual runoff.

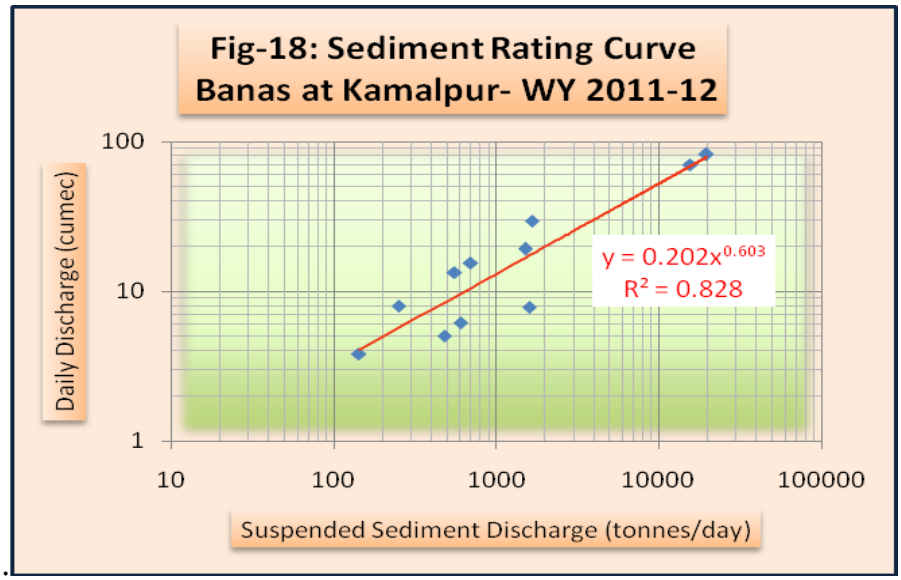


Fig-18: Sediment Rating Curve
Banas at Kamalpur- WY 2011-12
Daily Discharge (cumec)
100
10
1
10
100
1000
10000
100000
Suspended Sediment Discharge (tonnes/day)
y = 0.202x^0.603
R² = 0.828

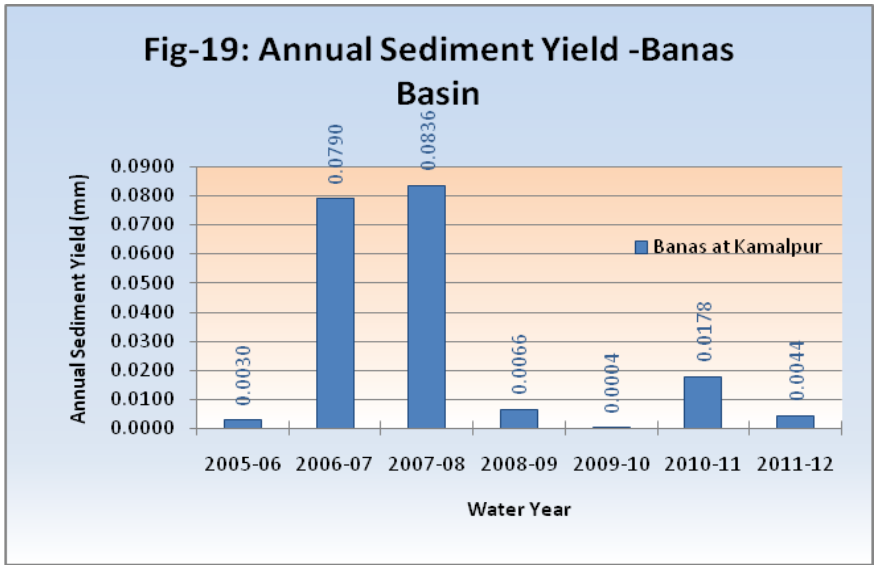


Fig-19: Annual Sediment Yield -Banas Basin
Annual Sediment Yield (mm)
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
0.0030
0.0790
0.0836
0.0066
0.0004
0.0178
0.0044
Banas at Kamalpur
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Water Year

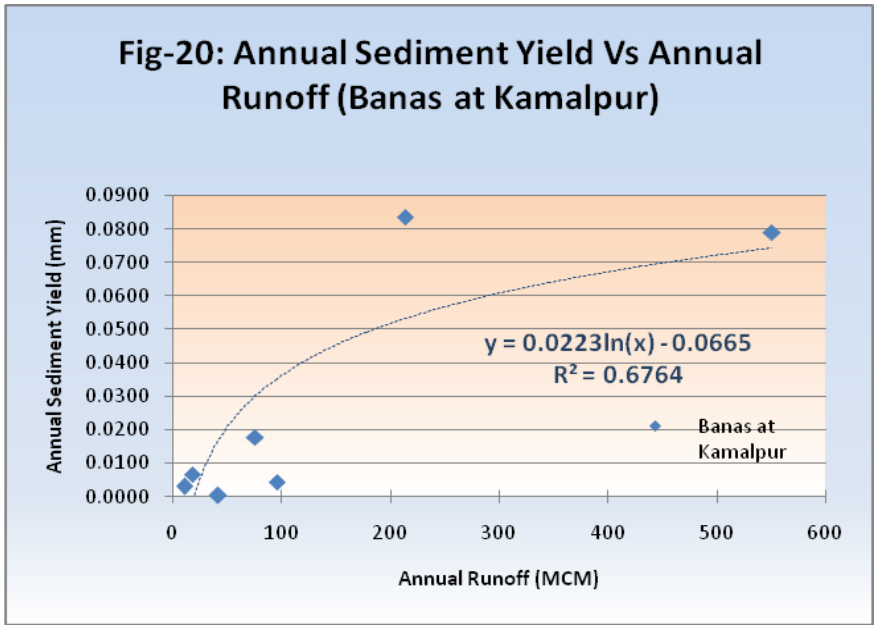
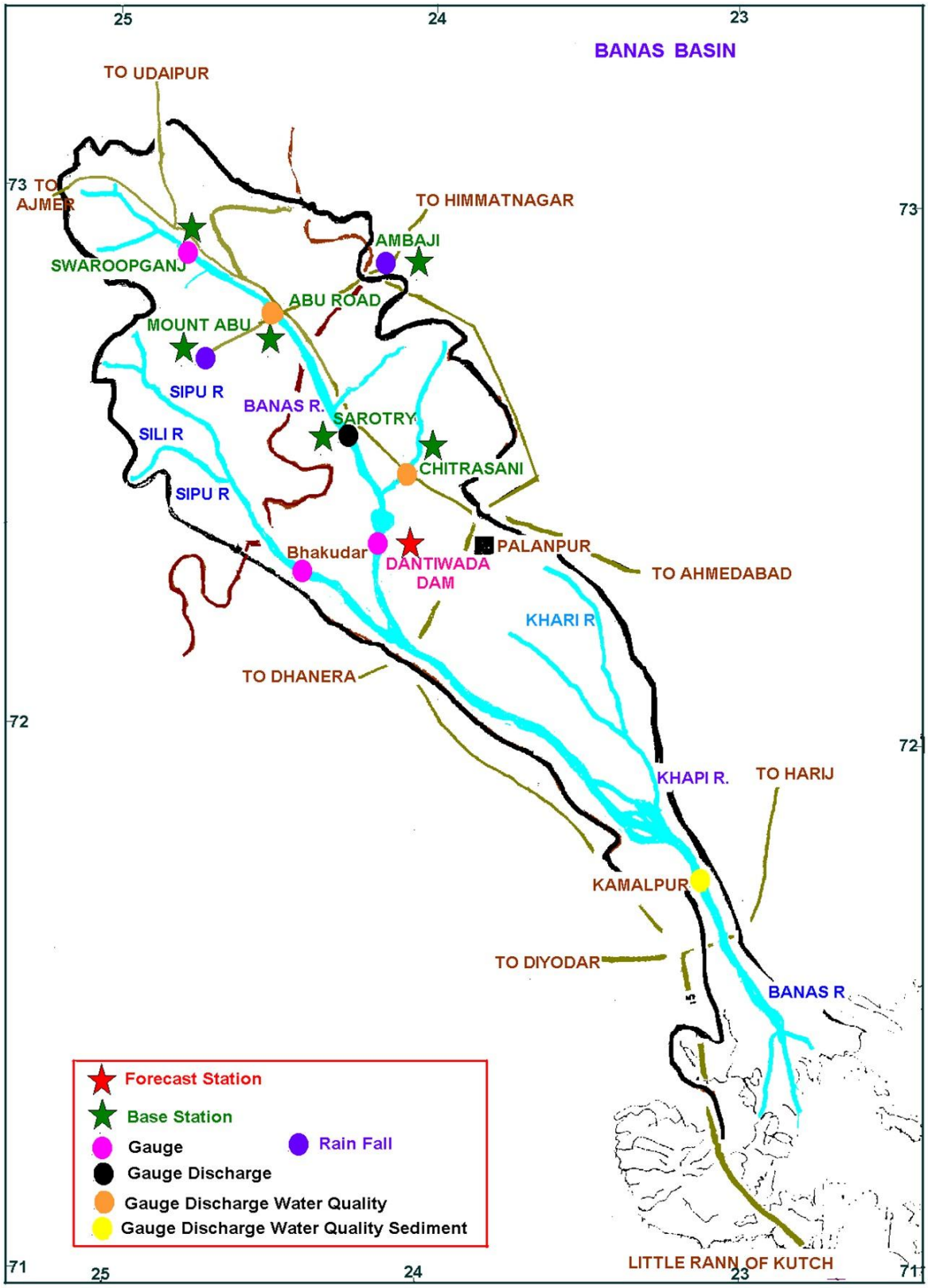


Fig-20: Annual Sediment Yield Vs Annual Runoff (Banas at Kamalpur)
Annual Sediment Yield (mm)
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
y = 0.0223ln(x) - 0.0665
R² = 0.6764
Banas at Kamalpur
0
100
200
300
400
500
600
Annual Runoff (MCM)

Plate – 4.3 Banas Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Banas at Kamalpur**	**Code**	**: 01 02 02 007**
State	: Gujarat	District	Banaskantha
Basin	: WFR of Kach.-Saur. & Luni	Independent River	: Banas
Tributary	: -	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Banas
Division	: Mahi Division, Gandhinagar	Sub-Division	: B.L.Sub Divn, Palanpur
Drainage Area	: 6960 Sq. Km.	Bank	: Right
Latitude	: 23°47'59" N	Longitude	: 71°45'00" E
Zero of Gauge (m)	: 34 (m.s.l)	01-06-1970	-
	Opening Date	Closing Date	
Gauge	: 21-07-1971		
Discharge	: 25-07-1971		
Sediment	: 25-08-1973		
Water Quality	: 01-06-1977		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Banas at Kamalpur (01 02 02 007) **Division : Mahi Division, Gandhinagar**

Local River : Banas **Sub-Division : B.L.Sub Divn, Palanpur**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						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						7.858	0.000	0.042	2.321	2.363	1604	0.000					
11	0.000						5.307	0.000	0.000	0.000	0.000	0	0.000					
12	0.000						2.645	0.000	0.000	0.000	0.000	0	6.151	0.000	0.000	1.146	1.146	609
13	0.000						5.139	0.000	0.000	0.000	0.000	0	3.819	0.000	0.000	0.435	0.435	144
14	0.000						5.592	0.000	0.000	0.000	0.000	0	5.060	0.000	0.000	1.100	1.100	481
15	0.000						3.923	0.000	0.000	0.000	0.000	0	15.48	0.000	0.087	0.437	0.524	700
16	0.000												70.19	0.052	0.192	2.330	2.574	15611
17	0.000												19.10	0.000	0.129	0.787	0.916	1512
18	0.000						0.000						8.034	0.000	0.000	0.362	0.362	251
19	0.000						0.000						13.51	0.000	0.000	0.000	0.000	0
20	0.000						0.000						16.54	0.000	0.000	0.000	0.000	0
21	0.000						0.000						17.24	0.000	0.000	0.000	0.000	0
22	0.000						0.000						22.79	0.000	0.000	0.000	0.000	0
23	0.000						0.000						29.45	0.145	0.212	0.295	0.652	1658
24	0.000						0.000						9.960	0.000	0.000	0.000	0.000	0
25	0.000						0.000						18.34	0.000	0.000	0.000	0.000	0
26	0.000						0.000						26.43	0.000	0.000	0.000	0.000	0
27	0.000						0.000						32.49	0.000	0.000	0.000	0.000	0
28	0.000						0.000						31.17	0.000	0.000	0.000	0.000	0
29	0.000						0.000						33.77	0.000	0.000	0.000	0.000	0
30	0.000						0.000						28.81	0.000	0.000	0.000	0.000	0
31							0.000						30.12	0.000	0.000	0.000	0.000	0
Ten Daily Mean																		
Ten Daily I	0.000						0.786	0.000	0.042	2.321	2.363	1604	0.000					
Ten Daily II	0.000						2.826	0.000	0.000	0.000	0.000	0	15.79	0.006	0.045	0.733	0.784	2145
Ten Daily III	0.000						0.000						25.51	0.013	0.019	0.027	0.059	151
Monthly Total												1604						20967

Annual Sediment Load (Metric Tonnes) : 42838

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Banas at Kamalpur (01 02 02 007)
Local River : Banas

Division : Mahi Division, Gandhinagar
Sub-Division : B.L.Sub Divn, Palanpur

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	26.65	0.000	0.000	0.000	0.000	0	15.07	0.000	0.000	0.000	0.000	0	0.000					
2	31.89	0.000	0.000	0.000	0.000	0	18.67	0.000	0.000	0.000	0.000	0	0.000					
3	32.28	0.000	0.000	0.000	0.000	0	13.74	0.000	0.000	0.000	0.000	0	0.000					
4	26.17	0.000	0.000	0.000	0.000	0	14.83	0.000	0.000	0.000	0.000	0	0.000					
5	10.11	0.000	0.000	0.000	0.000	0	14.90	0.000	0.000	0.000	0.000	0	0.000					
6	1.427	0.000	0.000	0.000	0.000	0	15.26	0.000	0.000	0.000	0.000	0	0.000					
7	0.000						15.18	0.000	0.000	0.000	0.000	0	0.000					
8	0.000						14.94	0.000	0.000	0.000	0.000	0	0.000					
9	0.000						11.79	0.000	0.000	0.000	0.000	0	0.000					
10	0.000						0.000						0.000					
11	2.580	0.000	0.000	0.000	0.000	0	0.000						0.000					
12	2.173	0.000	0.000	0.000	0.000	0	0.000						0.000					
13	82.36	0.000	0.058	2.713	**2.770**	19711	0.000						0.000					
14	13.40	0.000	0.028	0.453	0.481	556	4.940	0.000	0.000	0.000	0.000	0	0.000					
15	10.83	0.000	0.000	0.000	0.000	0	5.003	0.000	0.000	0.000	0.000	0	0.000					
16	14.86	0.000	0.000	0.000	0.000	0	5.350	0.000	0.000	0.000	0.000	0	0.000					
17	19.97	0.000	0.000	0.000	0.000	0	4.658	0.000	0.000	0.000	0.000	0	0.000					
18	12.87	0.000	0.000	0.000	0.000	0	5.495	0.000	0.000	0.000	0.000	0	0.000					
19	14.24	0.000	0.000	0.000	0.000	0	0.000						0.000					
20	18.00	0.000	0.000	0.000	0.000	0	0.000						0.000					
21	12.53	0.000	0.000	0.000	0.000	0	0.000						0.000					
22	8.065	0.000	0.000	0.000	0.000	0	0.000						0.000					
23	13.03	0.000	0.000	0.000	0.000	0	0.000						0.000					
24	15.54	0.000	0.000	0.000	0.000	0	0.000						0.000					
25	19.41	0.000	0.000	0.000	0.000	0	0.000						0.000					
26	18.61	0.000	0.000	0.000	0.000	0	0.000						0.000					
27	17.34	0.000	0.000	0.000	0.000	0	0.000						0.000					
28	15.41	0.000	0.000	0.000	0.000	0	0.000						0.000					
29	19.85	0.000	0.000	0.000	0.000	0	0.000						0.000					
30	17.65	0.000	0.000	0.000	0.000	0	0.000						0.000					
31							0.000											
Ten Daily Mean																		
Ten Daily I	12.85	0.000	0.000	0.000	0.000	0	13.44	0.000	0.000	0.000	0.000	0	0.000					
Ten Daily II	19.13	0.000	0.009	0.317	0.325	2027	2.545	0.000	0.000	0.000	0.000	0	0.000					
Ten Daily III	15.74	0.000	0.000	0.000	0.000	0	0.000						0.000					
Monthly Total						20267						0						

Annual Sediment Load (Metric Tonnes) : 42838

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Banas at Kamalpur (01 02 02 007) **Division : Mahi Division, Gandhinagar**

Local River : Banas **Sub-Division : B.L.Sub Divn, Palanpur**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 42838

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Banas at Kamalpur (01 02 02 007)
Local River : Banas

Division : Mahi Division, Gandhinagar
Sub-Division : B.L.Sub Divn, Palanpur

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 42838

Annual Sediment Load for period : 2005-2012

Station Name : Banas at Kamalpur (01 02 02 007) **Division : Mahi Division, Gandhinagar**

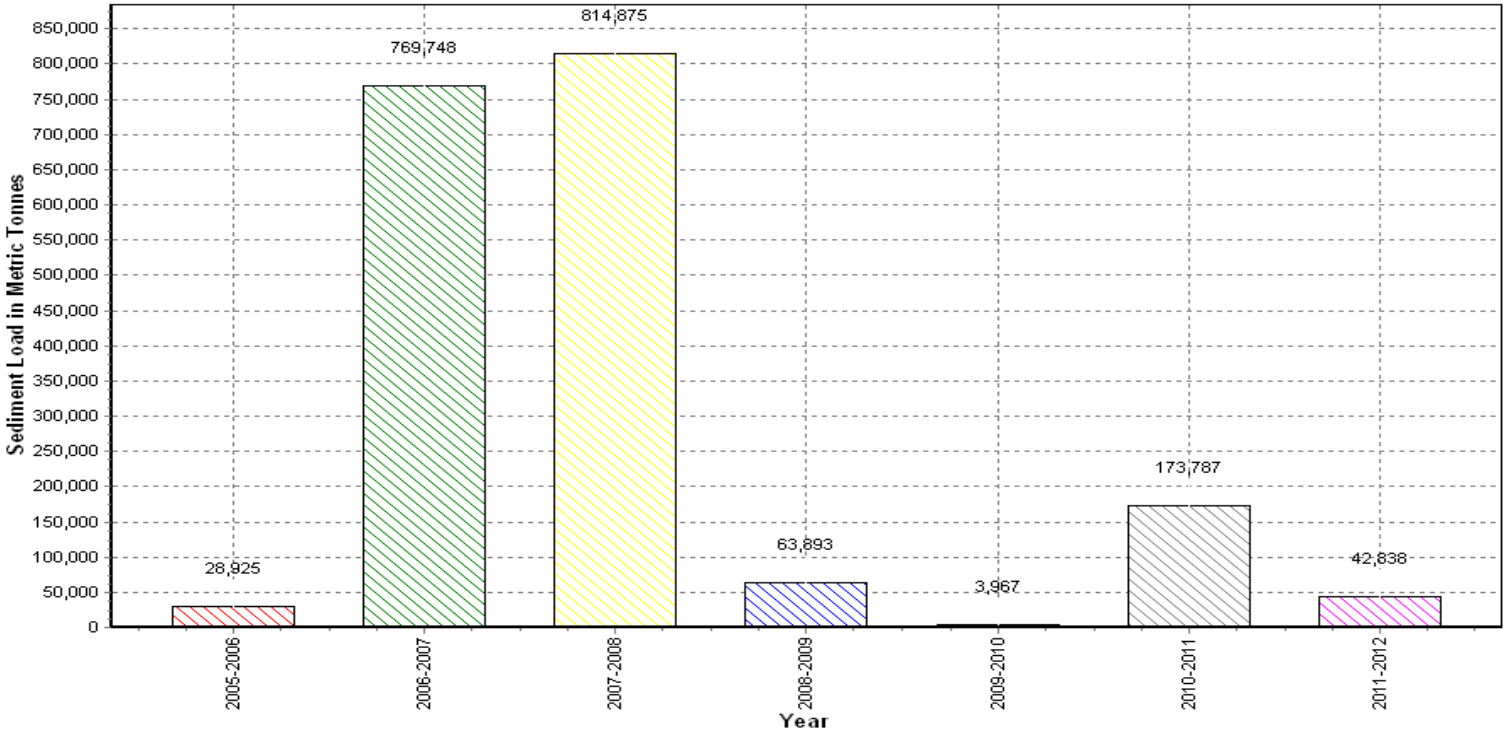
Local River : Banas **Sub-Division : B.L.Sub Divn, Palanpur**

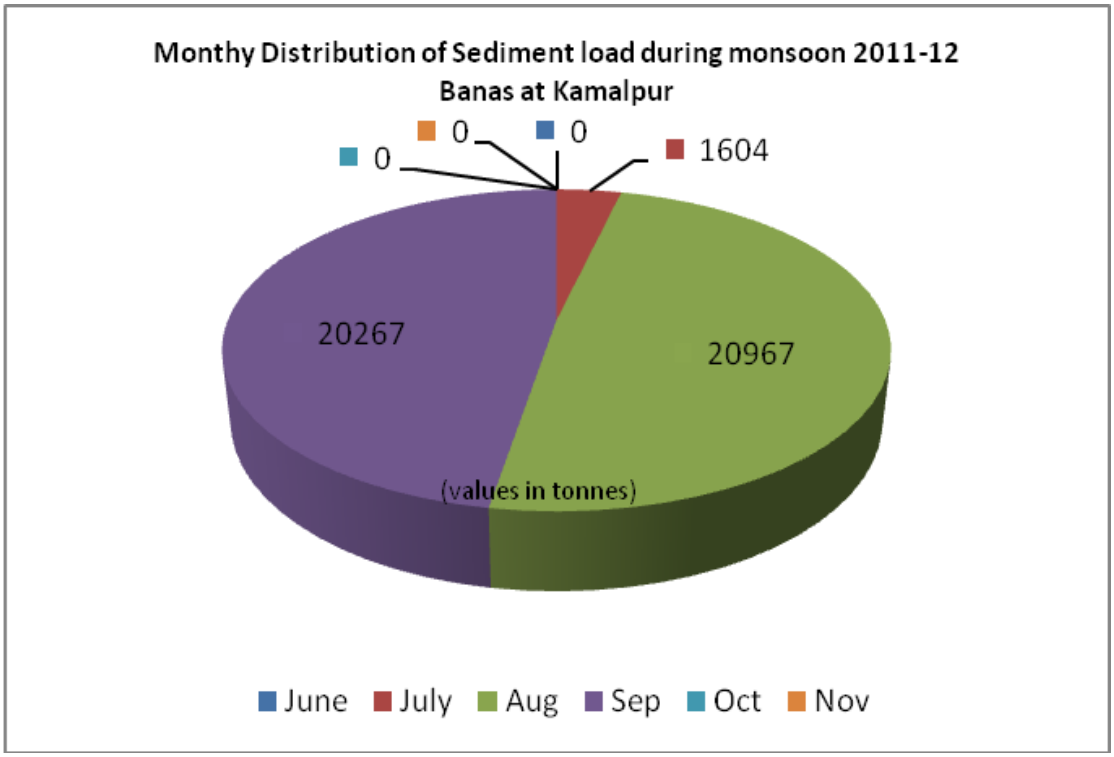
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	28925	0	28925	11	0.0030
2006-07	769748	0	769748	551	0.0790
2007-08	814875	0	814875	214	0.0836
2008-09	63893	0	63893	18	0.0066
2009-10	3560	407	3967	42	0.0004
2010-11	173787	0	173787	78	0.0178
2011-12	42838	0	42838	96	0.0044

Annual Sediment Load for the period: 2005-2012

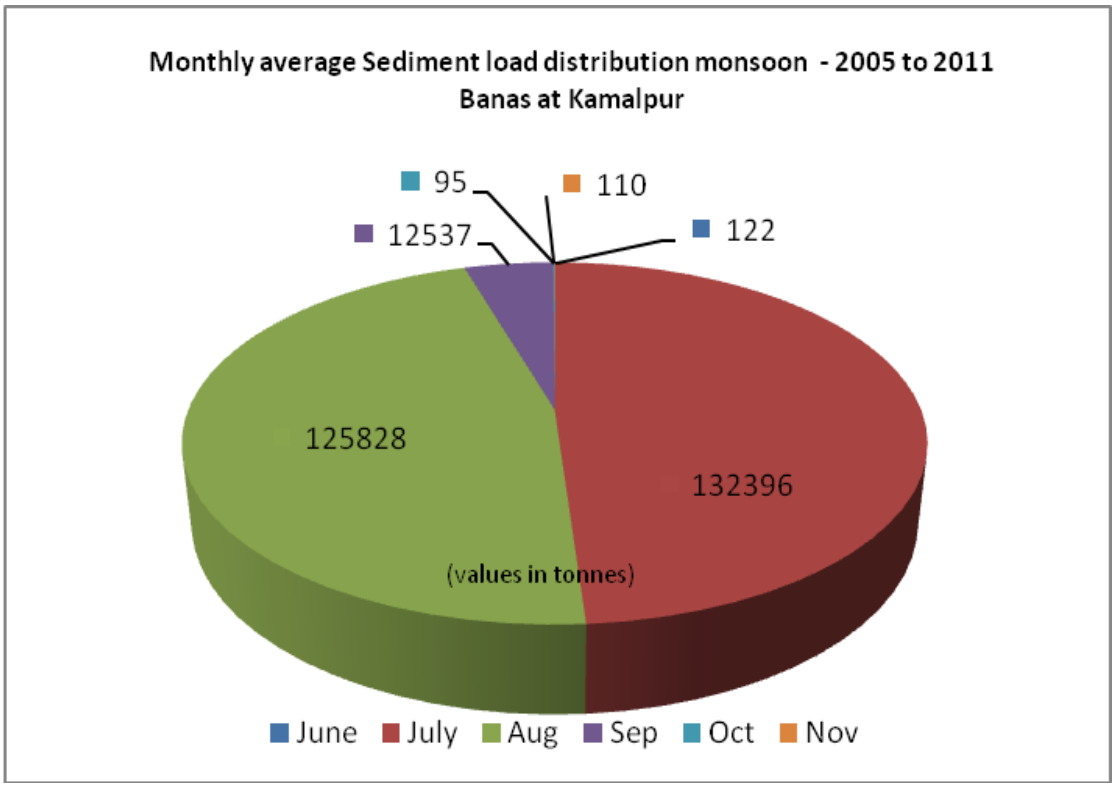
Station Name : Banas at Kamalpur (01 02 02 007)
Local River : Banas

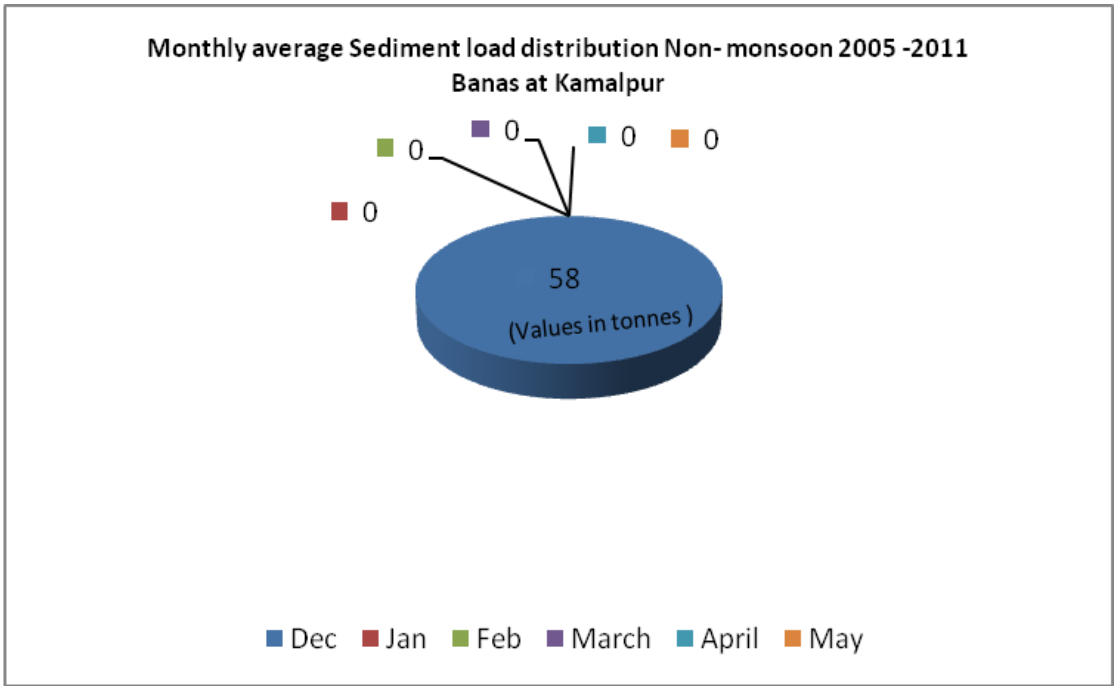
Division : Mahi Division, Gandhinagar
Sub-Division : B.L.Sub Divn, Palanpur





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Banas at Kamalpur No sediment was observed in any month




Monthly average Sediment load distribution Non- monsoon 2005 -2011
Banas at Kamalpur
0
0
0
0
0
58
(Values in tonnes)
Dec
Jan
Feb
March
April
May

4.4 Bhadar Basin

The Bhadar is one of the major rivers of Kathaiwar (Saurashtra) peninsula in Gujarat. It originates near Vaddi (Aniali Village) about 26 km north – west of Jasdan in Rajkot district at an elevation of 261 m above mean sea level.

It flows towards South up to Jasdan and turns towards south - west upto Jetpur and finally changes its direction towards west till its confluence with Arabian sea at Naviobandar (Porbandar). The total length of this river is 198 km. It has a drainage area of 7094 sq.km out of which 706 sq km is in hilly and the rest in plain regions of Saurashtra. The basin lies between geographical co-ordinates of 21^0 25' and 22^0 10' north latitudes and 69^0 45' and 71^0 20' east longitudes. It drains about $1/7^{th}$ of the area of Saurashtra.

The Bhadar receives several tributaries on both the banks. There are 9 major tributaries having lengths more than 25 km out of which 6 tributaries namely Gandali, Chapparwadi, Phopal, Utawali, Moj and Venu are feeding from the right and the remaining 3 tributaries namely Vasavadi, Surwa and Galolio from the left. The drainage system of the river on right bank is more extensive as compared to the left bank.

The average rainfall in Bhadar basin is 625 mm. In winter the temperature vary between 4^0C and 15^0C in different Parts of the region. May is the hottest month. Maximum temperature varies between 40^0C and 45^0C.

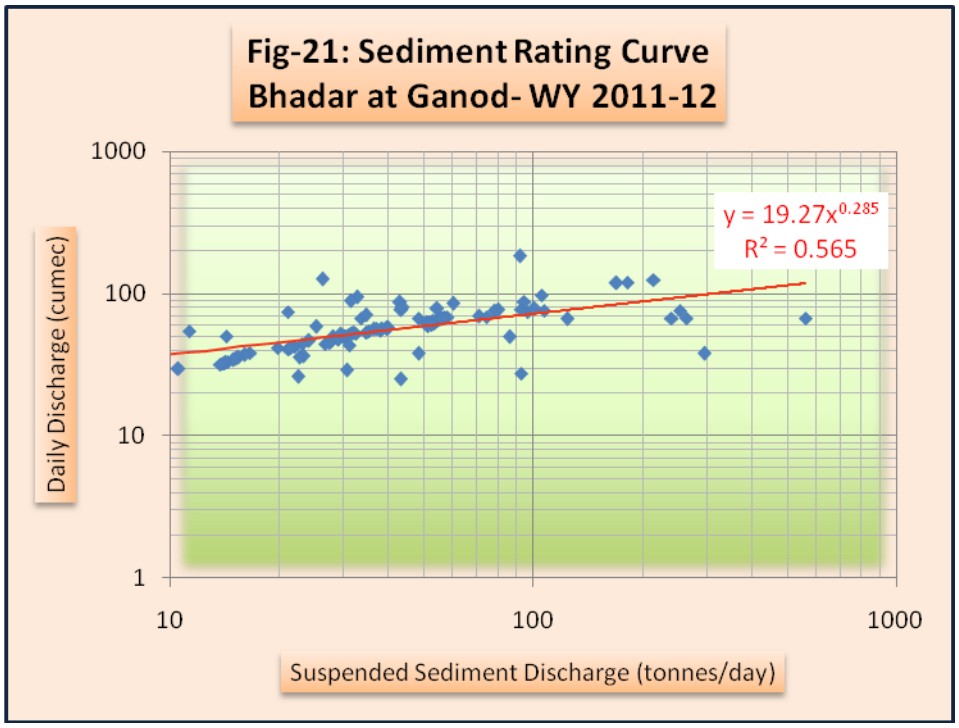
At present, there are 12 completed structures, either reservoirs or weirs, in Bhadar catchment.

There is only one monitoring station for gauge-discharge and sediment load analysis in this basin, which is near the mouth of river in plains of Rajkot district at Ganod. A brief about the station is given in section- 4.4.1

4.4.1. Bhadar at Ganod

The station has a Catchment area of 6,266 sq km. The sediment rating curve at the site is given in **Fig-21**. The maximum sediment concentration of 0.098 g/l was observed on 26.08.2011. The total sediment load during the year is 6,547 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0007 mm. Annual sediment yield over the

period of observations is given in **Fig-22**. It is seen from the analysis that sediment yield does not follow any definite trend over the years though increasingly lower values are observed since 2007-08. It is seen from **Fig-23** that fairly strong positive correlation exists between annual yield and annual runoff.



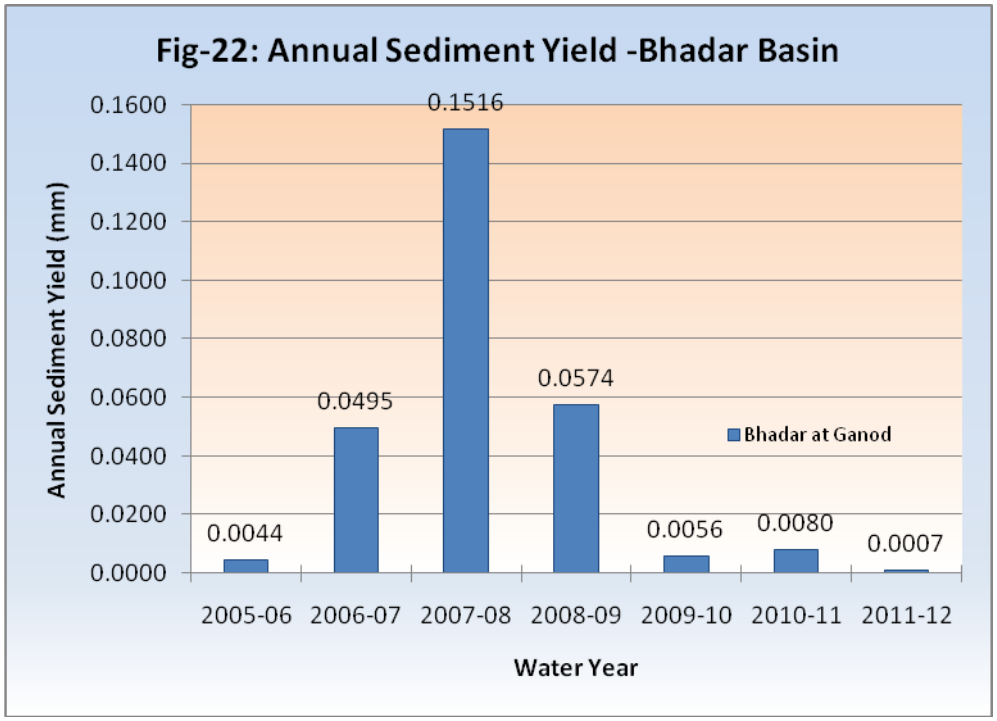


Fig-22: Annual Sediment Yield -Bhadar Basin
Annual Sediment Yield (mm)
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
0.0044
0.0495
0.1516
0.0574
0.0056
0.0080
0.0007
Bhadar at Ganod
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Water Year

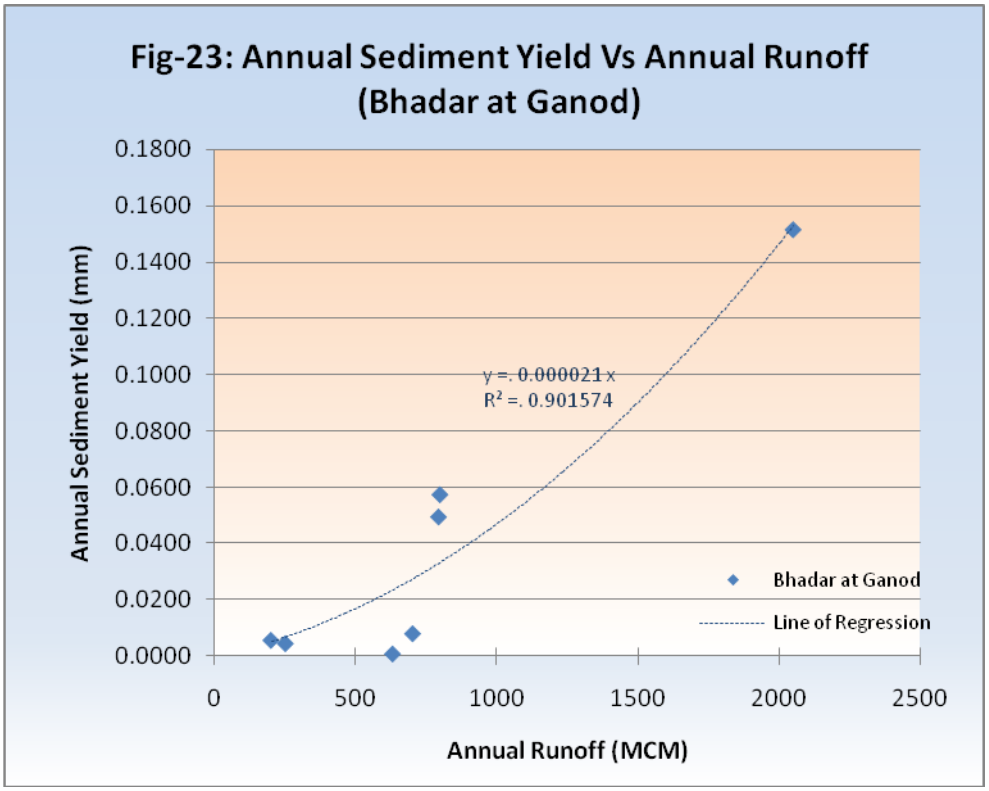
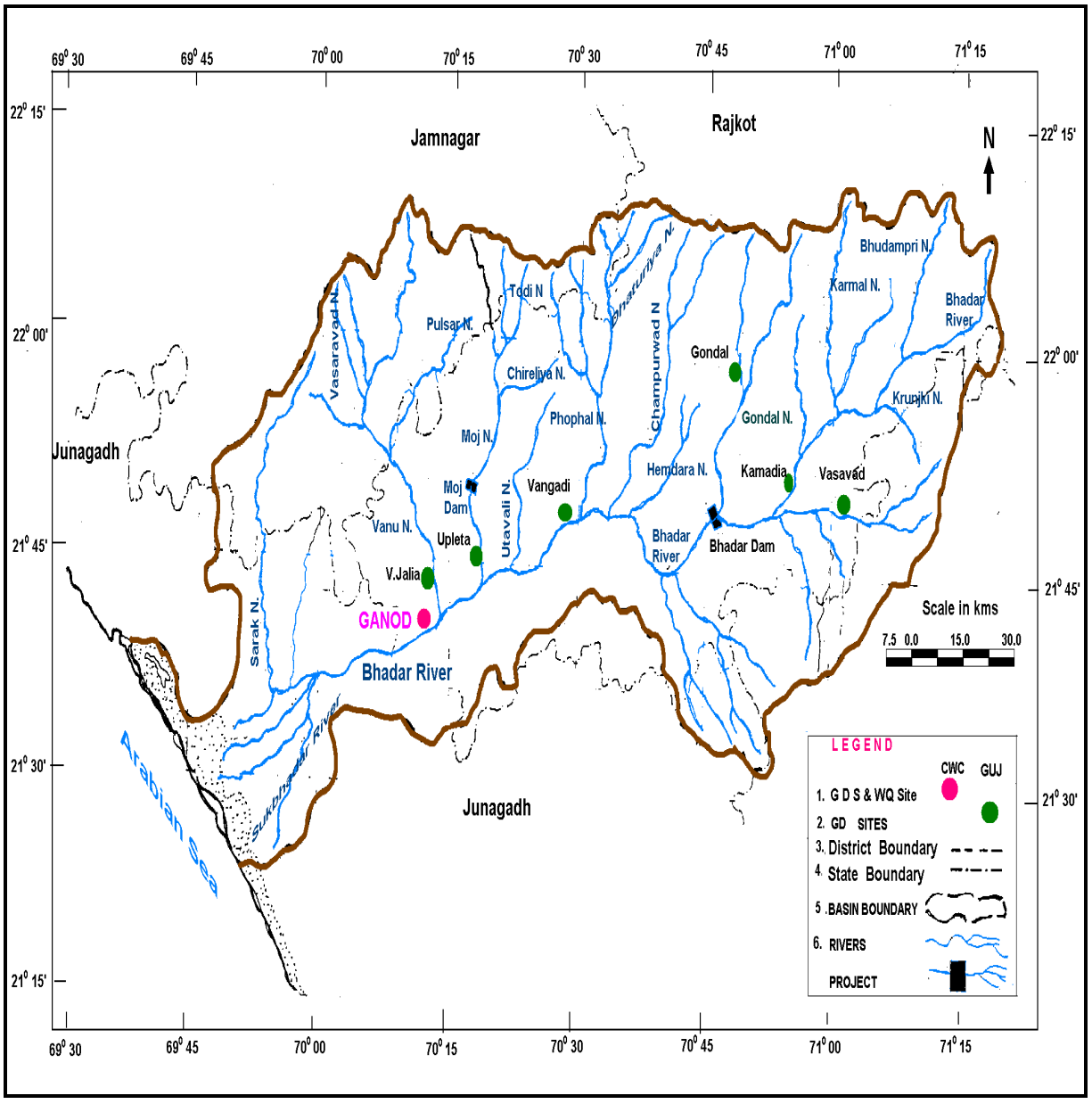


Fig-23: Annual Sediment Yield Vs Annual Runoff (Bhadar at Ganod)
Annual Sediment Yield (mm)
0.1800
0.1600
0.1400
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
y =. 0.000021 x
R² =. 0.901574
Bhadar at Ganod
Line of Regression
0
500
1000
1500
2000
2500
Annual Runoff (MCM)

Plate – 4.4 Bhadar Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Bhadar at Ganod**	**Code**	**: 01 02 07 001**
State	: Gujarat	District	Rajkot
Basin	: WFR of Kach.-Saur. & Luni	Independent River	: Bhadar
Tributary	: Bhadar	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Bhadar
Division	: Mahi Division, Gandhinagar	Sub-Division	: Sabarmati , Ahmedabad
Drainage Area	: 6266 Sq. Km.	Bank	: Right
Latitude	: 21°39'53" N	Longitude	: 70°10'52" E
Zero of Gauge (m)	: 26 (m.s.l)	14-11-1970	-
	Opening Date	Closing Date	
Gauge	: 14-11-1970		
Discharge	: 14-11-1970		
Sediment	: 07-07-1973		
Water Quality	: 01-07-1977		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1							34.98	0.000	0.000	0.005	0.005	15	64.66	0.000	0.000	0.010	0.010	54
2							34.31	0.000	0.000	0.005	0.005	15	77.08	0.000	0.000	0.012	0.012	80
3							33.29	0.000	0.000	0.005	0.005	14	67.34	0.000	0.000	0.010	0.010	57
4							32.79	0.000	0.000	0.005	0.005	14	64.28	0.000	0.000	0.010	0.010	54
5							32.62	0.000	0.000	0.005	0.005	14	57.49	0.000	0.000	0.008	0.008	40
6							32.29	0.000	0.000	0.005	0.005	14	57.12	0.000	0.000	0.008	0.008	39
7							31.79	0.000	0.000	0.005	0.005	14	56.00	0.000	0.000	0.008	0.008	38
8							51.95	0.000	0.000	0.007	0.007	31	56.93	0.000	0.000	0.008	0.008	39
9							54.52	0.000	0.000	0.008	0.008	35	53.41	0.000	0.000	0.008	0.008	35
10							57.30	0.000	0.000	0.008	0.008	40	53.41	0.000	0.000	0.008	0.008	35
11							25.09	0.000	0.000	0.003	0.003	7	52.13	0.000	0.000	0.007	0.007	32
12							56.00	0.000	0.000	0.008	0.008	36	62.38	0.000	0.000	0.009	0.009	51
13							57.12	0.000	0.000	0.008	0.008	37	65.04	0.000	0.000	0.010	0.010	55
14							49.76	0.000	0.000	0.007	0.007	30	68.49	0.000	0.000	0.010	0.010	58
15							42.25	0.000	0.000	0.006	0.006	22	66.19	0.000	0.000	0.010	0.010	55
16							40.85	0.000	0.000	0.006	0.006	21	65.42	0.000	0.000	0.010	0.010	55
17							41.02	0.000	0.000	0.006	0.006	21	68.11	0.000	0.000	0.010	0.010	57
18							50.12	0.000	0.000	0.007	0.007	30	63.90	0.000	0.000	0.010	0.010	53
19							54.89	0.000	0.000	0.008	0.008	38	62.76	0.000	0.000	0.010	0.010	52
20							60.49	0.000	0.000	0.010	0.010	52	63.14	0.000	0.000	0.010	0.010	52
21							47.95	0.000	0.000	0.007	0.007	29	66.57	0.000	0.000	0.010	0.010	56
22							45.80	0.000	0.000	0.007	0.007	28	62.76	0.000	0.000	0.010	0.010	52
23	51.22	0.000	0.000	0.007	0.007	31	44.19	0.000	0.000	0.007	0.007	27	62.76	0.000	0.000	0.009	0.009	51
24	49.76	0.000	0.000	0.007	0.007	28	42.25	0.000	0.000	0.006	0.006	22	74.35	0.000	0.000	0.015	0.015	96
25	46.51	0.000	0.000	0.006	0.006	24	41.37	0.000	0.000	0.006	0.006	21	69.41	0.000	0.000	0.012	0.012	71
26	44.37	0.000	0.000	0.006	0.006	23	61.62	0.000	0.000	0.010	0.010	53	66.90	0.000	0.000	0.098	**0.098**	564
27	41.55	0.000	0.000	0.006	0.006	20	52.68	0.000	0.000	0.007	0.007	32	78.24	0.000	0.000	0.015	0.015	101
28	38.41	0.000	0.000	0.005	0.005	17	49.58	0.000	0.000	0.007	0.007	30	63.14	0.000	0.000	0.010	0.010	52
29	37.03	0.000	0.000	0.005	0.005	16	47.77	0.000	0.000	0.007	0.007	29	77.40	0.000	0.000	0.014	0.014	93
30	35.67	0.000	0.000	0.005	0.005	15	45.44	0.000	0.000	0.007	0.007	27	120.4	0.000	0.000	0.018	0.018	182
31							59.36	0.000	0.000	0.010	0.010	51	75.11	0.000	0.000	0.012	0.012	78
Ten Daily Mean																		
Ten Daily I							39.58	0.000	0.000	0.006	0.006	21	60.77	0.000	0.000	0.009	0.009	47
Ten Daily II							47.76	0.000	0.000	0.007	0.007	29	63.76	0.000	0.000	0.009	0.009	52
Ten Daily III	43.07	0.000	0.000	0.006	0.006	22	48.91	0.000	0.000	0.007	0.007	32	74.27	0.000	0.000	0.020	0.020	127
Monthly Total						174						851						2384

Annual Sediment Load (Metric Tonnes) : 6547

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	67.34	0.000	0.000	0.046	0.046	265	37.77	0.000	0.000	0.091	0.091	297	37.77	0.000	0.000	0.002	0.002	7
2	66.19	0.000	0.000	0.022	0.022	124	36.35	0.000	0.000	0.007	0.007	23	37.77	0.000	0.000	0.002	0.002	7
3	67.34	0.000	0.000	0.041	0.041	240	35.52	0.000	0.000	0.007	0.007	23	37.77	0.000	0.000	0.002	0.002	7
4	124.3	0.000	0.000	0.020	0.020	215	32.53	0.000	0.000	0.002	0.002	4	37.77	0.000	0.000	0.002	0.002	7
5	94.47	0.000	0.000	0.004	0.004	33	29.89	0.000	0.000	0.002	0.002	5	37.77	0.000	0.000	0.002	0.002	7
6	183.0	0.000	0.000	0.006	0.006	92	49.76	0.000	0.000	0.020	0.020	86						
7	126.4	0.000	0.000	0.002	0.002	26	32.12	0.000	0.000	0.001	0.001	3						
8	118.2	0.000	0.000	0.017	0.017	170	29.41	0.000	0.000	0.003	0.003	8						
9	87.56	0.000	0.000	0.013	0.013	95	30.96	0.000	0.000	0.002	0.002	4						
10	85.00	0.000	0.000	0.008	0.008	60	34.64	0.000	0.000	0.002	0.002	5						
11	78.66	0.000	0.000	0.008	0.008	54	29.63	0.000	0.000	0.004	0.004	10						
12	76.49	0.000	0.000	0.007	0.007	43	37.84	0.000	0.000	0.015	0.015	48						
13	97.60	0.000	0.000	0.013	0.013	105	30.29	0.000	0.000	0.003	0.003	7						
14	87.21	0.000	0.000	0.006	0.006	43	28.98	0.000	0.000	0.012	0.012	31						
15	75.77	0.000	0.000	0.039	0.039	254	34.18	0.000	0.000	0.002	0.002	5						
16	76.17	0.000	0.000	0.016	0.016	107	32.50	0.000	0.000	0.002	0.002	4						
17	88.40	0.000	0.000	0.004	0.004	31	27.67	0.000	0.000	0.001	0.001	2						
18	80.24	0.000	0.000	0.006	0.006	44	30.33	0.000	0.000	0.001	0.001	2						
19	67.34	0.000	0.000	0.008	0.008	48	27.56	0.000	0.000	0.039	0.039	93						
20	74.00	0.000	0.000	0.003	0.003	21	25.99	0.000	0.000	0.010	0.010	22						
21	66.83	0.000	0.000	0.006	0.006	33	24.94	0.000	0.000	0.020	0.020	43						
22	70.38	0.000	0.000	0.006	0.006	35	23.36	0.000	0.000	0.002	0.002	4						
23	68.82	0.000	0.000	0.013	0.013	74	24.78	0.000	0.000	0.002	0.002	4						
24	51.80	0.000	0.000	0.007	0.007	30	24.46	0.000	0.000	0.002	0.002	4						
25	58.42	0.000	0.000	0.005	0.005	25	23.82	0.000	0.000	0.002	0.002	4						
26	54.44	0.000	0.000	0.002	0.002	11	23.51	0.000	0.000	0.002	0.002	4						
27	49.93	0.000	0.000	0.003	0.003	14	23.51	0.000	0.000	0.002	0.002	4						
28	46.03	0.000	0.000	0.002	0.002	6	23.51	0.000	0.000	0.002	0.002	4						
29	56.46	0.000	0.000	0.002	0.002	8	23.51	0.000	0.000	0.002	0.002	4						
30	43.33	0.000	0.000	0.008	0.008	31	23.51	0.000	0.000	0.002	0.002	4						
31							23.51	0.000	0.000	0.002	0.002	4						
Ten Daily Mean																		
Ten Daily I	102.0	0.000	0.000	0.018	0.018	132	34.90	0.000	0.000	0.014	0.014	46	37.77	0.000	0.000	0.002	0.002	7
Ten Daily II	80.19	0.000	0.000	0.011	0.011	75	30.50	0.000	0.000	0.009	0.009	22						
Ten Daily III	56.64	0.000	0.000	0.005	0.005	27	23.86	0.000	0.000	0.004	0.004	8						
Monthly Total						2339						767						33

Annual Sediment Load (Metric Tonnes) : 6547

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
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24																		
25																		
26																		
27																		
28																		
29																		
30																		
31																		
Ten Daily Mean																		
Ten Daily I																		
Ten Daily II																		
Ten Daily III																		
Monthly Total																		

Annual Sediment Load (Metric Tonnes) : 6547

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1																		
2																		
3																		
4																		
5																		
6																		
7																		
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28																		
29																		
30																		
31																		
Ten Daily Mean																		
Ten Daily I																		
Ten Daily II																		
Ten Daily III																		
Monthly Total																		

Annual Sediment Load (Metric Tonnes) : 6547

Annual Sediment Load for period : 2005-2012

Station Name : Bhadar at Ganod (01 02 07 001) **Division : Mahi Division, Gandhinagar**

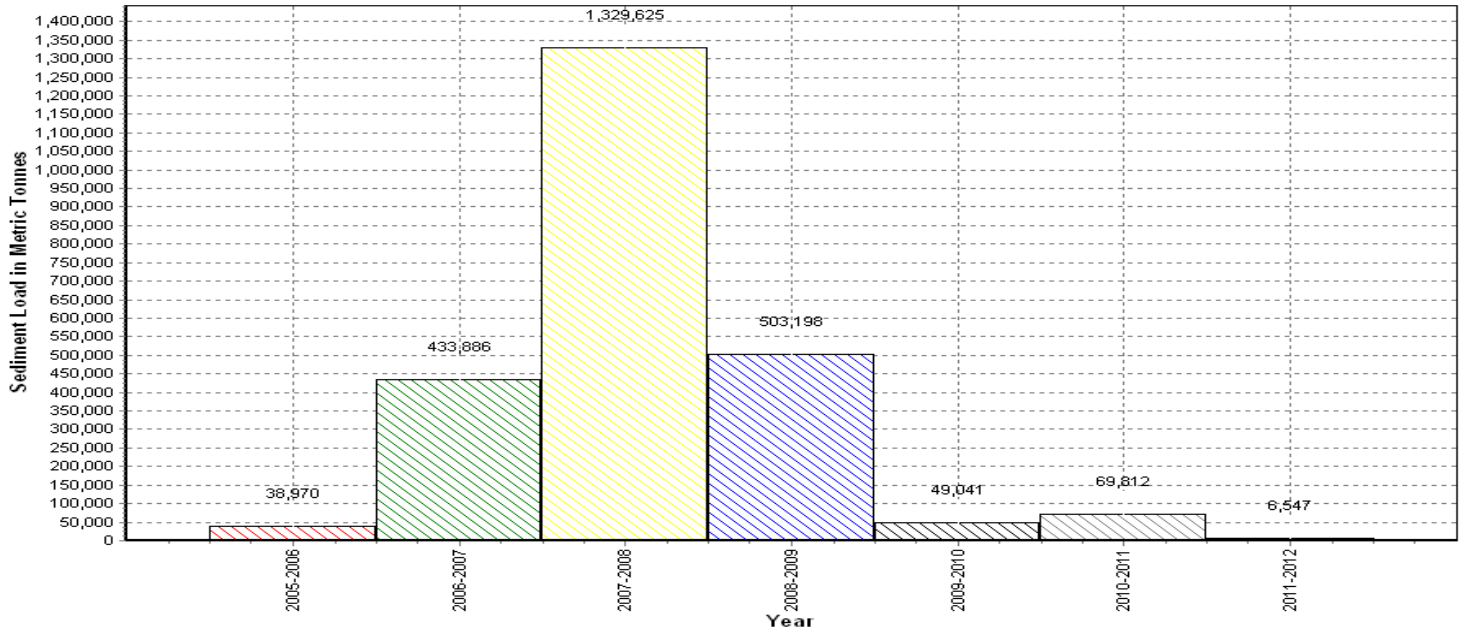
Local River : Bhadar **Sub-Division : Sabarmati Sub Divn., Ahmedabad**

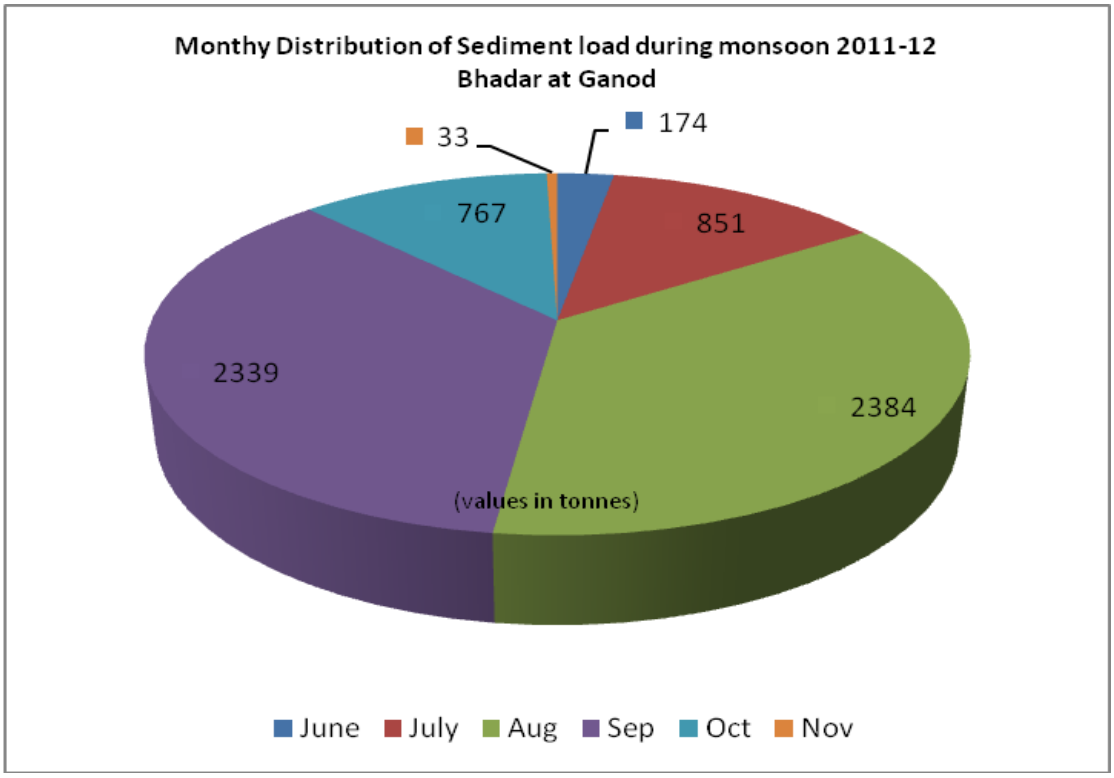
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	38970	0	38970	252	0.0044
2006-07	433886	0	433886	795	0.0495
2007-08	1329625	0	1329625	2052	0.1516
2008-09	502740	459	503198	800	0.0574
2009-10	48969	71	49041	201	0.0056
2010-11	69812	0	69812	703	0.0080
2011-12	6547	0	6547	632	0.0007

Annual Sediment Load for the period: 2005-2012

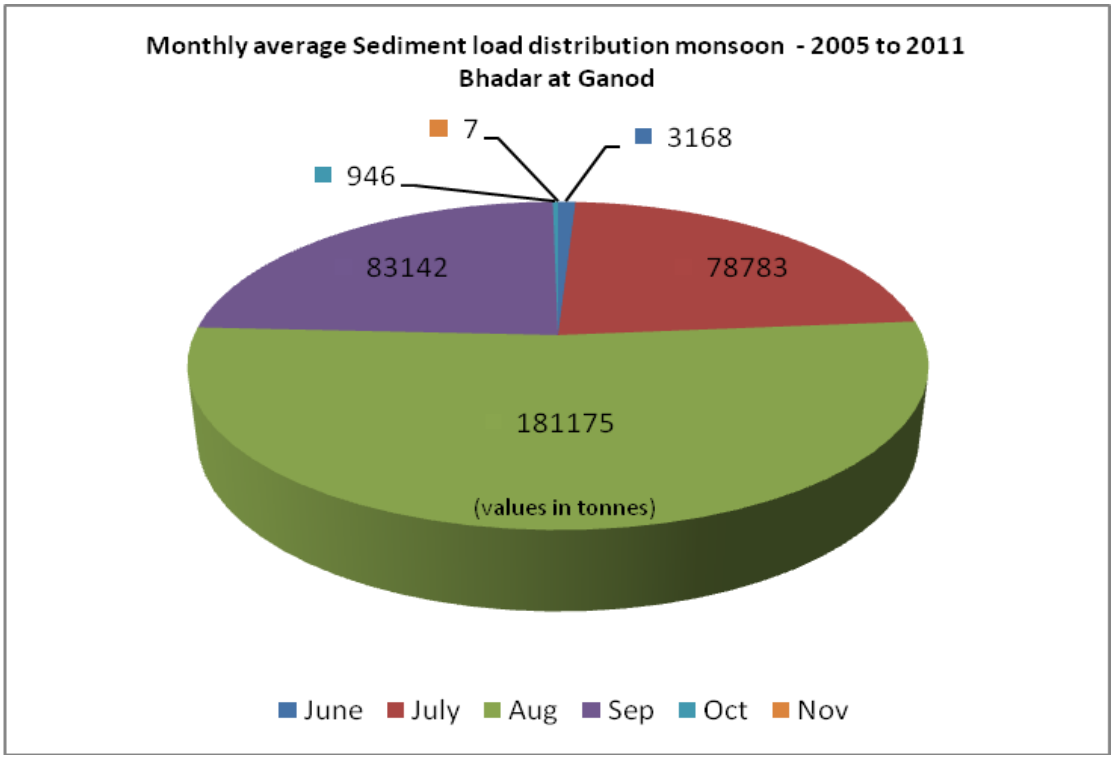
Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

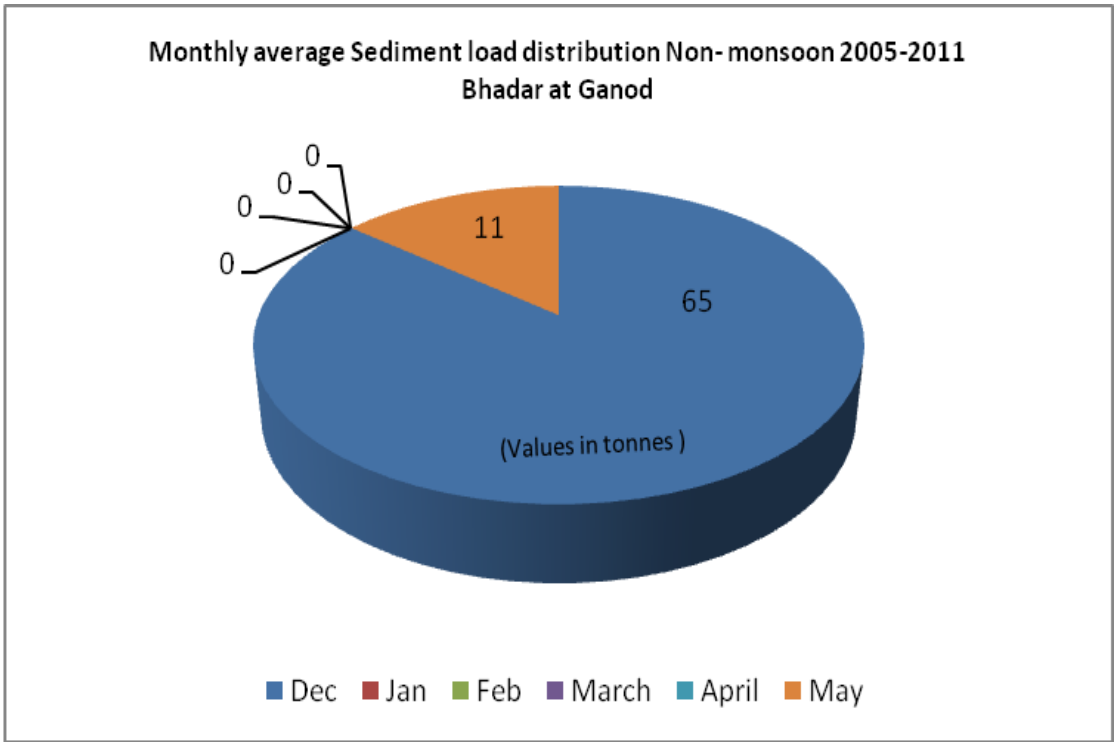
Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Bhadar at Ganod No sediment was observed in any month




Monthly average Sediment load distribution Non- monsoon 2005-2011
Bhadar at Ganod
0
0
0
0
11
65
(Values in tonnes)
Dec
Jan
Feb
March
April
May

4.5 Shetrunji Basin

The Shetrunji is one of the major rivers of Saurashtra. It rises at Chachai hills in Gir Forest of Junagadh district of Gujarat at an elevation of 380 m above mean sea level. It flows towards east direction and empties into the gulf of Cambay. The total length of this east flowing river from its origin to the outfall is 182 km. The river drains an area of 5514 sq.km. The basin is situated approximately between east longitudes of 700 50' and 72^0 10' and between north latitudes of 21^0 00' and 21^0 47'.

The Shetrunji receives several tributaries on both the banks. There are 9 tributaries having length more than 15 km. Out of which Safara, Shel, Kharai and Talaji are four tributaries on the right bank and remaining five tributaries viz. Stali, Thebu, Gagadia, Rajawal and Kharo are on the left bank. The drainage system on left bank of Shetrunji is more extensive as compared to the right bank area.

The average rainfall in the Shetrunji basin is 604 mm. In winter, the minimum temperature varies form 60C to 180C.

At present, there are 16 completed irrigation schemes. "Shetrunji Irrigation Scheme" is a major project and remaining 15 projects are medium irrigation schemes.

The only one monitoring station for sediment analysis is selected at Luwara. A brief about the station is given in section- 4.5.1

4.5.1 Shetrunji at Lowara

The station has a Catchment area of 3,953 sq km. The sediment rating curve at the site is given in **Fig-24**. The maximum sediment concentration of 6.590 g/l was observed on 18.07.2011. The total sediment load during the year is 11,98,984 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.2166 mm. Annual sediment yield over the period of observations is given in **Fig-25**. It is seen from the analysis that sediment yield does not follow any trend over the years. It is seen from **Fig-26** that fairly strong positive correlation exists between annual yield and annual runoff.

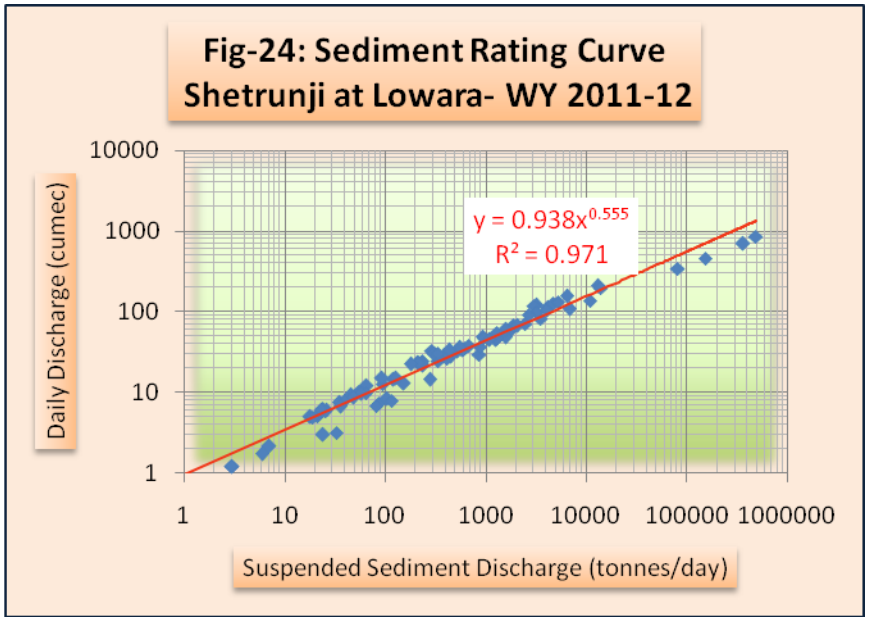


Fig-24: Sediment Rating Curve
Shetrunji at Lowara- WY 2011-12
Daily Discharge (cumec)
10000
1000
100
10
1
y = 0.938x^0.555
R² = 0.971
1
10
100
1000
10000
100000
1000000
Suspended Sediment Discharge (tonnes/day)

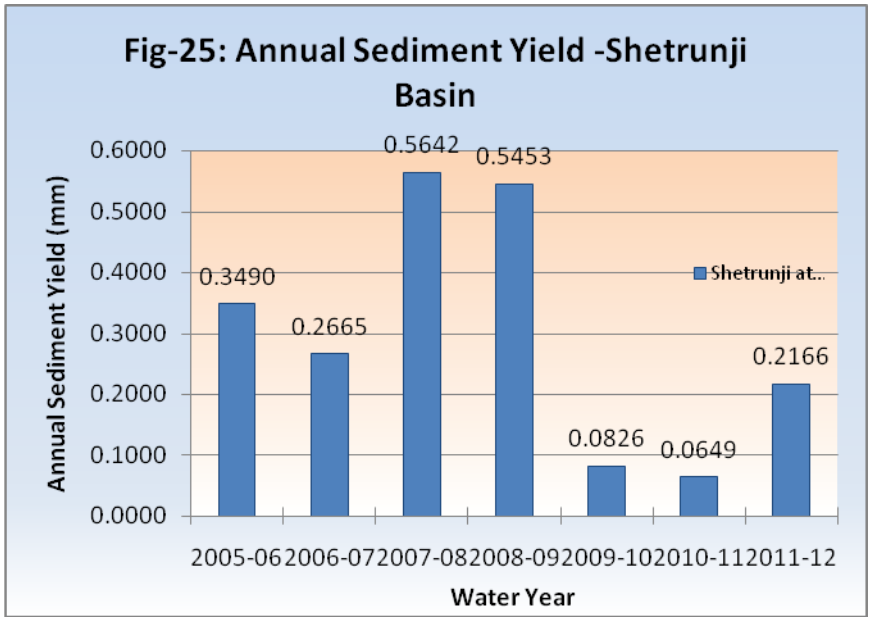


Fig-25: Annual Sediment Yield -Shetrunji Basin
Annual Sediment Yield (mm)
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
0.3490
0.2665
0.5642
0.5453
0.0826
0.0649
0.2166
Shetrunji at..
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Water Year

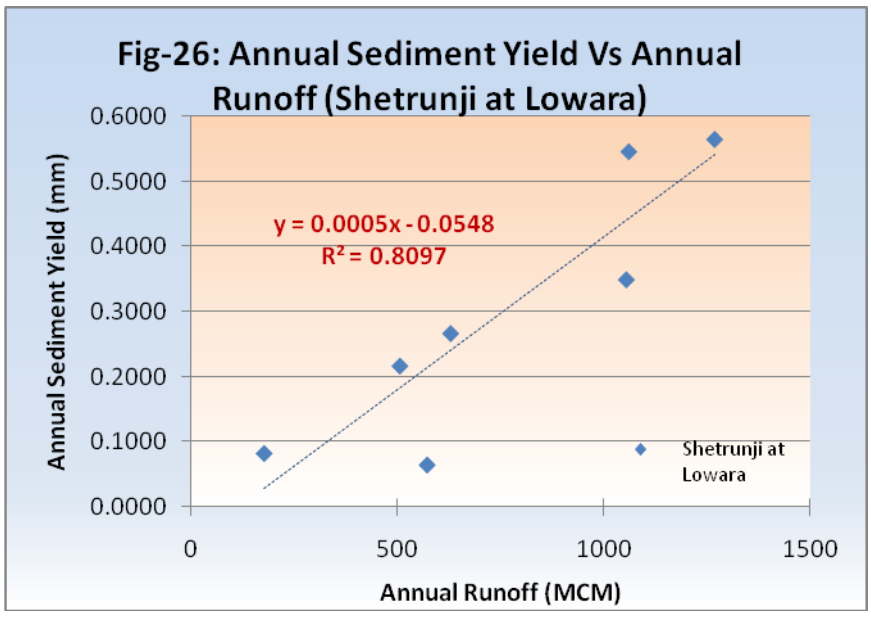
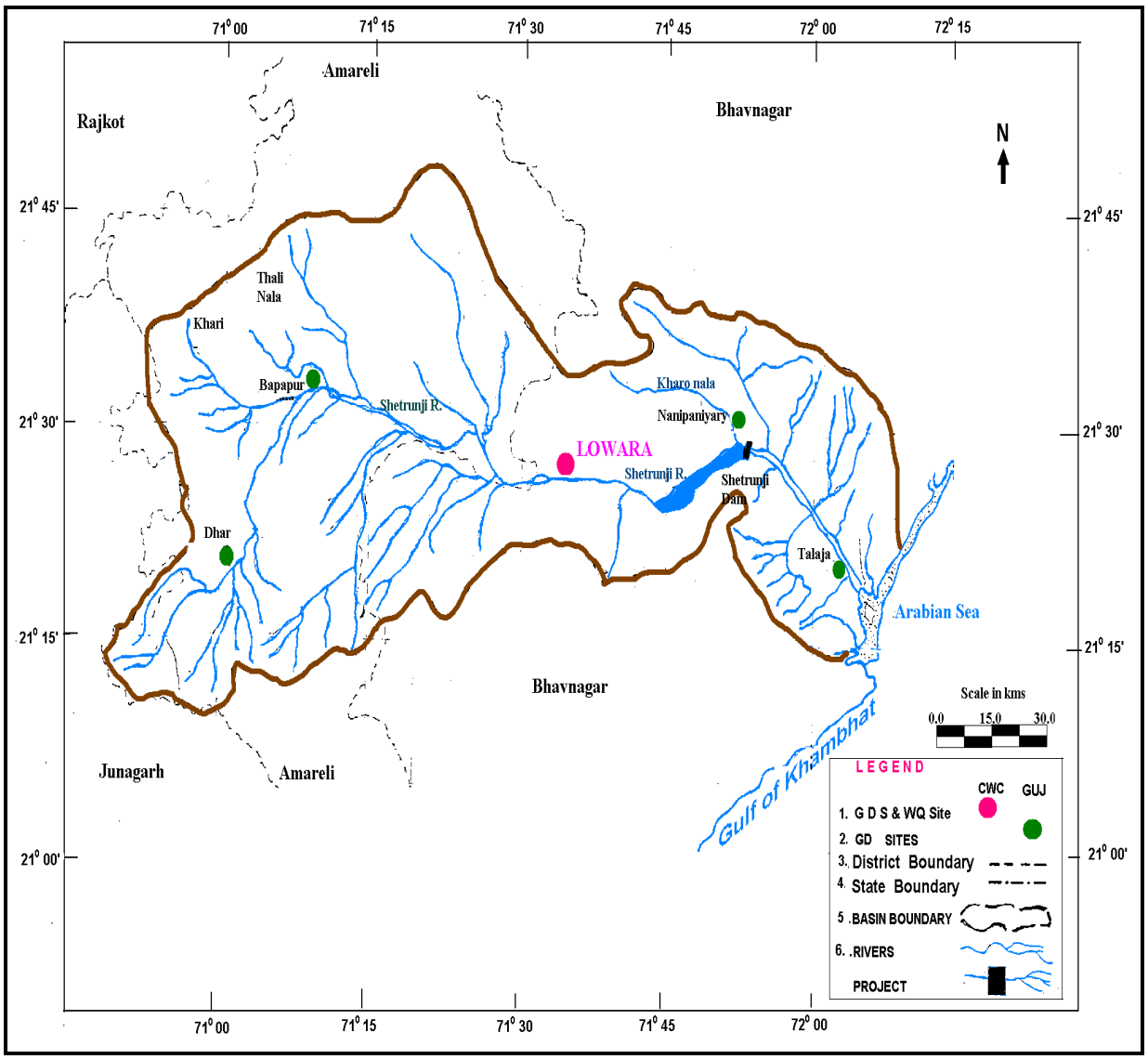


Fig-26: Annual Sediment Yield Vs Annual Runoff (Shetrunji at Lowara)
Annual Sediment Yield (mm)
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
y = 0.0005x - 0.0548
R² = 0.8097
Shetrunji at Lowara
0
500
1000
1500
Annual Runoff (MCM)

Plate – 4.5 Shetrunji Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Shetrunji at Lowara**	**Code**	**: 01 02 09 001**
State	: Gujarat	District	Bhavnagar
Basin	: WFR of Kach.-Saur. & Luni	Independent River	: Shetrunji
Tributary	: Shetrunji	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Shetrunji
Division	: Mahi Division, Gandhinagar	Sub-Division	: Sabarmati, Ahmedabad
Drainage Area	: 3953 Sq. Km.	Bank	: Left
Latitude	: 21°26'36" N	Longitude	: 71°33'42" E
Zero of Gauge (m)	: 56 (m.s.l)	01-02-1991	-

	Opening Date	Closing Date
Gauge	: 29-11-1970	
Discharge	: 29-11-1970	
Sediment	: 25-07-1973	
Water Quality	: 01-07-1977	

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Shetrunji at Lowara (01 02 09 001)
Local River : Shetrunji

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1													207.6	0.000	0.125	0.598	0.723	12959
2													68.91	0.000	0.000	0.320	0.320	1905
3													24.68	0.000	0.000	0.158	0.158	336
4													21.52	0.000	0.000	0.128	0.128	237
5													14.37	0.000	0.000	0.098	0.098	121
6													12.79	0.000	0.000	0.085	0.085	94
7													14.94	0.000	0.000	0.100	0.100	129
8													10.26	0.000	0.000	0.061	0.061	54
9							7.334	0.000	0.000	0.135	0.135	86	7.652	0.000	0.000	0.053	0.053	35
10							2.140	0.000	0.000	0.038	0.038	7	5.057	0.000	0.000	0.048	0.048	21
11							8.315	0.000	0.000	0.145	0.145	104	4.978	0.000	0.000	0.041	0.041	18
12							45.20	0.000	0.000	0.323	0.323	1259	5.334	0.000	0.000	0.048	0.048	22
13							2.979	0.000	0.000	0.095	0.095	24	4.850	0.000	0.000	0.046	0.046	19
14							1.210	0.000	0.000	0.029	0.029	3	6.030	0.000	0.000	0.050	0.050	26
15							6.862	0.000	0.000	0.137	0.137	81	7.460	0.000	0.000	0.055	0.055	35
16							0.953	0.000	0.000	0.010	0.010	1	32.93	0.000	0.000	0.103	0.103	292
17							339.4	0.110	0.160	2.500	2.770	81226	14.92	0.000	0.000	0.073	0.073	93
18							854.8	0.225	0.240	6.125	**6.590**	486683	12.05	0.000	0.000	0.063	0.063	65
19							120.2	0.000	0.000	0.308	0.308	3194	9.355	0.000	0.000	0.055	0.055	45
20							29.55	0.000	0.000	0.338	0.338	862	6.379	0.000	0.000	0.044	0.044	24
21							7.898	0.000	0.000	0.169	0.169	115	32.04	0.000	0.000	0.190	0.190	526
22							3.176	0.000	0.000	0.121	0.121	33	27.90	0.000	0.000	0.186	0.186	447
23							1.714	0.000	0.000	0.040	0.040	6	118.3	0.000	0.000	0.298	0.298	3040
24							1.190	0.000	0.000	0.025	0.025	3	47.79	0.000	0.000	0.230	0.230	950
25							107.7	0.000	0.125	0.613	0.738	6861	26.61	0.000	0.000	0.180	0.180	414
26							136.0	0.063	0.150	0.713	0.925	10866	33.70	0.000	0.000	0.203	0.203	590
27							14.38	0.000	0.000	0.223	0.223	277	28.98	0.000	0.000	0.155	0.155	388
28							56.52	0.000	0.000	0.350	0.350	1709	111.4	0.035	0.100	0.300	0.435	4188
29							12.85	0.000	0.000	0.138	0.138	153	199.5	0.050	0.113	0.650	0.813	14003
30							48.06	0.000	0.000	0.223	0.223	924	700.3	0.200	0.215	5.593	6.008	363502
31							81.35	0.000	0.000	0.500	0.500	3514	98.18	0.030	0.095	0.255	0.380	3223
Ten Daily Mean																		
Ten Daily I							4.737	0.000	0.000	0.087	0.087	46	38.78	0.000	0.013	0.165	0.177	1589
Ten Daily II							140.9	0.034	0.040	1.001	1.074	57344	10.43	0.000	0.000	0.058	0.058	64
Ten Daily III							42.80	0.006	0.025	0.283	0.314	2224	129.5	0.029	0.048	0.749	0.825	35570
Monthly Total												597990						407801

Annual Sediment Load (Metric Tonnes) : 1198984

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Shetrunji at Lowara (01 02 09 001)
Local River : Shetrunji

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	48.36	0.000	0.000	0.375	0.375	1567	9.660	0.000	0.000	0.069	0.069	57	0.797	0.000	0.000	0.000	0.000	0
2	37.01	0.000	0.000	0.275	0.275	879	8.610	0.000	0.000	0.065	0.065	48	0.883	0.000	0.000	0.000	0.000	0
3	71.63	0.000	0.000	0.403	0.403	2491	6.726	0.000	0.000	0.062	0.062	36	0.899	0.000	0.000	0.000	0.000	0
4	458.9	0.145	0.180	3.500	3.825	151667	5.872	0.000	0.000	0.050	0.050	25	0.858	0.000	0.000	0.000	0.000	0
5	103.7	0.000	0.000	0.448	0.448	4009	5.972	0.000	0.000	0.045	0.045	23	0.876	0.000	0.000	0.000	0.000	0
6	46.78	0.000	0.000	0.323	0.323	1304	7.830	0.000	0.000	0.000	0.000	0	0.750	0.000	0.000	0.000	0.000	0
7	126.5	0.000	0.000	0.430	0.430	4701	3.163	0.000	0.000	0.000	0.000	0	0.750	0.000	0.000	0.000	0.000	0
8	92.27	0.000	0.000	0.333	0.333	2651	2.504	0.000	0.000	0.000	0.000	0	0.683	0.000	0.000	0.000	0.000	0
9	60.57	0.000	0.000	0.305	0.305	1596	3.870	0.000	0.000	0.000	0.000	0	0.644	0.000	0.000	0.000	0.000	0
10	35.04	0.000	0.000	0.203	0.203	613	2.104	0.000	0.000	0.000	0.000	0	0.500	0.000	0.000	0.000	0.000	0
11	45.96	0.000	0.000	0.270	0.270	1072	2.020	0.000	0.000	0.000	0.000	0	0.637	0.000	0.000	0.000	0.000	0
12	54.98	0.000	0.000	0.275	0.275	1306	1.594	0.000	0.000	0.000	0.000	0	0.581	0.000	0.000	0.000	0.000	0
13	131.5	0.000	0.000	0.460	0.460	5228	4.340	0.000	0.000	0.000	0.000	0	0.440	0.000	0.000	0.000	0.000	0
14	67.48	0.000	0.000	0.350	0.350	2041	1.515	0.000	0.000	0.000	0.000	0	0.568	0.000	0.000	0.000	0.000	0
15	154.8	0.000	0.000	0.478	0.478	6388	1.432	0.000	0.000	0.000	0.000	0	0.563	0.000	0.000	0.000	0.000	0
16	44.69	0.000	0.000	0.278	0.278	1072	1.930	0.000	0.000	0.000	0.000	0	0.532	0.000	0.000	0.000	0.000	0
17	34.02	0.000	0.000	0.205	0.205	602	1.139	0.000	0.000	0.000	0.000	0	0.527	0.000	0.000	0.000	0.000	0
18	26.58	0.000	0.000	0.150	0.150	344	1.108	0.000	0.000	0.000	0.000	0	0.551	0.000	0.000	0.000	0.000	0
19	38.25	0.000	0.000	0.208	0.208	686	2.535	0.000	0.000	0.000	0.000	0	0.549	0.000	0.000	0.000	0.000	0
20	33.31	0.000	0.000	0.150	0.150	432	1.957	0.000	0.000	0.000	0.000	0	0.390	0.000	0.000	0.000	0.000	0
21	24.45	0.000	0.000	0.110	0.110	232	1.175	0.000	0.000	0.000	0.000	0	0.340	0.000	0.000	0.000	0.000	0
22	23.40	0.000	0.000	0.103	0.103	207	1.114	0.000	0.000	0.000	0.000	0	0.484	0.000	0.000	0.000	0.000	0
23	35.93	0.000	0.000	0.175	0.175	543	1.540	0.000	0.000	0.000	0.000	0	0.000					
24	23.62	0.000	0.000	0.113	0.113	230	1.070	0.000	0.000	0.000	0.000	0	0.000					
25	29.94	0.000	0.000	0.120	0.120	310	0.993	0.000	0.000	0.000	0.000	0	0.000					
26	30.68	0.000	0.000	0.125	0.125	331	1.190	0.000	0.000	0.000	0.000	0	0.000					
27	23.75	0.000	0.000	0.105	0.105	215	1.030	0.000	0.000	0.000	0.000	0	0.000					
28	22.53	0.000	0.000	0.093	0.093	180	1.030	0.000	0.000	0.000	0.000	0	0.000					
29	9.854	0.000	0.000	0.076	0.076	64	1.030	0.000	0.000	0.000	0.000	0	0.000					
30	7.888	0.000	0.000	0.057	0.057	39	1.030	0.000	0.000	0.000	0.000	0	0.000					
31							0.787	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	108.1	0.015	0.018	0.659	0.692	17148	5.631	0.000	0.000	0.029	0.029	19	0.764	0.000	0.000	0.000	0.000	0
Ten Daily II	63.17	0.000	0.000	0.282	0.282	1917	1.957	0.000	0.000	0.000	0.000	0	0.534	0.000	0.000	0.000	0.000	0
Ten Daily III	23.20	0.000	0.000	0.108	0.108	235	1.090	0.000	0.000	0.000	0.000	0	0.082	0.000	0.000	0.000	0.000	0
Monthly Total						193002						190						0

Annual Sediment Load (Metric Tonnes) : 1198984

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Shetrunji at Lowara (01 02 09 001)
Local River : Shetrunji

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 1198984

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Shetrunji at Lowara (01 02 09 001)
Local River : Shetrunji

Division : Mahi Division, Gandhinagar
Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 1198984

Annual Sediment Load for period : 2005-2012

Station Name : Shetrunji at Lowara (01 02 09 001) **Division : Mahi Division, Gandhinagar**

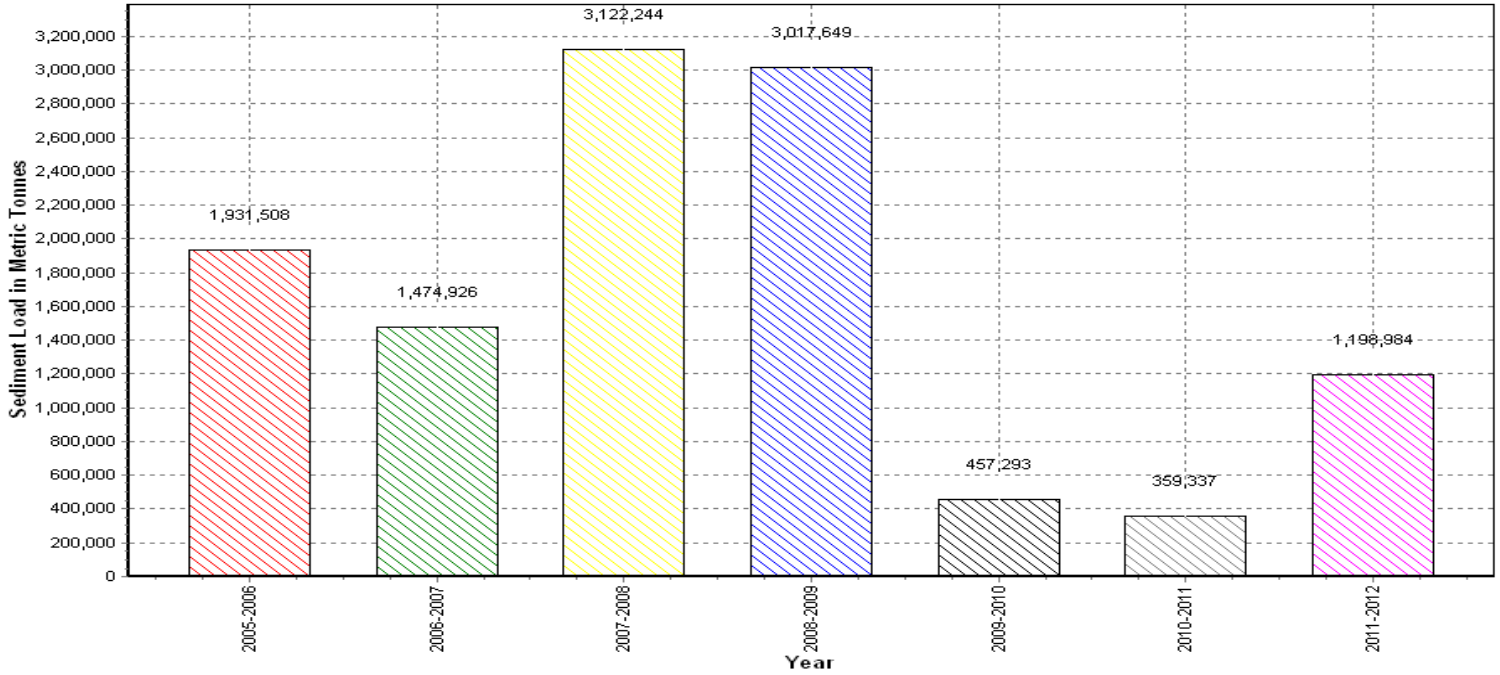
Local River : Shetrunji **Sub-Division : Sabarmati Sub Divn., Ahmedabad**

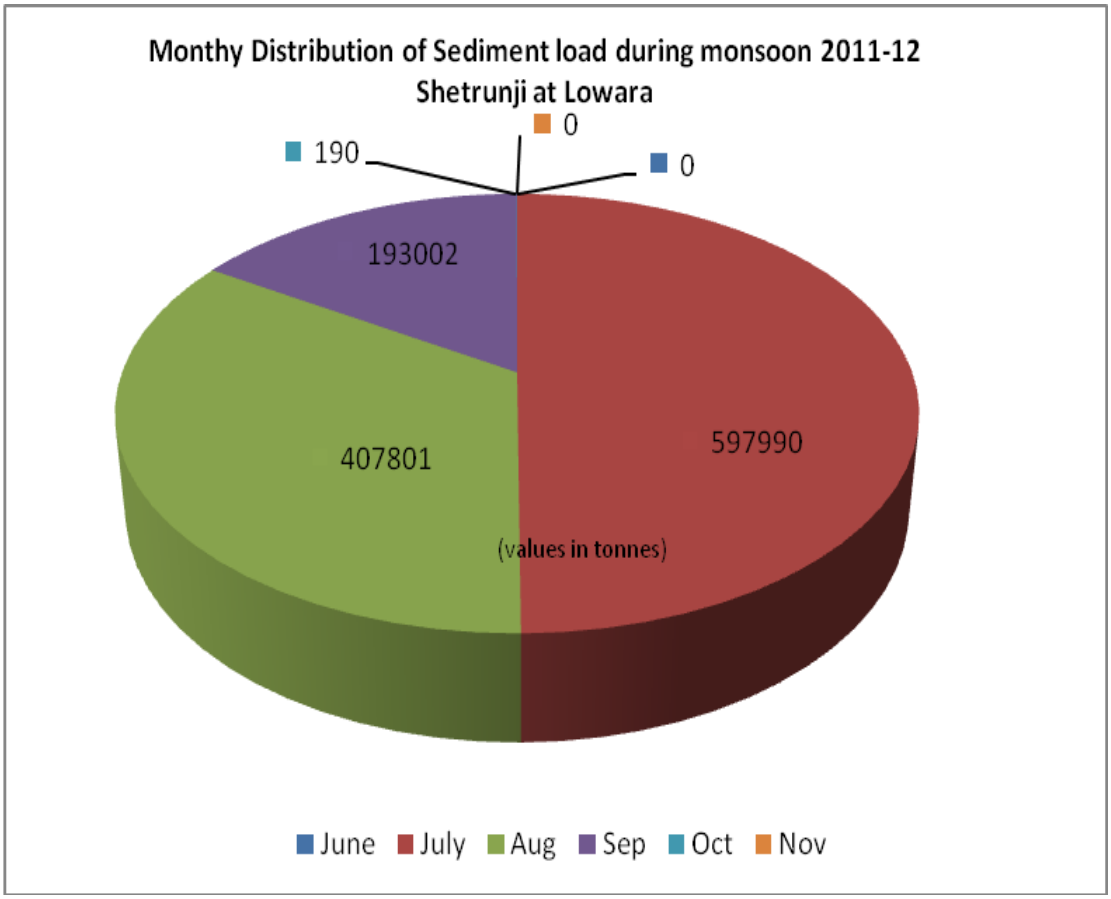
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	1931508	0	1931508	1055	0.3490
2006-07	1474926	0	1474926	629	0.2665
2007-08	3122244	0	3122244	1269	0.5642
2008-09	3017649	0	3017649	1061	0.5453
2009-10	457293	0	457293	177	0.0826
2010-11	359337	0	359337	572	0.0649
2011-12	1198984	0	1198984	506	0.2166

Annual Sediment Load for the period: 2005-2012

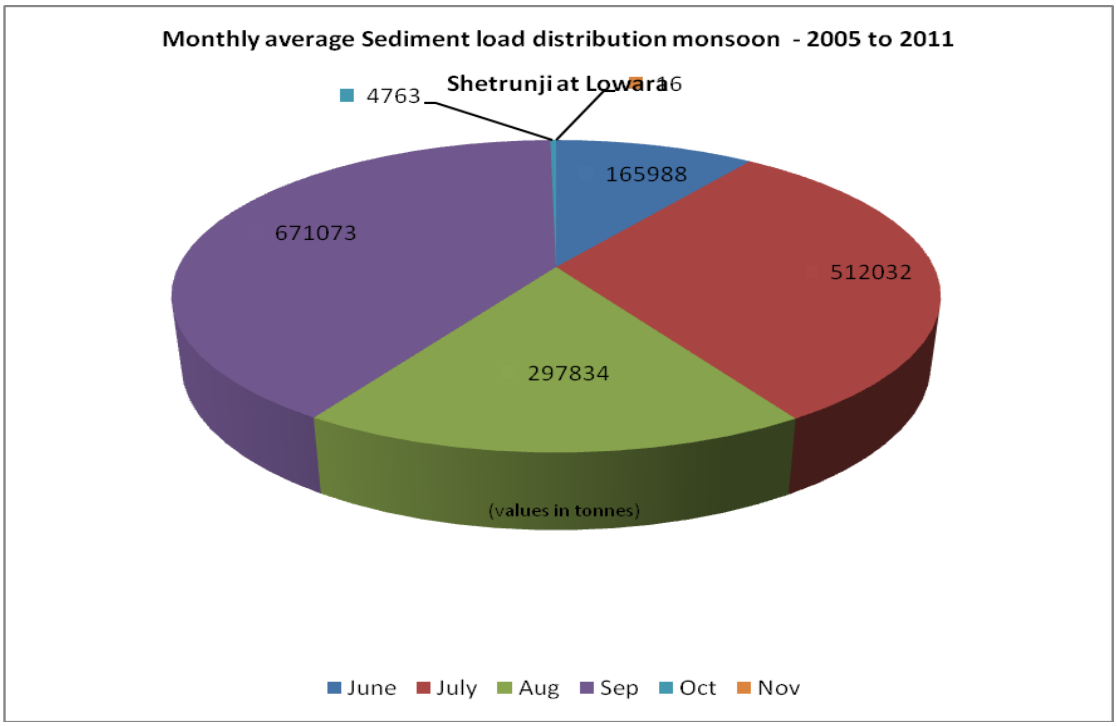
Station Name : Shetrunji at Lowara (01 02 09 001) **Division : Mahi Division, Gandhinagar**

Local River : Shetrunji **Sub-Division : Sabarmati Sub Divn., Ahmedabad**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Shetruniji at Lowara No sediment was observed in any month



Monthy Distribution of Sediment load during Non- monsoon 2011-12
Shetruniji at Lowara No sediment was observed in any month

4.6 Sabarmati Basin

The Sabarmati is one of the major west flowing interstate rivers in India. It originates in the foothills of Aravalli range at an elevation of 762 m above mean sea level. It traverses a length of 371 km in southwest direction. It flows initially in Rajasthan for about 48 km and enters Gujarat where it flows for 323 km to join Gulf of Cambay in the Arabian sea. The river drains an area of 21,674 sq.km. The basin is triangular in shape with the main river as the base and Watrak as the apex point. The basin lies in between 72^0 20' and 73^0 30' east longitudes and 20^0 and 25^0 north latitudes

The important tributaries are Sai, Wakal, Harnav, Hathmati and Watrak. The left bank tributary Wakal joins the river at 51 km of its run from the origin. It receives the Sai, a major right bank tributary near Mahuri and then Harnav on the left bank at about 103 km. Below this confluence, the Sabarmati flows through the Dharoi gorge. Emerging from the gorge, it passes through the plains. Two major tributaries viz. Hathmati and Watrak joins on the left bank of main stream at a distance of 170 km and 235 km respectively from the origin

The average annual rainfall in the Sabarmati basin is about 787 mm. The climate varies widely. In winter, the minimum temperature generally varies from 9^0C to 14^0C. However, lower temperatures have also been recorded in several areas. The maximum temperature in the basin varies from 40^0C to 48^0C.

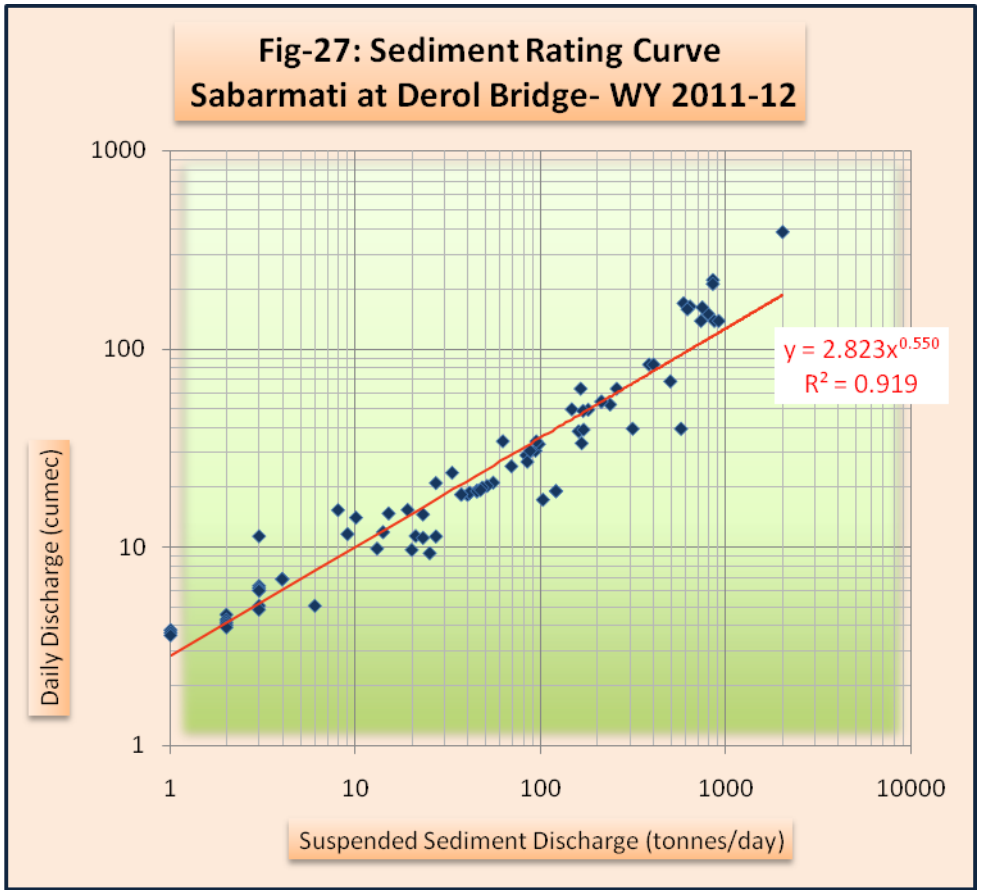
At present, there are 13 major/medium irrigation schemes. However, Dharoi Dam and Watrak project have 80 percent of the storage capacity of all the projects of the basin.

Dharoi Dam is located at Dharoi village, which is about 70km from Mehsana. In the Gujarat State the direct benefits of this project are water supply to Ahmedabad city and providing irrigation facilities. There is provision for 1.4 MW hydropower generations also.

There is only one monitoring station on main river Sabarmati for sediment analysis at Derol Bridge in Sabarkantha district. A brief about the station is given in section-4.6.1

4.6.1 Sabarmati at Derol Bridge

The station has a Catchment area of 6,724 sq km. The sediment rating curve at the site is given in **Fig-27**.The maximum sediment concentration of 0.166 g/l was observed on 09.07.2011. The total sediment load during the year is 15,728 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0017 mm. Annual sediment yield over the period of observations is given in **Fig-28**. It is seen from the analysis that sediment yield does not follow any definite trend though very low values are being observed since the peak occurrence in 2006-07. It is seen from **Fig-29** that very strong positive correlation exists between annual yield and annual runoff.



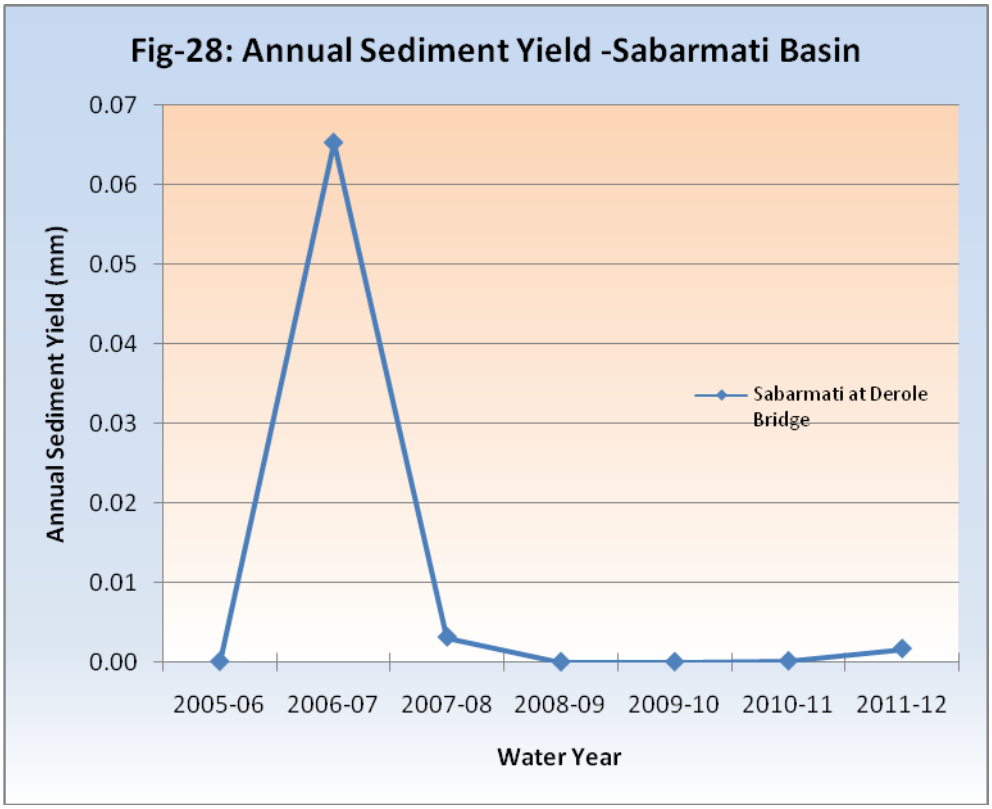


Fig-28: Annual Sediment Yield -Sabarmati Basin
Annual Sediment Yield (mm)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Water Year
Sabarmati at Derole Bridge

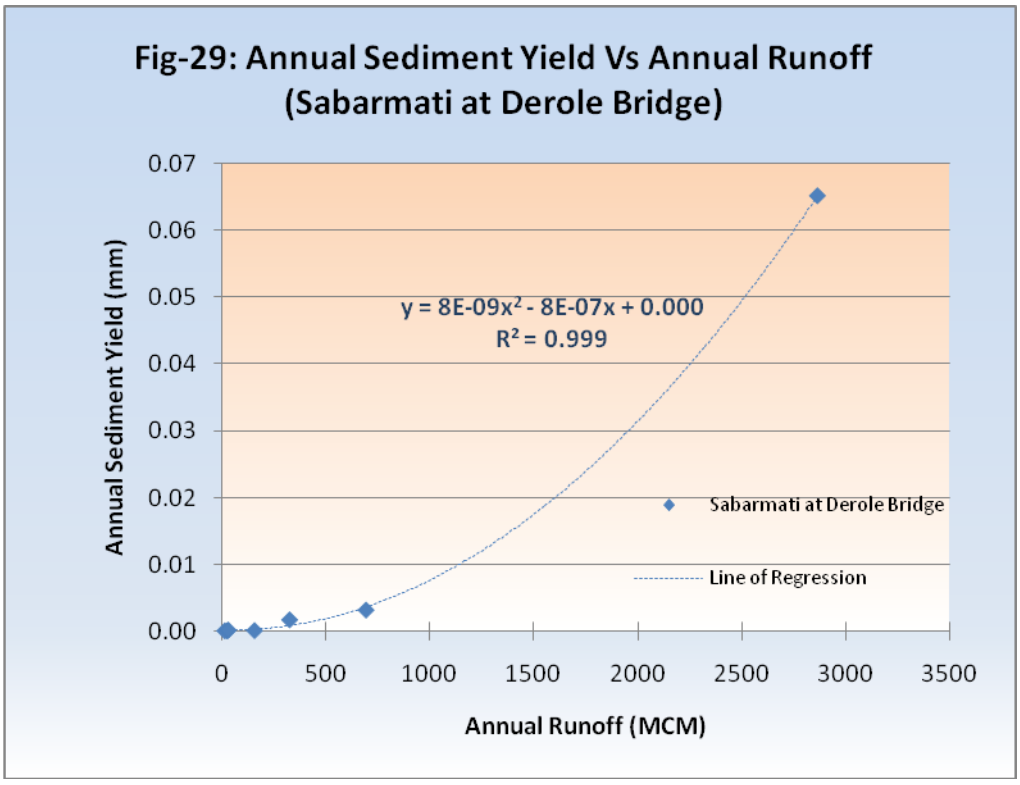
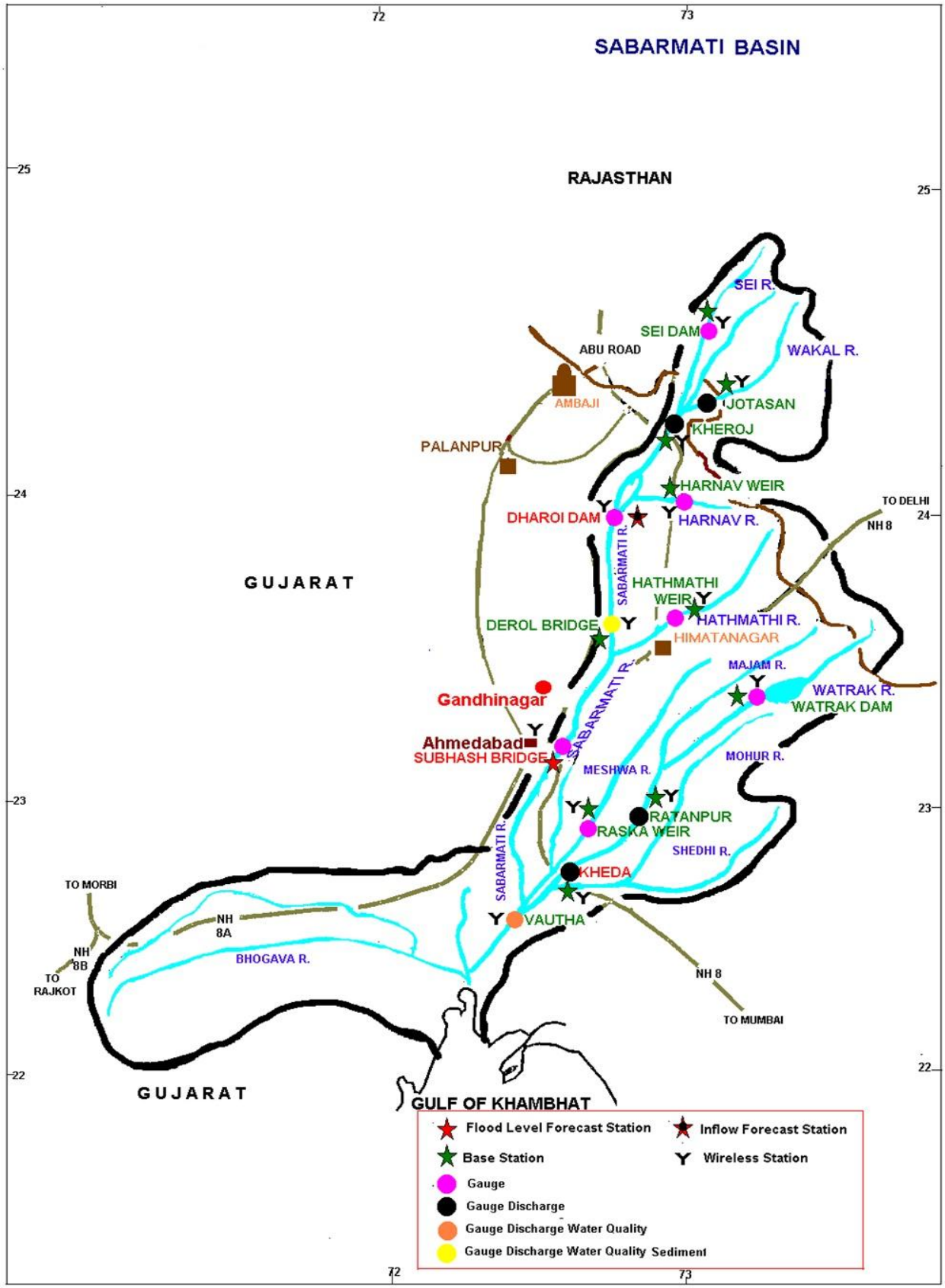


Fig-29: Annual Sediment Yield Vs Annual Runoff
(Sabarmati at Derole Bridge)
Annual Sediment Yield (mm)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
y = 8E-09x² - 8E-07x + 0.000
R² = 0.999
Sabarmati at Derole Bridge
Line of Regression
0
500
1000
1500
2000
2500
3000
3500
Annual Runoff (MCM)

Plate – 4.6 Sabarmati Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Sabarmati at Derol Bridge**	**Code**	**: 01 02 12 006**
State	: Gujarat	District	Sabarkantha
Basin	: Sabarmati	Independent River	: Sabarmati
Tributary	: Sabarmati	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Sabarmati
Division	: Mahi Division, Gandhinagar	Sub-Division	: N.W.R.S.D., Himatnagar
Drainage Area	: 6724 Sq. Km.	Bank	: Left
Latitude	: 23°34'24" N	Longitude	: 72°48'25" E
Zero of Gauge (m)	: 89 (m.s.l)	19-08-1980	- 31-05-2005
	87 (m.s.l)	01-06-2005	-

	Opening Date	Closing Date
Gauge	: 19-08-1980	
Discharge	: 01-06-1991	
Sediment	: 25-09-1992	
Water Quality	: 15-07-1992	

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Sabarmati at Derol Bridge (01 02 12 006) **Division : Mahi Division, Gandhinagar**

Local River : Sabarmati **Sub-Division : N.W.R.Sub Div., Himatnagar**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9							39.55	0.000	0.000	0.166	**0.166**	567						
10							19.21	0.000	0.000	0.072	0.072	120	138.0	0.000	0.000	0.072	0.072	858
11							19.21	0.000	0.000	0.072	0.072	120	30.65	0.000	0.000	0.035	0.035	93
12							17.37	0.000	0.000	0.068	0.068	102	21.19	0.000	0.000	0.030	0.030	55
13													19.21	0.000	0.000	0.027	0.027	45
14													18.46	0.000	0.000	0.025	0.025	40
15													18.46	0.000	0.000	0.025	0.025	40
16													39.55	0.000	0.000	0.091	0.091	311
17													25.60	0.000	0.000	0.031	0.031	69
18													20.38	0.000	0.000	0.029	0.029	51
19													19.99	0.000	0.000	0.028	0.028	48
20													19.21	0.000	0.000	0.027	0.027	45
21													19.21	0.000	0.000	0.027	0.027	45
22													18.83	0.000	0.000	0.025	0.025	41
23													18.83	0.000	0.000	0.025	0.025	41
24													18.46	0.000	0.000	0.023	0.023	37
25													18.46	0.000	0.000	0.023	0.023	37
26													19.21	0.000	0.000	0.027	0.027	45
27													29.08	0.000	0.000	0.033	0.033	83
28													68.47	0.000	0.000	0.084	0.084	497
29													33.43	0.000	0.000	0.057	0.057	165
30													221.7	0.000	0.000	0.044	0.044	843
31													33.12	0.000	0.000	0.034	0.034	97
Ten Daily Mean																		
Ten Daily I							29.38	0.000	0.000	0.119	0.119	343	138.0	0.000	0.000	0.072	0.072	858
Ten Daily II							18.29	0.000	0.000	0.070	0.070	111	23.27	0.000	0.000	0.035	0.035	80
Ten Daily III													45.35	0.000	0.000	0.037	0.037	175
Monthly Total												908						3583

Annual Sediment Load (Metric Tonnes) : 15728

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Sabarmati at Derol Bridge (01 02 12 006) **Division : Mahi Division, Gandhinagar**

Local River : Sabarmati **Sub-Division : N.W.R.Sub Div., Himatnagar**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	30.62	0.000	0.000	0.033	0.033	87	11.41	0.000	0.000	0.021	0.021	21	0.000					
2	52.37	0.000	0.000	0.052	0.052	235	11.35	0.000	0.000	0.028	0.028	27	0.000					
3	62.89	0.000	0.000	0.047	0.047	255	11.18	0.000	0.000	0.024	0.024	23	0.000					
4	54.22	0.000	0.000	0.045	0.045	211	9.351	0.000	0.000	0.031	0.031	25	0.000					
5	38.40	0.000	0.000	0.048	0.048	159	9.714	0.000	0.000	0.024	0.024	20	0.000					
6	138.0	0.000	0.000	0.061	0.061	727	11.67	0.000	0.000	0.009	0.009	9	0.000					
7	54.22	0.000	0.000	0.045	0.045	211	11.38	0.000	0.000	0.003	0.003	3	0.000					
8	169.3	0.000	0.000	0.040	0.040	585	9.860	0.000	0.000	0.015	0.015	13	0.000					
9	150.2	0.000	0.000	0.061	0.061	792	15.41	0.000	0.000	0.006	0.006	8	0.000					
10	163.1	0.000	0.000	0.045	0.045	634	15.45	0.000	0.000	0.014	0.014	19	0.000					
11	49.54	0.000	0.000	0.034	0.034	146	14.83	0.000	0.000	0.012	0.012	15	0.000					
12	386.5	0.000	0.000	0.060	0.060	2004	14.12	0.000	0.000	0.008	0.008	10	0.000					
13	138.0	0.000	0.000	0.076	0.076	906	5.085	0.000	0.000	0.014	0.014	6	0.000					
14	157.9	0.000	0.000	0.045	0.045	614	5.087	0.000	0.000	0.006	0.006	3	0.000					
15	161.3	0.000	0.000	0.053	0.053	739	6.920	0.000	0.000	0.007	0.007	4	0.000					
16	211.8	0.000	0.000	0.046	0.046	842	6.920	0.000	0.000	0.007	0.007	4	0.000					
17	83.24	0.000	0.000	0.053	0.053	381	6.920	0.000	0.000	0.007	0.007	4	0.000					
18	49.29	0.000	0.000	0.042	0.042	179	6.400	0.000	0.000	0.006	0.006	3	0.000					
19	83.24	0.000	0.000	0.056	0.056	403	6.230	0.000	0.000	0.006	0.006	3	0.000					
20	62.89	0.000	0.000	0.030	0.030	163	6.070	0.000	0.000	0.006	0.006	3	0.000					
21	34.16	0.000	0.000	0.032	0.032	94	6.070	0.000	0.000	0.006	0.006	3	0.000					
22	34.22	0.000	0.000	0.021	0.021	62	4.860	0.000	0.000	0.006	0.006	3	0.000					
23	26.98	0.000	0.000	0.036	0.036	84	4.590	0.000	0.000	0.006	0.006	2	0.000					
24	48.65	0.000	0.000	0.040	0.040	168	4.330	0.000	0.000	0.006	0.006	2	0.000					
25	39.13	0.000	0.000	0.050	0.050	169	4.200	0.000	0.000	0.006	0.006	2	0.000					
26	23.75	0.000	0.000	0.016	0.016	33	4.080	0.000	0.000	0.005	0.005	2	0.000					
27	21.09	0.000	0.000	0.015	0.015	27	3.960	0.000	0.000	0.005	0.005	2	0.000					
28	19.46	0.000	0.000	0.028	0.028	47	3.840	0.000	0.000	0.003	0.003	1	0.000					
29	14.66	0.000	0.000	0.018	0.018	23	3.720	0.000	0.000	0.003	0.003	1	0.000					
30	11.94	0.000	0.000	0.014	0.014	14	3.610	0.000	0.000	0.002	0.002	1	0.000					
31							3.500	0.000	0.000	0.001	0.001	0						
Ten Daily Mean																		
Ten Daily I	91.33	0.000	0.000	0.048	0.048	390	11.68	0.000	0.000	0.018	0.018	17	0.000					
Ten Daily II	138.4	0.000	0.000	0.050	0.050	638	7.858	0.000	0.000	0.008	0.008	6	0.000					
Ten Daily III	27.40	0.000	0.000	0.027	0.027	72	4.251	0.000	0.000	0.004	0.004	2	0.000					
Monthly Total						10995						242						

Annual Sediment Load (Metric Tonnes) : 15728

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Sabarmati at Derol Bridge (01 02 12 006) **Division : Mahi Division, Gandhinagar**

Local River : Sabarmati **Sub-Division : N.W.R.Sub Div., Himatnagar**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 15728

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Sabarmati at Derol Bridge (01 02 12 006) **Division : Mahi Division, Gandhinagar**

Local River : Sabarmati **Sub-Division : N.W.R.Sub Div., Himatnagar**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000											
2	0.000						0.000											
3	0.000						0.000											
4	0.000						0.000											
5	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											
16	0.000						0.000											
17	0.000						0.000											
18	0.000						0.000											
19	0.000						0.000											
20	0.000																	
21	0.000																	
22	0.000																	
23	0.000																	
24	0.000																	
25	0.000																	
26	0.000																	
27	0.000																	
28	0.000																	
29	0.000																	
30	0.000																	
31	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																	
Monthly Total																		

Annual Sediment Load (Metric Tonnes) : 15728

Annual Sediment Load for period : 2005-2012

Station Name : Sabarmati at Derol Bridge (01 02 12 006) **Division : Mahi Division, Gandhinagar**

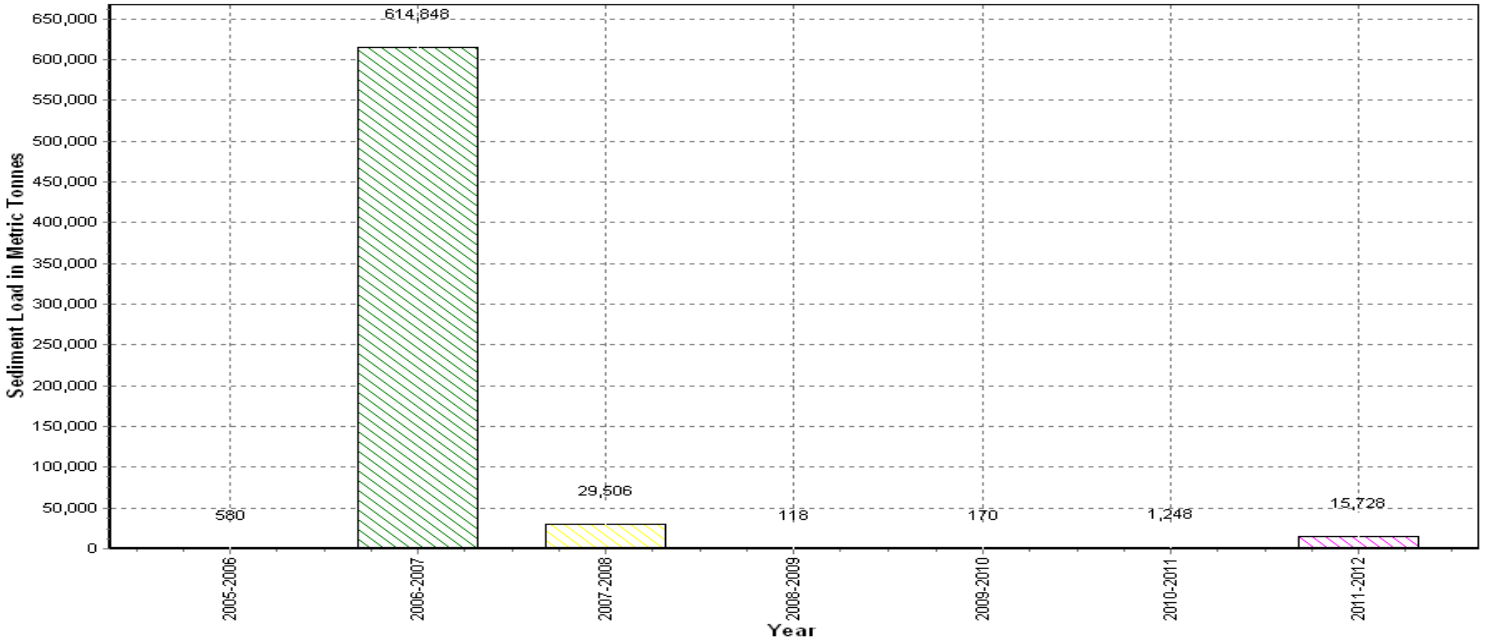
Local River : Sabarmati **Sub-Division : N.W.R.Sub Div., Himatnagar**

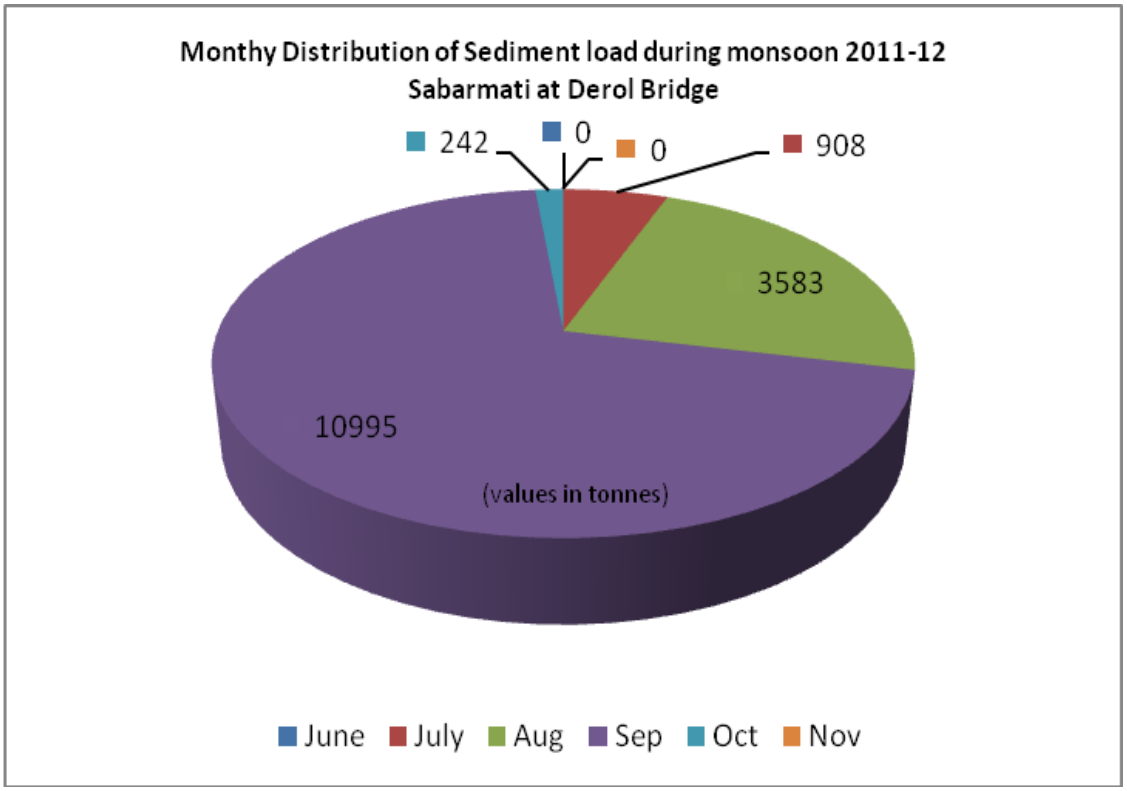
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	580	0	580	157	0.0001
2006-07	614848	0	614848	2864	0.0653
2007-08	29506	0	29506	693	0.0031
2008-09	118	0	118	26	0.0000
2009-10	170	0	170	14	0.0000
2010-11	1248	0	1248	32	0.0001
2011-12	15728	0	15728	326	0.0017

Annual Sediment Load for the period: 2005-2012

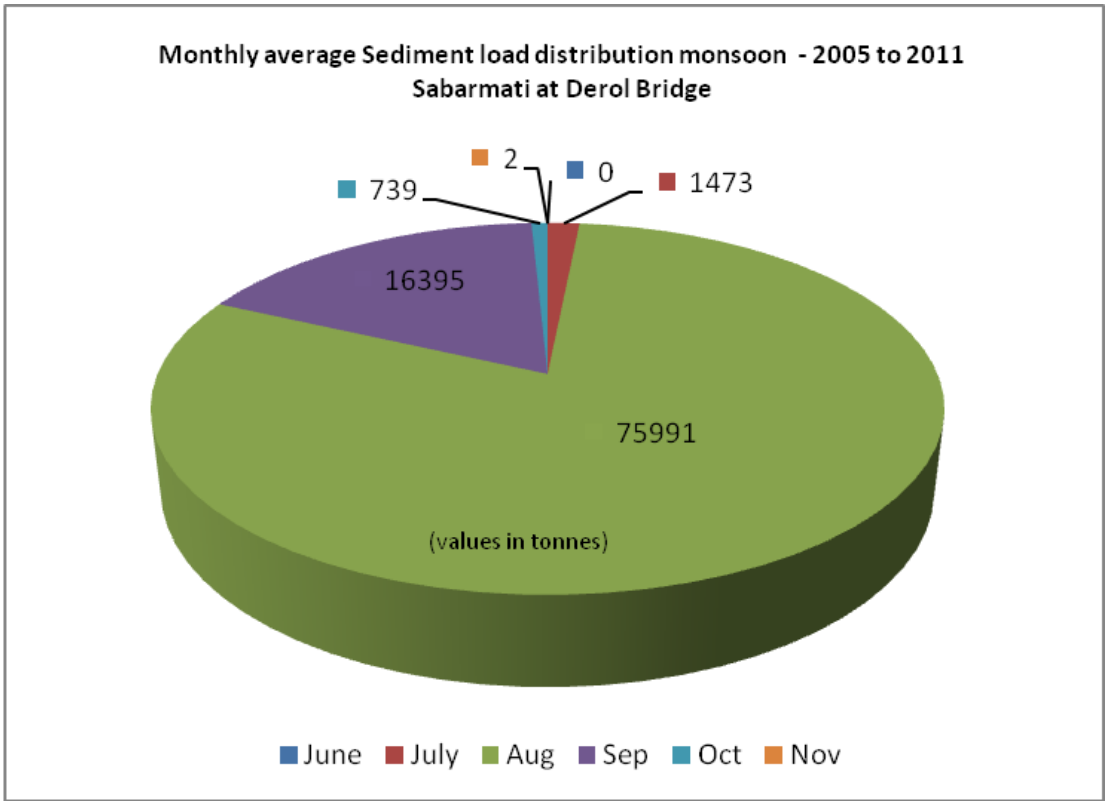
Station Name : Sabarmati at Derol Bridge (01 02 12 006) **Division : Mahi Division, Gandhinagar**

Local River : Sabarmati **Sub-Division : N.W.R.Sub Div., Himatnagar**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Shetruniji at Lowara No sediment was observed in any month



Monthly average Sediment load distribution monsoon - 2005 to 2011 Sabarmati at Derol Bridge No sediment was observed in any month

4.7 Purna Basin

The river Purna is one of the important west flowing rivers in Gujarat state. It originates from Saputara hill ranges and after flowing in Dang, Valsad and Surat districts of Gujarat state for a length of 142-km falls into the Arabian sea. The catchment area of the Purna basin is 2431 sq.km. It lies between 72^0 45' and 74^0 east longitudes and 20^0 40' and 21^0 15' north latitudes. It has only one main tributary namely Jankhari.

There is only one monitoring station near the mouth of the river at Mahuwa in Surat district of Gujarat state. A brief about the station is given in section- 4.7.1

4.7.1 Purna at Mahuwa

The station has a Catchment area of 1,995 sq km. The sediment rating curve at the site is given in **Fig-30**. The maximum sediment concentration of 0.806 g/l was observed on 15.07.2011. The total sediment load during the year is 1,37,169 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.0491 mm. Annual sediment yield over the period of observations is given in **Fig-31**. It is seen from the analysis that sediment yield does not follow any trend over the years. It is seen from **Fig-32** that strong positive correlation exists between annual yield and annual runoff.

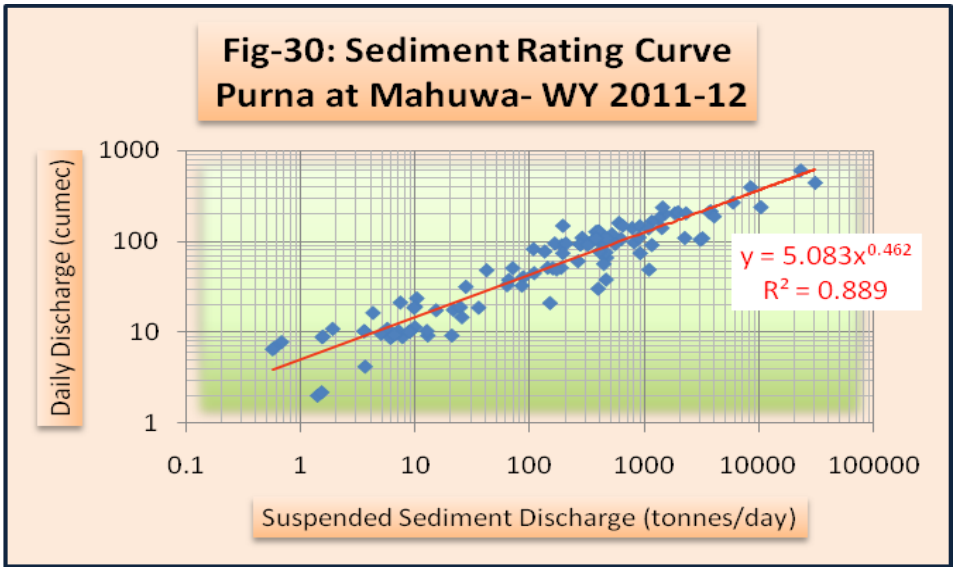


Fig-30: Sediment Rating Curve
Purna at Mahuwa- WY 2011-12
Daily Discharge (cumec)
1000
100
10
1
0.1
1
10
100
1000
10000
100000
Suspended Sediment Discharge (tonnes/day)
y = 5.083x^0.462
R² = 0.889

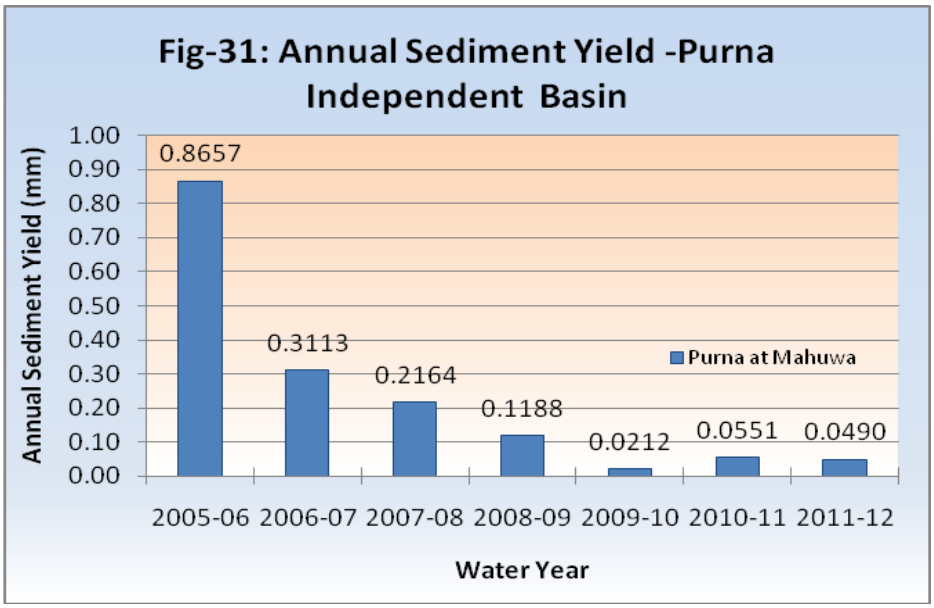


Fig-31: Annual Sediment Yield -Purna Independent Basin
Annual Sediment Yield (mm)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.8657
0.3113
0.2164
0.1188
0.0212
0.0551
0.0490
Purna at Mahuwa
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Water Year

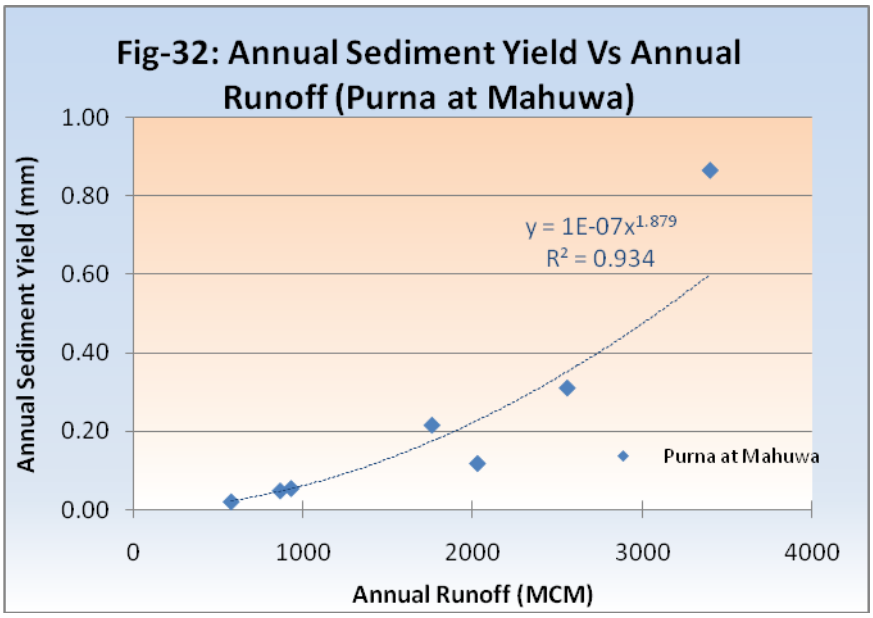
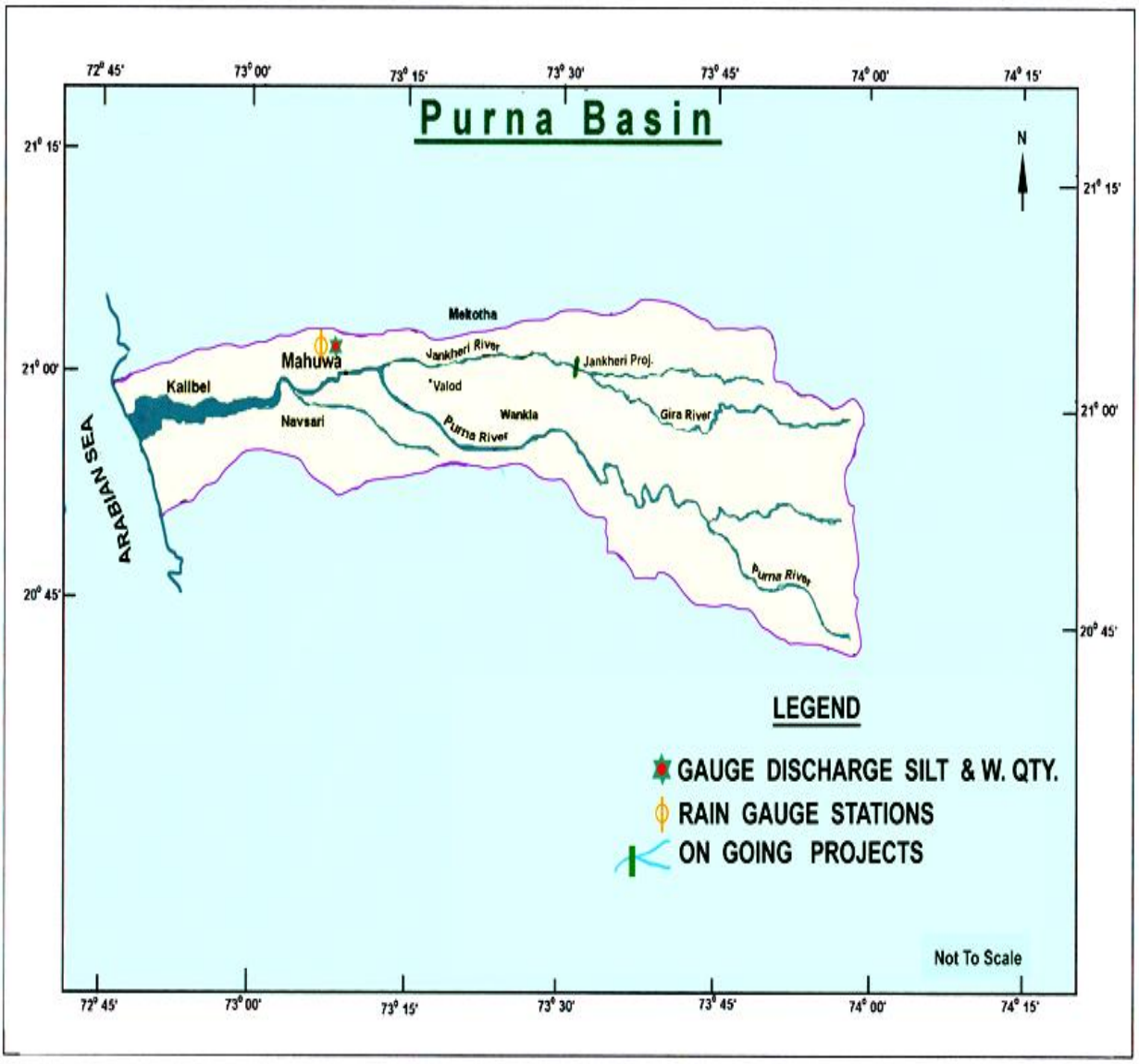


Fig-32: Annual Sediment Yield Vs Annual Runoff (Purna at Mahuwa)
Annual Sediment Yield (mm)
1.00
0.80
0.60
0.40
0.20
0.00
0
1000
2000
3000
4000
Annual Runoff (MCM)
y = 1E-07x^1.879
R² = 0.934
Purna at Mahuwa

Plate -4.7 Purna Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Purna at Mahuwa**	**Code**	**: 01 02 19 001**
State	: Gujarat	District	Surat
Basin	: WFR South of Tapi	Independent River	: Purna
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	:
Division	: Tapi Division, Surat	Sub-Division	: LTSD,CWC,Surat
Drainage Area	: 1995 Sq. Km.	Bank	: Right
Latitude	: 21°00'52" N	Longitude	: 73°08'25" E
Zero of Gauge (m)	: 9 (m.s.l)	04-10-1970	-
	Opening Date	Closing Date	
Gauge	: 04-10-1970		
Discharge	: 12-11-1970		
Sediment	: 18-06-1973		
Water Quality	: 15-06-1977		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Mahuwa (01 02 19 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : LTSD,CWC,Surat**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	205.4	0.000	0.002	0.102	0.104	1846
2	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	216.2	0.000	0.003	0.200	0.203	3792
3	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	202.2	0.000	0.000	0.086	0.086	1502
4	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	106.7	0.000	0.000	0.068	0.068	627
5	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	94.61	0.000	0.000	0.068	0.068	556
6	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	128.4	0.000	0.000	0.034	0.034	377
7	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	98.20	0.000	0.000	0.050	0.050	424
8	0.000	0.000	0.000	0.000	0.000	0	2.023	0.000	0.000	0.008	0.008	1	93.62	0.000	0.000	0.034	0.034	275
9	0.000	0.000	0.000	0.000	0.000	0	2.203	0.000	0.000	0.008	0.008	2	91.55	0.000	0.000	0.024	0.024	190
10	0.000	0.000	0.000	0.000	0.000	0	4.220	0.000	0.000	0.010	0.010	4	120.6	0.000	0.000	0.050	0.050	521
11	0.000	0.000	0.000	0.000	0.000	0	9.281	0.000	0.000	0.026	0.026	21	106.7	0.000	0.000	0.042	0.042	387
12	0.000	0.000	0.000	0.000	0.000	0	51.72	0.000	0.000	0.032	0.032	143	100.1	0.000	0.000	0.040	0.040	346
13	0.000	0.000	0.000	0.000	0.000	0	51.23	0.000	0.000	0.016	0.016	71	141.4	0.000	0.000	0.064	0.064	782
14	0.000	0.000	0.000	0.000	0.000	0	48.50	0.000	0.000	0.010	0.010	42	211.1	0.000	0.002	0.200	0.202	3683
15	0.000	0.000	0.000	0.000	0.000	0	105.2	0.000	0.000	0.338	0.338	3071	444.7	0.000	0.006	0.800	0.806	30967
16	0.000	0.000	0.000	0.000	0.000	0	49.27	0.000	0.003	0.255	0.258	1098	211.1	0.000	0.002	0.106	0.108	1969
17	0.000	0.000	0.000	0.000	0.000	0	30.40	0.000	0.000	0.150	0.150	394	161.0	0.000	0.003	0.040	0.043	598
18	0.000	0.000	0.000	0.000	0.000	0	21.14	0.000	0.000	0.082	0.082	150	129.4	0.000	0.000	0.036	0.036	403
19	0.000	0.000	0.000	0.000	0.000	0	38.22	0.000	0.000	0.140	0.140	462	109.4	0.000	0.000	0.040	0.040	378
20	0.000	0.000	0.000	0.000	0.000	0	208.9	0.000	0.001	0.206	0.207	3737	100.0	0.000	0.000	0.040	0.040	346
21	0.000	0.000	0.000	0.000	0.000	0	109.9	0.000	0.001	0.236	0.237	2251	95.59	0.000	0.000	0.020	0.020	165
22	0.000	0.000	0.000	0.000	0.000	0	66.45	0.000	0.001	0.080	0.081	465	129.7	0.000	0.000	0.035	0.035	392
23	0.000	0.000	0.000	0.000	0.000	0	50.94	0.000	0.001	0.035	0.036	158	92.01	0.000	0.000	0.146	0.146	1161
24	0.000	0.000	0.000	0.000	0.000	0	40.50	0.000	0.000	0.025	0.025	87	98.04	0.000	0.000	0.096	0.096	813
25	0.000	0.000	0.000	0.000	0.000	0	56.86	0.000	0.000	0.090	0.090	442	179.8	0.000	0.002	0.084	0.086	1336
26	0.000	0.000	0.000	0.000	0.000	0	51.64	0.000	0.002	0.040	0.042	187	108.4	0.000	0.000	0.050	0.050	468
27	0.000	0.000	0.000	0.000	0.000	0	141.6	0.000	0.000	0.116	0.116	1419	269.7	0.000	0.003	0.252	0.255	5943
28	0.000	0.000	0.000	0.000	0.000	0	76.27	0.000	0.000	0.070	0.070	461	148.8	0.000	0.001	0.070	0.071	913
29	0.000	0.000	0.000	0.000	0.000	0	74.78	0.000	0.000	0.142	0.142	917	607.5	0.001	0.004	0.436	0.441	23147
30	0.000	0.000	0.000	0.000	0.000	0	108.9	0.000	0.000	0.342	0.342	3218	397.0	0.000	0.001	0.246	0.247	8473
31							240.0	0.000	0.002	0.500	0.502	10409	165.8	0.000	0.001	0.080	0.081	1160
Ten Daily Mean																		
Ten Daily I	0.000	0.000	0.000	0.000	0.000	0	0.845	0.000	0.000	0.003	0.003	1	135.7	0.000	0.001	0.072	0.072	1011
Ten Daily II	0.000	0.000	0.000	0.000	0.000	0	61.39	0.000	0.000	0.126	0.126	919	171.5	0.000	0.001	0.141	0.142	3986
Ten Daily III	0.000	0.000	0.000	0.000	0.000	0	92.53	0.000	0.001	0.152	0.153	1820	208.4	0.000	0.001	0.138	0.139	3997
Monthly																		
Total						0						29211						93940

Annual Sediment Load (Metric Tonnes) : 137169

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Mahuwa (01 02 19 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : LTSD,CWC,Surat**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	205.3	0.000	0.004	0.126	0.130	2306	11.45	0.000	0.000	0.010	0.010	10	4.153	0.000	0.000	0.000	0.000	0
2	149.7	0.000	0.005	0.010	0.015	194	19.00	0.000	0.000	0.015	0.015	25	3.538	0.000	0.000	0.000	0.000	0
3	111.6	0.003	0.000	0.090	0.093	896	10.11	0.000	0.000	0.008	0.008	7	3.488	0.000	0.000	0.000	0.000	0
4	95.56	0.000	0.000	0.025	0.025	206	10.99	0.000	0.000	0.002	0.002	2	3.417	0.000	0.000	0.000	0.000	0
5	189.6	0.000	0.004	0.244	0.248	4062	10.99	0.000	0.000	0.006	0.006	6	4.140	0.000	0.000	0.000	0.000	0
6	139.9	0.000	0.000	0.090	0.090	1088	17.59	0.000	0.000	0.010	0.010	15	4.760	0.000	0.000	0.000	0.000	0
7	238.2	0.000	0.000	0.070	0.070	1441	9.699	0.000	0.000	0.006	0.006	5	4.490	0.000	0.000	0.000	0.000	0
8	149.6	0.000	0.000	0.050	0.050	646	9.291	0.000	0.000	0.016	0.016	13	3.404	0.000	0.000	0.000	0.000	0
9	110.4	0.000	0.000	0.030	0.030	286	14.76	0.000	0.000	0.020	0.020	26	4.156	0.000	0.000	0.000	0.000	0
10	93.58	0.000	0.000	0.034	0.034	275	8.951	0.000	0.000	0.008	0.008	6	4.490	0.000	0.000	0.000	0.000	0
11	82.93	0.000	0.000	0.015	0.015	107	8.761	0.000	0.000	0.008	0.008	6	3.401	0.000	0.000	0.000	0.000	0
12	92.34	0.000	0.000	0.040	0.040	319	10.37	0.000	0.000	0.004	0.004	4	3.220	0.000	0.000	0.000	0.000	0
13	108.9	0.000	0.000	0.040	0.040	376	8.917	0.000	0.000	0.010	0.010	8	3.970	0.000	0.000	0.000	0.000	0
14	74.66	0.000	0.000	0.030	0.030	194	10.25	0.000	0.000	0.010	0.010	9	2.863	0.000	0.000	0.000	0.000	0
15	77.97	0.000	0.000	0.020	0.020	135	10.43	0.000	0.000	0.014	0.014	13	2.793	0.000	0.000	0.000	0.000	0
16	77.74	0.000	0.000	0.060	0.060	403	10.37	0.000	0.000	0.010	0.010	9	2.449	0.000	0.000	0.000	0.000	0
17	60.94	0.000	0.000	0.050	0.050	263	10.37	0.000	0.000	0.008	0.008	7	2.019	0.000	0.000	0.000	0.000	0
18	45.10	0.000	0.000	0.028	0.028	109	9.636	0.000	0.000	0.008	0.008	7	1.998	0.000	0.000	0.000	0.000	0
19	49.42	0.000	0.000	0.040	0.040	171	9.446	0.000	0.000	0.008	0.008	7	1.996	0.000	0.000	0.000	0.000	0
20	33.28	0.000	0.000	0.022	0.022	63	10.23	0.000	0.000	0.010	0.010	9	3.720	0.000	0.000	0.000	0.000	0
21	31.95	0.000	0.000	0.010	0.010	28	10.36	0.000	0.000	0.004	0.004	4	2.432	0.000	0.000	0.000	0.000	0
22	32.82	0.000	0.000	0.030	0.030	85	8.898	0.000	0.000	0.002	0.002	2	0.000	0.000	0.000	0.000	0.000	0
23	37.92	0.000	0.000	0.020	0.020	66	9.040	0.000	0.000	0.002	0.002	2	1.894	0.000	0.000	0.000	0.000	0
24	21.41	0.000	0.000	0.004	0.004	7	7.848	0.000	0.000	0.001	0.001	1	1.640	0.000	0.000	0.000	0.000	0
25	23.81	0.000	0.000	0.005	0.005	10	6.810	0.000	0.000	0.001	0.001	1	1.637	0.000	0.000	0.000	0.000	0
26	19.29	0.000	0.000	0.006	0.006	10	6.560	0.000	0.000	0.001	0.001	1	1.201	0.000	0.000	0.000	0.000	0
27	18.79	0.000	0.000	0.022	0.022	36	6.045	0.000	0.000	0.000	0.000	0	1.870	0.000	0.000	0.000	0.000	0
28	18.76	0.000	0.000	0.006	0.006	10	4.595	0.000	0.000	0.000	0.000	0	0.997	0.000	0.000	0.000	0.000	0
29	17.78	0.000	0.000	0.014	0.014	22	4.224	0.000	0.000	0.000	0.000	0	0.669	0.000	0.000	0.000	0.000	0
30	16.48	0.000	0.000	0.003	0.003	4	5.040	0.000	0.000	0.000	0.000	0	0.636	0.000	0.000	0.000	0.000	0
31							4.166	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	148.3	0.000	0.001	0.077	0.079	1140	12.28	0.000	0.000	0.010	0.010	11	4.003	0.000	0.000	0.000	0.000	0
Ten Daily II	70.33	0.000	0.000	0.035	0.035	214	9.878	0.000	0.000	0.009	0.009	8	2.843	0.000	0.000	0.000	0.000	0
Ten Daily III	23.90	0.000	0.000	0.012	0.012	28	6.690	0.000	0.000	0.001	0.001	1	1.298	0.000	0.000	0.000	0.000	0
Monthly																		
Total						13818						199						0

Annual Sediment Load (Metric Tonnes) : 137169

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Mahuwa (01 02 19 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : LTSD,CWC,Surat**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.597	0.000	0.000	0.000	0.000	0	0.770	0.000	0.000	0.000	0.000	0	0.735	0.000	0.000	0.000	0.000	0
2	0.351	0.000	0.000	0.000	0.000	0	1.148	0.000	0.000	0.000	0.000	0	0.747	0.000	0.000	0.000	0.000	0
3	0.319	0.000	0.000	0.000	0.000	0	1.145	0.000	0.000	0.000	0.000	0	0.729	0.000	0.000	0.000	0.000	0
4	0.770	0.000	0.000	0.000	0.000	0	1.124	0.000	0.000	0.000	0.000	0	0.692	0.000	0.000	0.000	0.000	0
5	1.394	0.000	0.000	0.000	0.000	0	1.113	0.000	0.000	0.000	0.000	0	0.770	0.000	0.000	0.000	0.000	0
6	1.000	0.000	0.000	0.000	0.000	0	1.257	0.000	0.000	0.000	0.000	0	0.675	0.000	0.000	0.000	0.000	0
7	1.387	0.000	0.000	0.000	0.000	0	1.226	0.000	0.000	0.000	0.000	0	0.690	0.000	0.000	0.000	0.000	0
8	1.402	0.000	0.000	0.000	0.000	0	0.670	0.000	0.000	0.000	0.000	0	0.732	0.000	0.000	0.000	0.000	0
9	1.484	0.000	0.000	0.000	0.000	0	1.119	0.000	0.000	0.000	0.000	0	0.737	0.000	0.000	0.000	0.000	0
10	1.485	0.000	0.000	0.000	0.000	0	1.107	0.000	0.000	0.000	0.000	0	0.720	0.000	0.000	0.000	0.000	0
11	1.000	0.000	0.000	0.000	0.000	0	1.096	0.000	0.000	0.000	0.000	0	0.684	0.000	0.000	0.000	0.000	0
12	1.556	0.000	0.000	0.000	0.000	0	1.094	0.000	0.000	0.000	0.000	0	0.880	0.000	0.000	0.000	0.000	0
13	1.554	0.000	0.000	0.000	0.000	0	0.993	0.000	0.000	0.000	0.000	0	0.704	0.000	0.000	0.000	0.000	0
14	1.562	0.000	0.000	0.000	0.000	0	0.966	0.000	0.000	0.000	0.000	0	1.444	0.000	0.000	0.000	0.000	0
15	1.685	0.000	0.000	0.000	0.000	0	0.480	0.000	0.000	0.000	0.000	0	1.424	0.000	0.000	0.000	0.000	0
16	1.715	0.000	0.000	0.000	0.000	0	0.954	0.000	0.000	0.000	0.000	0	1.352	0.000	0.000	0.000	0.000	0
17	1.694	0.000	0.000	0.000	0.000	0	0.941	0.000	0.000	0.000	0.000	0	1.213	0.000	0.000	0.000	0.000	0
18	1.400	0.000	0.000	0.000	0.000	0	0.938	0.000	0.000	0.000	0.000	0	1.136	0.000	0.000	0.000	0.000	0
19	1.556	0.000	0.000	0.000	0.000	0	0.910	0.000	0.000	0.000	0.000	0	0.770	0.000	0.000	0.000	0.000	0
20	1.619	0.000	0.000	0.000	0.000	0	0.807	0.000	0.000	0.000	0.000	0	0.880	0.000	0.000	0.000	0.000	0
21	1.483	0.000	0.000	0.000	0.000	0	0.780	0.000	0.000	0.000	0.000	0	0.601	0.000	0.000	0.000	0.000	0
22	1.485	0.000	0.000	0.000	0.000	0	0.400	0.000	0.000	0.000	0.000	0	0.537	0.000	0.000	0.000	0.000	0
23	1.487	0.000	0.000	0.000	0.000	0	0.769	0.000	0.000	0.000	0.000	0	0.548	0.000	0.000	0.000	0.000	0
24	1.473	0.000	0.000	0.000	0.000	0	0.747	0.000	0.000	0.000	0.000	0	0.538	0.000	0.000	0.000	0.000	0
25	1.000	0.000	0.000	0.000	0.000	0	0.743	0.000	0.000	0.000	0.000	0	0.616	0.000	0.000	0.000	0.000	0
26	1.363	0.000	0.000	0.000	0.000	0	0.770	0.000	0.000	0.000	0.000	0	0.670	0.000	0.000	0.000	0.000	0
27	1.338	0.000	0.000	0.000	0.000	0	0.722	0.000	0.000	0.000	0.000	0	0.481	0.000	0.000	0.000	0.000	0
28	1.359	0.000	0.000	0.000	0.000	0	0.702	0.000	0.000	0.000	0.000	0	0.402	0.000	0.000	0.000	0.000	0
29	1.263	0.000	0.000	0.000	0.000	0	0.770	0.000	0.000	0.000	0.000	0	0.365	0.000	0.000	0.000	0.000	0
30	1.249	0.000	0.000	0.000	0.000	0	0.699	0.000	0.000	0.000	0.000	0						
31	1.252	0.000	0.000	0.000	0.000	0	0.761	0.000	0.000	0.000	0.000	0						
Ten Daily Mean																		
Ten Daily I	1.019	0.000	0.000	0.000	0.000	0	1.068	0.000	0.000	0.000	0.000	0	0.723	0.000	0.000	0.000	0.000	0
Ten Daily II	1.534	0.000	0.000	0.000	0.000	0	0.918	0.000	0.000	0.000	0.000	0	1.049	0.000	0.000	0.000	0.000	0
Ten Daily III	1.341	0.000	0.000	0.000	0.000	0	0.715	0.000	0.000	0.000	0.000	0	0.529	0.000	0.000	0.000	0.000	0
Monthly																		
Total						0						0						0

Annual Sediment Load (Metric Tonnes) : 137169

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Purna at Mahuwa (01 02 19 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : LTSD,CWC,Surat**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.351	0.000	0.000	0.000	0.000	0	0.759	0.000	0.000	0.000	0.000	0	0.078	0.000	0.000	0.000	0.000	0
2	0.337	0.000	0.000	0.000	0.000	0	0.531	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
3	0.331	0.000	0.000	0.000	0.000	0	0.530	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
4	0.480	0.000	0.000	0.000	0.000	0	0.393	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
5	0.547	0.000	0.000	0.000	0.000	0	0.563	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
6	0.604	0.000	0.000	0.000	0.000	0	0.563	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
7	0.584	0.000	0.000	0.000	0.000	0	0.369	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
8	0.670	0.000	0.000	0.000	0.000	0	0.657	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
9	0.535	0.000	0.000	0.000	0.000	0	0.529	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
10	0.530	0.000	0.000	0.000	0.000	0	0.529	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
11	0.570	0.000	0.000	0.000	0.000	0	0.604	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
12	0.407	0.000	0.000	0.000	0.000	0	0.592	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
13	0.398	0.000	0.000	0.000	0.000	0	0.600	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
14	0.402	0.000	0.000	0.000	0.000	0	0.759	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
15	0.397	0.000	0.000	0.000	0.000	0	0.759	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
16	0.374	0.000	0.000	0.000	0.000	0	0.672	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
17	0.523	0.000	0.000	0.000	0.000	0	0.678	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
18	0.570	0.000	0.000	0.000	0.000	0	0.684	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
19	0.523	0.000	0.000	0.000	0.000	0	0.686	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
20	0.525	0.000	0.000	0.000	0.000	0	0.607	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
21	0.615	0.000	0.000	0.000	0.000	0	0.605	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
22	0.619	0.000	0.000	0.000	0.000	0	0.759	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
23	0.608	0.000	0.000	0.000	0.000	0	0.532	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
24	0.529	0.000	0.000	0.000	0.000	0	0.528	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
25	0.570	0.000	0.000	0.000	0.000	0	0.396	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
26	0.517	0.000	0.000	0.000	0.000	0	0.570	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
27	0.688	0.000	0.000	0.000	0.000	0	0.574	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
28	0.679	0.000	0.000	0.000	0.000	0	0.521	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
29	0.667	0.000	0.000	0.000	0.000	0	0.657	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
30	0.595	0.000	0.000	0.000	0.000	0	0.345	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
31	0.589	0.000	0.000	0.000	0.000	0							0.000	0.000	0.000	0.000	0.000	0
Ten Daily Mean																		
Ten Daily I	0.497	0.000	0.000	0.000	0.000	0	0.542	0.000	0.000	0.000	0.000	0	0.008	0.000	0.000	0.000	0.000	0
Ten Daily II	0.469	0.000	0.000	0.000	0.000	0	0.664	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
Ten Daily III	0.607	0.000	0.000	0.000	0.000	0	0.549	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0
Monthly Total						0						0						0

Annual Sediment Load (Metric Tonnes) : 137169

Annual Sediment Load for period : 2005-2012

Station Name : Purna at Mahuwa (01 02 19 001) **Division : Tapi Division, Surat**

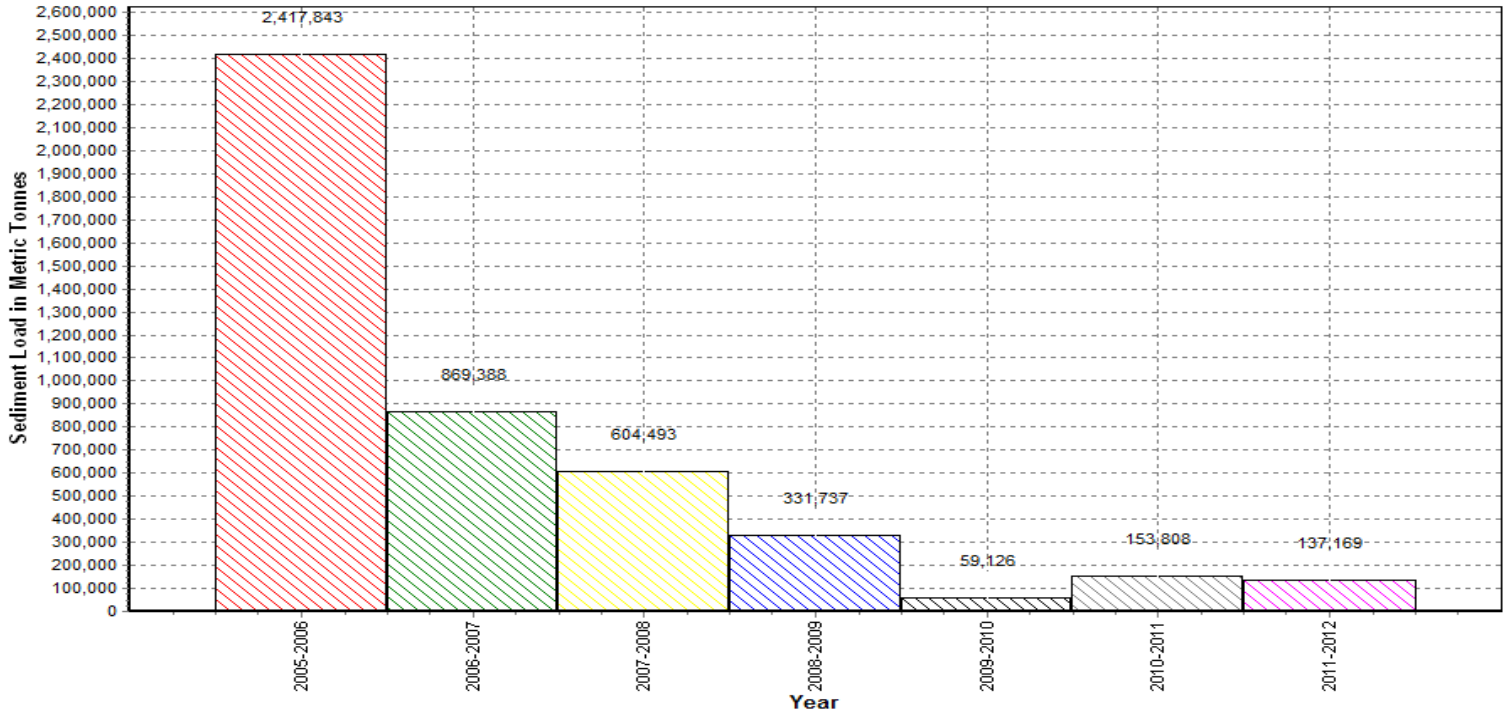
Local River : **Sub-Division : LTSD,CWC,Surat**

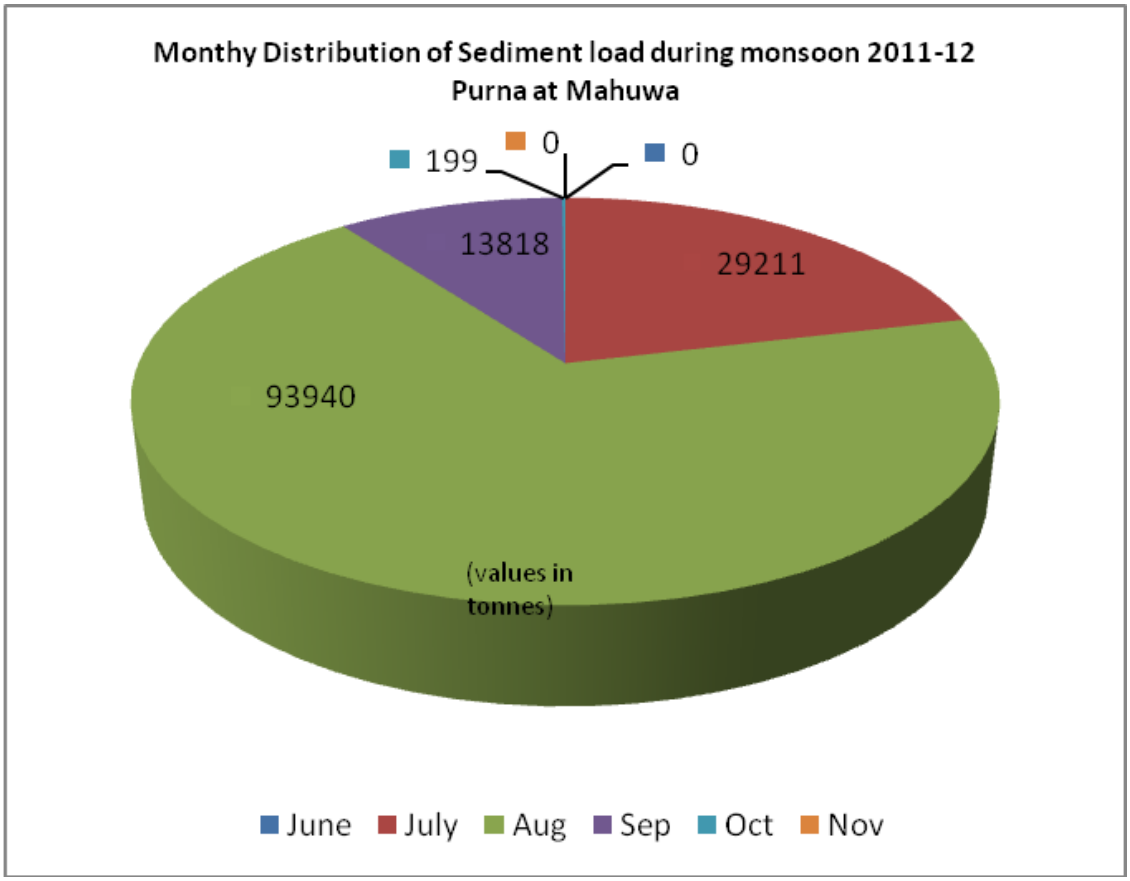
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	2417792	51	2417843	3395	0.8657
2006-07	869388	0	869388	2552	0.3113
2007-08	604493	0	604493	1755	0.2164
2008-09	331705	32	331737	2023	0.1188
2009-10	59126	0	59126	571	0.0212
2010-11	153808	0	153808	926	0.0551
2011-12	137169	0	137169	858	0.0490

Annual Sediment Load for the period: 2005-2012

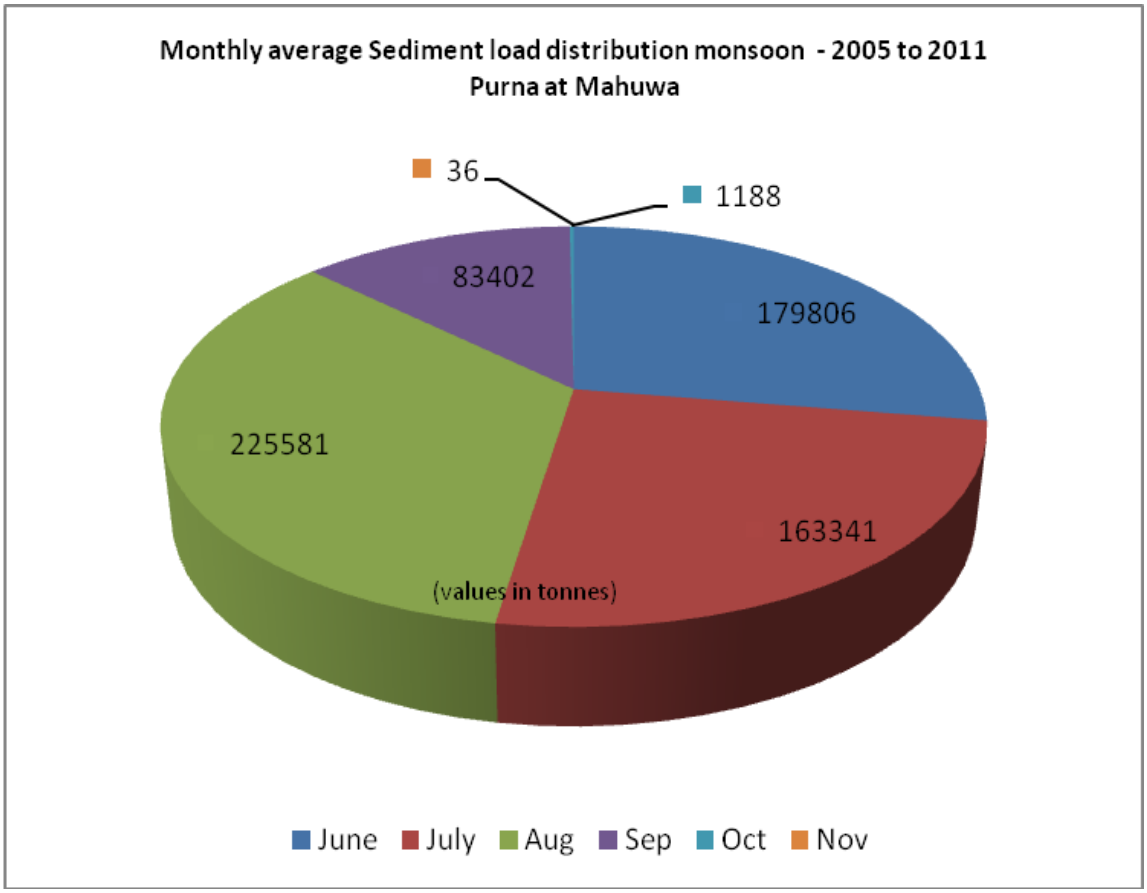
Station Name : Purna at Mahuwa (01 02 19 001) **Division : Tapi Division, Surat**

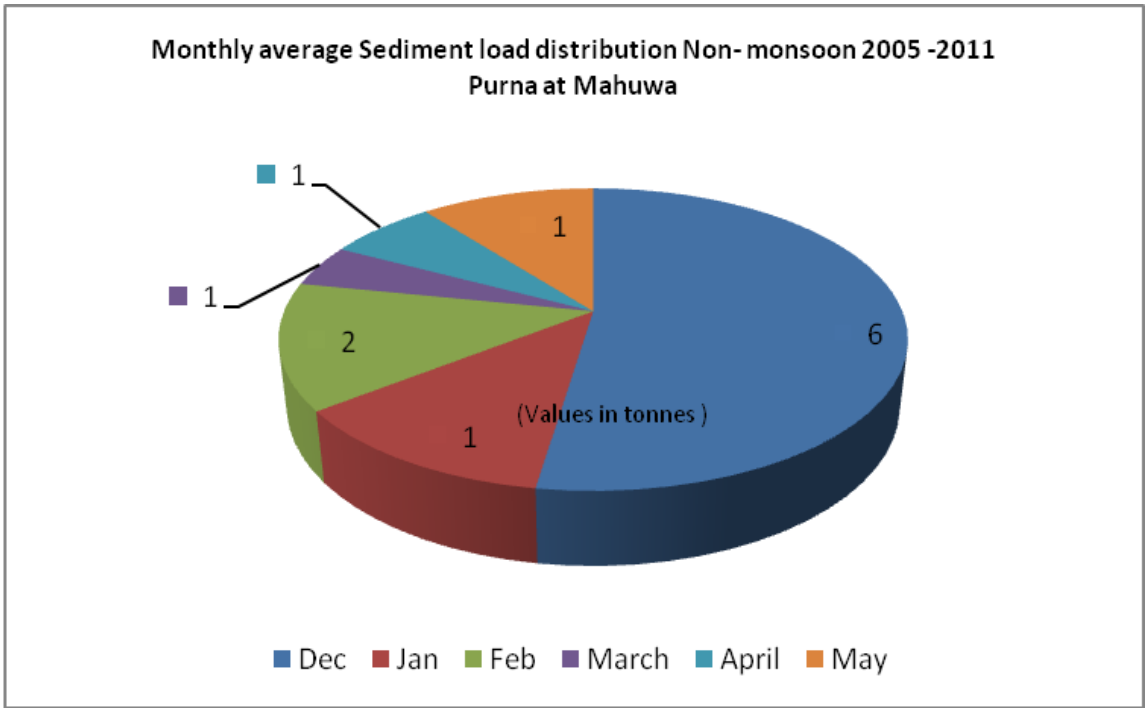
Local River : **Sub-Division : LTSD,CWC,Surat**





Monthy Distribution of Sediment load during Non- monsoon 2011-12
Purna at Mahuwa No sediment was observed in any month


Monthly average Sediment load distribution monsoon - 2005 to 2011
Purna at Mahuwa
36
1188
83402
179806
225581
163341
(values in tonnes)
June
July
Aug
Sep
Oct
Nov


Monthly average Sediment load distribution Non- monsoon 2005 -2011
Purna at Mahuwa
1
1
1
2
6
1
(Values in tonnes)
Dec
Jan
Feb
March
April
May

4.8 Ambika Basin

The river Ambika is one of the west flowing rivers in Gujarat State. It originates from Satapura hill ranges and flows through Dangs and Valsad districts of Gujarat. After flowing for a length of 136 km, it falls into the Arabian Sea. The catchment area of Ambika basin is 2715 sq.km. The basin lies between $72^0$50' and 73^0 50' east longitudes and 20^0 03' and 21^0 08' north latitudes. The important tributaries of Ambika are Khapri and Walam.

There is only one monitoring station at Gadat for analysis of sediment load in Ambika basin. A brief about the station is given in section- 4.8.1

4.8.1. Ambika at Gadat

The station has a Catchment area of 1,510 sq km. The sediment rating curve at the site is given in **Fig-33**. The maximum sediment concentration of 1.500 g/l was observed on 29.08.2011. The total sediment load during the year is 4,26,955 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.2020 mm. Annual sediment yield over the period of observations is given in **Fig-34**. It is seen from the analysis that sediment yield does not follow any trend over the years. It is seen from **Fig-35** that a very strong positive correlation exists between annual yield and annual runoff.

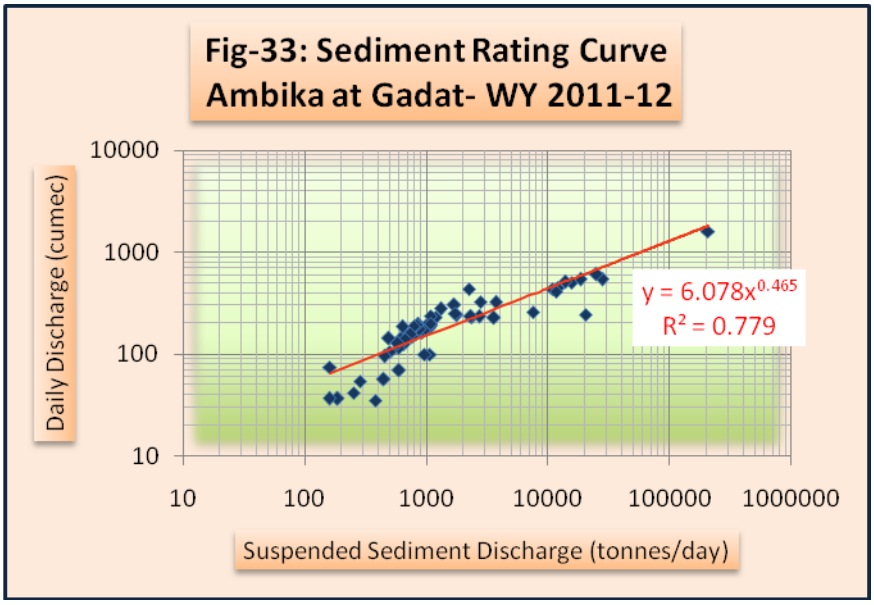


Fig-33: Sediment Rating Curve
Ambika at Gadat- WY 2011-12
Daily Discharge (cumec)
10000
1000
100
10
y = 6.078x^0.465
R² = 0.779
10
100
1000
10000
100000
1000000
Suspended Sediment Discharge (tonnes/day)

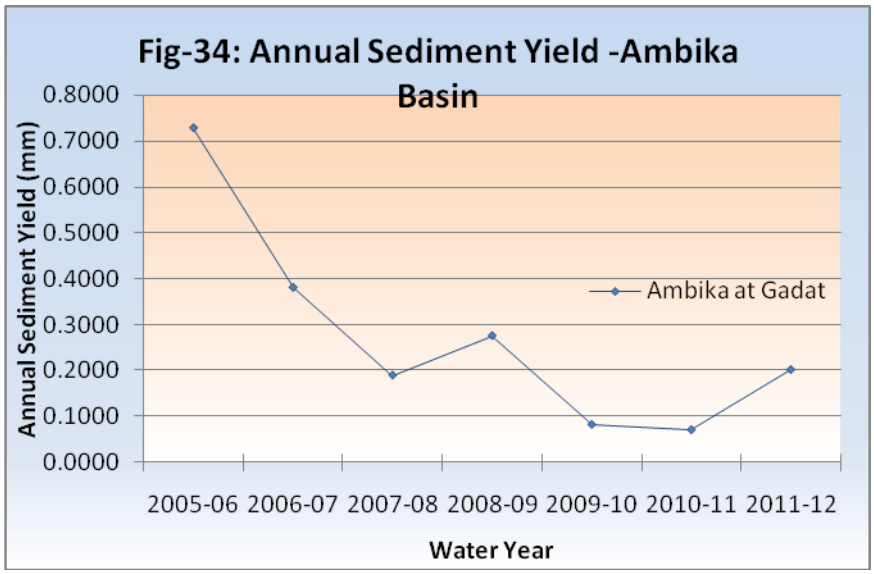


Fig-34: Annual Sediment Yield -Ambika Basin
Annual Sediment Yield (mm)
0.8000
0.7000
0.6000
0.5000
0.4000
0.3000
0.2000
0.1000
0.0000
Ambika at Gadat
2005-06 2006-07 2007-08 2008-09 2009-10 2010-11 2011-12
Water Year

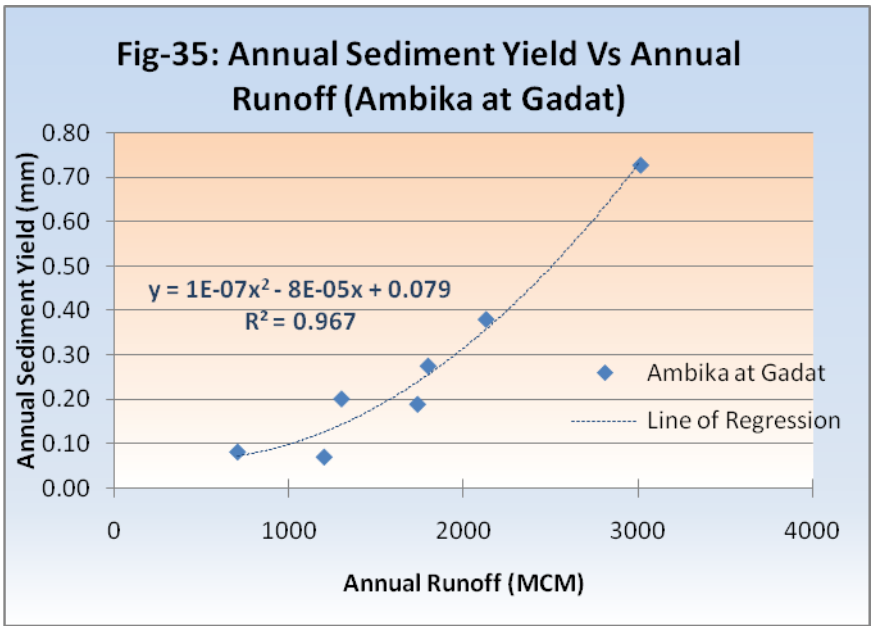
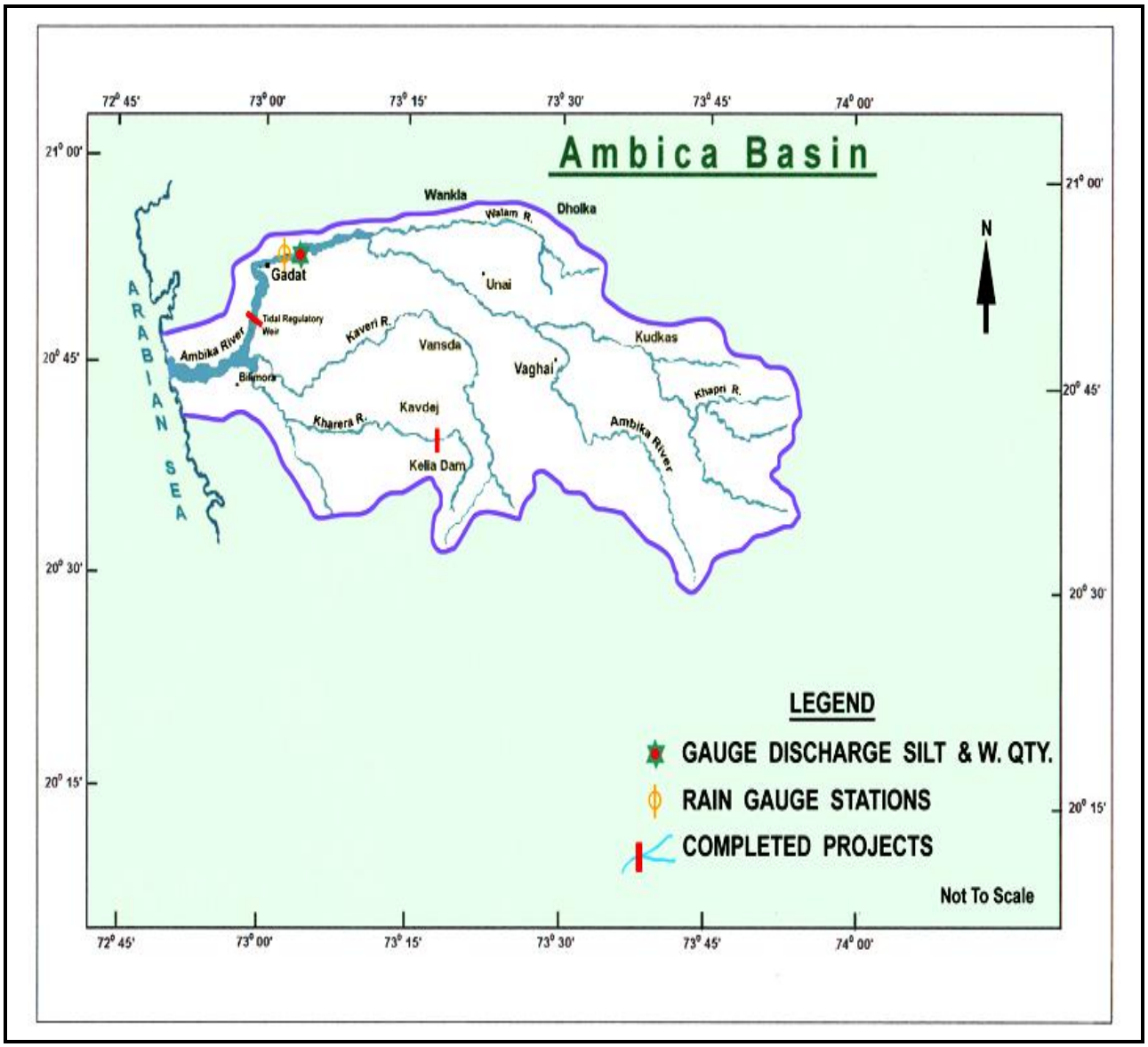


Fig-35: Annual Sediment Yield Vs Annual Runoff (Ambika at Gadat)
Annual Sediment Yield (mm)
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
y = 1E-07x² - 8E-05x + 0.079
R² = 0.967
Ambika at Gadat
Line of Regression
0
1000
2000
3000
4000
Annual Runoff (MCM)

Plate -4.8 Ambika Basin



150

HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Ambica at Gadat**	**Code**	**: 01 02 20 001**
State	: Gujarat	District	Valsad
Basin	: WFR South of Tapi	Independent River	: Ambika
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	:
Division	: Surat	Sub-Division	: Surat
Drainage Area	: 1510 Sq. Km.	Bank	:
Latitude	: 20°51'22" N	Longitude	: 72°59'05" E
Zero of Gauge (m)	: 1.5 (m.s.l)	14-01-1979	-
	Opening Date	Closing Date	
Gauge	: 14-01-1979		
Discharge	: 12-03-1979		
Sediment	: 01-02-1985		
Water Quality	: 01-04-1980		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Ambica at Gadat (01 02 20 001) **Division : Surat**

Local River : **Sub-Division : Surat**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						411.3	0.000	0.065	0.265	0.330	11727
2	0.000						0.000						434.5	0.000	0.000	0.060	0.060	2252
3	0.000						0.000						241.2	0.000	0.000	0.085	0.085	1771
4	0.000						0.000						192.8	0.000	0.000	0.066	0.066	1100
5	0.000						0.000						161.6	0.000	0.000	0.065	0.065	908
6	0.000						0.000						221.6	0.000	0.000	0.060	0.060	1149
7	0.000						0.000						157.0	0.000	0.000	0.050	0.050	678
8	0.000						0.000						172.6	0.000	0.000	0.063	0.063	940
9	0.000						0.000						151.2	0.000	0.000	0.055	0.055	718
10	0.000						0.000						188.1	0.000	0.000	0.061	0.061	992
11	0.000						0.000						156.3	0.000	0.000	0.060	0.060	810
12	0.000						0.000						126.0	0.000	0.000	0.060	0.060	653
13	0.000						0.000						180.7	0.000	0.000	0.068	0.068	1062
14	0.000						0.000						146.6	0.000	0.000	0.060	0.060	760
15	0.000						0.000						539.8	0.000	0.100	0.500	0.600	27982
16	0.000						0.000						258.3	0.000	0.103	0.233	0.336	7500
17	0.000						0.000						230.1	0.000	0.000	0.060	0.060	1193
18	0.000						36.52	0.000	0.000	0.058	0.058	183	195.6	0.000	0.000	0.050	0.050	845
19	0.000						53.76	0.000	0.000	0.061	0.061	283	186.1	0.000	0.000	0.053	0.053	852
20	0.000						437.4	0.000	0.058	0.233	0.291	10997	180.8	0.000	0.000	0.065	0.065	1015
21	0.000						303.1	0.000	0.000	0.065	0.065	1702	144.5	0.000	0.000	0.050	0.050	624
22	0.000						56.40	0.000	0.000	0.092	0.092	448	251.4	0.000	0.000	0.080	0.080	1738
23	0.000						41.70	0.000	0.000	0.070	0.070	252	175.8	0.000	0.000	0.065	0.065	987
24	0.000						69.17	0.000	0.000	0.100	0.100	598	175.3	0.000	0.000	0.058	0.058	878
25	0.000						36.54	0.000	0.000	0.059	0.059	186	206.0	0.000	0.000	0.060	0.060	1068
26	0.000						36.39	0.000	0.000	0.051	0.051	160	226.9	0.000	0.063	0.120	0.183	3588
27	0.000						99.65	0.000	0.000	0.124	0.124	1068	501.9	0.000	0.098	0.263	0.361	15653
28	0.000						99.90	0.000	0.000	0.113	0.113	975	604.2	0.000	0.180	0.300	0.480	25057
29	0.000						35.23	0.000	0.000	0.125	0.125	381	1594	0.000	0.500	1.000	1.500	206617
30	0.000						229.4	0.000	0.000	0.118	0.118	2339	537.6	0.000	0.093	0.304	0.397	18441
31							451.1	0.000	0.060	0.250	0.310	12081	324.2	0.000	0.000	0.100	0.100	2801
Ten Daily Mean																		
Ten Daily I	0.000						0.000						233.2	0.000	0.007	0.083	0.090	2223
Ten Daily II	0.000						52.77	0.000	0.019	0.117	0.137	3821	220.0	0.000	0.020	0.121	0.141	4267
Ten Daily III	0.000						132.6	0.000	0.005	0.106	0.112	1835	431.1	0.000	0.085	0.218	0.303	25223
Monthly Total												31654						342358

Annual Sediment Load (Metric Tonnes) : 426955

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Ambica at Gadat (01 02 20 001) **Division : Surat**

Local River : **Sub-Division : Surat**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	512.4	0.000	0.096	0.218	0.314	13901	0.000						0.000					
2	236.0	0.000	0.000	0.053	0.053	1081	0.000						0.000					
3	194.8	0.000	0.000	0.050	0.050	842	0.000						0.000					
4	186.8	0.000	0.000	0.049	0.049	791	0.000						0.000					
5	276.2	0.000	0.000	0.055	0.055	1313	0.000						0.000					
6	199.1	0.000	0.000	0.063	0.063	1084	0.000						0.000					
7	322.3	0.000	0.043	0.092	0.135	3760	0.000						0.000					
8	232.0	0.000	0.058	0.077	0.135	2706	0.000						0.000					
9	156.2	0.000	0.000	0.055	0.055	742	0.000						0.000					
10	142.5	0.000	0.000	0.040	0.040	492	0.000						0.000					
11	233.2	0.000	0.045	0.070	0.115	2317	0.000						0.000					
12	184.6	0.000	0.000	0.040	0.040	638	0.000						0.000					
13	242.8	0.000	0.058	0.910	0.968	20310	0.000						0.000					
14	141.3	0.000	0.000	0.055	0.055	671	0.000						0.000					
15	114.4	0.000	0.000	0.060	0.060	593	0.000						0.000					
16	127.5	0.000	0.000	0.053	0.053	584	0.000						0.000					
17	105.8	0.000	0.000	0.055	0.055	503	0.000						0.000					
18	74.57	0.000	0.000	0.025	0.025	161	0.000						0.000					
19	95.56	0.000	0.000	0.055	0.055	454	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											
Ten Daily Mean																		
Ten Daily I	245.8	0.000	0.020	0.075	0.095	2671	0.000						0.000					
Ten Daily II	132.0	0.000	0.011	0.147	0.158	2915	0.000						0.000					
Ten Daily III	0.000						0.000						0.000					
Monthly Total						52943												

Annual Sediment Load (Metric Tonnes) : 426955

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Ambica at Gadat (01 02 20 001) **Division : Surat**

Local River : **Sub-Division : Surat**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 426955

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Ambica at Gadat (01 02 20 001) **Division : Surat**

Local River : **Sub-Division : Surat**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 426955

Annual Sediment Load for period : 2005-2012

Station Name : Ambica at Gadat (01 02 20 001) **Division : Surat**

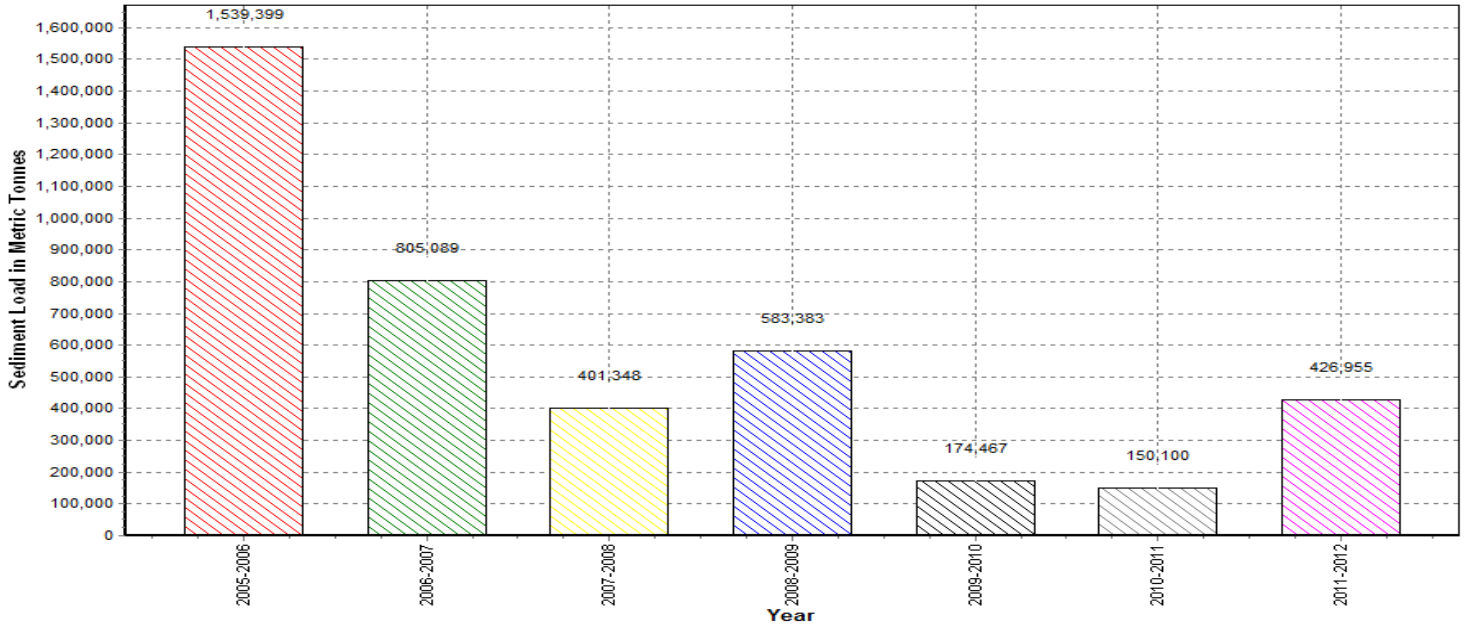
Local River : **Sub-Division : Surat**

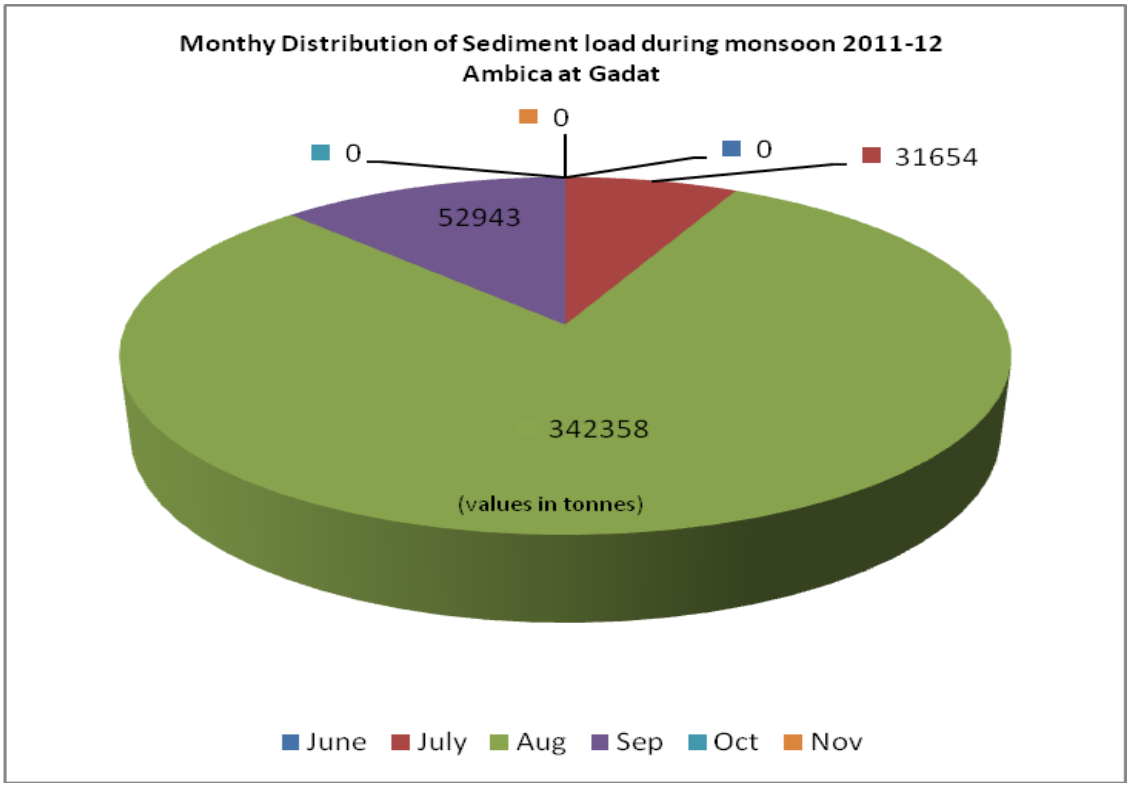
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	1539399	0	1539399	3010	0.7282
2006-07	805089	0	805089	2126	0.3808
2007-08	401348	0	401348	1734	0.1899
2008-09	583383	0	583383	1794	0.2760
2009-10	174467	0	174467	704	0.0825
2010-11	150100	0	150100	1199	0.0710
2011-12	426955	0	426955	1299	0.2020

Annual Sediment Load for the period: 2005-2012

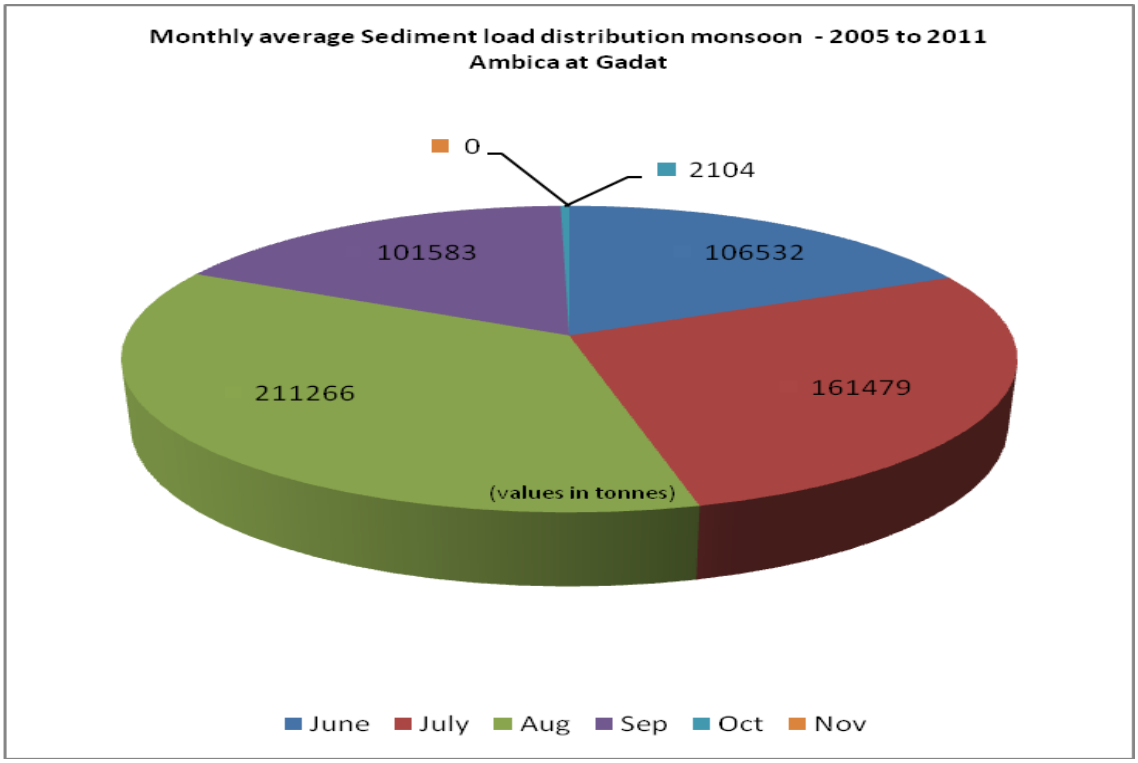
Station Name : Ambica at Gadat (01 02 20 001) **Division : Surat**

Local River : **Sub-Division : Surat**





Monthly average Sediment load distribution Non- monsoon 2011-12
Ambica at Gadat No sediment was observed in any month



Monthly average Sediment load distribution Non- monsoon 2005- 2011
Ambica at Gadat No sediment was observed in any month

4.9 Vaitarna Basin

The river Vaitarna originates from hilly terrain of Maharashtra at Trimbak in Nasik district. After running for 120 km in Maharashtra towards west, it falls into the Arabian Sea. The catchment area of the basin is 3,637 sq.km. This drainage area is located between east longitudes of 72° 45' and 73° 35' and north latitudes of 19° 30' and 20° 20'. The main tributaries of this river are Pinjal, Garjal, Surya, Daharji and Tansa. There are some irrigation projects under construction namely Surya and Wandri on the tributaries of the Vaitarna river

There is only one hydrological observation site on Vaitarna river at Durvesh which is situated at the upstream of confluence of Surya and Tansa tributaries. A brief about the station is given in section- 4.9.1

4.9.1. Vaitarna at Durvesh

The station has a Catchment area of 2,019 sq km. The sediment rating curve at the site is given in **Fig-36**. The maximum sediment concentration of 1.470 g/l was observed on 31.07.2011. The total sediment load during the year is 22,57,267 metric tonnes. The monsoon load constitutes 100 % of the total load. The annual sediment yield over the catchment during water year 2011-12 is 0.7986 mm. Annual sediment yield over the period of observations is given in **Fig-37** It is seen from **Fig-38** that fairly strong positive correlation exists between annual yield and annual runoff.

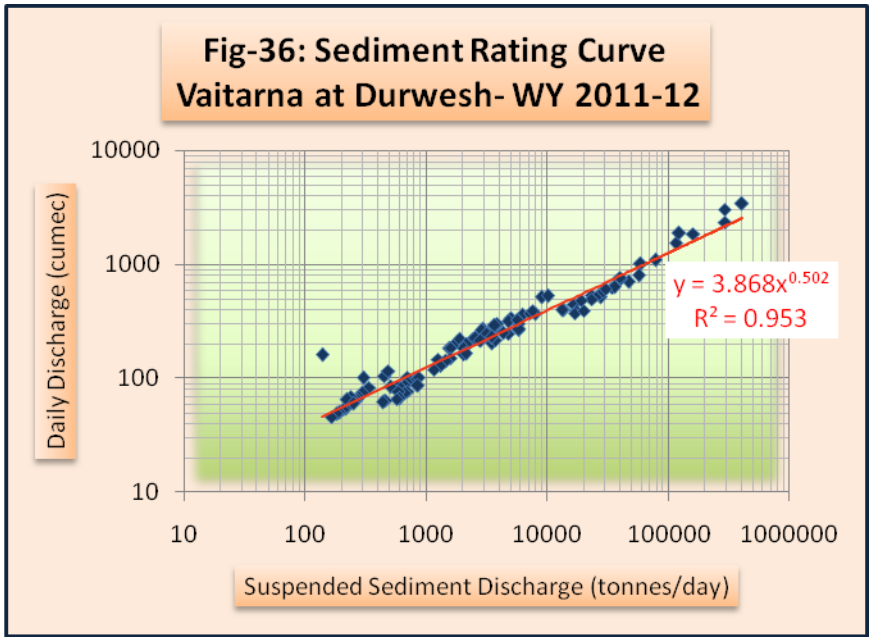


Fig-36: Sediment Rating Curve
Vaitarna at Durwesh- WY 2011-12
Daily Discharge (cumec)
10000
1000
100
10
y = 3.868x^0.502
R² = 0.953
10
100
1000
10000
100000
1000000
Suspended Sediment Discharge (tonnes/day)

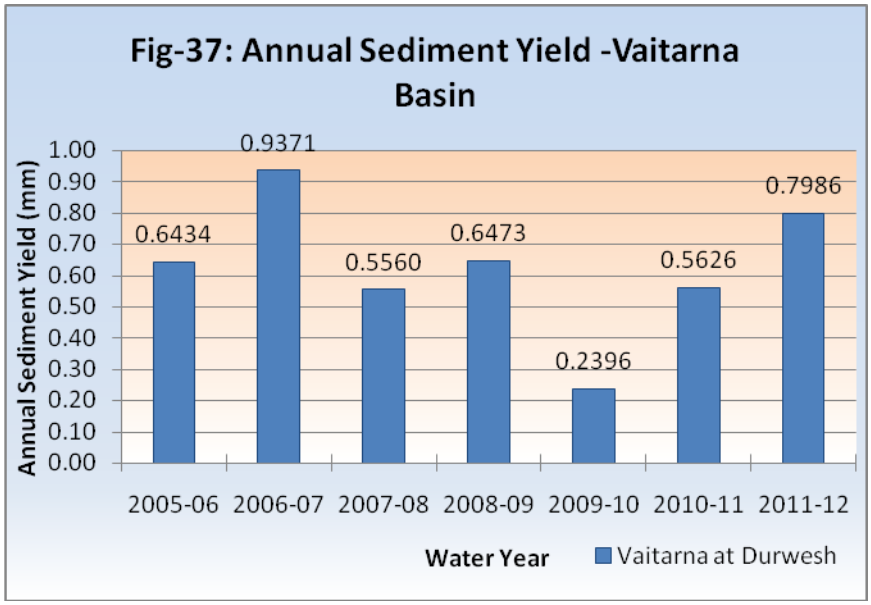


Fig-37: Annual Sediment Yield -Vaitarna Basin
Annual Sediment Yield (mm)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.6434
0.9371
0.5560
0.6473
0.2396
0.5626
0.7986
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
Water Year
Vaitarna at Durwesh

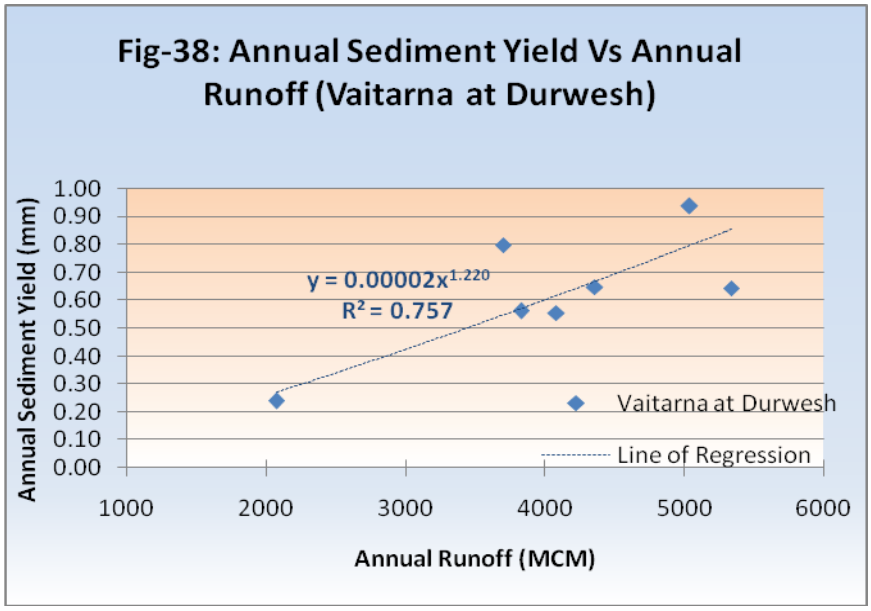
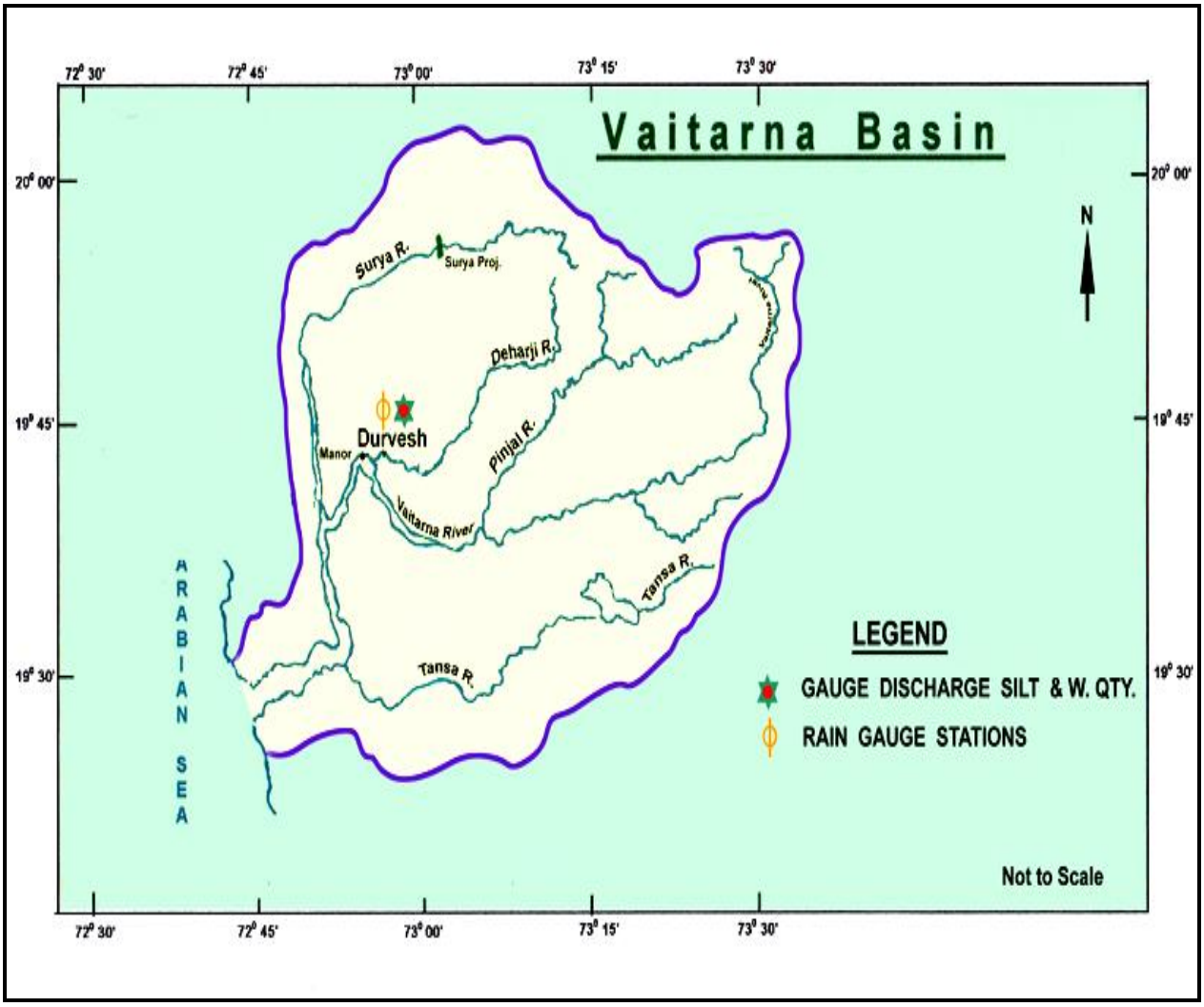


Fig-38: Annual Sediment Yield Vs Annual Runoff (Vaitarna at Durwesh)
Annual Sediment Yield (mm)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
y = 0.00002x^1.220
R² = 0.757
Vaitarna at Durwesh
Line of Regression
1000
2000
3000
4000
5000
6000
Annual Runoff (MCM)

Plate – 4.9 Vaitarna Basin



HISTORY SHEET

		Water Year	**: 2011-2012**
Site	**: Vaitarna at Durvesh**	**Code**	**: 01 02 25 001**
State	: Maharashtra	District	Thane
Basin	: WFR South of Tapi	Independent River	: Vaitarna
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	:
Division	: Tapi Division, Surat	Sub-Division	: DGSD,Silvassa
Drainage Area	: 2019 Sq. Km.	Bank	:
Latitude	: 19°42'45" N	Longitude	: 72°55'50" E
Zero of Gauge (m)	: 0 (m.s.l)	26-10-1970	-
	Opening Date	Closing Date	
Gauge	: 26-10-1970		
Discharge	: 26-01-1971		
Sediment	: 26-01-1971		
Water Quality	: 01-06-1977		

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Vaitarna at Durvesh (01 02 25 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : DGSD,CWC,Silvassa**

Day	Jun						Jul						Aug					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	1847	0.127	0.151	0.725	1.003	159987
2	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	751.5	0.035	0.059	0.525	0.619	40215
3	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	478.8	0.049	0.060	0.350	0.458	18961
4	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	335.8	0.000	0.000	0.174	0.174	5055
5	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	356.6	0.000	0.000	0.200	0.200	6169
6	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	331.7	0.000	0.000	0.177	0.177	5063
7	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	261.2	0.000	0.000	0.160	0.160	3610
8	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000	0	242.4	0.000	0.000	0.151	0.151	3162
9	0.000	0.000	0.000	0.000	0.000	0	104.5	0.000	0.000	0.050	0.050	451	220.0	0.000	0.000	0.126	0.126	2390
10	0.000	0.000	0.000	0.000	0.000	0	201.4	0.000	0.000	0.200	0.200	3480	231.2	0.000	0.000	0.130	0.130	2597
11	0.000	0.000	0.000	0.000	0.000	0	536.1	0.025	0.049	0.425	0.498	23087	247.2	0.000	0.000	0.151	0.151	3218
12	0.000	0.000	0.000	0.000	0.000	0	515.4	0.060	0.084	0.474	0.617	27476	251.5	0.000	0.000	0.150	0.150	3249
13	0.000	0.000	0.000	0.000	0.000	0	625.4	0.064	0.084	0.494	0.641	34643	311.8	0.000	0.000	0.176	0.176	4733
14	0.000	0.000	0.000	0.000	0.000	0	1001	0.011	0.143	0.526	0.680	58764	286.8	0.000	0.000	0.150	0.150	3717
15	0.000	0.000	0.000	0.000	0.000	0	1091	0.107	0.146	0.574	0.826	77897	364.6	0.000	0.000	0.250	0.250	7875
16	0.000	0.000	0.000	0.000	0.000	0	395.4	0.025	0.122	0.249	0.396	13519	219.1	0.000	0.000	0.100	0.100	1893
17	0.000	0.000	0.000	0.000	0.000	0	266.2	0.000	0.000	0.250	0.250	5749	269.0	0.000	0.000	0.125	0.125	2898
18	0.000	0.000	0.000	0.000	0.000	0	396.1	0.247	0.036	0.100	0.383	13107	260.7	0.000	0.000	0.126	0.126	2843
19	0.000	0.000	0.000	0.000	0.000	0	495.5	0.024	0.048	0.474	0.547	23408	300.1	0.000	0.000	0.149	0.149	3868
20	0.000	0.000	0.000	0.000	0.000	0	702.7	0.024	0.047	0.700	0.771	46833	211.2	0.000	0.000	0.128	0.128	2330
21	0.000	0.000	0.000	0.000	0.000	0	442.7	0.037	0.073	0.325	0.435	16644	182.3	0.000	0.000	0.100	0.100	1575
22	0.000	0.000	0.000	0.000	0.000	0	298.7	0.000	0.000	0.223	0.223	5761	191.7	0.000	0.000	0.130	0.130	2153
23	0.000	0.000	0.000	0.000	0.000	0	246.0	0.000	0.000	0.223	0.223	4740	184.2	0.000	0.000	0.127	0.127	2014
24	0.000	0.000	0.000	0.000	0.000	0	225.2	0.000	0.000	0.180	0.180	3503	224.2	0.000	0.000	0.132	0.132	2547
25	0.000	0.000	0.000	0.000	0.000	0	391.7	0.025	0.035	0.450	0.509	17227	196.1	0.000	0.000	0.127	0.127	2155
26	0.000	0.000	0.000	0.000	0.000	0	269.4	0.000	0.000	0.250	0.250	5820	290.1	0.000	0.000	0.147	0.147	3672
27	0.000	0.000	0.000	0.000	0.000	0	216.0	0.000	0.000	0.199	0.199	3708	513.9	0.000	0.000	0.202	0.202	8978
28	0.000	0.000	0.000	0.000	0.000	0	206.3	0.000	0.000	0.101	0.101	1801	1862	0.010	0.100	0.650	0.760	122265
29	0.000	0.000	0.000	0.000	0.000	0	3015	0.131	0.154	0.826	1.110	289246	3408	0.031	0.329	1.007	1.367	402414
30	0.000	0.000	0.000	0.000	0.000	0	1526	0.120	0.133	0.626	0.879	115948	794.9	0.026	0.051	0.751	0.828	56856
31							2316	0.170	0.300	1.000	1.470	294145	525.5	0.002	0.020	0.200	0.222	10080
Ten Daily Mean																		
Ten Daily I	0.000	0.000	0.000	0.000	0.000	0	30.59	0.000	0.000	0.025	0.025	393	505.6	0.021	0.027	0.272	0.320	24721
Ten Daily II	0.000	0.000	0.000	0.000	0.000	0	602.5	0.059	0.076	0.427	0.561	32448	272.2	0.000	0.000	0.150	0.150	3662
Ten Daily III	0.000	0.000	0.000	0.000	0.000	0	832.2	0.044	0.063	0.400	0.507	68958	761.2	0.006	0.045	0.325	0.376	55883
Monthly Total						0						1086957						898542

Annual Sediment Load (Metric Tonnes) : 2257267

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Vaitarna at Durvesh (01 02 25 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : DGSD,CWC,Silvassa**

Day	Sep						Oct						Nov					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	369.1	0.000	0.000	0.224	0.224	7134	87.30	0.000	0.000	0.087	0.087	656	41.71	0.000	0.000	0.040	0.040	143
2	389.8	0.000	0.000	0.225	0.225	7578	85.19	0.000	0.000	0.080	0.080	589	39.99	0.000	0.000	0.040	0.040	136
3	550.6	0.025	0.063	0.475	0.563	26761	82.98	0.000	0.000	0.086	0.086	618	38.85	0.000	0.000	0.039	0.039	129
4	628.7	0.020	0.090	0.550	0.660	35850	102.2	0.000	0.000	0.098	0.098	861	36.10	0.000	0.000	0.038	0.038	117
5	571.9	0.036	0.073	0.477	0.585	28900	86.19	0.000	0.000	0.114	0.114	849	34.77	0.000	0.000	0.038	0.038	113
6	611.1	0.024	0.047	0.500	0.571	30170	83.55	0.000	0.000	0.070	0.070	505	54.81	0.000	0.000	0.045	0.045	213
7	762.9	0.026	0.051	0.527	0.604	39777	76.54	0.000	0.000	0.106	0.106	702	54.18	0.000	0.000	0.045	0.045	211
8	369.0	0.025	0.049	0.452	0.526	16758	74.84	0.000	0.000	0.103	0.103	666	31.34	0.000	0.000	0.038	0.038	102
9	320.5	0.000	0.000	0.202	0.202	5594	76.42	0.000	0.000	0.090	0.090	594	31.12	0.000	0.000	0.038	0.038	101
10	242.7	0.000	0.000	0.151	0.151	3170	65.99	0.000	0.000	0.106	0.106	602	51.73	0.000	0.000	0.040	0.040	179
11	184.9	0.000	0.000	0.100	0.100	1598	63.54	0.000	0.000	0.081	0.081	445	30.49	0.000	0.000	0.037	0.037	97
12	392.6	0.025	0.061	0.501	0.586	19892	65.54	0.000	0.000	0.101	0.101	569	29.33	0.000	0.000	0.037	0.037	94
13	324.6	0.000	0.000	0.201	0.201	5638	63.84	0.000	0.000	0.084	0.084	462	50.33	0.000	0.000	0.040	0.040	174
14	249.6	0.000	0.000	0.200	0.200	4303	61.22	0.000	0.000	0.083	0.083	437	21.62	0.000	0.000	0.038	0.038	70
15	229.2	0.000	0.000	0.176	0.176	3479	116.3	0.000	0.000	0.049	0.049	487	19.69	0.000	0.000	0.037	0.037	63
16	212.0	0.000	0.000	0.154	0.154	2811	99.93	0.000	0.000	0.035	0.035	302	17.60	0.000	0.000	0.037	0.037	56
17	181.9	0.000	0.000	0.129	0.129	2023	82.14	0.000	0.000	0.048	0.048	337	14.71	0.000	0.000	0.037	0.037	47
18	145.2	0.000	0.000	0.100	0.100	1254	73.82	0.000	0.000	0.047	0.047	298	14.03	0.000	0.000	0.037	0.037	44
19	149.0	0.000	0.000	0.123	0.123	1580	69.07	0.000	0.000	0.046	0.046	276	12.47	0.000	0.000	0.037	0.037	40
20	139.8	0.000	0.000	0.121	0.121	1458	63.54	0.000	0.000	0.048	0.048	261	48.77	0.000	0.000	0.050	0.050	211
21	161.9	0.000	0.000	0.145	0.145	2029	64.98	0.000	0.000	0.048	0.048	268	10.77	0.000	0.000	0.037	0.037	34
22	163.8	0.000	0.000	0.150	0.150	2119	62.89	0.000	0.000	0.047	0.047	256	9.385	0.000	0.000	0.036	0.036	29
23	127.6	0.000	0.000	0.119	0.119	1312	68.95	0.000	0.000	0.040	0.040	238	8.911	0.000	0.000	0.036	0.036	28
24	118.8	0.000	0.000	0.113	0.113	1155	53.84	0.000	0.000	0.046	0.046	215	7.497	0.000	0.000	0.035	0.035	23
25	101.8	0.000	0.000	0.080	0.080	703	52.95	0.000	0.000	0.046	0.046	208	5.862	0.000	0.000	0.035	0.035	18
26	160.5	0.000	0.000	0.010	0.010	139	64.70	0.000	0.000	0.040	0.040	224	4.518	0.000	0.000	0.036	0.036	14
27	102.1	0.000	0.000	0.098	0.098	860	49.81	0.000	0.000	0.045	0.045	192	44.25	0.000	0.000	0.050	0.050	191
28	95.91	0.000	0.000	0.097	0.097	800	48.44	0.000	0.000	0.043	0.043	181	3.859	0.000	0.000	0.035	0.035	12
29	90.31	0.000	0.000	0.089	0.089	696	45.49	0.000	0.000	0.042	0.042	166	2.095	0.000	0.000	0.035	0.035	6
30	87.47	0.000	0.000	0.088	0.088	667	59.96	0.000	0.000	0.048	0.048	249	0.962	0.000	0.000	0.034	0.034	3
31							42.75	0.000	0.000	0.041	0.041	152						
Ten Daily Mean																		
Ten Daily I	481.6	0.015	0.037	0.378	0.431	20169	82.12	0.000	0.000	0.094	0.094	664	41.46	0.000	0.000	0.040	0.040	144
Ten Daily II	220.9	0.002	0.006	0.180	0.189	4404	75.90	0.000	0.000	0.062	0.062	387	25.90	0.000	0.000	0.039	0.039	90
Ten Daily III	121.0	0.000	0.000	0.099	0.099	1048	55.89	0.000	0.000	0.044	0.044	213	9.811	0.000	0.000	0.037	0.037	36
Monthly Total						256205						12864						2698

Annual Sediment Load (Metric Tonnes) : 2257267

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Vaitarna at Durvesh (01 02 25 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : DGSD,CWC,Silvassa**

Day	Dec						Jan						Feb					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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											
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																		

Annual Sediment Load (Metric Tonnes) : 2257267

Daily Observed Sediment Datasheet for period : 2011-2012

Station Name : Vaitarna at Durvesh (01 02 25 001) **Division : Tapi Division, Surat**

Local River : **Sub-Division : DGSD,CWC,Silvassa**

Day	Mar						Apr						May					
	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day	Q cumecs.	Coarse g/l	Medium g/l	Fine g/l	Total g/l	Total M.T./day
1	0.000						0.000						0.000					
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																		

Annual Sediment Load (Metric Tonnes) : 2257267

Annual Sediment Load for period : 2005-2012

Station Name : Vaitarna at Durvesh (01 02 25 001) **Division : Tapi Division, Surat**

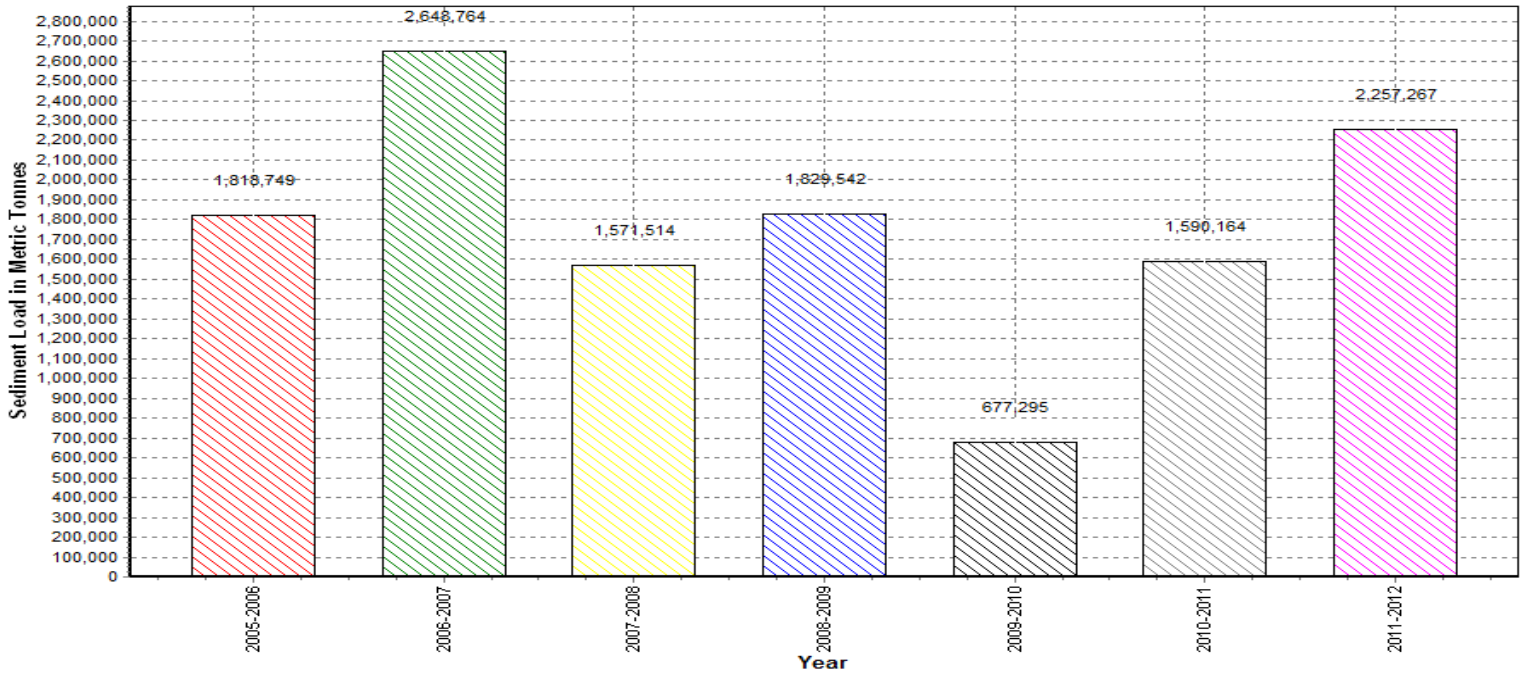
Local River : **Sub-Division : DGSD,CWC,Silvassa**

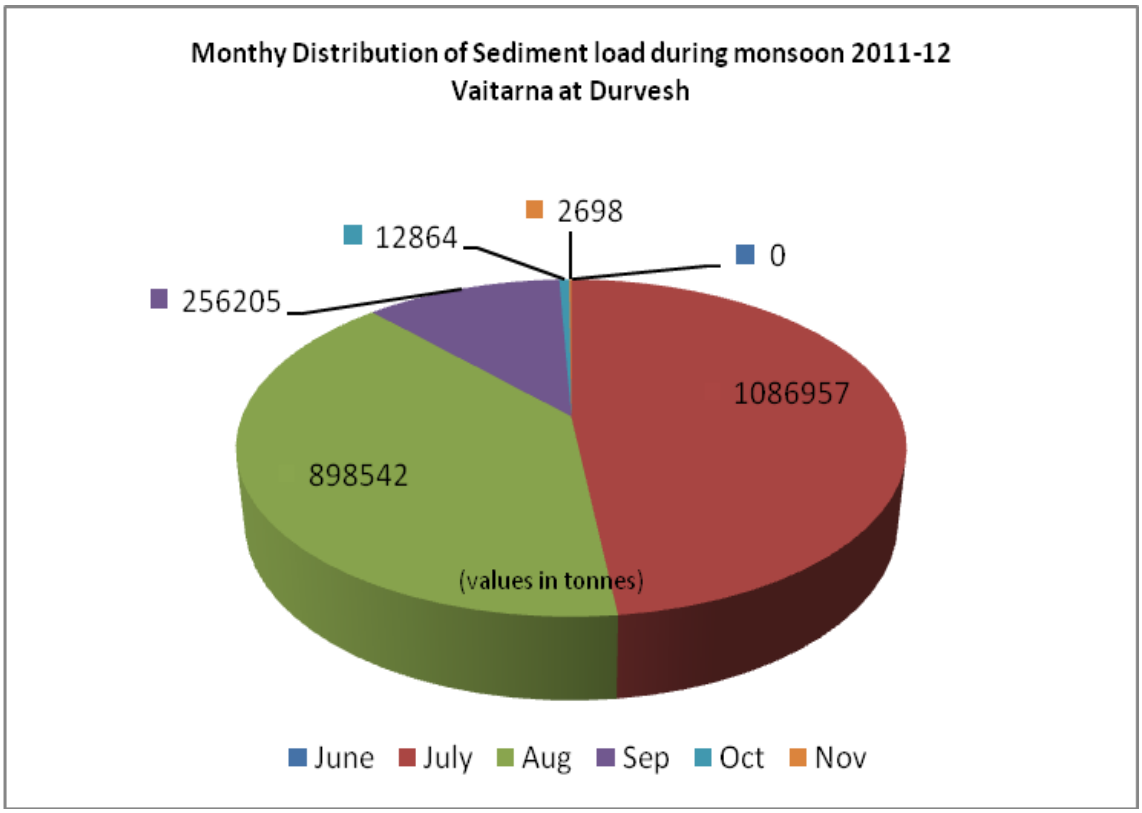
Year	Monsoon (M.T.)	Non-Monsoon (M.T.)	Annual Load (M.T.)	Annual Run Off (MCM)	Annual Sediment Yied in mm
2005-06	1818690	59	1818749	5338	0.6434
2006-07	2648735	28	2648764	5038	0.9371
2007-08	1571174	339	1571514	4082	0.5560
2008-09	1829311	231	1829542	4360	0.6473
2009-10	676991	305	677295	2076	0.2396
2010-11	1589061	1104	1590164	3829	0.5626
2011-12	2257267	0	2257267	3701	0.7986

Annual Sediment Load for the period: 2005-2012

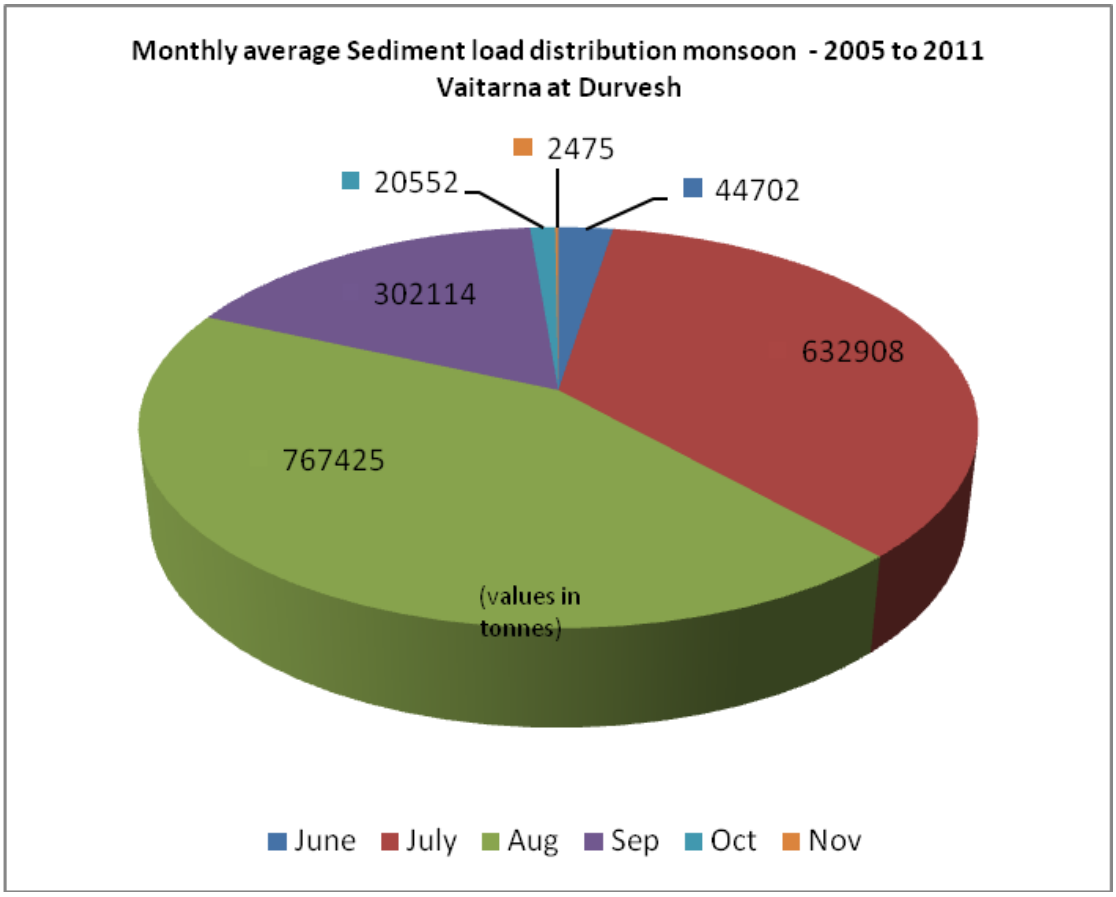
Station Name : Vaitarna at Durvesh (01 02 25 001) **Division : Tapi Division, Surat**

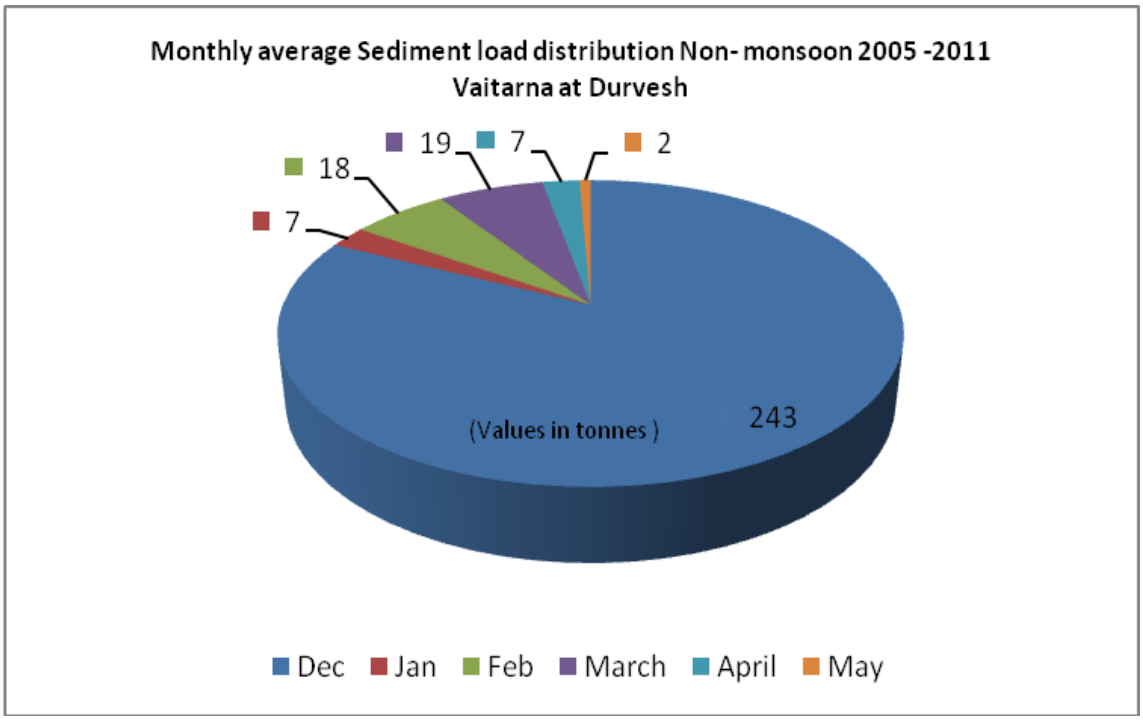
Local River : **Sub-Division : DGSD,CWC,Silvassa**





Monthly average Sediment load distribution Non- monsoon 2011-12
Ambica at Gadat No sediment was observed in any month


Monthly average Sediment load distribution monsoon - 2005 to 2011
Vaitarna at Durvesh
2475
20552
44702
302114
632908
767425
(values in tonnes)
June
July
Aug
Sep
Oct
Nov


Monthly average Sediment load distribution Non- monsoon 2005 -2011
Vaitarna at Durvesh
19
7
2
18
7
(Values in tonnes)
243
Dec
Jan
Feb
March
April
May

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**MATAJI**	**CODE**	**01 02 13 001**
RIVER	**MAHI**	**BASIN**	**MAHI**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 09.06.2011)

Discharge 'Q'		Cumecs	Water edge	R.B.		m.	L.B. m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'		m/Sec	
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'		m.	

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	10.00	298.180	0.77	**Av.mean dia."m" =**	**4.58 mm**	River dry
2	50.00	290.500	3.25			
3	100.00	285.480	1.04	**Silt factor "f " =**	**3.77**	
4	150.00	285.770	1.43			
5	200.00	287.380	16.41			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE 13.10.2011)

Discharge 'Q'	9.471	Cumecs	Water edge	R.B.	174.75	m.	L.B. 66.50 m.
Area of Section 'A'	138.77	Sq.m.	Mean velocity	'V'	0.0680	m/Sec	
Wetted Perimeter 'P'	108.05	m.	Hydraulic Mean Depth	'R'	1.284	m.	

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	10.00	298.200	1.21	**Av.mean dia."m" =**	**4.73 mm**	
2	50.00	290.480	3.43			
3	100.00	285.500	2.02	**Silt factor "f " =**	**3.83**	
4	150.00	285.780	2.09			
5	200.00	287.390	14.89			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 30.01.2012)

Discharge 'Q'		Cumecs	Water edge	R.B.	173.00	m.	L.B. 67.00 m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'		m/Sec	
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'		m.	

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	10.00	298.190	2.04	**Av.mean dia."m" =**	**4.97 mm**	Pooling
2	50.00	290.470	2.45			Water
3	100.00	285.490	1.99	**Silt factor "f " =**	**3.92**	
4	150.00	285.770	2.60			
5	200.00	287.390	15.75			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**PADARDIBADI**	**CODE**	**01 02 13 006**
RIVER	**MAHI**	**BASIN**	**MAHI**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE/ TEMP.GAUGE**

PRE MONSOON SURVEY (DATE 20.05.2011)

Discharge 'Q'		Cumecs	Water edge	R.B.	261.00 m.	L.B.	39.40 m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	- m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	- m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	20.00	142.970	0.54	**Av.mean dia."m" =**	**2.54 mm**	Pooling
2	170.00	132.040	5.67			Water
3	220.00	132.950	2.56	**Silt factor "f " =**	**2.80**	
4	270.00	133.870	3.52			
5	310.00	143.990	0.40			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE 08.10.2011)

Discharge 'Q'	157.800	Cumecs	Water edge	R.B.	37.50 m.	L.B.	268.00 m.
Area of Section 'A'	363.52	Sq.m.	Mean velocity	'V'	0.4340 m/Sec		
Wetted Perimeter 'P'	244.36	m.	Hydraulic Mean Depth	'R'	1.490 m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	20.00	142.970	0.54	**Av.mean dia."m" =**	**1.74 mm**	
2	170.00	132.050	2.49			
3	220.00	132.950	3.14	**Silt factor "f " =**	**2.32**	
4	270.00	134.000	1.84			
5	310.00	143.810	0.69			

Note 1.Discharge observation was at Temp. gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 16.12.2011)

Discharge 'Q'	19.020		Water edge	R.B.	38.000 m.	L.B.	267.00 m.
Area of Section 'A'	219.03	Sq.m.	Mean velocity	'V'	0.0874 m/Sec		
Wetted Perimeter 'P'	229.38	m.	Hydraulic Mean Depth	'R'	0.955 m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	20.00	142.970	1.05	**Av.mean dia."m" =**	**2.82 mm**	
2	170.00	132.040	4.00			
3	220.00	132.950	4.50	**Silt factor "f " =**	**2.96**	
4	270.00	133.870	3.89			
5	310.00	143.990	0.67			

Note 1.Discharge observation was at Temp. gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**KHANPUR**	**CODE**	**01 02 13 012**
RIVER	**MAHI**	**BASIN**	**MAHI**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 20.04.2011)

Discharge 'Q'	6.592	Cumecs	Water edge	R.B.	218.00	m.	L.B.	450.00 m.
Area of Section 'A'	70.98	Sq.m.	Mean velocity	'V'	0.0928	m/Sec		
Wetted Perimeter 'P'	162.02	m.	Hydraulic Mean Depth	'R'	0.440	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	60.00	8.350	1.45	**Av.mean dia."m" =**	**1.30**	**mm**
2	160.00	8.280	1.26			
3	260.00	8.170	1.54	**Silt factor "f " =**	**2.01**	
4	360.00	8.580	1.78			
5	460.00	10.050	0.49			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE 05.10.2011)

Discharge 'Q'	50.00	Cumecs	Water edge	R.B.	53.70	m.	L.B.	453.30 m.
Area of Section 'A'	213.52	Sq.m.	Mean velocity	'V'	0.234	m/Sec		
Wetted Perimeter 'P'	354.61	m.	Hydraulic Mean Depth	'R'	0.602	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	60.00	8.280	1.24	**Av.mean dia."m" =**	**1.11**	**mm**
2	160.00	7.520	0.88			
3	260.00	8.300	1.32	**Silt factor "f " =**	**1.85**	
4	360.00	8.900	1.25			
5	460.00	9.990	0.85			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 08.02.2012)

Discharge 'Q'	13.740	Cumecs	Water edge	R.B.	57.00	m.	L.B.	4505.00 m.
Area of Section 'A'	137.84	Sq.m.	Mean velocity	'V'	0.1000	m/Sec		
Wetted Perimeter 'P'	354.27	m.	Hydraulic Mean Depth	'R'	0.039	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	60.00	8.060	1.18	**Av.mean dia."m" =**	**1.73**	**mm**
2	160.00	7.640	3.50			
3	260.00	8.300	1.74	**Silt factor "f " =**	**2.31**	
4	360.00	8.720	1.70			
5	460.00	10.020	0.53			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**BURHANPUR**	**CODE**	**01 02 17 002**
RIVER	**TAPI**	**BASIN**	**TAPI**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**TEMP.SECTION**

PRE MONSOON SURVEY (DATE 20.05.2011)

Discharge 'Q'	No flow	Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	0.00	237.93	2.64	**Av.mean dia."m" =**	**3.28**	**mm** Nil
2	70.00	219.84	4.66			Flow
3	140.00	215.38	6.30	**Silt factor "f " =**	**3.19**	
4	210.00	213.55	0.45			
5	280.00	225.13	2.33			

Note 1.Discharge observation was at Temp.section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.		m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation w at 3Km.D/s of SGL 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 08.12.2011)

Discharge 'Q'	2.29	Cumecs	Water edge	R.B.	24.00	m.	L.B.	0.00 m.
Area of Section 'A'	172.00	Sq.m.	Mean velocity	'V'	0.01	m/Sec		
Wetted Perimeter 'P'	105.21	m.	Hydraulic Mean Depth	'R'	1.64	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	0.00	237.93	2.62	**Av.mean dia."m" =**	**3.58**	**mm**
2	70.00	219.80	6.11			
3	140.00	215.22	3.01	**Silt factor "f " =**	**3.33**	
4	210.00	213.52	0.77			
5	280.00	225.10	5.40			

Note 1.Discharge observation was at Temp.section. 1050MD/s ofSGL. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**GOPALKHEDA**	**CODE**	**01 02 17 004**
RIVER	**PURNA**	**BASIN**	**TAPI**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 04.06.2011)

Discharge 'Q' Nil flow Cumecs Water ed m. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	40.00	239.05	2.99	**Av.mean dia."m" =**	**3.90**	**mm**
2	80.00	235.82	2.52			
3	120.00	244.56	6.18	**Silt factor "f " =**	**3.47**	

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE 03.10.2011)

Discharge 'Q' 9.036 Cumecs Water edge R.B. 54.00 m. L.B. 96.0 m.
Area of Section 'A' 23.670 Sq.m. Mean velocity 'V' 0.382 m/Sec
Wetted Perimeter 'P' 42.080 m. Hydraulic Mean Depth 'R' 0.562 m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	40.00	239.050	6.68	**Av.mean dia."m" =**	**9.43**	**mm**
2	80.00	236.820	15.14			
3	120.00	244.500	6.46	**Silt factor "f " =**	**5.40**	

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 12.12.2011)

Discharge 'Q' Nil flow Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	40.00	238.950	6.87	**Av.mean dia."m" =**	**6.02**	**mm**
2	80.00	235.820	6.53			
3	120.00	244.500	4.66	**Silt factor "f " =**	**4.32**	

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**YERLI**	**CODE**	**01 02 17 005**
RIVER	**PURNA**	**BASIN**	**TAPI**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**TEMP.SECTION**

PRE MONSOON SURVEY (DATE 30.05.2011)

Discharge 'Q' Nil flow Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	0.00	225.345	8.250	**Av.mean dia."m" =**	**5.02**	**mm**
2	50.00	220.355	5.190			
3	100.00	214.175	4.000	**Silt factor "f " =**	**3.94**	
4	150.00	215.315	5.840			
5	200.00	224.630	1.830			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q' Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 07.01.2012)

Discharge 'Q' 0.000 Cumecs Water edge R.B. 64.00 m. L.B. 0.00 m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	0.00	225.850	5.380	**Av.mean dia."m" =**	**6.56**	**mm** River
2	50.00	220.400	4.620			Dry
3	100.00	214.210	2.890	**Silt factor "f " =**	**4.51**	
4	150.00	215.400	12.49			
5	200.00	224.700	7.430			

Note 1.Discharge observation was at Temp. section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**SARANGKHEDA**	**CODE**	**01 02 17 015**
RIVER	**TAPI**	**BASIN**	**TAPI**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 25.05.2011)

Discharge 'Q' No Flow Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	0.000	120.620	2.020	**Av.mean dia."m" =**	**3.57**	**mm**
2	80.000	112.400	6.660			
3	160.000	110.150	6.090	**Silt factor "f " =**	**3.33**	
4	240.000	108.880	2.800			
5	320.000	109.500	3.850			
6	400.000	111.000	2.540			
7	480.000	111.100	4.090			
8	560.000	117.220	0.530			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q' Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE)

Discharge 'Q' 0.000 Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**KAMALPUR**	**CODE**	**01 02 02 007**
RIVER	**BANAS**	**BASIN**	**BANAS**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 27.05.2011)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	0.00	38.080	0.29	**Av.mean dia."m" =**	**0.25**	**mm**	River dry
2	240.00	35.995	0.28				
3	480.00	37.180	0.24	**Silt factor "f " =**	**0.89**		
4	600.00	36.810	0.23				
5	840.00	37.620	0.23				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE 26.09.2011)

Discharge 'Q'	18.61	Cumecs	Water edge	R.B.	0.00 m.	L.B.	93.00 m.
Area of Section 'A'	31.73	Sq.m.	Mean velocity	'V'	0.5866 m/Sec		
Wetted Perimeter 'P'	93.11	m.	Hydraulic Mean Depth	'R'	0.3407 m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	0.00	38.080	0.21	**Av.mean dia."m" =**	**0.24**	**mm**	
2	240.00	35.930	0.21				
3	480.00	37.120	0.21	**Silt factor "f " =**	**0.86**		
4	600.00	36.860	0.29				
5	840.00	37.620	0.27				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 21.04.2012)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	0.00	38.080	0.21	**Av.mean dia."m" =**	**0.25**	**mm**	River dry
2	240.00	35.895	0.18				
3	480.00	36.630	0.32	**Silt factor "f " =**	**0.87**		
4	600.00	36.820	0.31				
5	840.00	37.620	0.21				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**GANOD**	**CODE**	**01 02 07 001**
RIVER	**BHADAR**	**BASIN**	**BHADAR**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 23.06.2011)

Discharge 'Q' *51.22 Cumecs Water edge R.B. 38.50 m. L.B. 19.50 m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	0.00	33.435	1.05	**Av.mean dia."m" =**	**2.41**	**mm**	*Estimated
2	70.00	24.290	3.57				discharge
3	130.00	24.100	2.80	**Silt factor "f " =**	**2.73**		
4	210.00	25.450	3.78				
5	237.00	33.105	0.84				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q' Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**	
				Silt factor "f " =			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE)

Discharge 'Q' Cumecs Water edge R.B. 40.00 m. L.B. 139.00 m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**	
				Silt factor "f " =			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**LUWARA**	**CODE**	**01 02 09 001**
RIVER	**SHETRUNJI**	**BASIN**	**SHETRUNJI**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 24.06.2011

Discharge 'Q' 0.000 Cumecs | Water edge R.B. m. | L.B. m.
Area of Section 'A' Sq.m. | Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. | Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	0.00	63.350	0.82	**Av.mean dia."m" =**	**2.73**	**mm**	River dry
2	20.00	56.530	3.41				
3	40.00	56.240	4.81	**Silt factor "f " =**	**2.91**		
4	60.00	56.410	3.67				
5	80.00	62.775	0.95				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q' Cumecs | Water edge R.B. m. | L.B. m.
Area of Section 'A' Sq.m. | Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. | Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**	
				Silt factor "f " =			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 11.01.2012)

Discharge 'Q' 0.000 Cumecs | Water edge R.B. 52.00 m. | L.B. 16.35 m.
Area of Section 'A' Sq.m. | Mean velocity m/Sec
Wetted Perimeter 'P' m. | Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	0.00	63.350	0.61	**Av.mean dia."m" =**	**2.24**	**mm**	Neg.flow
2	20.00	56.520	3.73				
3	40.00	56.360	3.80	**Silt factor "f " =**	**2.63**		
4	60.00	56.425	2.34				
5	80.00	62.810	0.72				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**DEROL BRIDGE**	**CODE**	**01 02 12 006**
RIVER	**SABARMATI**	**BASIN**	**SABARMATI**
MEASURING AUTHORITY	**MAHI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 09.05.2011)

Discharge 'Q' Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	77.00	90.740	0.56	**Av.mean dia."m" =**	**0.47**	**mm**	River dry
2	132.60	88.540	0.46				
3	180.00	87.760	0.51	**Silt factor "f " =**	**1.21**		
4	240.00	88.950	0.40				
5	320.00	89.020	0.43				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE 11.10.2011)

Discharge 'Q' 14.83 Cumecs Water edge R.B. 242.0 m. L.B. 116.0 m.
Area of Section 'A' 53.690 Sq.m. Mean velocity 'V' 0.276 m/Sec
Wetted Perimeter 'P' 126.01 m. Hydraulic Mean Depth 'R' 0.426 m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	77.00	90.740	0.48	**Av.mean dia."m" =**	**0.59**	**mm**	
2	132.60	87.680	0.61				
3	180.00	87.250	0.60	**Silt factor "f " =**	**1.35**		
4	240.00	87.800	0.58				
5	320.00	89.065	0.66				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 11.02.2012)

Discharge 'Q' 0.000 Cumecs Water edge R.B. m. L.B. m.
Area of Section 'A' Sq.m. Mean velocity 'V' m/Sec
Wetted Perimeter 'P' m. Hydraulic Mean Depth 'R' m.

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)				Remarks
1	70.00	90.920	0.62	**Av.mean dia."m" =**	**0.46**	**mm**	Neg.fiow
2	120.00	88.620	0.42				
3	180.00	87.170	0.59	**Silt factor "f " =**	**1.19**		
4	240.00	88.960	0.41				
5	320.00	89.100	0.26				

Note 1.Discharge observation was at station gauge section. 2.River bed Dry / Stagnated water / flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**MAHUWA**	**CODE**	**01 02 19 001**
RIVER	**PURNA**	**BASIN**	**PURNA**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 21.06.2011

Discharge 'Q'	No Flow	Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	5.00	19.910	9.37	**Av.mean dia."m**	**4.03**	**mm**
2	60.00	14.300	1.34			
3	90.00	10.060	2.54	**Silt factor "f "**	**3.53**	
4	120.00	9.020	4.61			
5	210.00	12.250	2.29			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011-12

SITE	**GADAT**	**CODE**	**01 02 20 001**
RIVER	**AMBIKA**	**BASIN**	**AMBIKA**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**STATION GAUGE LINE**

PRE MONSOON SURVEY (DATE 10.06.2011)

Discharge 'Q'	No flow	Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	70.00	6.050	5.31	**Av.mean dia."m" =**	**6.90**	**mm**
2	100.00	3.295	3.33			
3	130.00	2.005	8.70	**Silt factor "f " =**	**4.62**	
4	160.00	1.045	7.00			
5	190.00	3.855	10.17			

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE)

Discharge 'Q'		Cumecs	Water edge	R.B.	m.	L.B.	m.
Area of Section 'A'		Sq.m.	Mean velocity	'V'	m/Sec		
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth	'R'	m.		

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.Discharge observation was at station gauge section. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

BED MATERIAL ANALYSIS DATA FOR THE YEAR 2011 -20012

SITE	**DURVESH**	**CODE**	**01 02 25 001**
RIVER	**VAITARNA**	**BASIN**	**VAITARNA**
MEASURING AUTHORITY	**TAPI DIVISION**	**CROSS SECTION**	**TEMP.SECTION**

PRE MONSOON SURVEY (DATE 27.05.2011)

Discharge 'Q'	No Flow	Cumecs	Water edge R.B.	115	m.	L.B.	60	m.
Area of Section 'A'		Sq.m.	Mean velocity 'V'		m/Sec			
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth 'R'		m.			

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	40.00	11.550	4.19	**Av.mean dia."m" =**	**7.92**	**mm**
2	80.00	11.900	3.41			Nil
3	140.00	0.280	10.43	**Silt factor "f " =**	**4.95**	Flow
4	180.00	0.100	10.97			
5	220.00	1.350	13.77			
6	260.00	11.160	4.74			

Note 1.As S.G. Line Rocky bed, B.M.section shifte d to 157M U/S ofSGL. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

MONSOON SURVEY (DATE)

Discharge 'Q'		Cumecs	Water edge R.B.		m.	L.B.		m.
Area of Section 'A'		Sq.m.	Mean velocity 'V'		m/Sec			
Wetted Perimeter 'P'		m.	Hydraulic Mean Depth 'R'		m.			

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
	SURVEY NOT DONE			**Av.mean dia."m" =**		**mm**
				Silt factor "f " =		

Note 1.As Xsection is rocky bed, sample collection shifted to 157 M U/S of SGL. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

POST MONSOON SURVEY (DATE 24.11.2011

Discharge 'Q'	8.070	Cumecs	Water edge R.B.	220.00	m.	L.B.	125.00	m.
Area of Section 'A'	126.9	Sq.m.	Mean velocity 'V'	0.0610	m/Sec			
Wetted Perimeter 'P'	95.30	m.	Hydraulic Mean Depth 'R'	1.287	m.			

Sl. No.	R.D. of sampling point (m)	R.L. of bed (m)	Mean dia. (mm)			Remarks
1	40.00	11.570	5.81	**Av.mean dia."m" =**	**8.53**	**mm**
2	80.00	11.910	5.71			
3	110.00	3.500	10.13	**Silt factor "f " =**	**5.14**	
4	180.00	0.150	9.50			
5	220.00	1.400	12.98			
6	285.00	11.18	7.06			

Note 1.SG line is a rocky bed ,B.M.Section shifted to 157 m U/S of SG Line. 2.River bed Dry/ Stagnated water/ flowing water.
3.Water flows in multi channel.

4.1 MAHI BASIN

4.2 TAPI BASIN

4.6 SABARMATI BASIN

4.7 PURNA BASIN

4.8 AMBIKA BASIN

4.9 VAITARNA BASIN

4.3 BANAS BASIN

4.5 SHETRUNJI BASIN

4.4 BHADAR BASIN

5.0 BED MATERIAL DATA