



जल वार्षिकी **WATER YEAR BOOK** **2017 – 18**

माही, साबरमती एवं अन्य पश्चिम प्रवाही नदियाँ
(लूनी, बनास, शेत्रुन्जी, भादर, मच्छु, रूपेन और मच्छुन्द्री)

MAHI, SABARMATI & OTHER WEST FLOWING RIVERS

(Luni, Banas, Shetrunji, Bhadar, Machhu, Rupen & Machhundri)



FCS & DCU Cluster at Remote Station (Telemetry) at GDSQ Khanpur

केन्द्रीय जल आयोग
माही व तापी बेसिन संगठन
जल विज्ञानीय प्रेक्षण परिमण्डल
गांधीनगर (गुजरात)

Central Water Commission
Mahi & Tapi Basin Organisation
Hydrological Observation Circle
Gandhinagar (Gujarat)



APRIL, 2019

Preface

The National Water Policy stresses the need for a standardised national information system with a network of data base and data banks, integrating the existing Central and State agencies for providing quality data and improving the processing capabilities. Collection and compilation of data assumes greater importance in the context of optimal resource planning to meet the ever increasing demand for water in its multi-faceted use.

Central Water Commission is an apex organization of the country concerned with planned development and monitoring in water resources sector. CWC has for long been maintaining a Hydrological Observation & Flood forecasting network, which covers almost all the interstate rivers of India.

Hydrological Observation (HO) Circle, Gandhinagar, a field unit in Mahi & Tapi Basin Organisation of the Central Water Commission, is entrusted with the collection of surface water data (Hydrological Observation) of 17 river basins flowing through Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Daman & Diu (UT) and DNH (UT).

The Mahi Division, headquartered at Gandhinagar, under HO Circle, is at present, carrying out hydrological observations at 25 sites on river Mahi, Sabarmati & other west flowing rivers viz. Luni, Banas, Shetrunji, Machhu, Rupen, Bhadar and Machhundri, which have been compiled in this Water Year Book. It also includes trend analysis of annual surface runoff for these basins.

The publication of Water Year Book in SWDES format has been started since the water year 2005-06 as per guidelines issued by Central Water Commission, New Delhi. This Year Book not only provides the hydrological data but also provides general information about geology, climate, agriculture, soil, cities/towns, major and medium projects in the basin, etc. It also includes trend analysis of annual surface runoff for these basins.

It is hoped that the information and data compiled herein will be useful to all those concerned with any field related with water resources of the country. Comments and suggestions, if any, on the Water Year Book are most welcome. The efforts put in by all the concerned officers and staffs of Mahi Division and Hydrological Observation Circle, Gandhinagar under MTBO, Central Water Commission is gratefully acknowledged.

Gandhinagar
April, 2019



(D. S. Chaskar)
Superintending Engineer

आमुख

राष्ट्रीय जल नीति में मानकीकृत राष्ट्रीय सूचना प्रणाली डेटा बेस और डेटा बैंकों के एक नेटवर्क के साथ गुणवत्ता के आँकड़े, उपलब्ध कराने और प्रसंस्करण क्षमताओं में सुधार के लिए मौजूदा केन्द्रीय और राज्य स्तरीय ऐजेन्सियों के एकीकरण की आवश्यकता पर बल दिया गया है। जल के बहु-उपयोगी स्वरूप एवं उसकी बढ़ती, मांग को पूरा करने हेतु संसाधनों के अनुकूलतम नियोजन के संदर्भ में संबंधित आँकड़ों, का संकलन अतिमहत्वपूर्ण है।

केन्द्रीय जल आयोग, जल संसाधनों के विकास में संलग्न, भारत सरकार, जल संसाधन मंत्रालय के अन्तर्गत देश की एक शीर्षस्थ तकनीकी संस्था है जो जल विज्ञानीय आँकड़ों, के एकत्रीकरण से लेकर परियोजनाओं का मूल्यांकन, अभिकल्पन, प्रबोधन तथा परिचालन करती है।

जल विज्ञानीय प्रेक्षण परिमंडल गाँधीनगर, माही व तापी बेसिन संगठन के अन्तर्गत केन्द्रीय जल आयोग की एक क्षेत्रीय ईकाई है जिसके अन्तर्गत गुजरात, मध्य प्रदेश, महाराष्ट्र, राजस्थान, दादरा नगर हवेली (केन्द्र शासित प्रदेश) एवं दमन तथा दीव (केन्द्र शासित प्रदेश) के भाग से होकर पश्चिम की ओर बहने वाली 17 नदी बेसिनों के अधिसूचित महत्वपूर्ण स्थलों पर जल के सतही प्रवाह के आँकड़े, एकत्रित किए जाते हैं।

माही मंडल गाँधीनगर द्वारा माही, साबरमती एवं अन्य पश्चिम प्रवाही नदियों, लूनी, वनास, शेव्रुन्जी, भादर, मच्छु, रूपेन एवं मच्छुन्दी पर, वर्तमान में, 25 स्थलों पर सतही प्रवाह का प्रेक्षण किया जा रहा है। इनके आँकड़े, इस वार्षिकी में संकलित किए गए हैं।

जल वर्ष 2005-06 से जल वार्षिकी का प्रकाशन, केन्द्रीय जल आयोग द्वारा निर्धारित स्वरूप (SWDES) में किया जा रहा है। इस वार्षिकी में सतही प्रवाह के आँकड़ों, के साथ - साथ बेसिन से संबंधित सूचनाएँ जैसे कि जलवायु, भूगर्भ विज्ञान, कृषि, भूमि, आदि भी दिये गए हैं।

ऐसी आशा है की इस वार्षिकी में दी गयी सूचना एवं संकलित आँकड़े, उन सभी के लिये उपयोगी होंगे जो जल संसाधन से संबंधित किसी भी क्षेत्र में रुचि रखते हैं। इसे और उपयोगी बनाने हेतु सुझाव आमंत्रित हैं।

वार्षिकी में प्रकाशित आँकड़ों के संकलन, विश्लेषण तथा प्रकाशन हेतु माही व तापी बेसिन संगठन के अधीनस्थ जल विज्ञानीय प्रेक्षण परिमंडल एवं माही मंडल गाँधीनगर के अधिकारियों एवं कर्मचारियों ने जिस समर्पण एवं लगन से कार्य संपादित किया है, वह प्रशंसनीय है।

गाँधीनगर (गुजरात)
अप्रैल 2019


(डी.एस.चासकर)
अधीक्षण अभियंता

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Abbreviations and symbols

Av	:	Average
Ann	:	Annual
A.G.R.	:	Automatic Gauge Recorder
C	:	Centigrate
Cum	:	Cubic meter
Cumec	:	Cubic meter per second
c/s	:	Cross section
C.W.C.	:	Central Water Commission
D	:	Days
Dis	:	Discharge
F	:	Float Observation
F.F.	:	Flood Forecasting
G	:	Gauge
GD	:	Gauge and Discharge
GDS	:	Gauge, Discharge and Sediment
GDWQ	:	Gauge, Discharge and Water Quality
GDSWQ	:	Gauge, Discharge, Sediment and Water Quality
GTS	:	Great Trigonometrical Survey
hRs.	:	HouRs
IWYB	:	Integrated Water Year Book
WYB	:	Water Year Book
km	:	Kilo meter
M	:	Million
m	:	Meter
mm	:	milli meter
m ³ /s	:	Cubic meter per second
Mm ³ / MCM	:	Million Cubic meter
Max.	:	Maximum
Min.	:	Minimum
m.s.l.	:	Mean sea level
MDN	:	Mahi Division, CWC, Gandhinagar
neg.	:	Negligible
NNW	:	National Net Work
R.L.	:	Reduced Level

R.D.	:	Reduced Distance
R.Days	:	Remaining days
R.C.C.	:	Reinforced Cement Concrete
sq km	:	Square Kilometer
TDN	:	Tapi Division, CWC, Surat
WQ	:	Water Quality
W.L.	:	Water Level
W.Year	:	Water Year
WDN	:	Water Resources Investigation Division, Ahmedabad
WRI Circle	:	Water Resources Investigation Circle
80 Key	:	80 Key Hydrological Station Scheme
163 Key	:	163 Key Hydrological Station Scheme
0, ' , "	:	Degree (30 ⁰) Minutes(56') Seconds (35'')
*	:	Estimated Discharge
#	:	Discarded and estimated discharge

1.0

Introduction

1.1 General

Central Water commission is conducting hydrological observations on major west flowing River Basins under various schemes viz national network, 80-key stations, 163- key stations , 2701 DWRIS Plan and flood forecasting. This water year book presents the data of 25 hydrological observation stations for the water year 2017-18 in Mahi, Sabarmati, Luni, Banas, Shetrunji, Bhadar, Machhu, Rupen and Machhundri basins. The data of 25 sites which are included in this book are collected by Mahi Division, Central Water Commission, Gandhinagar under Hydrological Observation Circle, Gandhinagar. Jurisdiction map of Mahi Division, CWC, Gandhinagar is enclosed at **Plate-1**.

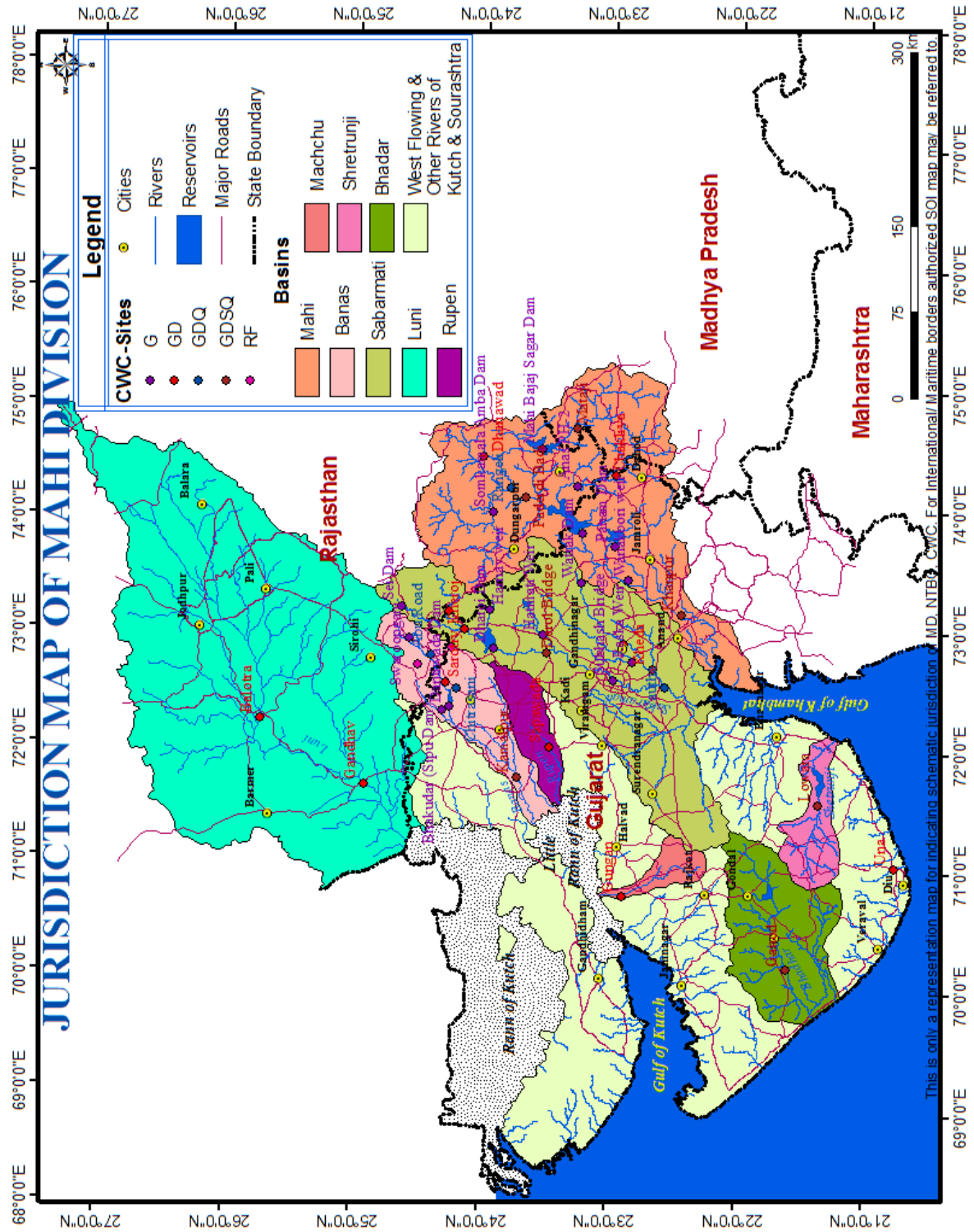
The schemewise distribution of sites is shown in the following table.

Schemewise distribution of sites

National net work					
Sr.no.	Site	River	Basin	Code	Type
1	Mataji	Mahi	Mahi	01 02 13 001	GDSWQ
2	Kamalpur	Banas	Banas	01 02 02 007	GDSWQ
3	Lowara	Shetrunji	Shetrunji	01 02 09 001	GDSWQ
4	Ganod	Bhadar	Bhadar	01 02 07 001	GDSWQ
5	Gungan	Machhu	Machhu	01 02 03 001	GD
6	Gandhav	Luni	Luni	01 02 01 002	GD
80 key hydrological stations					
Sr.no.	Site	River	Basin	Code	Type
1	Rangeli	Som	Mahi	01 02 13 005	GDWQ
2	Khanpur	Mahi	Mahi	01 02 13 012	GDSWQ
3	Paderdibadi	Mahi	Mahi	01 02 13 006	GDSWQ

Flood forecasting					
Sr.no.	Site	River	Basin	Code	Type
1	Dhariwad	Jakham	Mahi	01 02 13 004	GD
2	Kheda	Watrak	Sabarmati	01 02 12 012	GD
3	Ratanpur	Watrak	Sabarmati	01 02 12 010	GD
4	Kheroj	Sabarmati	Sabarmati	01 02 12 003	GD
5	Jotasan	Wakal	Sabarmati	01 02 12 001	GD
6	Derol Bridge	Sabarmati	Sabarmati	01 02 12 006	GDSWQ
7	Chitrasani	Balaram	Banas	01 02 02 004	GDWQ
8	Sarotry	Banas	Banas	01 02 02 003	GD
9	Abu road	Banas	Banas	01 02 02 002	GDWQ
163 key hydrological stations					
Sr.no.	Site	River	Basin	Code	Type
1	Chakaliya	Anas	Mahi	01 02 13 007	GD
2	Balotra	Luni	Luni	01 02 01 001	GD
3	Sapawada	Rupen	Rupen	01 02 04 001	GD
4	Vautha	Sabarmati	Sabarmati	0102 12 013	GDWQ
2701 DWRIS					
1	Una	Machhundri	Machhundri	01 02 14 001	GD
2	Sohagpura	Erau	Mahi	01 02 13 UB1	GD
3	Khandiovri	Som	Mahi	01 02 13 UA3	GD

Plate 1



2.0 Description of Various Basins

2.1 Mahi Basin

2.1.1 Geographical description of the Basin

Mahi River is one of the major west flowing inter-state River of India, draining into the gulf of Khambhat. The basin is bound on the north and the north - west by Aravalli hills, on the east by the ridge separating it from the Chambal Basin, on the south by the Vindhyas and on the west by the Gulf of Khambhat. Mahi River originates on the northern slope of Vindhyas at latitude 22° 35'N and longitude 74° 58'E near the village of Sardarpur in the Dhar district of Madhya Pradesh at an elevation of 500 m above m.s.l. It has a total length of 583 km and it traverses through the States of Madhya Pradesh, Rajasthan and Gujarat. Total drainage area of Mahi is 34,842 sqkm. Basin map of Mahi basin is enclosed as **Plate -2.1.1**

The State wise distribution of the drainage area is shown in the following table.

Sl.No.	Name of state	River length (km)	Drainage area (sqkm)	Percentage of total
1	Madhya Pradesh	167	6695	19.22
2	Rajasthan	174	16453	47.22
3	Gujarat	242	11694	33.56
	Total	583	34842	100.00

2.1.2 Description of River system

Initially the river flows northwards through Dhar and Jhabua districts of M.P., then turns left and passes through Ratlam district of M.P. Subsequently turning to north - west, it enters the Banswara district of Rajasthan and flows in south - west directions and thereafter enters the Panchmahal district of Gujarat. Then the river continuously flows in the same direction through Kheda district of Gujarat and finally falls into the Gulf of Khambhat in Arabian sea.

This river receives several tributaries on both the banks, out of which the main tributaries are Som, Anas and Panam.

Som

This is a right bank tributary of Mahi. Som River rises near Som on the eastern slopes of the Aravalli hills in the Udaipur district of Rajasthan at an elevation of 600 m above m.s.l. and

flows in the eastern direction to join the main River Mahi on the right bank 6.3 km upstream of Paderdibadi site in Dungarpur district of Rajasthan. Its total length is about 155 km. The total drainage area of Som is 8707 sqkm. Gomti & Jakham are the major right bank sub tributaries of Som.

Anas

This is a left bank tributary of Mahi. Anas River rises near Kalmora on the northern slopes of Vindhyas in Jhabua district in Madhya Pradesh at an elevation of 450 m above m.s.l. and flows in the north - west direction and joins the main River Mahi on left bank in the Dungarpur district in Rajasthan. It has a total length of about 156 km and the total drainage area of 5604 sqkm.

Panam

This is a left bank tributary of Mahi. Panam River rises near Bhadra on northern slopes of the Vindhyas near Jhabua district in Madhya Pradesh at an elevation of about 300 m above m.s.l. and flows in the north - west direction and joins the main River on the left bank in the Panchmahal district of Gujarat. It has a total length of about 127 km and drainage area of about 2470 sqkm.

A line diagram of river system giving information of Mahi basin and its tributaries and sub tributaries etc. indicating location of major structures is enclosed as **Plate -2.1.2.**

2.1.3 Climatic characteristics

The Mahi Basin experiences 3 marked seasons – Summer (March-May), Monsoon (June-Sep.) & Winter (Oct.-Feb.). From the available data & record, the basin contains two climatic regions, the northern part of the basin comprises sub tropical wet climate (generally basin area occupied by Rajasthan). The major part of basin comprises tropical wet climate, caused mainly due to existence of Vindhyas & the Western ghats. Due to relatively high elevation in forest land, the area of the basin near the origin of the River experiences relatively cooler & moderate rainfall climate which gradually changes to warm & dry climate as the river flows northwards entering into & flowing through Rajasthan. After the river bends south westwards and enters Gujarat, the climate gradually changes towards tropical wet climate again.

Temperature (°C) during year 2017-18

Year	Chakaliya		Mataji		Khanpur		Paderdibadi		Dharaiwad	
	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
2017-18	47	8	47	05	43	08	45	06	45	15

2.1.4 Rainfall

The average rainfall in the Mahi Basin is 785 mm. The Southwest Monsoon sets in by the middle of June and withdraws by the first week of October. About 90 percent of total rainfall is received during the Monsoon months of which 50 percent is received during July and August. Rainfall is mainly influenced by the Southwest Monsoon. The effect is most pronounced in Vadodara lying on the windward side of the Western Ghats. Ratlam also receives similar rainfall, lying between the Arravalli and hill ranges north of Westernghats. Monsoon contributes nearly 91-94% of annual precipitation in Vadodara & Ratlam respectively.

Mean annual rainfall in mm Mahi Basin CWC sites

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Chakaliya	27	745	21	770.6	46
Mataji	29	885	38	720.6	51
Khanpur	29	930	24	775.4	50
Paderdibadi	33	742	29	993.6	56
Dharaiwad	29	841	50	860	71
Rangeli	18	768	25	990.4	38
Mahi dam	16	970	25	861.6	38
Som kamla amba dam	16	755	27	814	46
Kadana dam	17	910	33	1025.8	59
Anas ph-2	16	762	27	826.0	30
Panam dam	16	963	32	889	54
Wanakbori weir	16	1008	25	1163	48

2.1.5 Wind

Average wind speed is the lowest in Udaipur & the highest in Dahod. In general, wind speed is the lowest in post Monsoon period (Oct.-Nov.) & the highest in June. The predominant wind direction is from West in Ratlam & Dahod from Northwest in Udaipur and Southwest in Vadodara. The wind direction remains uniform from post Monsoon till early winter i.e. Oct. – February. Change of direction takes place in March/April. In Ratlam, Vadodara & Dahod the dominant wind direction is from North-East and East respectively during post Monsoon and in winter changes to westerly and south- westerly. In Udaipur, the post Monsoon and winter wind direction is from North & North -West which changes to South-westerly & Westerly during the remaining part of the year.

2.1.6 Geology

Hydro geologically the river basin is categorised by two distinct units viz.:

i. Consolidated formation

This hydro geological unit is mainly dominated by basaltic lava flows associated with inter trappean, infratrappean and Archean rock formation represented by phyllites, gneisses, quartzite & granites. Madhya Pradesh, Rajasthan & North eastern parts of Gujarat are mainly underlain by consolidated rocks.

ii. Unconsolidated formation

Ground water occurs under water table and unconfined condition in the bed of sand, kankar & gravel that constitutes the alluvial aquifers occurred as discontinuous beds of varying thickness in hard rocks- terrain in the North & Northeastern part of the basin.

The valley-fills, that are having good ground water potential are quite prominent and significant in the hard rock areas in the district of Jhabua, Chittorgarh, Udaipur, Banswara & Panchmahal. The Southern part of the basin is occupied by quaternary, post Miocene and tertiary sediment deposited over a sinking basement between two major structurally controlled lineaments.

2.1.7 Description of the water storage / diversion structures

At present, there are 15 completed major/medium irrigation/multi purpose projects in Mahi Basin.

List of existing projects (State irrigation) in Mahi Basin

Sl. No	Name of project	River	Storage capacity (Mm ³)		Purpose
			Gross	Live	
1	Mahi bajaj sagar	Mahi	2180	1712	Multi-purpose
2	Kadana	Mahi	1542	1203	Multi-purpose
3	Panam	Panam	735.8	679.2	Irrigation / water supply
4	Jakham	Jakham	141.9	131.6	Irrigation
5	Machhan nalla	Machhan	37.91	29.16	Irrigation
6	Wanakbori weir	Mahi	41.884	36.224	Irrigation
7	Jaisamand	Gomti	414.6	296.1	Irrigation / flood control
8	Hadaf	Hadaf	32.26	25.02	Irrigation
9	Kabutary	Kabutary	9.58	8.07	Irrigation
10	Bhadar	Bhadar	46.72	40.06	Irrigation
11	Umaria	Hadaf	13.53	11.67	Irrigation
12	Edalwada	Naleshvar	11.33	10.50	Irrigation
13	Nagalia weir	Jakham	-	-	Irrigation
14	Karmai weir	Karmai	-	-	Irrigation
15	Somkamala amba	Som	126.06	125.83	Irrigation
16	Labriya Dam	Mahi	199.07	135	Irrigation

Salient features of major/important projects viz. Mahi Bajaj Sagar, Kadana reservoir, Wanakbori weir & Panam reservoir are as follows.

Mahi Bajaj Sagar project

This project is located across River Mahi near village Barekhera about 16 km Northeast of Banswara town in Rajasthan. It has a catchment area of 6149 sqkm. The project comprises of a composite dam of earth fill and masonry having crest length of about 2800 m, spillway length 300 m in the River gorge. The maximum height of the earthen dam is 43 m and masonry dam

is 65.5 m. The live storage capacity of reservoir is 1712 Mm³. The benefits of this project are irrigation, hydropower generation, fisheries and water supply.

Kadana reservoir project

Kadana dam is located in gorge cut by Mahi river through a low range of hills in Dahod of Gujarat just near the border with Rajasthan. The catchment area up to this project is 25,520 sqkm and catchment area intercepted at Banswara in Rajasthan is 6149 sqkm. The dam is composite earth fill and masonry gravity structure rising 58 m above the stream bed with the top length of dam about 1551 m with main spillway length 406 m in river gorge portion and 113 m long additional spillway in right bank. The effective storage capacity of Kadana reservoir is 1203 Mm³. The benefits of this project include irrigation facilities for 12795 ha and hydro - power generation by installation of 4 nos reversible turbines of capacity 60 MW each, with a total capacity of 240 MW. The total estimated cost of this project is Rs.101.86 crores, out of which Rs.49 crores are for hydro power generation.

Wanakbori weir

The weir is constructed across the river Mahi near Wanakbori village, Balasinor tehsil of Kheda district in Gujarat. The weir is also known as Mahi stage-I project. The catchment area up to this project is 30,665 sqkm. The length at the top of dam is 796 m and maximum height above lowest point of foundation is 25 m. It has an ogee type spillway of 735 m length. The effective storage capacity of this composite dam is 36.24 Mm³. The benefit of this project is irrigation for 3, 15,790 ha. The cost of the project is Rs.46.53 crores. The storage capacity of dam is increased to RL 69.240 m by providing 33 nos fuse gates, which will not result in any increase of HFL.

Panam project

The project is located in village Keldezar of tehsil Santrampur in Dahod district of Gujarat across river Panam, a tributary of river Mahi. The length at the top of masonry dam functioning as ogee spillway is 182 m and maximum height above the lowest point of foundation is 56.36 m. It has a catchment area of 2314 sqkm. The live storage capacity of the reservoir is 679.2 Mm³. The purpose of this project is irrigation for 58,273 ha, water supply, power generation and fisheries. The total estimated cost of the project is Rs.5989.5 lakhs.

2.1.8 Streamflow data

Hydrological observation by CWC

In Mahi basin, CWC is conducting hydrological observations at 6 sites. Detailed salient features and the availability of data of these gauge and discharge observation sites are given in following tables.

Salient features of sites maintained by CWC in Mahi Basin

Sl.no	Name of site	Station code	Scheme	Type
1.	Mahi at Mataji	01 02 13 001	NNW	GDSWQ
2.	Jakham at Dhariwad	01 02 13 004	F F	GD
3.	Som at Rangeli	01 02 13 005	80 key	GDWQ
4.	Mahi at Paderdibadi	01 02 13 006	80 key	GDSWQ
5.	Anas at Chakaliya	01 02 13 007	163 key	GD
6.	Mahi at Khanpur	01 02 13 012	80 key	GDSWQ

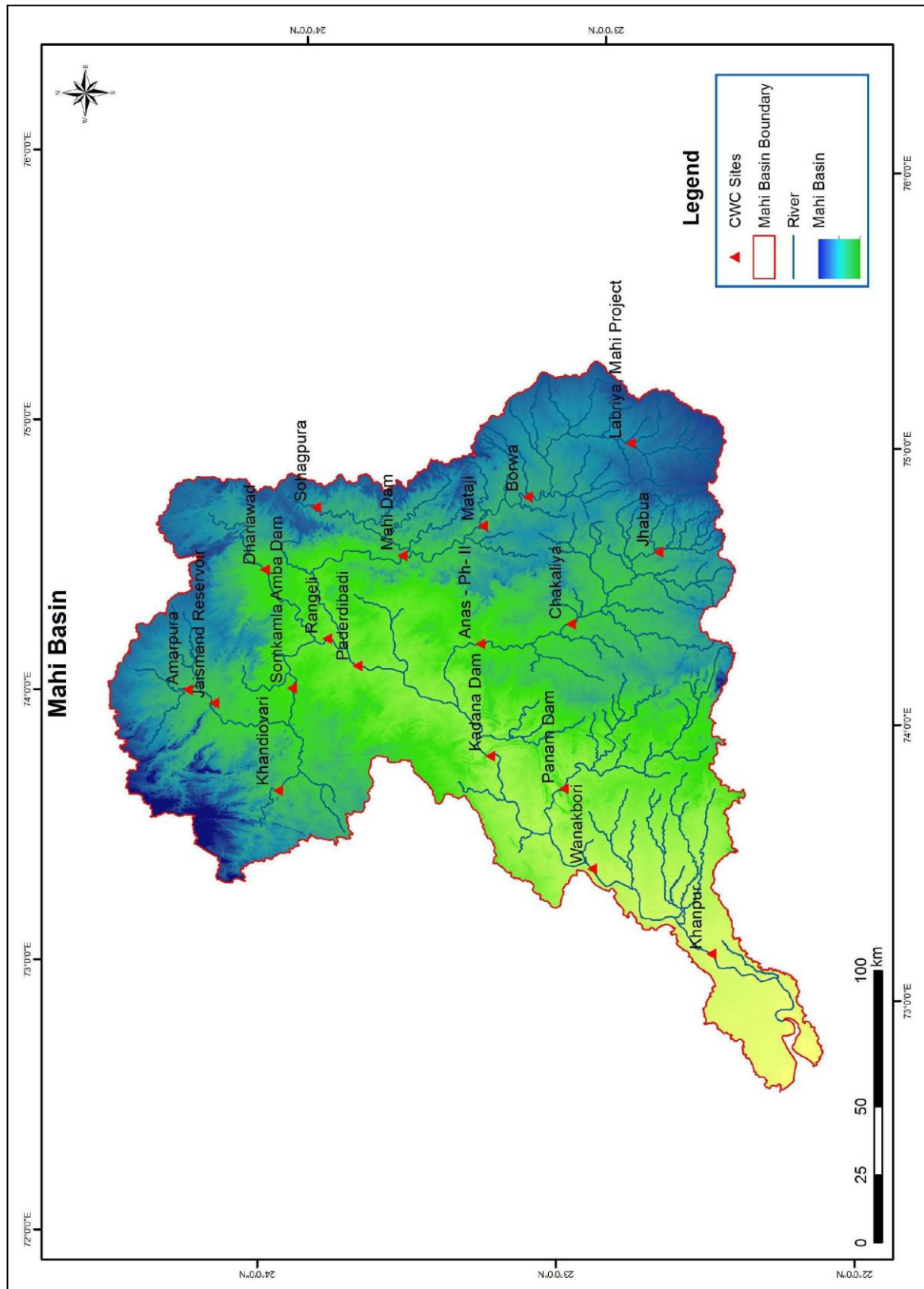
Location name	Local River	Lat. D M S	Long. D M S	Stn. Parameters				Type of gauge	Mode of Discharge Measurement
				Met	Hydro	WQ	Silt Lab		
Mataji	Mahi	23 20 57	74 43 31	SRG	GDS	WQ	Silt lab	Staff G	Wading, bridge, boat, float
Mahi dam	Mahi	23 37 43	74 32 50	SRG	G			Staff G	Dam site
Rangeli	Som	23 52 22	74 13 25	SRG	GD	WQ		Staff G	Wading, bridge, float

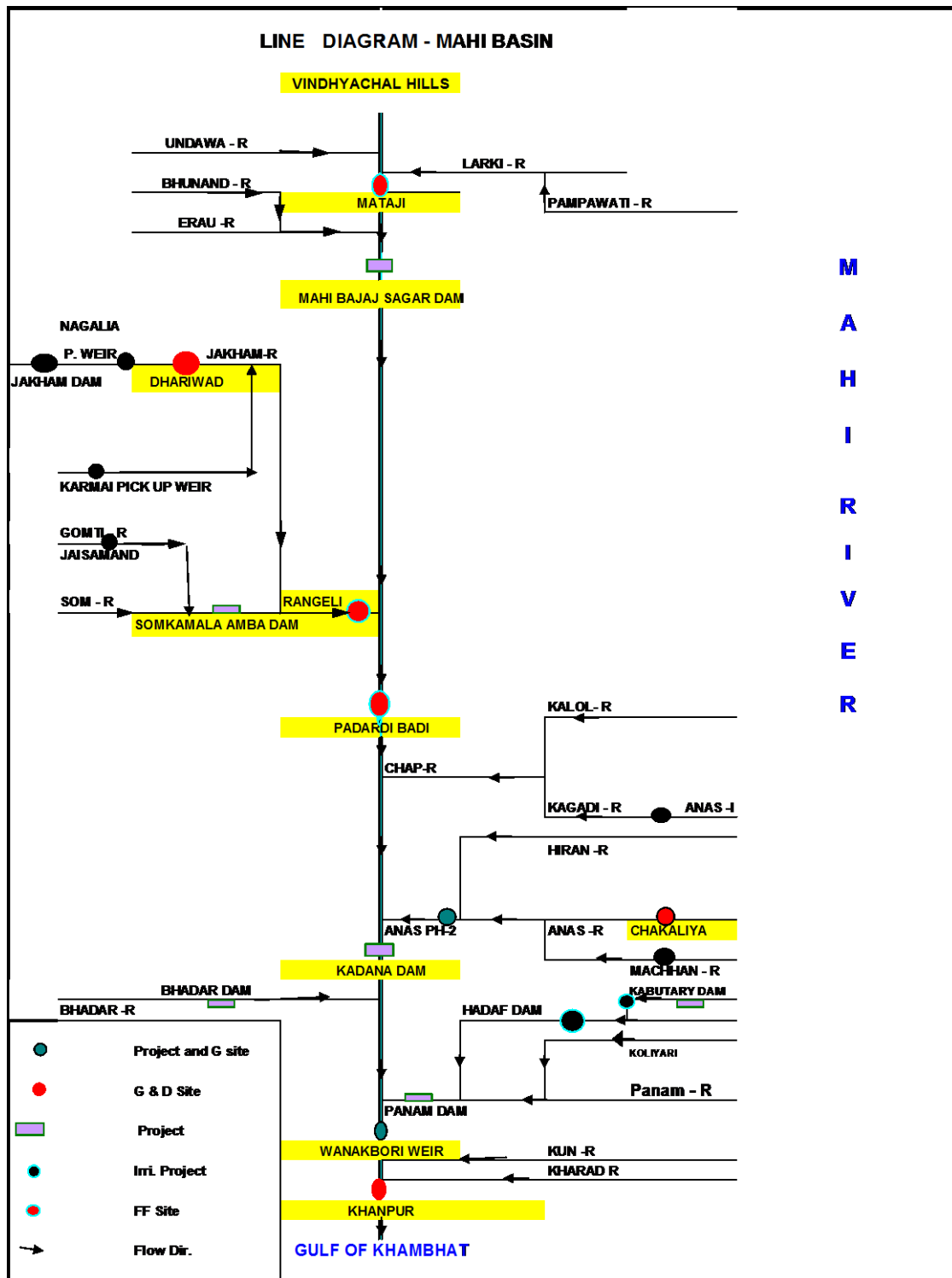
Som kamala amba dam	Som	23 58 36	74 02 00	SRG	G			Staff G	Dam site
Dhariwad	Jakham	24 04 43	74 28 02	SRG	GD			Staff G	Wading, bridge, float
Paderdibadi	Mahi	23 46 03	74 08 12	SRG	GDS	WQ	Silt lab	Staff G	Wading, boat, float
Chakaliya	Anas	23 02 58	74 19 14	SRG	GD			Staff G	Wading, bridge, float
Anas Ph-2	Anas	23 21 11	74 14 07	SRG	G			Steps	Converted to gauge site only. made seasonal site w.e.f.2002
Kadana dam	Mahi	23 18 16	73 49 31	SRG	G			Staff G	Dam site and FF station
Panam dam	Panam	23 03 14	73 43 00	SRG	G			Staff G	Dam site
Wanak bori weir	Mahi	22 56 51	73 25 46	SRG	G			Staff G	FF station
Khanpur	Mahi	22 31 55	73 08 27	FCS	GDS	WQ	Silt lab	Staff G	Wading, boat, ADCP

2.1.9 Data availability

S No.	Site name	Rain Fall	Discharge	Thrice daily water Level	Hourly water level (for Monsoon period only)	Sediment	Water quality
1	Mahi at Mataji GDSWQ	June'89	July'82	July '82	July '82	July'82	July'82
2	Jakham at Dhariwad GD	June'89	June'84	July '84	July'84	NA	NA
3	Som at Rangeli GDQ	Jan'99	July'88	July '78	July'78	NA	July '88

4	Anas at Chakaliya GD	July'91	Feb'91	Feb '91	June'91	NA	NA
5	Mahi at Paderdibadi GDSWQ	Aug'85	June'78	Sept'77	Sept'77	July '80	July'78
6	Mahi at Khanpur GDSWQ	June'88	June'88	Dec '78	June'79	June '87	Jan'79
7	Som at Som-kamala-amba dam G	Jan'95	---	Jan'95	Jan'95	---	--
8	Anas at Anas ph-2 (seasonal) G	Jun'91	---	Jun'82	Jun'85	--	--
9	Mahi at Kadana dam G	--	--	Jun'78	Jun'78	---	---
10	Panam at Panam dam G	--	--	Jun'80	Jun'80	--	--
11	Mahi at wanak bori weir G	--	--	Jun'79	Jun'79	--	--
12	Mahi at Mahi Bajaj Sagar Dam G	--	--	Jun'82	Jun'82	--	--
13	Som at Khandiovri (GD)	Mar'16	Mar'16	Mar'16	Mar'16	--	--
14	Eru at Sohagpura (GD)	Aug'15	Aug'15	Aug'15	Aug'15	--	--
15	Tidi at Amarpura(G)	Mar'16	--	Mar'16	Mar'16	--	--
16	Mahi at Borwa(G)	Aug'15	--	Aug'15	Aug'15	--	--





2.2 Sabarmati Basin

2.2.1 Geographical description of the basin

Sabarmati river is one of the major west flowing inter-state rivers in India, draining into the Gulf of Khambhat. The Basin is bounded by Aravalli hills in the North and Northeast, by ridge separating it from basins of minor streams and draining into Rann of Kutch and Gulf of Khambhat in West and by Gulf of Khambhat in the South. It is triangular in shape with the main river as the base and the source of the Watrak as the apex point. It originates in the Aravalli hills at latitude 24° 40'N and longitude 73° 20'E in Rajasthan state at an elevation of 762 m above m.s.l. The Sabarmati river has a length of 371 km and the drainage area is of 21674 sq km. Basin map of Sabarmati basin is enclosed as **Plate -2.2.1**. The State wise distribution is shown below.

Sl.no.	Name of State	River length (km)	Drainage area (sqkm)	Percentage of total
1	Rajasthan	48	4124	19
2	Gujarat	323	17550	81
	Total	371	21674	100

2.2.2 Description of River system

The Sabarmati river with its origin in Rajasthan, flows generally in South – West direction. It enters in Gujarat state and passes through the plains and continues to flow in the same direction and joins the Gulf of Khambhat in the Arabian sea. At its 51 km of run, the river is joined by the Wakal on the left bank near village Ghanpankari. Flowing generally in the South – West direction at 67th km of its run, it receives the Sei on the right bank near Mahauri and then the Harnav on the left bank at about 103 km run. From respective sources beyond this confluence, Sabarmati flows through the Dharoil gorge. Emerging from the gorge it passes through the plains and is joined on its left bank at about 170 km from its source by the Hathmati, which is its major tributary. Continuing to flow in South – West direction, the river passes through Ahmedabad and about 65 km down stream, another major tributary, Watrak joins its on the left bank, flowing for a further distance of 68 km, the River outfalls in the Gulf of Khambhat in Arabian sea.

Description of tributaries

Sei

This is a right bank tributary of Sabarmati river. It rises in the Aravalli hills in Rajasthan and flows in South – West direction for a total distance of 95 km before it joins on its right bank. It drains an area of 946 sq km.

Wakal

This is a left bank tributary of Sabarmati river. It rises in the Aravalli hills in Rajasthan and flows in South – West direction for a total length of 88 km. It joins Sabarmati on its left bank. It drains an area of 1625 sq km.

Harnav

This is a left bank tributary of Sabarmati river. It rises in the northern portion of the Kulalia hills of Rajasthan ranges and flows in South – West direction for a total distance of 75 km. Harnav joins the left bank of Sabarmati. It drains an area of 972 sq km.

Hathmati

This is a left bank tributary of Sabarmati River this is a left bank tributary of Sabarmati river it rises in Southwest foot hills of Rajasthan range. In Gujarat state and flows in South -West direction for a distance of 122 km to meet the Sabarmati on its left bank.this tributary drains an area of 1526 sq km.

Watrak

This is a left bank tributary of Sabarmati river it rises in Panchara hills in Dungarpur district of Rajasthan and flows in Southwest direction for a distance of 248 km and joins Sabarmati on the left bank.Watrak and its tributaries drain an area of 8638 sq km.

A line diagram of river system, giving information of Sabarmati basin, its tributaries and sub-tributaries etc. indicating the location of major structures is enclosed as **Plate -2.2.2.**

2.2.3 Climatic characteristics

The Sabarmati basin experiences 3 marked seasons – summer (March-May), Monsoon (June-Sep.) & winter (Oct.-Feb.). From the available data & record, the basin contains two climatic regions, the northern part of the basin comprises sub tropical wet climate (generally basin area occupied by Gujarat). The major part of basin comprises tropical wet climate causes mainly

due to existence of Aravalli & the Western Ghats. The climate varies from arid in the Saurashtra area to semi –arid in North Gujarat to humid in coastal areas.

Temperature (°C) during year 2017-18

Year	Jotasan		Kheroj		Derol bridge		Ratanpur		Kheda		Voutha	
2017-18	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
	44.6	3.9	45	6	43.8	6.4	46	8	45.3	12.1	41.6	14.7

2.2.4 Rainfall

Rainfall varies from a meager few mm in Saurashtra to over 1000 mm in southern part. The average annual rainfall in the Sabarmati Basin is about 787.5 mm the south - west Monsoon sets in by middle of June and withdraws by the first week of October. The rainfall is mainly influenced by the southwest Monsoon.

Mean annual rainfall in ‘mm’ Sabarmati Basin CWC sites

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Jotasan	22	768	34	1295	52
Kheroj	29	740	32	1166.4	56
Derol Bridge	29	752	28	965.4	47
Watrak dam	31	870	24	944	44
Raskaweir	32	644	17	948.7	45
Ratanpur	26	816	20	1101.8	42
Kheda	33	743	20	989.1	48
Sei dam	17	817	33	1157.8	52
Dharoi dam	17	825	34	1177.2	48
Himatnagar	17	862	25	944.4	49
Voutha	10	743	22	735.2	47
Subhash bridge	9	851	29	1109.7	52

2.2.5 Wind

Average wind speed is the lowest in Udaipur & higher in Ahmedabad district. In general, wind speeds are taken to be moderate over most of the months.

2.2.6 Geology

Hydro geologically the river basin is categorised by two distinct units viz.:

i. Consolidated formation

This hydro geological unit is mainly dominated by basaltic lava flows associated with inter trappean, infratrappean and archean rock formation represented by phyllites gneisses, quartzite & granites. Consolidated rocks mainly underlie north-eastern part of Gujarat

ii. Unconsolidated formation

Ground water occurs under water table and in confined condition in the bed of sand, kankar & gravel that constitutes the alluvial aquifers occurred as discontinuous beds of varying thickness in hard rocks- terrain in the north & north eastern part of basin. The valley-fills that are having good ground water potential are quite prominent and significant in the hard rock areas in Udaipur.

In the northern part of the Basin, including areas in Rajasthan and those in Sabarkantha district the aquifers available are the highly jointed and fractured or extensively weathered rock zones. Wells tapping some thick rock-formations of this type yield as much as 1, 00,000 litres per hour though – 40,000 litres per hour would be more common. Such aquifer of moderate potential is available within 100-150 m below GL and even as close as at 30-40 m depth if one was especially fortunate.

The parts of the Basin in Kheda and Surendranagar district have only limited ground water potentials comparable to that in northern parts of the Basin and good confined aquifers are not available. The phreatic aquifers in the alluvial strata are only suited for shallow wells and low yields tube wells.

2.2.7 Description of the water storage / diversion structures

At present there are 13 completed major / medium irrigation schemes which are listed in the following table.

Existing projects in Sabarmati Basin

Sl. No.	Name of project	River	Storage capacity (Mm ³)		Purpose
			Gross	Live	
1	Sei dam	Sei	31.34	24.16	Diversion
2	Dharoil dam	Sabarmati	907.88	731.99	Multipurpose
3	Harnav-I	Harnav	----	----	Water Supply
4	Harnav - II	Harnav	21.67	19.97	Irrigation
5	Guhai	Guhai	62.34	57.04	Irrigation
6	Hathmati	Hathmati	161.0	153.0	Irrigation
7	Meshwo	Meshwo	82.00	77.00	Irrigation & Flood control
8	Mazam	Mazam	43.86	36.58	Flood control
9	Watrak	Watrak	176.9	154.3	Irrigation
10	Waidy	Suron	13.60	12.30	Irrigation
11	Raska weir	Meshwo	----	----	Irrigation
12	Moti fatewadi	Sabarmati	----	----	Irrigation
13	Vasana barrage	Sabarmati	----	----	Irrigation

Salient features of important major irrigation schemes namely Dharoil project and Watrak project are as follows.

Dharoi project

The project is located on Sabarmati River at Dharoil village of kheralu thehsil in Mehsana district of Gujarat. This comprises of a composite dam, having earthen dam of 843 m length with central spillway of 219 m. The maximum height from deepest foundation level for masonry dam is 52.00 m and for earth dam is 31 m. The catchment area up to project is 5475 sqkm. The live storage capacity of the dam is 731.99 Mm³. The total estimated cost of the project is Rs.96 crores. The direct benefits of the project are water supply for Ahmedabad city, and providing irrigation facilities to an area of 42800 ha. The project also supports existing irrigation under fatewadi canal system. The indirect benefit of the project is flood control. There is provision for 1.4 MW Hydro - power generations also.

Watrak project

This project is located in village Pahadia of Malpur teh. In district Sabarkantha of Gujarat. The project envisages construction of a composite dam across Watrak River having ogee type spillway of length 89 m. The length at top of dam is 313 m and maximum height above the lowest point of Foundation is 43.31 m. The catchment area of this project is 1114 sqkm. The live storage capacity of the reservoir is 154.3 Mm³. The purpose of this project is irrigation for 25914 ha. The estimated cost of the project is Rs.47.58 crores.

2.2.8 Streamflow data

Hydrological observation by CWC.

In Sabarmati Basin, the CWC is conducting gauge and discharge observations at 6 sites. The details of these sites alongwith salient features in Sabarmati Basin are given in the following tables.

Sl.no	Name of site	Station code	Scheme	Type
1.	Wakal at Jotasan	01 02 12 001	F F	GD
2.	Sabarmati at Kheroj	01 02 12 003	F F	GD
3.	Sabarmati at Derol Bridge	01 02 12 006	F F	GDSWQ

4.	Watrak at Ratanpur	01 02 12 010	F F	GD
5.	Watrak at Kheda	01 02 12 012	F F	GD
6.	Sabarmati at Vautha	01 02 12 013	163 key	GDWQ

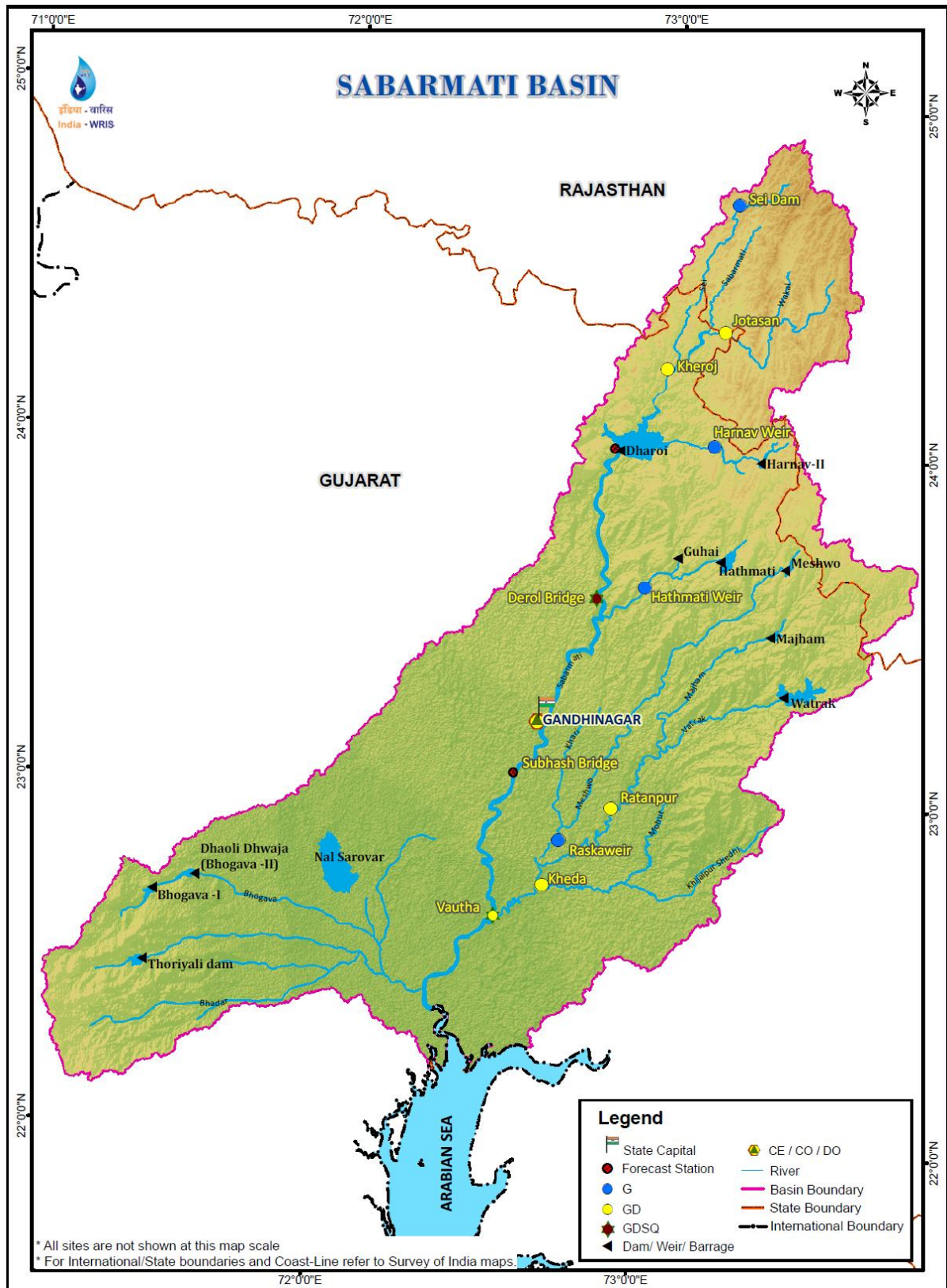
Salient features of sites maintained by CWC in Sabarmati Basin

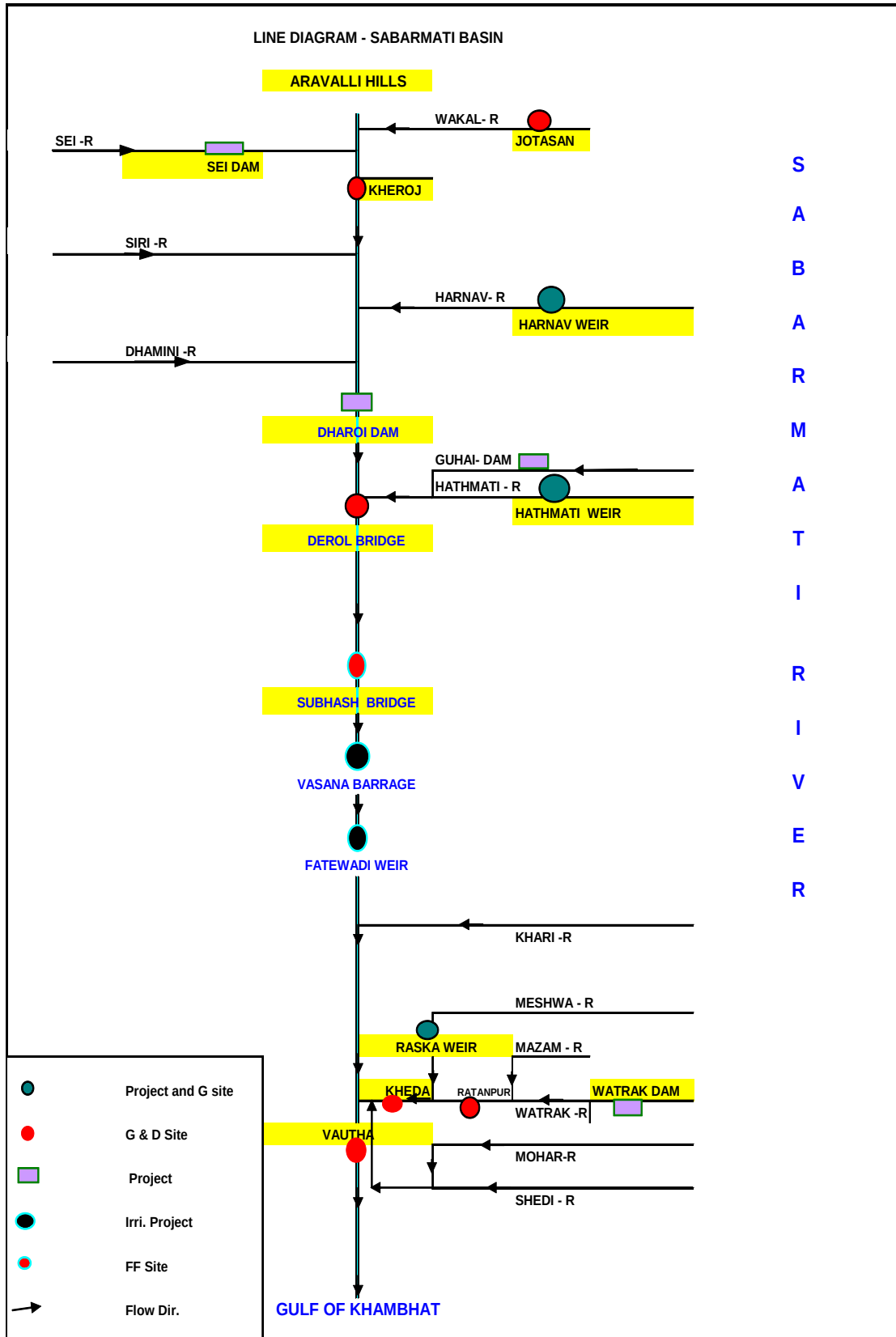
Sr No	Name	Local River / tributary	Lat. N	Long. E	Stn Parameters			Silt Lab	Type of gauge	Mode of Discharge Observation
			D M S	D M S	Met	Hydro	WQ			
1	Jotasan	Wakal	24 21 20	73 10 05	SRG	GD			Staff G	Wading,boat, float
2	Sei dam	Sei	24 45 39	73 19 05	SRG	G			Staff G	Dam Sei
3	Kheroj	Sabarmati	24 13 45	73 00 26	SRG	GD			Staff G	Wading, boat, float
4	Harnav weir	Harnav	24 01 49	73 10 23	SRG	G			Staff G	Weir site
5	Dharoil dam	Sabarmati	24 00 13	72 51 24	SRG	G			Staff G	FF station, dam site
6	Hathmati weir	Hathmati	23 36 20	72 58 00	SRG	G			Staff G	Weir site
7	Derol Bridge	Sabarmati	23 34 24	72 48 25	SRG ARG	GDS	WQ	Silt lab	Staff G	Wading, bridge
8	Subhash bridge	Sabarmati	23 03 35	72 35 14	SRG	G			Staff G	FF station

9	Raska weir	Meshwa	22 54 19	72 44 30	SRG	G			Staff G	Weir site
10	Watrak dam	Watrak	23 18 53	73 25 00	SRG	G			Staff G	Dam site
11	Ratanpur	Watrak	22 58 31	72 53 02	SRG	GD			Staff G	Wading, bridge float
12	Kheda	Watrak	22 44 45	72 40 49	SRG	GD			Staff G	Wading, bridge float
13	Vautha	Sabarmati	22 38 59	72 32 08	Na	GD	WQ		Staff G	Wading, boat, float

2.2.9 Data availability

Sl. No	Site name	Rain fall	Disch.	Thrice daily water level	Hourly water level (Monsoon period only)	Sediment	Water quality
1	Sabarmati at Jotasan GD	June'94	June'95	June'95	June '95	N A	N A
2	Sabarmati at Kheroj GD	June'88	June'81	June'81	June '81	N A	N A
3	Sabarmati at derol GDSQ	June'88	June'91	Aug'80	Aug.80	Sept 92	July 92
4	Watrak at Ratanpur GD	Aug'85	July '89	Mar'85	June '85	N A	N A
5	Watrak at Kheda GD	Jun '88	July '89	Aprl'85	June '85	N A	N A
6	Sabarmati at Vautha GDQ	N A	June2000	June2000	June2000	N A	June2000
7	Sei dam G	Jun'90	--	Mar'79	Mar'79	---	---
8	Harnav weir G	Jun'79	---	Jul'79	Jul'79	--	--
9	Dharoil dam G	Jun'89	--	Dec'78	Dec'78	--	--
10	Hathmati weir G	Feb'85	--	Jun'80	Jun'80	--	--
11	Subhash bridge G	--	--	Jul'79	Jul'79	--	--
12	Raska weir G	Nov'84	--	Nov'84	Nov'84	--	--
13	Watrak dam G	Jul'85	--	Jul'85	Jul'85	--	--





2.3 Luni Basin

2.3.1 Geographical description of the Basin

Luni is the only river basin of any significance in western Rajasthan, which forms the bulk of arid zone. Luni originates from western slopes of the Aravalli ranges at an elevation of 772 m above m.s.l. near Ajmer flowing in south west direction and traversing a course of 511 km in Rajasthan, it finally flows into the Rann of Kachchh. Most of its tributaries drain the steep North-West of Aravalli hills and join it on left side. Its total catchment area falls in Rajasthan. Luni Basin is situated in between $24^{\circ} 11'$ to $26^{\circ} 43'$ north latitude and $70^{\circ} 37'$ to $74^{\circ} 39'$ east longitude approximately. The peculiarity of this river is that it tends to increase its width rather than deepening the bed because the banks are of soils, which are easily erodable whereas beds are of sand. The floods develop and disappear so rapidly that they have no time to scour the bed. The Aravalli ranges form its east boundary whereas main course of river in Barmer district itself forms north boundary and mostly Banas and initial reach of Chambal river form its southern boundary. Basin map of Luni Basin is enclosed as **Plate -2.3.1**

2.3.2 Description of River system

Luni receives all the main tributaries on its left bank except one i.e. Jojari (Mithri) on the right bank. Luni receives ten tributaries namely Lilari, Guhiya, Bandi (Hemawas), Sukri (Hemawas), Sukri, Mithri, Jawai, Khari Bandi, Sukri Bandi and Sugi. Drainage on the left bank of Luni is, therefore, more extensive than on right bank. The Luni drains an area of 32879 sqkm in Rajasthan State only.

The catchment area of the basin up to Chittalwana is 32661 sqkm. The remaining catchment area of the Luni basin below Chittalwana and up to Rann of Kachchh is only 218 sqkm which is delta where the water spreads out and does not contribute any runoff. The total available runoff from entire Luni basin is 788 Mm^3 , out of which Guhiya, Jojari (Mithri), Bandi (Hemawas) and Jawai tributaries contribute runoff of 116 Mm^3 , 64 Mm^3 , 120 Mm^3 and 125 Mm^3 respectively. The catchment area, length and elevation of source of important tributaries are shown below.

S.no	Name of River	Bank	Elevation of source above m.s.l. (m)	Length (km)	Catchment area (sqkm)
1	Luni	Main	737	511	32879
2	Jolari (Mithri)	Right	312	83	1060
3	Lolari	Left	731	60	1611
4	Guhiya & Sukri (Hemavas)	Left	237	125	4126
5	Bandi (Hemavas)	Left	935	135	3016
6	Sukari	Left	995	140	3280
7	Mithri	Left	459	71	2637
8	Jawai	Left	1099	145	2701
9	Khari bandi	Left	701	84	2671
10	Sukri bandi	Left	588	85	1161
11	Sugi	Left	688	80	1370

A line diagram of River system giving information of Luni Basin & its tributaries and sub-tributaries etc is enclosed as **Plate -2.3.2.**

2.3.3 Climatic characteristics

Temperature (°C) during year 2017-18

Year	Balotra		Gandhav	
	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
2017-18	47.5	7	46.5	6

2.3.4 Rainfall

The 50 cm isohyet approximately follow Aravallies range and is dividing line between arid and semi arid in the west and sub humid in the east and south east. The rainfall is erratic and its distribution is uneven in the catchment.

Mean annual rainfall in mm Luni Basin CWC sites

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Balotra	18	306	18	523.9	31
Gandhav	16	441	15	1112	23

2.3.5 Geology

Aravallies form the watershed boundary that divides the state virtually into two broad physio-climatic zones i.e. arid and semi arid. The arid zone that lies to the west of Aravallies (whole Luni basin) is covered by vast stretches of sand intercepted by numerous hillocks of low elevation. The North-West part of Aravallies shows discontinuity and is full of wide gaps enabling penetration of western sand dunes to East. The drainage system mostly continues to the eastern half of the state; most of the easterly flowing streams drain into Chambal river. On West of Aravallies, only Luni has outlet to the Rann of Kachchh.

2.3.6 Description of the water storage / diversion structures

No major irrigation structure exists in the Luni Basin. However, there is a net deficit of the available runoff due to all existing/under construction /proposed schemes in Luni Basin. Below table shows the salient features of Some of the important irrigation schemes.

Description	Jawai dam	Jaswant sagar dam	Hemawas	Sardar samand	Banki bund
Tehsil	Bali	Bilara	Pali	Sojat	Ahore
District	Sirohi	Jodhpur	Pali	Pali	Jalore
Latitude	24 ⁰ 06' 40"	26 ⁰ 44' 45"	25 ⁰ 44' 00"	25 ⁰ 26' 54"	24 ⁰ 42' 00"
Longitude	73 ⁰ 09' 00"	72 ⁰ 44' 45"	73 ⁰ 20' 00"	73 ⁰ 20' 58"	72 ⁰ 53' 00"
C.a.(sq km)	787	3367	1124	2072	1716
C.c.a. (ha)	41300	6381	8300	10337	5235
Gross storage Mm3	198	52.8	62.5	88	48.6

Live storage capacity Mm3	184	52.6	62.5	88	34.5
Type of dam	Masonry	Earthen	Earthen	Earthen	Earthen

2.3.7 Streamflow data

Hydrological observations by CWC

In Luni Basin, the central water commission is conducting hydrological observations i.e. Gauge and discharge observations at 2 sites. The details of the sites are given below

Sl.No.	Name of site	Station code	Scheme	Type
1.	Luni at Gandhav	01 02 01 002	NNW	GD
2.	Luni at Balotra	01 02 01 001	163 key	GD

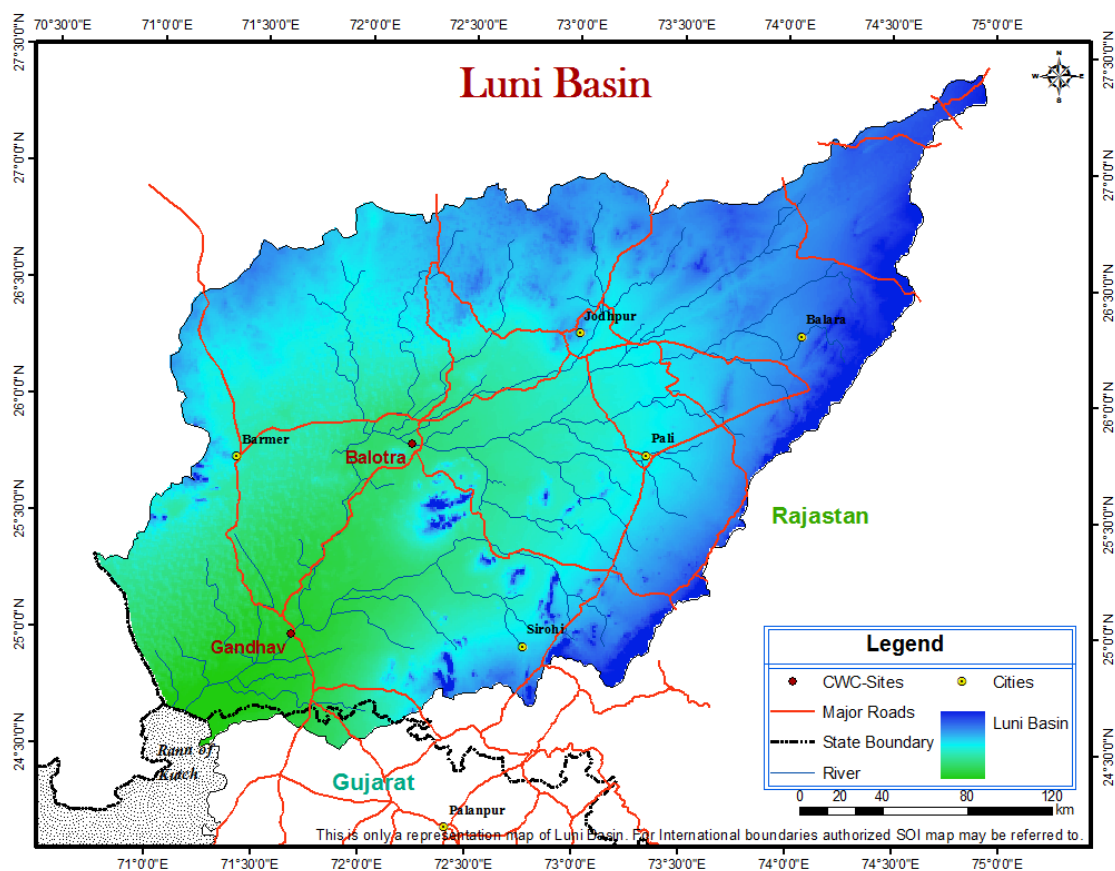
The data of above two sites have been presented in this book. During the water year 1984-85 and 1985-86, the site Luni at Gandhav was under the administrative control of defunct Jodhpur gauging division.

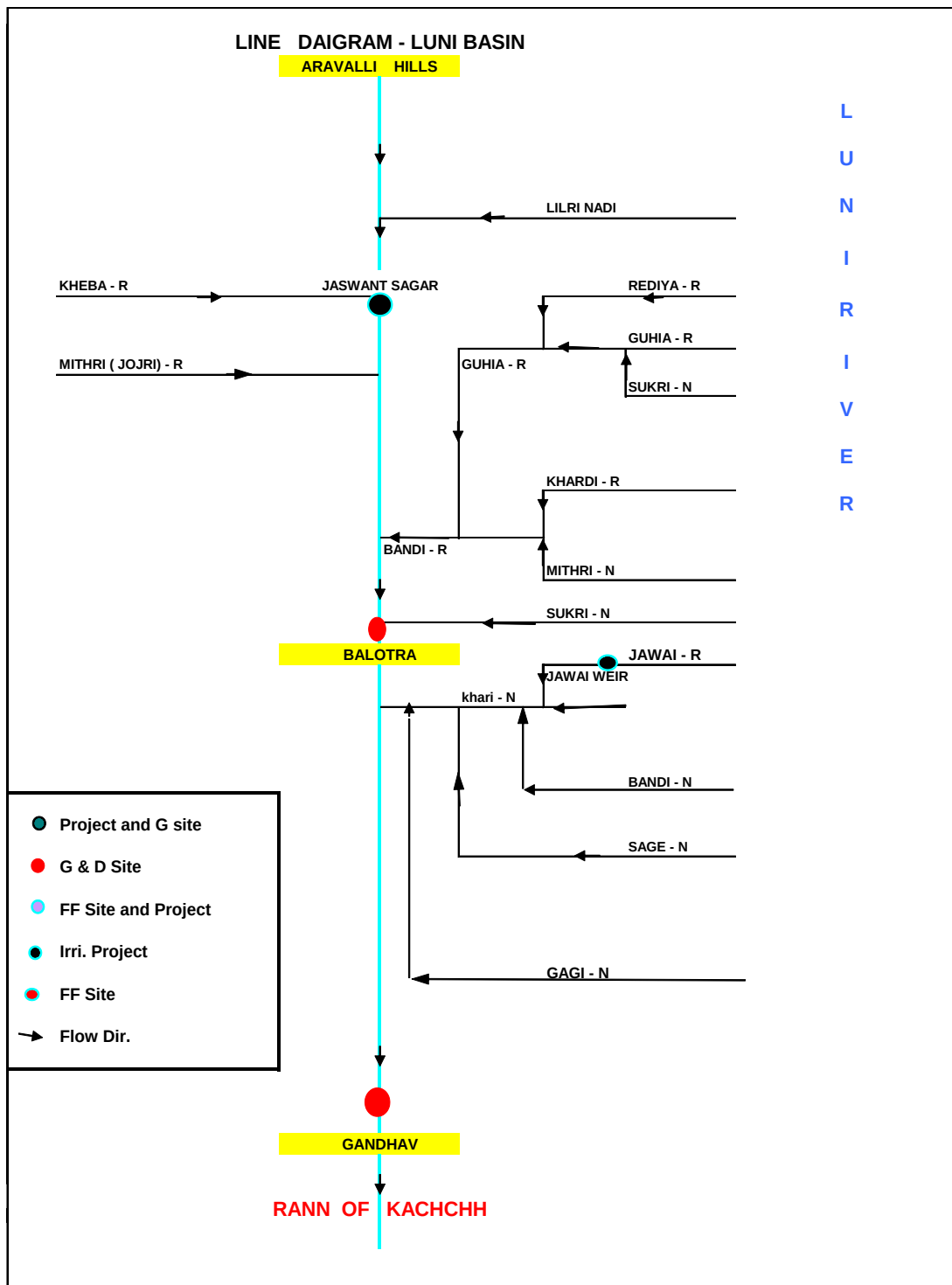
Salient features of sites maintained by CWC in Luni Basin

Sr No	Name	Local River	Lat.	Long.	Stn Parameters		Type of gauge	Discharge Measurement
			D M S	D M S	Met	Gauge		
1	Gandhav	Luni	24 59 22	71 40 47	SRG	GD	Staff G	Wading, bridge, float
2	Balotra	Luni	25 49 18	72 13 23	SRG	GD	Staff G	Wading, float

2.3.8 Data availability

Sl No	Site name	Rain fall	Discharge	Thrice daily water level	Hourly water level (for Monsoon period only)
1	Luni at Gandhav GD	Jan'99	June '74	June '74	June '74
2	Luni at Balotra GD	July'90	July '90	July '90	July '90





2.4 Banas Basin

2.4.1 Geographical description of the Basin

Banas river originates from Aravalli hills and descends in a South-Western direction through Rajasthan state and travels through Banaskantha and Mehsana district of Gujarat before it drains into little Rann of Kutchh. The Banas basin is the northern basin and is situated between 23° 30' 24° 55' north latitudes and 71° 15' to 73° 15' east longitudes approximately. Saraswati and Luni basins form the southern and northern boundaries of this basin. The Aravalli hills form its eastern extremity. The Banas drains an area of 8674 sqkm, out of which nearly 37.69% lies in Rajasthan state and remaining 62.31% falls in Gujarat state. Basin map of Banas basin is enclosed as **Plate -2.4.1**

The state and district wise distribution of its drainage area is shown the following table

Sl.no.	Name of state	Name of district	Length of River km	Drainage area sqkm	% of total ca
1	Rajasthan	Sirohi	78	3269	37.69
2	Gujarat	Banaskantha	119	4638	53.47
3	Gujarat	Mehasana	69	767	8.84
Total			266	8674	100.00

2.4.2 Description of River system

The Banas rises near Pindwara of Sirohi district of Rajasthan at an elevation of 372.51m above m.s.l. Little Rann of Kachchh is the outfall of Banas River. Sipu is the only right bank tributary of Banas, which drains into the main channel. There are 6 tributaries on the left bank of Banas river namely the Batria, the Sukli, the Sewaran, the Suket, the Balaram and the Khari which drain into the main channel. Hence the draining system on the left bank of the Banas river is more extensive as compared to the right bank area. The Sipu and the Khari are the two important right and left bank tributaries, which together drain nearly 37% of the total catchment area of Banas.

Sipu

Sipu is the principal tributary of the Banas rising from Sirohi and Mount Abu hills in Sirohi district of Rajasthan state. Abu hills fall between the Banas and Sipu sub-basin. About 30% of Mount Abu hills direct runoff drains into the Sipu river while about 70% of Mount Abu hills direct runoff flows into the Banas river. The confluence of Sipu and Banas river is 12 km downstream of Dantiwada dam.

Khari

Khari river rises from Palanpur (Banaskantha district) and drains into the Banas river through Mehsana district at 80 km downstream of Dantiwada dam.

Sukli

The Sukli tributary rises from Aravalli hills near Pindwara of Sirohi district (Rajasthan) and drains into the Banas river downstream of Swaroopganj dam and 9 km upstream of Abu road in Rajasthan.

Batria

The Batria rises near Ambaji hills of Aravalli range and drains into the Banas, 3km upstream of Abu road. It passes through Sirohi district of Rajasthan.

Sewaran, Suket and Balaram

The Sewaran, Suket and Balaram tributaries rise near Ambaji hills of Aravalli ranges. Sewaran and Suket before they both drain into Banas river 7.5 km downstream of Abu Road pass from Banaskantha and Sirohi districts. Balaram river totally drains Banaskantha district. Its confluence with Banas is 14 km upstream of Dantiwada dam. A line diagram of River system giving information of Banas, its tributaries and sub-tributaries etc. indicating the stations showing diversions etc enclosed as **Plate -2.4.2**.

The catchment area, length and elevation of source of the above said tributaries are indicated in the following table.

Sl.no.	Name of River	Bank	Elevation of source above m.s.l. (m)	Length (km)	Catchment area (sq km)
1	Banas	Main	372.51	266	8674
2	Sipu	Right	1150	75	1420
3	Sukli	Left	372.51	38	438
4	Batria	Left	780	24	218

5	Sewaram	Left	850	28	202
6	Suket	Left	606	15	79
7	Balaram	Left	807	40	345
8	Khari	Left	215.285	88	1391

2.4.3 Climatic characteristics

Temperature (°C) during year 2017-18

Year	Kamalpur		Chitrasani		Sarotry		Abu road	
	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
2017-18	45	8	44	8	45	5	45	6

2.4.4 Rainfall

Mean annual rainfall- Banas Basin- CWC sites

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Abu Road	38	686	32	1360.6	42
Sarotry	29	812	23	1792.2	51
Chitrasani	38	727	36	1511.4	40
Bhakudar	33	686	20	1680	37
Kamalpur	37	545	13	1006.9	36
Dantiwada	19	701	21	1858.2	37
Ambaji	19	793	28	1320.4	54
Mt.abu	19	1484	39	3339.6	56

2.4.5 Description of the water storage / diversion structures

A line diagram of River system giving information of Banas, its tributaries and sub tributaries etc indicating the stations showing diversions, etc is enclosed as Fig 3.4.

List of existing projects in Banas Basin

Sl.no.	Name of project	River	Storage capacity (Mm ³)		Purpose
			Gross	Live	
1	Swarupgunj dam	Banas	39.05	-----	Irrigation
2	Dantiwada dam	Banas	464	444	Irrigation
3	Sipu dam	Sipu	177.8	156	Irrigation

2.4.6 Streamflow data

Hydrological observation by CWC

In Banas Basin the central water commission is conducting hydrological observation i.e. Gauge and discharge observation at 4 sites. The details of these four sites are given below.

Sl.no.	Name of site	Station code	Scheme	Type
1.	Banas at abu road	01 02 02 002	F F	GDWQ
2.	Banas at Sarotry	01 02 02 003	F F	GD
3.	Balaram at Chitrasani	01 02 02 004	F F	GDWQ
4.	Banas at Kamalpur	01 02 02 007	NNW	GDSWQ

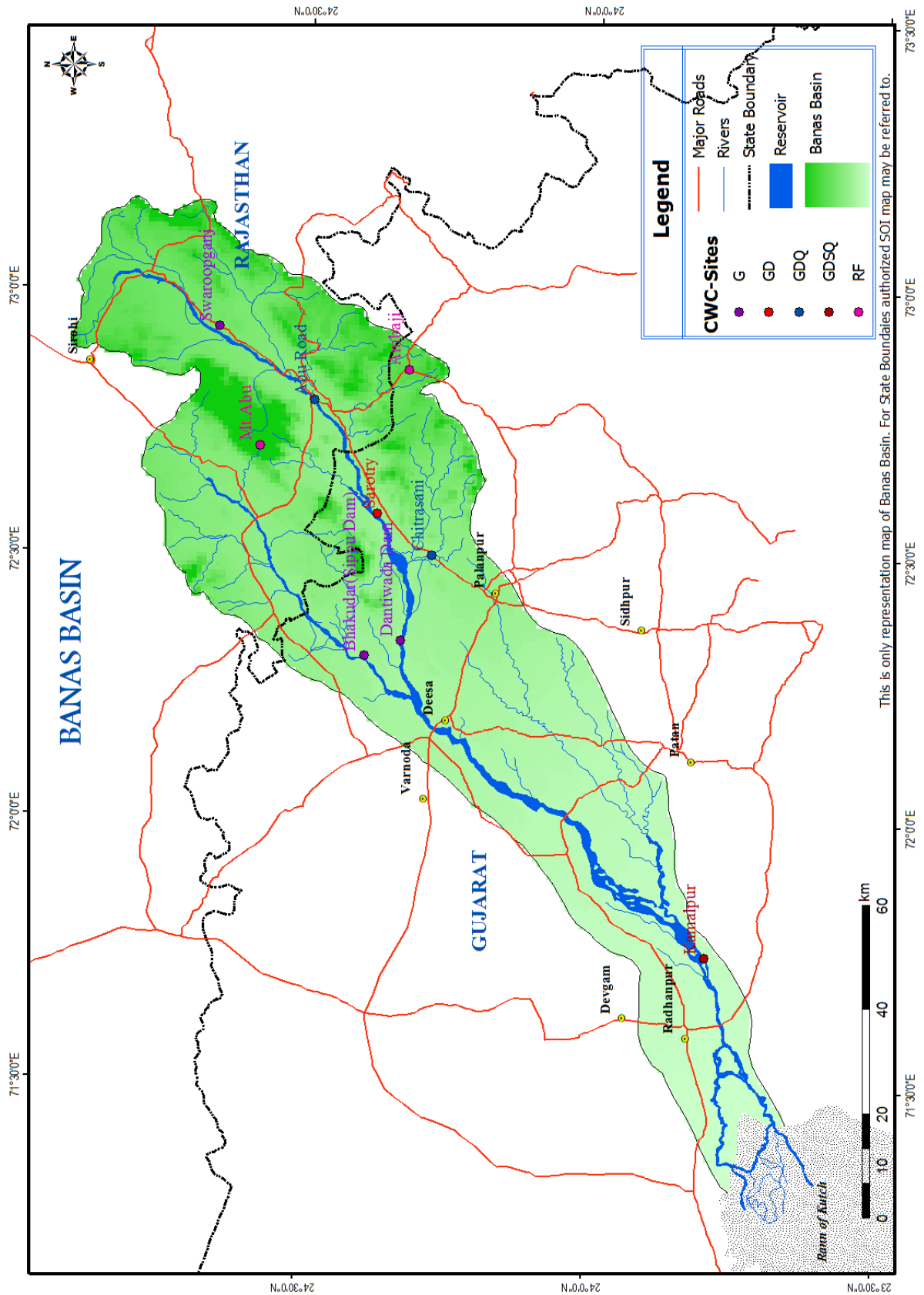
Salient features of sites maintained by CWC

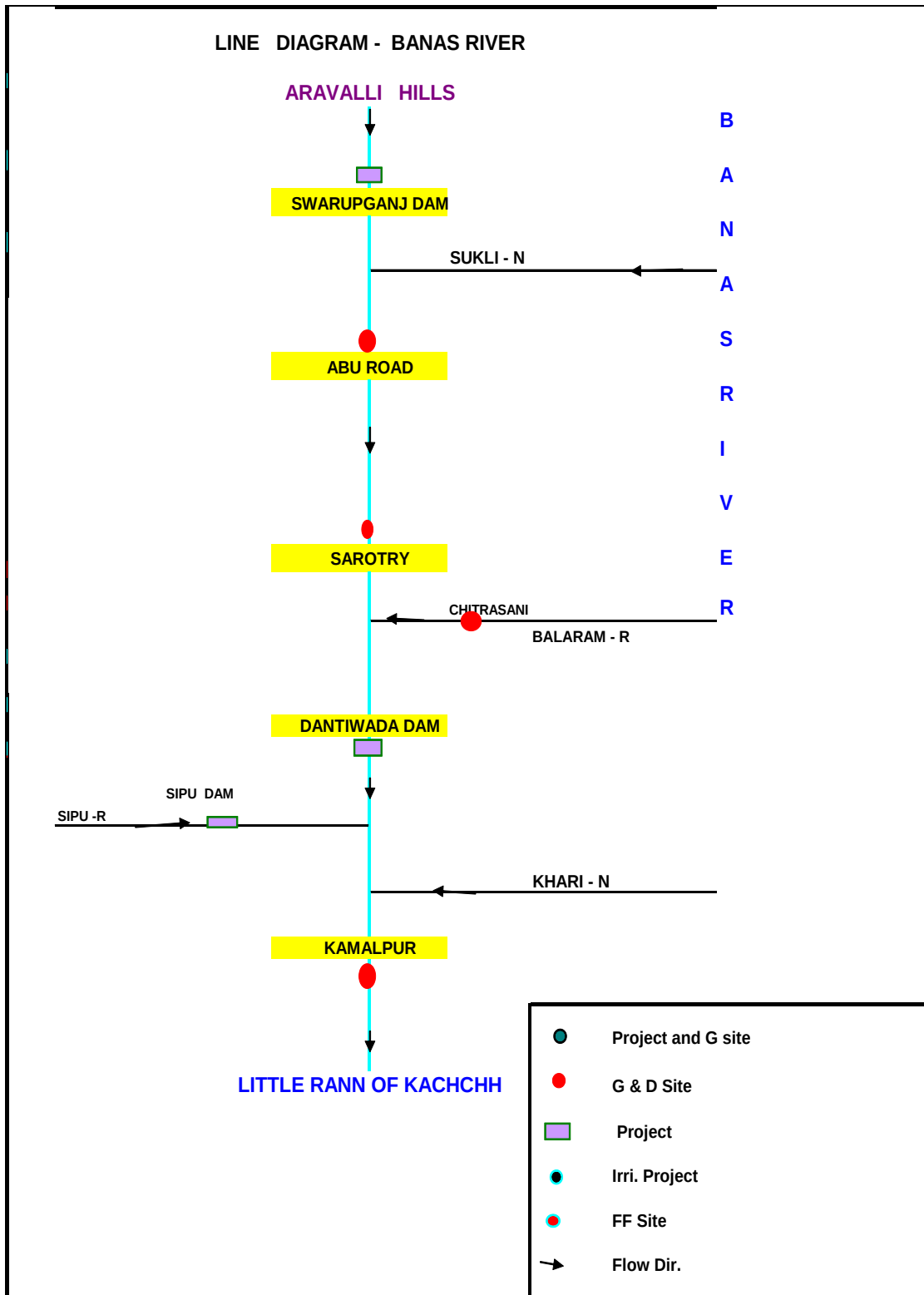
Sr No	Location Name	Local River	Lat. D M S	Long. D M S	Stn. Parameters			Silt lab	Type of gauge	Mode of Discharge Measurement
					Met	Gauge	WQ			
1	Swarup-ganj	Banas	24 41 28	72 55 52	SRG	G			Staff G	Weir site
2	Abu road	Banas	24 29 38	72 47 30	SRG	GD	WQ		Staff G	Wading,boat
3	Sarotry	Banas	24 22 04	72 32 48	Arg/SRG	GD			Staff G	Wading,bridge
4	Chitrasani	Balaram	24 17 20	72 29 54	SRG/arg	GD	WQ		Staff G	Wading,bridge
5	Dantiwada dam	Banas	24 20 14	72 20 17	SRG	G			Staff G	FF station, dam site

6	Bhakudar	Sipu	24 23 56	72 18 02	SRG	G			Staff G	Dam site
7	Kamalpur	Banas	23 47 59	71 45 00	SRG	GDS	WQ	Silt lab	Staff G	Wading,float

2.4.7 Data availability

Sl No	Site name	Rain fall	Disch.	Thrice daily water level	Hourly water level (for Monsoon period only)	Sediment	Water quality
1	Banas at Aburoad GDWQ	Jun-80	July-89	May-78	Jun- 88	NA	Jul- 88
2	Banas at Sarotry GD	Jun-80	Jun-89	Jun-80	Jun-80	NA	NA
3	Balaram at Chitrasani GDWQ	Jun-80	July-90	May-78	Jun-78	NA	Jul-88
4	Banas at Kamalpur GDSWQ	Jun-81	Jul-71	July-71	Aug-71	Aug-83	Jun-73
5	Swarupganj G	--	--	Jul-89	Jul-89	--	--
6	Dantiwada dam G	Jun-85	---	Jul-78	Jul-78	--	--
7	Bhakudar dam G	Jul-85	--	Jun-79	Jun-79	---	--





2.5 Shetrunji Basin

2.5.1 Geographical description of the Basin

The Shetrunji is one of the major Rivers of Saurashtra. The Shetrunji basin is the eastern most basin of Saurashtra and is situated in between 21° 00' to 21° 47' north latitude and 70° 50' to 72° 10' east longitude. The river Shetrunji originates at Chachai Hills in Gir forest of Junagarh district at 380 m above m.s.l. and flows towards East direction till its fall in the Gulf of Khambhat near Santhrapur port. The river Shetrunji makes fertile, the area of Amerli and Bhavnagar districts and some part of Junagarh district of Saurashtra. The Shetrunji drains an area of 5514 sqkm out of which more than 50% in Amerli district. Basin map of Shetrunji Basin is enclosed is enclosed as **Plate -2.5.1**

The district wise distribution of drainage area is shown below.

Name of district	Drainage area sq km	% of total area
1. Amreli	2946.68	53.44
2. Bhavnagar	2492.88	45.21
3. Junagarh	74.44	1.350
Total	5514.00	100.00

2.5.2 Description of River system

The total length of this east flowing river from its origin to the outfall into the Gulf of Khambhat is 182 km. This river receives tidal influence for a length of 5 km from the mouth. The Shetrunji receives several tributaries on both banks. There are 9 tributaries having lengths more than 15 km. Out of which Safara, Shel, Khari and Talaji are the 4 tributaries on the right bank of Shetrunji and the remaining 5 tributaries viz Stali, Thebu, Gagadia, Rajwal and Kharo are on left bank. The drainage system on left bank of Shetrunji is more extensive as compared to the right bank area.

The Stali, Thebi and Gagadia are important tributaries feeding from left bank of Shetrunji and drain nearly 34% of total catchment area of the river Shetrunji. The Gagadia and Theli (Thebu) are the principal tributaries of Shetrunji rising from the high ground near visavadar talukas of Junagarh district. The catchment area, length and elevation of source, of the important tributaries are tabulated in the following table

Sl.no	Name of River	Bank	Elevation of source above m.s.l. (m)	Length (km)	Catchment area(sqkm)
1	Shetrunji	Main	380	182	5514
2	Satali	Left	400	35	651
3	Theli	Left	201	18	484
4	Safara	Right	250	34	226
5	Shel	Right	273	42	303
6	Gagara	Left	180	52	754
7	Kharai	Right	211	39	665
8	Kharo	Left	125	34	261
9	Rajwal	Left	100	34	321
10	Talaji	Right	273	23	134

A line diagram of river system giving information of Shetrunji basin, its tributaries and sub-tributaries etc. indicating the stations showing diversions etc is enclosed as **Plate -2.5.2.**

2.5.3 Climatic characteristics

The average rainfall in the Shetrunji Basin is 604.52 mm. The south -west Monsoon sets in by middle of June and withdraws by the first week of October. About 90% of total rainfall is received during July and August. Owing to the topographical characteristics climate is variable.

Temperature (°C) during year 2017-18

Lowara		
Year	Max. (°C)	Min. (°C)
2017-18	44	07

Mean annual rainfall in mm Shetrunji Basin CWC sites

Name of site	Data available (No of yeaRs)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Lowara	29	479	25	516.2	39

2.5.4 Description of the water storage / diversion structures

Major / medium irrigation projects in River Basin Shetrunji

At present, there are 16 completed irrigation schemes (1 major and 15 minor).

A) Major Irrigation Scheme:

1) Shetrunji Irrigation Scheme:

B) Minor Irrigation Scheme:

1	Munjiasar	9	Thebi
2	Vedi	10	Khodiar
3	Popatdi	11	Shel Dedumal-1
4	Bavdi	12	Kodvadri
5	Hanol	13	Rajwal
6	Kharo	14	Hamirpura
7	Pingli	15	Samidhiara
8	Datred (P.W)		

Shetrunji irrigation scheme

The Shetrunji irrigation scheme comprises construction of masonry dam in the river portion and earthen dam on both the banks. The catchment area at dam site is 430 sqkm. It has gross capacity of 350 MCM with live storage of 309 Mm³. It commands gross area of 2, 09,400 acres of land out of which cultivated command area is 1,21,400 acres and irrigable area is 88,000 acres.

2.5.5 Streamflow data

Hydrological observation by CWC

In Shetrunji basin, Central Water Commission is conducting hydrological observations at only one site namely Lowara for which data has been finalised and the same is presented in this book. The details of the site are given below.

Sl.no.	Name of site	Station code	Scheme	Type
1.	Shetrunji at Lowara	01 02 09 001	NNW	GDSWQ

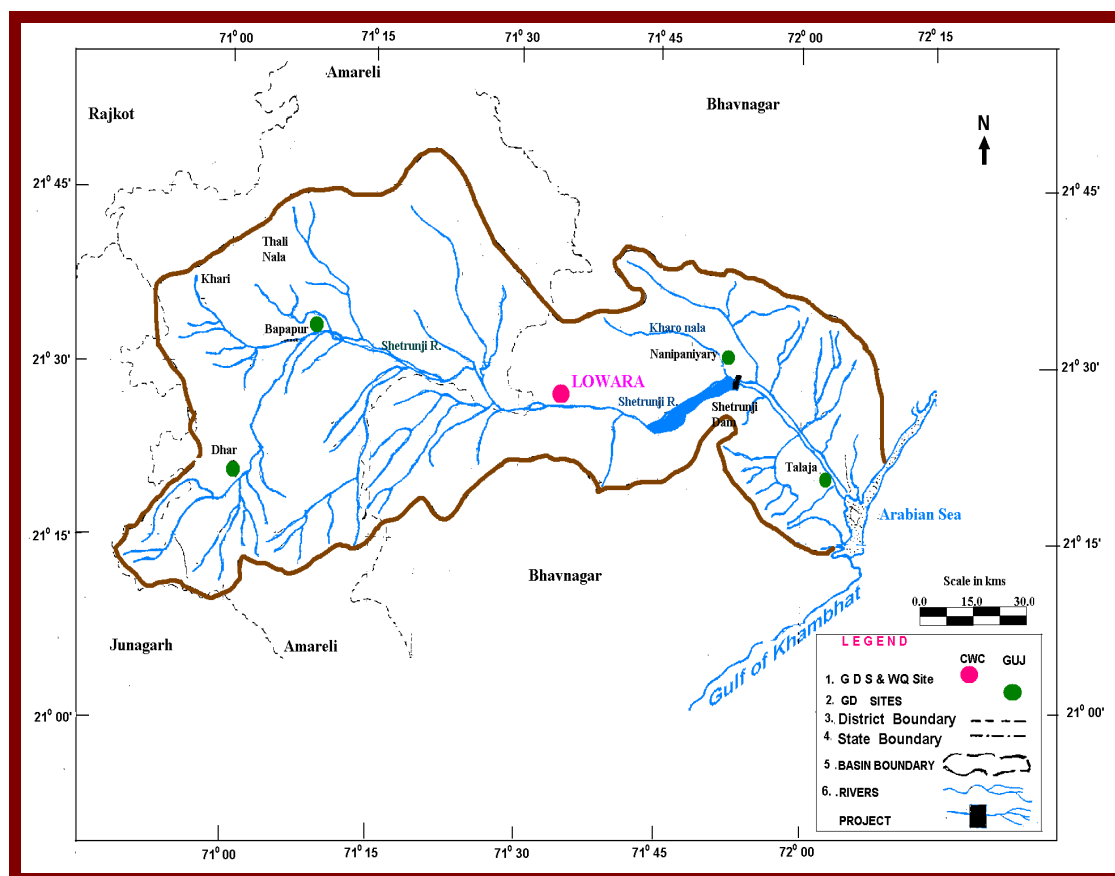
Salient features of sites maintained by CWC in Shetrunji Basin

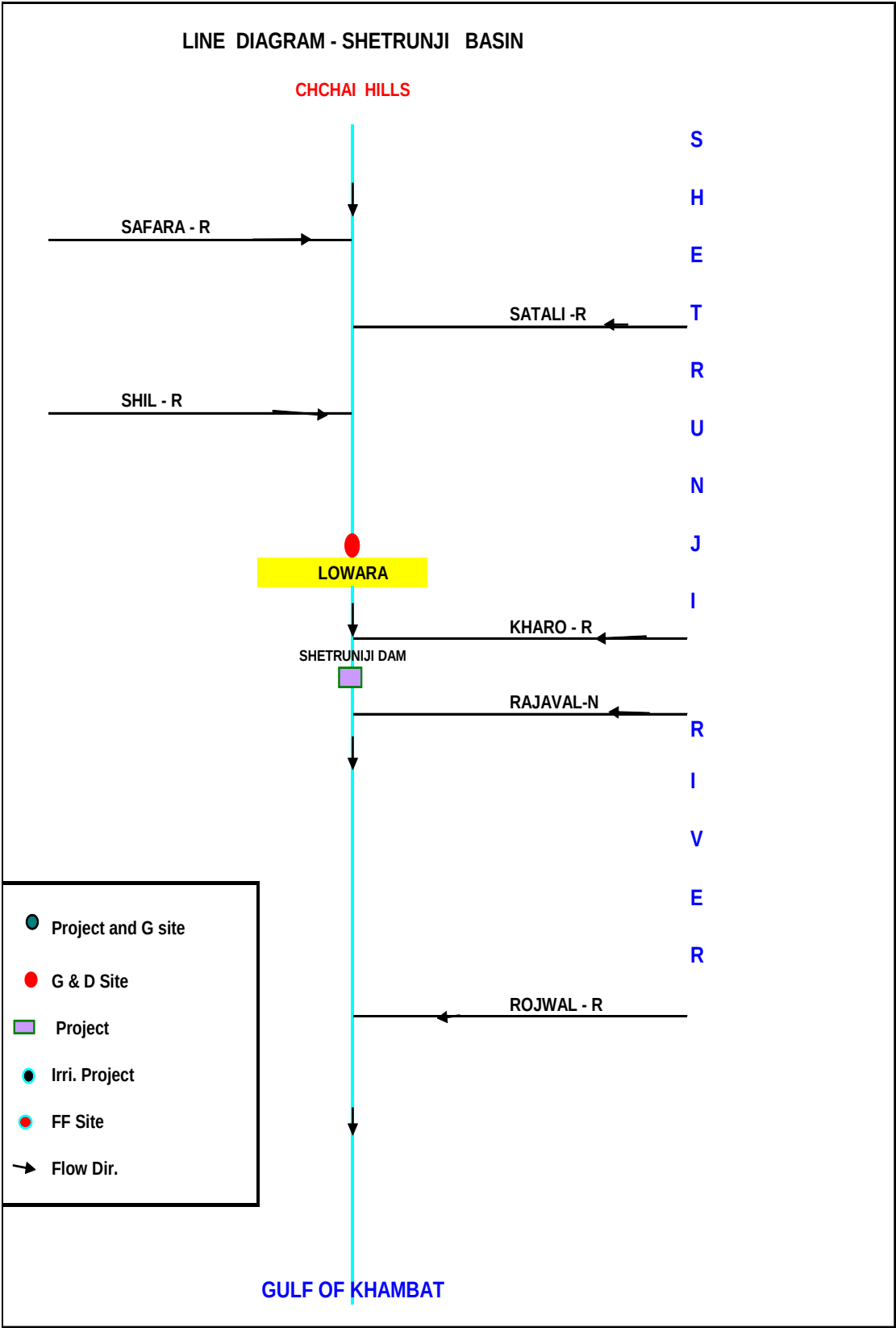
Sr No	Name	Local River	Lat.	Long.	Stn Parameters			Silt lab	Type of gauge	Discharge measure- ment
			D M S	D M S	Met	Gauge	WQ			
1	Lowara	Shetrunji	21 26 36	71 33 42	SRG	GDS	WQ	Silt lab	Staff G	Wading, boat, float

2.5.6 Data availability

Sl No	Site name	Rain fall	Discharge	Thrice daily water level	Hourly water level (for Monsoon period only)	Sedi- ment	Water quality
1	Shetrunji at Lowara GDSQ	June-89	Nov -70	Nov -70	June -71	July -73	July-77

Shetrunji Basin





2.6 Bhadar Basin

2.6.1 Geographical description of the Basin

Bhadar is one of the major rivers of Saurashtra. It drains about 1/7th of the area of Saurashtra. The Bhadar basin is the South-Western basin and situated between 21° 25' to 22° 10' north latitude and 69° 45' to 71° 20' east longitude. The river Bhadar originates at an elevation of 261 m above m.s.l. in Vaddi about 26 km North-West of Jasdan in Rajkot district and flows towards south upto Jasdan village and then turns towards South-West up to village Jetpur and finally changes its direction towards West till its confluence with Arabian sea at Navibandar (Porbandar). Thus, from Jetpur to Porbandar the river Bhadar makes fertile areas of Rajkot, Jamnagar, Amreli and Junagarh districts of Saurashtra. The Bhadar drains an area of 7094 sqkm out of which 706 sqkm in hilly and the rest in plain regions of Saurashtra. Basin map of Bhadar basin is enclosed as **Plate -2.6.1**.

The district wise distribution of drainage area is shown in the following table

Name of district	Drainage area sq km	% of total
1. Rajkot	4902.67	69.11
2. Jamnagar	1047.78	14.77
3. Amreli	715.78	10.09
4. Junagarh	427.77	6.03
Total	7094	100

2.6.2 Description of River system

The total length of this South- West flowing river from its origin to its outfall into the sea is 198 km. For the first 150 km the river flows in Rajkot district and the rest of 48 km in Junagarh district. The river receives tidal influence for a length of about 26 km from mouth in Junagarh district. The river Bhadar receives several tributaries on both the banks. There are 9 major tributaries out of which 6 tributaries viz Gondali, Chapparwadi, Phopal, Utawali, Moj and Venu are feeding from right and the remaining 3 tributaries viz Vasavadi, Surwa and Galolia from left. The drainage system on the right bank of river Bhadar is more extensive as compared to the left bank.

Gondali, Chapparwadi, Phopal and Venu, these 4 important right bank tributaries together account for nearly 35% of total catchment area of Bhadar. Venu, which is the principal

tributary of Bhadar also rises in Jamnagar district in hilly range and drains Jamnagar and Rajkot districts. Phopal, another tributary rises at high level range about 5 km north of the town Lodhika. The catchment area, length and elevation of sources of important tributaries are indicated below

Sl.no.	Name of River	Bank	Elevation of source above m.s.l. (m)	Length (km)	Catchment area (sqkm)
1	Bhadar	Main	261	198	7094
2	Vasavadi	Left	194	32.18	583
3	Gondali	Right	231	46.66	513.85
4	Surwa	Left	180	30.6	273.6
5	Galolio	Left	160	27	198.25
6	Chappervadi	Right	180	43.45	455.4
7	Phopal	Right	175	48.27	590.5
8	Utawali	Right	146	24	103.6
9	Moj	Right	245	48.27	105.15
10	Venu	Right	180	61.15	953.12

A line diagram of river system giving information of Bhadar basin, its tributories and sub-tributories etc. indicating the stations showing diversions, etc. is enclosed as **Plate -2.6.2.**

2.6.3 Climatic characteristics:

The average rainfall in Bhadar Basin is 625 mm. The south west Monsoon sets in by the middle of June and withdraws by the first week of October. About 90% of total rainfall is received during July and August. Owing to the topographical characteristics climate is variable

Temperature (°C) during year 2017-18

Ganod		
Year	Max. (°C)	Min. (°C)
2017-18	43	8

Mean annual rainfall (mm) for Bhadar Basin (CWC sites)

Name of site	Data available (No of yearRs)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Ganod	37	663	15	670.3	34

2.6.4 Description of the water storage / diversion structures**Medium irrigation projects in Bhadar River Basin**

At present there are 12 completed structures either reservoirs or weirs in Bhadar catchment which are as follows:

1. Jasdan tank (Alansagar)
2. Gondali Irrigation Scheme (near Kotesangani)
3. Gondali Irrigation Scheme (Veri tank)
4. Sekroli Irrigation Scheme
5. Moj dam
6. Venu dam
7. Venu dam-II
8. Phualjar Irrigation Scheme
9. Mewasa bund
10. Rajawadla tank
11. Hamir barrage
12. Bhadar dam

The Bhadar irrigation scheme is on the Bhadar River in Rajkot .The gross storage capacity is 238 MCM and tributary storage capacity is 221 MCM. The cost of project is Rs 4.5475 crores.

2.6.5 Streamflow data

Hydrological observations by CWC

In Bhadar basin, Central Water Commission is conducting hydrological observations i.e. Gauge and discharge observation at site Ganod for which data has been finalised and presented in this book. The details of this site are given below.

Sl.no.	Name of site	Station code	Scheme	Type
1.	Bhadar at Ganod	01 02 07 001	NNW	GDSWQ

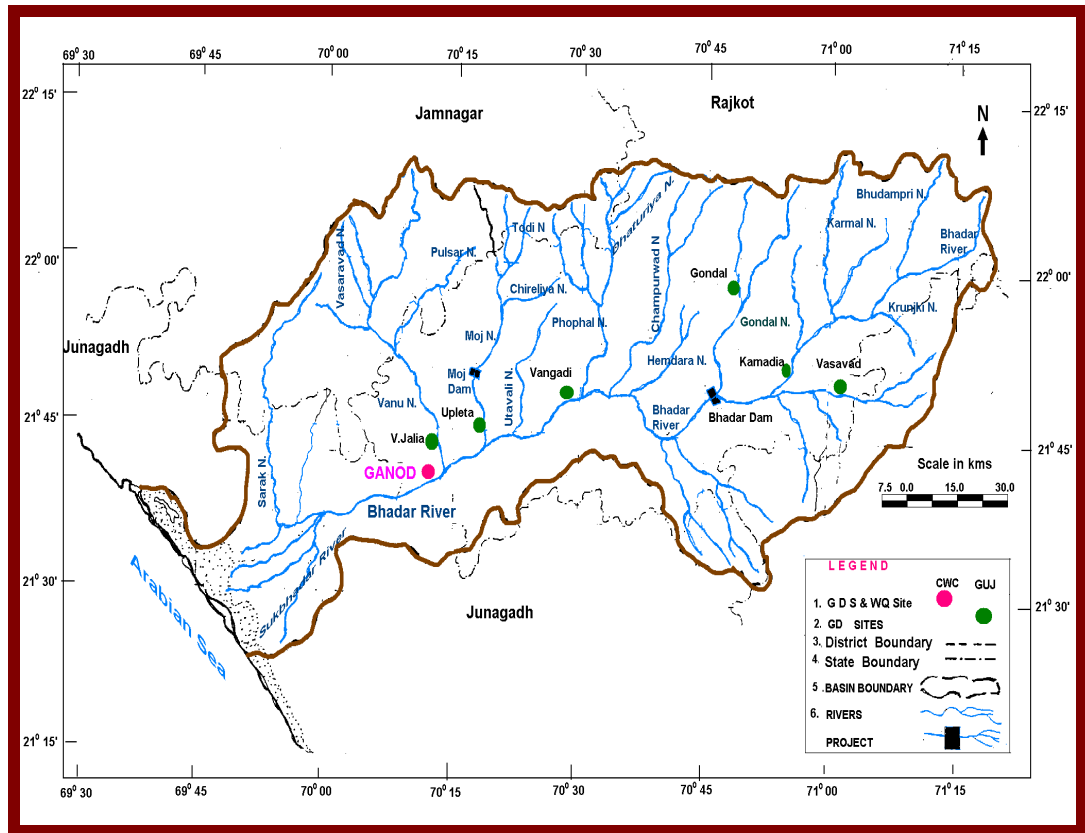
Salient features of sites maintained by CWC in Bhadar Basin

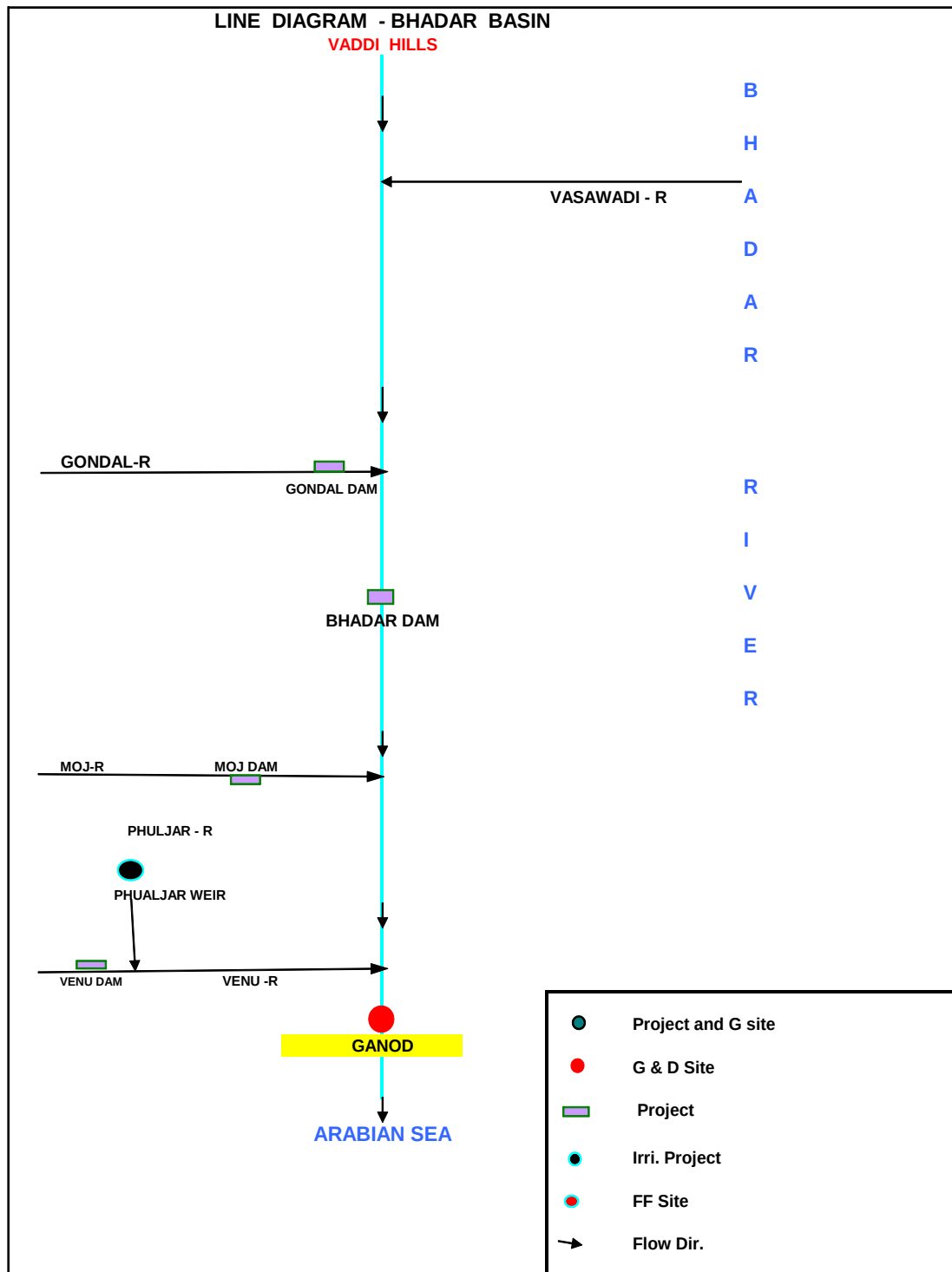
Sr		Local	Lat.	Long.	Stn	Stn.	Stn	Silt	Type of	Discharge
No	Name	River	D M S	D M S	Met	Gauge	WQ	lab	gauge	Measurement
1	Ganod	Bhadar	21 39 53	70 10 52	SRG	GDS	WQ	Silt lab	Staff G	Wading, boat, float

2.6.6 Data availability

Sl. No	Site name	Rain fall	Discharge	Thrice daily water level	Hourly water level (for Monsoon period only)	Sediment	Water quality
1	Bhadar at Ganod GDSWQ	June-81	Nov -70	Nov-70	June -71	July -73	July -77

Bhadar Basin





2.7 Machhu Basin

2.7.1 Geographical description of the Basin

Machhu river rises in the hills of Jasdan near village Khokhara in Chotila taluk of Surendranagar districts at an elevation of 220 m above m.s.l. This is one of the North flowing rivers of Saurashtra in Gujarat state. The Machhu basin is situated between 22° 10' to 23° 10' north latitude and 70° 40' to 71° 15' east longitude. The river Machhu originates from the hill ranges of Jasdan Sardar and Mandva in Rajkot district and Chotila in Surendranagar district and flows in north westerly direction along the district boundry of Surendranagar and Rajkot upto village Beti and then flows mostly towards north in Rajkot district and finally disappears near Malia in the little Rann of Kachchh. Machhu alongwith its tributaries flows 52 % in the hilly area and 48 % in plain region. The river makes fertile areas of Malia, Morbi, Wankaner, Jasdan and Rajkot taluks of Rajkot districts and part of Chotila taluk in Surendranagar district. Machhu drains an area of 2515 sqkm out of which more than 75 % lies in Rajkot district. Basin map is enclosed as **Plate -2.7.1**

The district wise distribution is shown as below

Name of district	Drainage area sq km	% of total
1. Rajkot	1924	76.51
2. Surendranagar	591	23.49
Total	2515	100.00

2.7.2 Description of River system

The total length of this North flowing river from its origin to its outfall into the little Rann of Katchch is 141.75 km. Machhu receives several tributaries on both the banks. There are 6 major tributaries out of which 4 tributaries namely Jamburi, Benia, Machhori and Maha feed from the right and the remaining 2 tributories namely Beti and Asoi from the left. The drainage system on the right bank of Machhu is more extensive as compared to the left bank.

The Beti, Asoi, Machhori and Maha, the 4 important tributaries together account for nearly 42.52% of the total catchment area of Machhu. Maha, the principal tributari, rises from Rampura in Chotila taluk of Surendranagar district and drains in north western direction and

fertiles Surendranagar and Rajkot districts and joins main stream Machhu about 1.6. km downstream of Panchaisa village.

Machhori the another important tributari also rises from Chotila taluka and drains towards north direction and meets the main stream about 8.5 km downstream of wankaner in Rajkot district. Asoi tributari rises from the hilly region of village vanjhara of wankaner taluka and drains towards north direction and meets the main stream just upstream of village derali.

The catchment area, length and elevation of sources of important tributaries are given below.

Sl.no.	Name of River	Bank	Elevation of source above m.s.l. (m)	Length (km)	Catchment area (sqkm)
1	Machhu	Main	220	141.75	2515.00
2	Beti	Left	280	28.00	235.69
3	Jampuri	Right	300	27.36	119.14
4	Bania	Right	300	27.36	113.96
5	Machhori	Right	260	26.00	140.62
6	Asoi	Left	140	25.75	197.84
7	Maha	Right	200	45.06	507.64

A line diagram of river system giving information of Machhu Basin, its tributaries and sub tributaries etc. indicating the stations showing diversions, flows at terminal sites is enclosed as **Plate -2.7.2.**

2.7.3 Climatic characteristics

The average rainfall in the Machhu Basin is 533.5mm. The south west Monsoon sets in by the middle of June and withdraws by the first week of October. Owing to the topographical characteristics, the climate is variable.

Temperature (°C) during year 2017-18

Gungan		
Year	Max. (°C)	Min. (°C)
2017-18	44	13

Mean annual rainfall in mm Machhu Basin CWC site

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Gungan	30	561	12	476	20

2.7.4 Description of the water storage / diversion structures

Medium Irrigation Projects in River Basin Machhu

At present there are five medium irrigation schemes completed in the catchment of Machhu.

- 1 Adhia Irrigation Scheme
- 2 Kuvadva Irrigation Scheme
- 3 Ghunda Irrigation Scheme
- 4 Machhora Irrigation Scheme
- 5 Vadsar and Amarsar Irrigation Scheme.

There are two important Irrigation Schemes viz Machhu-I & Machhu-II. Machhu Irrigation Scheme-I is on river Machhu in Wankaner taluka of district Rajkot. The gross storage capacity of this dam at FRL is 72.74 Mm³, having 70.8 Mm³ as effective storage capacity. The cost of this project is Rs.1.5404 crore.

Machhu Irrigation Scheme-II is on Machhu in Morbi taluka of district Rajkot. The gross storage capacity of this dam is 100.55 Mm³, having 90.8 Mm³ as effective storage capacity. The estimated cost of this project was 31.61 crore.

2.7.5 Streamflow data

Hydrological observations by CWC

In Machhu basin, Central Water Commission is conducting hydrological observations i.e. Gauge and discharge observation at site Gungan .

The details of this site are given below:-

Sl.No.	Name of site	Station code	Scheme	Type
1.	Machhu at Gungan	01 02 03 001	NNW	GD

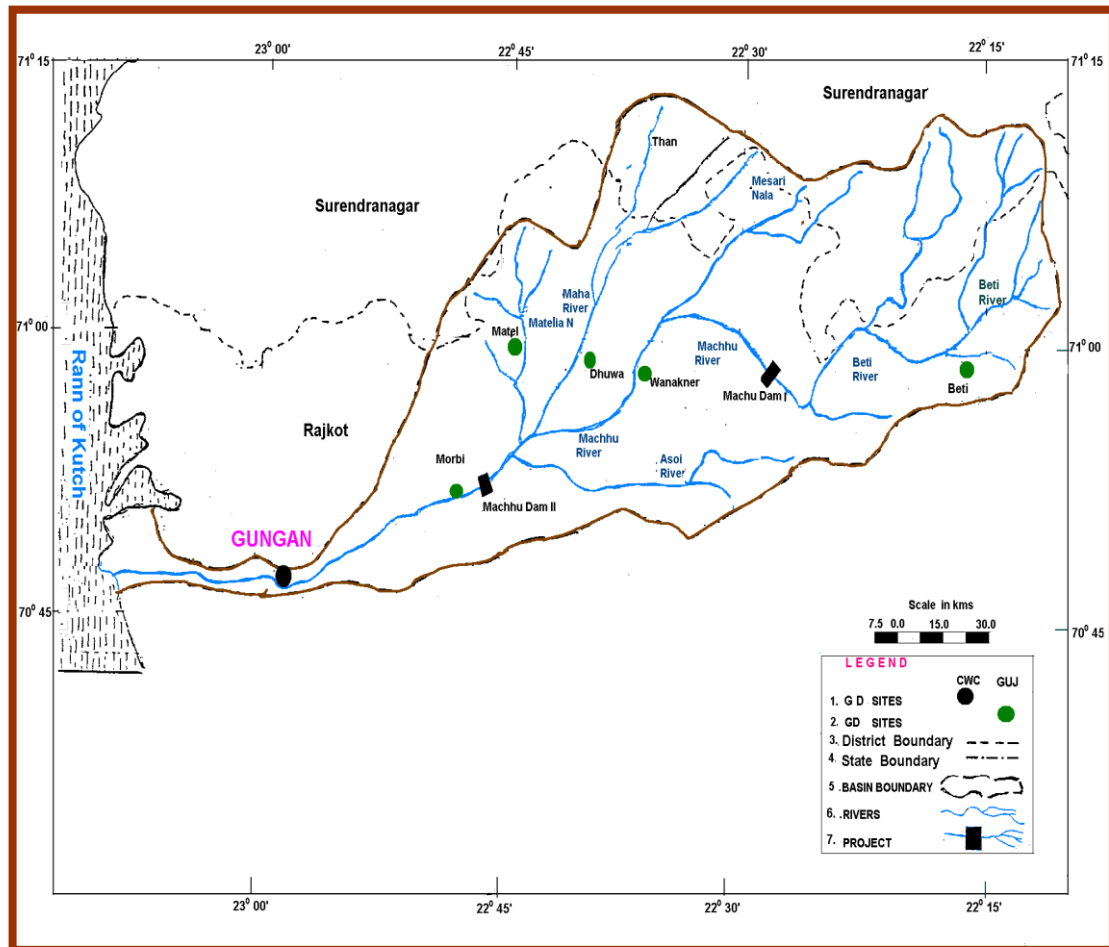
Salient features of sites maintained by CWC in Machhu Basin

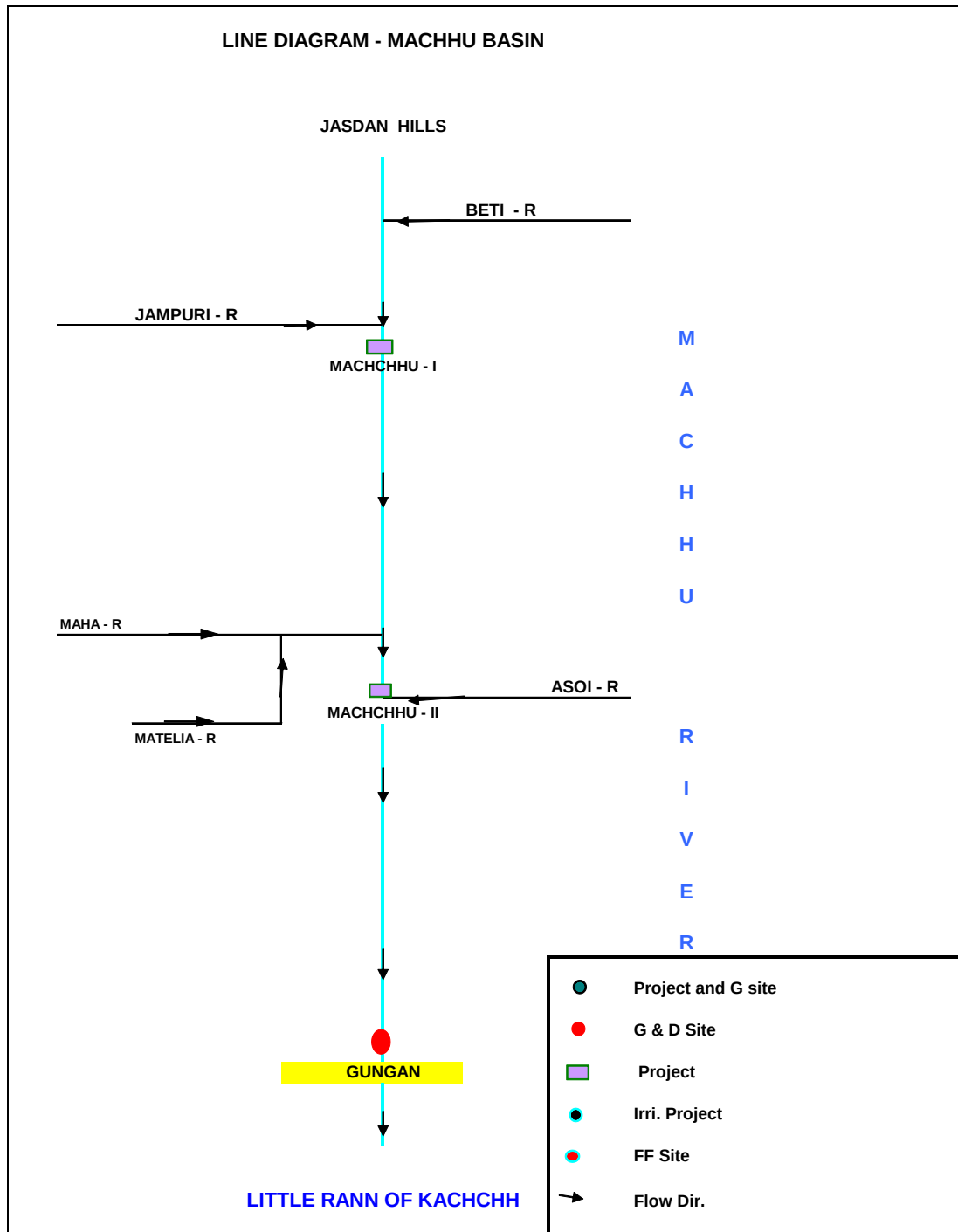
Sl No	Name	Local River	Lat. N D M S	Long. E D M S	Stn Met	Stn. Gauge	Stn WQ	Silt lab	Type of gauge	Discharge Measurement
1	Gungan	Machhu	22 57 42	70 45 52	SRG	GD	---	--	Staff G	Wading, boat,float

2.7.6 Data availability

Sl. No	Site name	Rain fall	Discharge	Thrice daily water level	Hourly water level (for Monsoon period only)
1	Machhu at Gungan GD	June -88	Dec -70	Sep -70	Sep -70

Machhu Basin





2.8 Rupen Basin

2.8.1 Geographical description of the Basin

Rupen river originates from Taranga hill ranges near Kheralu taluka of Mehsana district in Gujarat at an elevation of 180 m above m.s.l. and descends in south western direction and travels through Mehsana district before it drains into little Rann of Kachchh. The Rupen Basin is a northern Basin of Gujarat and is situated between 23⁰ 25' to 24⁰ 00' north latitude and 71⁰ 30' to 72⁰ 46' east longitude approx. Basin map of Machhu Basin is enclosed is enclosed as **Plate -2.8.1**

2.8.2 Description of River system

Pushpavathi and Khari the two right bank tributaries of Rupen river, drains into the main channel. There is only one left bank tributary namely Khari. Hence the drainage system on the right bank of Rupen river is more extensive as compared to left bank area.

Pushpavathi and Khari are the two important tributaries which together drain nearly 24.6 % of the total catchment area of Rupen river. Pushpavathi is the principal tributary of Rupen rising from the hilly ranges upstream of Balad village of Kheralu taluk, in Mehsana district of Gujarat at an elevation of 183 m above m.s.l. Pushpavathi meets the main river Rupen at upstream of village Sapawada. The catchment area, length and elevation of sources of the above three tributaries are as shown below.

Sl.no.	Name of River	Bank	Elevation of source above m.s.l. (m)	Length (km)	Catchment area (sq km)
1	Rupen	Main	180	156	2500
2	Khari	Left	131	59	180
3	Pushpavati	Right	183	68	446
4	Khari	Right	53	46	170

A line diagram of river system giving information of Rupen basin, its tributaries and sub-tributaries etc indicating the stations showing diversions is enclosed as **Plate -2.8.2**.

2.8.3 Climatic characteristics

The south west monsoon sets in the last week of June and withdraws by the end of September. Owing to the topographical characteristics the climate is variable.

Temperature (°C) during year 2017-18

Sapawada		
Year	Max. (°C)	Min. (°C)
2017-18	47	14

Mean annual rainfall in mm Rupen Basin CWC site

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Sapawada	27	593	15	630	17

2.8.4 Streamflow data

Hydrological observations by CWC

In Rupen Basin, the CWC is conducting hydrological observations at Sapawada.

The details of this site are given below.

Sl.no.	Name of site	Statin code	Scheme	Type
1.	Rupen at Sapawada	01 02 04 001	163 key	GD

Salient features of sites maintained by CWC in Rupen Basin

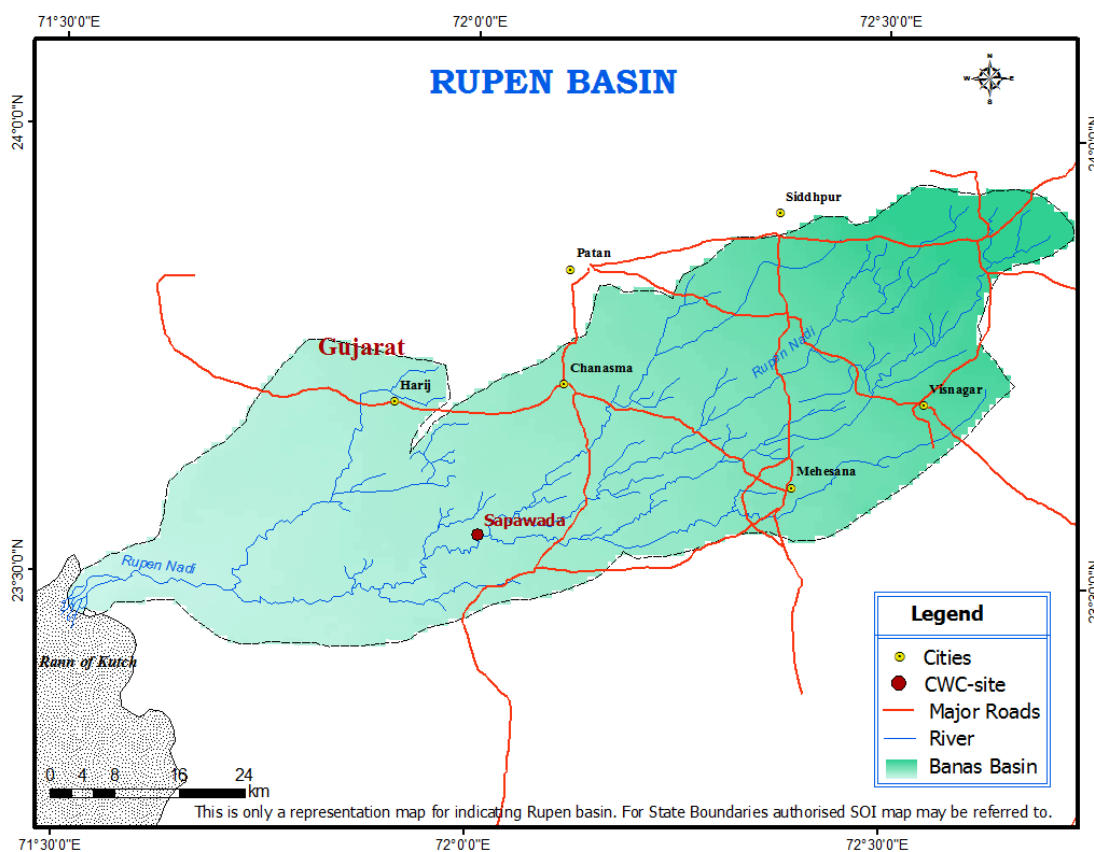
Sr No	Location Name	River	Lat.	Long.	Stn	Stn.	Stn	Silt lab	Type of gauge	Mode of Discharge Measure-ment
			N D M S	E D M S	Met	Gauge	WQ			
1	Sapawada	Rupen	23 32 54	72 00 52	SRG	GD	--	----	Staff G	Wading, float

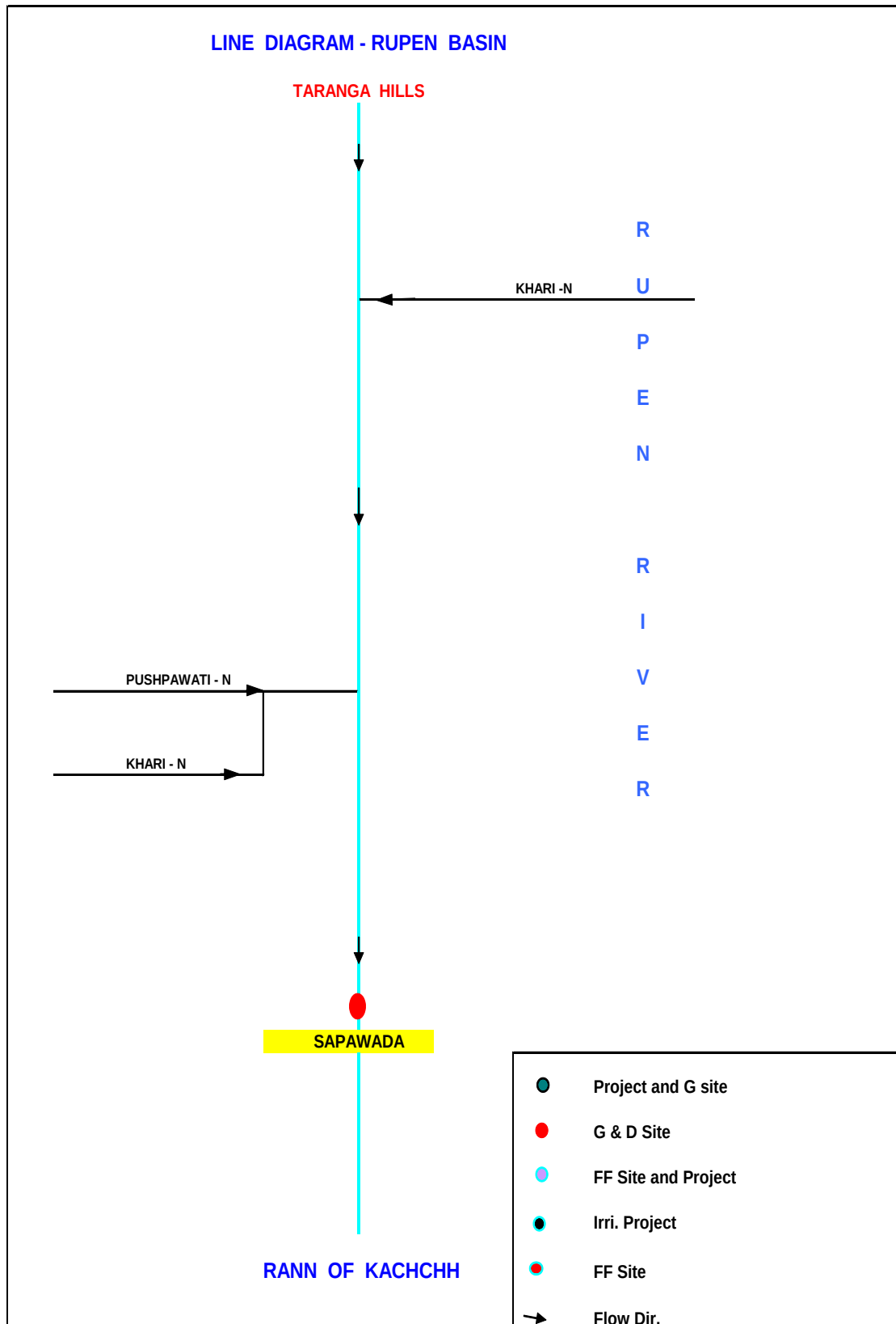
2.8.5 Data availability

Availability of gauge and discharge data of c.w.c sites in Rupen Basin.

Sl No	Site name	Rain fall	Discharge	Thrice daily water level	Hourly water level (for Monsoon period only)	Sediment	Water quality
1	Rupen at Sapawada	June '91	Aug '89	Aug '89	Aug '89	Not available	Not available

Plate-2.8.1





2.9 Machhundri Basin

2.9.1 Geographical description of the Basin

Machhundri river originates from Gir forest & meets in Arabian sea. Its length is 59 km. & catchment area 406 sq.km. Machhundri dam is situated on this river having 218 sqkm. catchment area. Basin map of Machhundri Basin is enclosed as **Plate -2.9.1**

2.9.2 Climatic characteristics

The south west monsoon sets in the last week of June and withdraws by the end of September. Owing to the topographical characteristics the climate is variable.

Temperature (°C) during year 2017-18

Una		
Year	Max. (°C)	Min. (°C)
2017-18	42.7	14.6

Mean annual rainfall in mm Machhundri Basin CWC site

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during water year	No of rainy days
				2017-18	2017-18
Una	3	623	43	388.6	37

2.8.4 Streamflow data

Hydrological observations by CWC

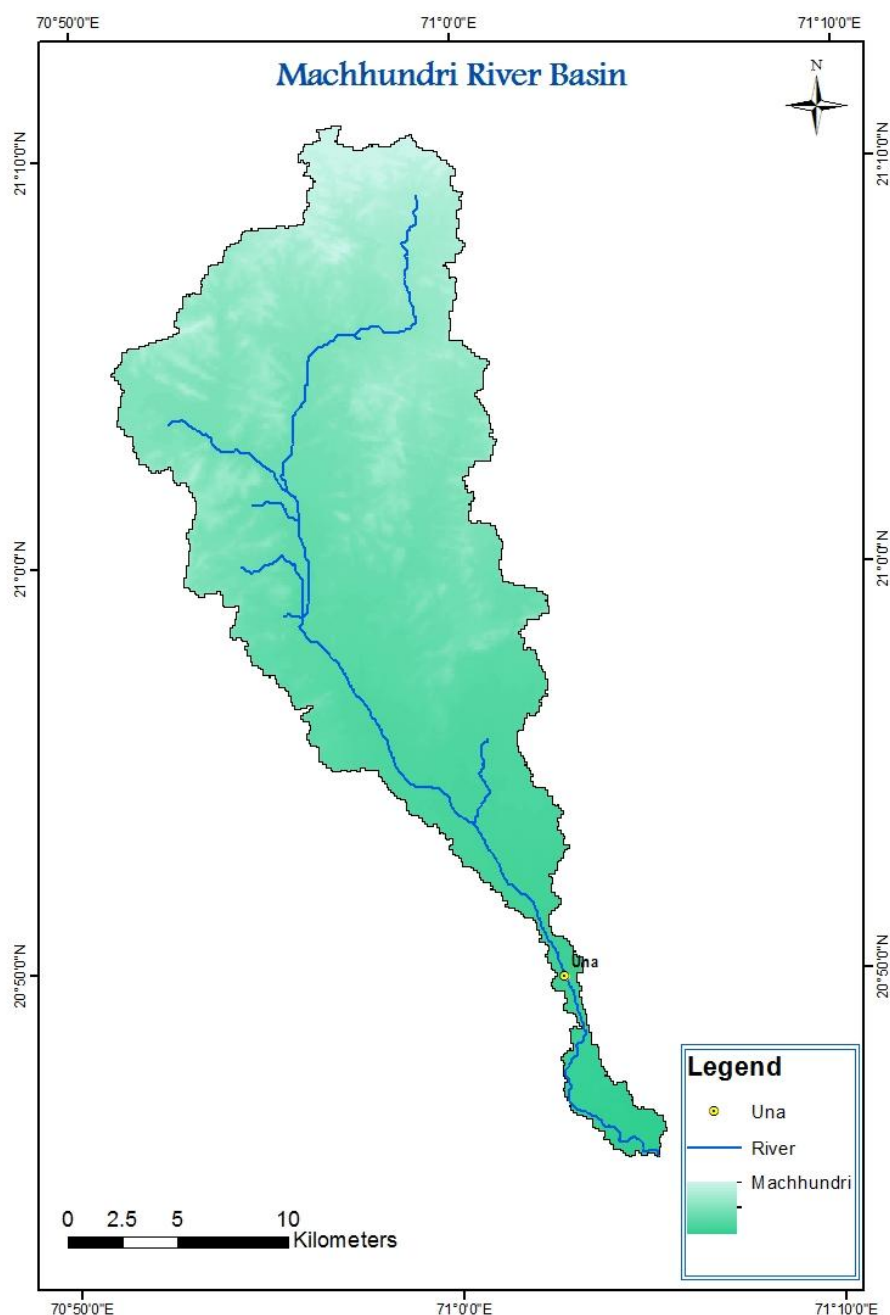
In Machhundri Basin, the CWC is conducting hydrological observations at Una.

The details of this site are given below.

Sl.no.	Name of site	Statin code	Scheme	Type
1.	Machhundri at Una	01 02 14 001	2701DWRIS	GD

Salient features of sites maintained by CWC in Machhundri Basin

Sr No	Location Name	River	Lat. N D M S	Long. E D M S	Stn	Stn.	Type of gauge	Mode of Discharge Measurement
					Met	Gauge		
1	Una	Machhundri	20 49 42	71 02 51	SRG	GD	Staff G	Wading, bridge, float



3.0 Hydrological observations by State Government

Source of information

Apart from the sites maintained by central water commission the state government of Gujarat, Madhya Pradesh, Rajasthan and Maharashtra are also conducting gauge and discharge observations in among 14 Basins. The Basin wise list of sites and the authority maintaining the sites are listed in the following para.

Basin wise list of sites

Sl. no	Name of Basin	Name of site	Site maintained by
1	Mahi Basin	1 Mahi At Vasad 2 Bhadar At Khanpur 3 Bhadar At Undva 4 Machhan At Davadia 5 Machhan At Limdi (Wankol) 6 Hadaf At Morva 7 Kabutari At Vadosar 8 Panam At Sant Road 9 Goma At Kalol 10 Mahi At Anklav 11 Mahi At Borsad 12 Mahi At Gamla 13 Goma At Sureli 14 Kun At Khandia 15 Koliyari At Rampur 16 Wankadi At Wankadi 17 Jakham At Dhariwad 18 Jakham At Nagalia Pickup Weir 19 Jakham At Karmai Pickup Weir 20 Mahi At Mahi Dam 21 Mahi At Chandangarh 22 Mahi At Ratangarh 23 Mahi At Bhairongarh 24 Anas At Anas I 25 Anas At Anas li 26 Pantalla At Parwalia 27 Bhunand At Sangam 28 Pampawati At Larki 29 Undwa Nallah At Ranisingh	Sup. Engineer, WRI Circle I, LD Engg. College campus, nr. Gujarat university, Ahmedabad & Executive engineer WRI divn., Bhadra Fort, Laldarwaja, Ahmedabad Gujarat Superintending Engineer, Jakham Irrigation circle, Udaipur, Rajasthan Chief Engineer, Mahi Bajaj Sagar project , Banswada, Rajasthan Chief Engineer, survey & Irrigation (major projects) Irrigation dept. E-3 / 28 - a, Arora colony, near bus stop II, Bhopal, Madhya Pradesh
<i>Note: Following River gauge stations are closed from 1st June 2006</i> 1 Bhadar at Vegadi 2 Aaji-iii at Tarana 3 Jolapuri at Jolapur			

Name of Basin		Name of site	Site maintained by
2	Sabarmati Basin	1.Sabarmati At Gandhinagar(Borij) 2.Sabarmati At Subhash Bridge 3.Sabarmati At Derol Bridge 4.Sabarmati At Kheroj 5.Sabarmati At Balwa 6.Abarmati At Dharoil 7.Sabarmati At Kalol 8.Sabarmati At Kanewal 9.Sabarmati At Mhij 10.Sabarmati At Mansa 11.Sabarmati At Nallake 12.Sabarmati At Rasikpur 13.Sabarmati At Red Lazximipura 14.Siri At Ganpipali 15.Dhamini At Momanwas 16.Harnav At Khedbrahma 17.Harnav A Abhapur 18.Guhai At Kadiadra 19.Guhai At Rampur 20.Guhai At Khandiol 21.Vekri At Mathasur 22.Hathmati At Bhiloda 23.Hathmati At Balochpur 24.Hathmati At Himatnagar 25.Hathmati At Mankadi 26.Hathmati At Pal 27.Khari At Prntij 28.Khari At Raipur 29.Meshwo At Kabola 30.Meshwo At Mithajinamuwada	Supt,engineer, WRI circle-I, L.D.Engg.college campus near Gujarat University, Ahmedabad & Executive Engineer, WRI Division, Bhadra Fort, Laldarwaz, Ahmedabad (Gujarat)

		31.Majam At Ambaliyara 32.Majam At Modasa 33.Watrak At Dhabha 34.Watrak At Memdabad 35.Watrak At Bayad 36.Watrak At Meghraj 37.Watrak At Bempoda 38.Khari At Magodi 39.Warasi At Betawada 40.Mahor At Katlal 41.Mahor At Mahadevpura- Mahadevia 42.Shedi At Bilodra 43.Shedi At Dakor	
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3	Luni Basin	1 Luni At Luni 2 Luni At Latoti 3 Luni At Alniawas 4 Sagi At Sewadi 5 Bandi At Gadi 6 Bandi At Santhu 7 Rel At Ramsen 8 Sukri At Leta 9 Jawai At Shivganj 10 Sukri At Ghana 11 Khardi At Pali 12 Mithri At Auwa 13 Rediya At Singari 14 Sukri At Bagri 15Mithri- At Pipar Jojri 16 Lilri At Banjakudi	Executive Engineer Planning & Co - ordination Division I, Adarsh nagar, Raja park, Jaipur, Rajasthan
4	Banas Basin	1 Banas At Roho 2 Banas At Deesa 3 Banas At Umari	Sup. Engineer, WRI Circle I, LD Engg. College Campus, near

		4 Banas 5 Banas 6 Banas 7 Banas 8 Banas 9 Sipu 10 Sipu 11 Balaram	At Balundra At Dantiwada Dam At Gadh At Wav At Zerda At Panthawada At Bhakudar At Chitrasani	Gujarat University, Ahmedabad & Executive Engineer WRI divn., Bhadra Fort, Laldarwaja, Ahmedabad Gujarat
5	Shetrunji Basin	1 Shetrunji 2 Shetrunji 3 Shetrunji 4 Shetrunji 5 Shetrunji 6 Shetrunji 7 Rajwal 8 kharo 9 satli	At talaja At dhari At gariyadhar At gopnath At jesar At lathi At makhadka At nanipaniyari At babapur	Sup. Engineer, WRI Circle I, LD Engg. College Campus, near Gujarat University, Ahmedabad & Executive Engineer WRI divn., Bhadra fort, Laldarwaja, Ahmedabad Gujarat
6	Bhadar Basin	1 Bhadar 2 Bhadar 3 Bhadar 4 Bhadar 5 Bhadar 6 Bhadar 7 Minsar 8 Venu Ii 9 Moj 10 Gondali 11 Vasawadi	At Vangadi At Kamadhia At Chhaparvadi-Ii At Dhandhuka At Jasdan At Kukavav At Rana-Kandorana At Warjan Jaliya At Upleta At Gondal At Vasavad	Sup. Engineer, WRI Circle I, LD Engg. College Campus, near Gujarat University, Ahmedabad & Executive Engineer WRI Divn., Bhadra fort, Laldarwaja, Ahmedabad Gujarat
7	Machhu Basin	1 Machhu 2 Machhu 3 Machhu 4 Machhu 5 Asoi 6 Maha 7 Matelia	At Morbi At Wankaner At Beti At Chotila At Sindhavadar At Dhuwa At Matel	Sup. Engineer, WRI Circle I, LD Engg. College campus, Near Gujarat University, Ahmedabad & Executive Engineer WRI Divn., Bhadra Fort, Laldarwaja, Ahmedabad Gujarat
8	Rupen Basin	1 Rupen 2 Rupen 3 Rupen 4 Rupen 5 Rupen 6 Pushpavati 7 Khari 8 Khari	At Delwada At Valam Ashram At Dhinoj At Ranuj At Viramgam At Aithor At Zillia At Mehsana	Sup. Engineer, WRI Circle I, LD engg. College campus, Near Gujarat University, Ahmedabad & Executive Engineer WRI Divn., Bhadra Fort, Laldarwaja, Ahmedabad, Gujarat

3.1 Methodology: Streamflow measurement

3.1.1 Gauge measurement

Water level or stage of the river is measured as its elevation above the GTS datum. Water level measurement was conducted by reading non-recording gauges. A series of vertical staff gauges as per the specifications laid down in IS: 4080-1977 have been fixed at three sections at each site i.e. Upstream, station gauge and downstream. The gauge posts are of r.c.c/wooden/ metallic with cut and edge waterR and are fixed securely in position by installing them in m-150 concrete blocks of suitable size. Enamelled gauge plate with marking in metric unit is fixed on the gauge posts with least count 0.005 m, out of the three gauge lines the central line is used as station gauge line and readings of the other two lines are used for calculating the surface slope. The gauges were read hourly during Monsoon season and three hourly i.e. 0800, 1300 and 1800 hrs., during non Monsoon season at station gauge line.

3.1.2 Discharge observation

Discharge observation is conducted once a day at 0800 hrs, at all the sites by area velocity method except on Sunday and holidays in non Monsoon period. However additional observations were conducted during floods to cover different stages, irrespective of holidays. The river width is generally divided into 15 to 25 segments based on the degree of accuracy as outlined in IS: 1192-1981. The width of the river is measured by steel/metallic tape or wire rope stretched across the river with segment markings indicated thereon, when the river width is quite small and the flow depths permit wading. For larger width and deeper flow conditions and in unmanageable flood conditions segment points vertically are located by measuring the navigation craft with reference to pivot point and segment blocks constructed at sites. The depth measurement is carried out by using sounding rod for depths up to 3 metres and by using long bamboos for depths between 3 metres and 6 metres. For depths exceeding 6 metres sounding reel measurements at segment points are resorted to, and in Some cases, the depths are measured by echo sounder or are computed from the most recent x-sections of the river. The velocity is measured as per IS: 3918 - 1976 by using a cup type current meter conforming to IS: 3910 - 1976. The current meter is lowered to the requisite depth i.e. 0.6 of total depth down the vertical at every segment point by suspension equipment as specified in IS: 6064 - 1981 and where the depth is less than 0.3 metres, the velocity is observed just below the water surface in medium and high stages with significant flow velocities, boats fitted with power engines are used. Measurements of velocity are sometimes carried out from the bridges when the River flow condition does not permit the boat to be kept stable for velocity

observation. When none of the above procedures are possible, the velocity is measured by float observations.

The data observed as above at the site is entered in the prescribed standard format to compute the total River discharge and it is further scrutinised at various levels before finalisation.

The daily observed/estimated discharge data is presented in this book.

Equipment used for observation:

Sl. No	Name of equipment	By wading	By boat	Bridge	By float
1	Current meter	√	√	√	X
2	Pigmy current meter	√	X	X	X
3	Stop watch	√	√	√	√
4	Wading rod	√	X	X	X
5	Nylon rope & tag	√	X	X	X
6	Measuring tape	√	X	X	X
7	Protractor	√	√	√	X
8	Ranging rod	√	√	X	√
9	Sounding rod	√	√	X	X
10	Automatic battery counter	√	√	√	X
11	Thermometer	√	√	√	√
12	Prismatic compass	X	X	X	√
13	Balloon	X	X	X	√
14	Sounding cable with fish weight	X	√	X	X
15	Echo sounder	X	√	√	X
16	Bridge out fit	X	X	√	X
17	Boat out fit	X	√	X	X

3.1.3 Explanatory notes

Explanatory notes given here have been designed to assist in the data interpretation of hydrological parameters contained in the data presented. The notes are therefore, applicable in so far as the data presented in this book.

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

2. Discharge is given in cubic metres per second.
3. Discharges given are daily observed / estimated discharges.
4. The zero of gauge is a datum level / RL fixed for a given site, which is kept 1 or 2 m lower than the lowest water level recorded in a perennial stream. In a non - perennial stream, it is kept 1 or 2 m lower than the lowest bed level of the stream.
5. Maximum and minimum discharges are taken from the daily observed flows / estimated.
6. Runoff in “mm” is the notional depth of water in millimetres over the catchment area equivalent to annual runoff calculated at the discharge measurement station.

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

7. Peak and lowest flows correspond to the highest and lowest water levels recorded during the period of record.
8. Measuring authority refers to the field division responsible for the operation of the gauge station. The name of the division is abbreviated by taking first alphabet of the River name followed by alphabets “DN” for division. For example Mahi division is denoted by MDN. These abbreviations are given cross-reference in the list of abbreviations and symbols.
9. Gauging station code number is a unique nine-digit reference number, which facilitates retrieval of flow data in data bank. The first two digits denote the measuring authority. The third and fourth digits are the Basin/zone identifier and fifth and sixth digits are the independent River Basin identifier. The last three digits of the code number indicate gauging site no. which is given from origin to mouth.
11. The month and the year from which data are available in the data bank are indicated against the record available.

3.1.4 Method of presentation

The data presented in this book is processed discharge data obtained from application of SWDES/HYMOS software.

The stationwise hydrological data is presented comprising history sheet, daily flow table and pictorial summary. The sequence of hydrological station arranged from its outfall to origin giving inter-priority to an intermediate tributary station.

4.0 Hydrological data

The hydrological data presented hereby mainly consist of the following

History sheet

Its mainly consist of some salient features of particular site as Site name, state, district, river basin, tributary, catchment area, latitude / logitude, opening / closing date for various types of data & maximum –minimum discharge values.

Data sheet

It consists of stage- discharge data (both observed & estimated from stage discharge curve for the season), for the current year with mean water level during the discharge observation and peak observed and computed discharge with corresponding water level with date during the year, lowest discharge with corresponding water level with date during the year, Peak discharge with corresponding water level with date since inception, Lowest discharge with corresponding water level with date since inception.

Stage discharge curve

It gives a relationship between the stage of the river and the corresponding discharge.

Annual run-off

It gives the value of Annual run off in MCM for all the years from the opening of the site.

Water level v/s time graph

Hourly observed water level for one to three important highest peak flood events of current Water Year covering the period well before the start and upto well beyond the completion of these flood events.

Charts / maps

Basin map showing sites / projects

The site-wise pre – Monsoon and post – Monsoon crosssections

The site-wise Pie chart

Site-wise Bar charts

The site-wise hydrographs (flood events)

HISTORY SHEET

Water Year : 2017-18

Site : Mahi at Khanpur

State : Gujarat

Basin : Mahi

Tributary : Mahi

Sub-Sub

Tributary :

Division : Mahi Division, Gandhinagar

Drainage Area : 32510 Sq. Km.

Latitude : 22°31'55" N

Zero of Gauge

(m) : 8.22 (m.s.l)

Opening Date

Gauge : 21/12/1978

Discharge : 21/12/1978

Sediment : 01/05/1988

Water Quality : 01/01/1979

Code : 01 02 13 012

District : Anand

Independent

River : Mahi

Sub Tributary :

Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

Bank : Right

Longitude : 73°08'27" E

21/12/1978 -

Closing Date

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1979-1980	6168	14.570	12/08/1979	3.800	8.600	17/04/1980
1980-1981	2417	14.005	01/09/1980	5.400	8.450	06/04/1981
1981-1982	9880	23.600	17/08/1981	4.300	8.625	06/04/1982
1982-1983	2121	13.605	19/08/1982	5.000	8.800	29/03/1983
1983-1984	4416	15.348	16/08/1983	0.300	8.660	08/05/1984
1984-1985	12880	21.810	20/08/1984	9.200	8.850	28/05/1985
1985-1986	1524	11.645	08/10/1985	7.700	8.845	30/05/1986
1986-1987	3652	15.570	16/08/1986	6.200	8.685	05/04/1987
1987-1988	5241	18.435	27/08/1987	2.670	8.567	14/07/1987
1988-1989	7515	19.295	06/08/1988	8.300	8.760	13/04/1989
1989-1990	2680	13.720	20/08/1989	7.989	8.935	30/05/1990
1990-1991	20127	26.320	24/08/1990	7.754	8.704	04/07/1990
1991-1992	10293	20.870	01/08/1991	8.571	8.690	23/05/1992
1992-1993	199.6	9.473	08/09/1992	8.747	8.740	12/03/1993
1993-1994	8391	19.295	18/07/1993	5.800	8.770	06/07/1993
1994-1995	16590	22.795	07/09/1994	12.000	8.600	23/06/1994
1995-1996	1022	10.920	31/07/1995	6.500	8.940	24/03/1996
1996-1997	7796	17.460	09/09/1996	11.000	9.080	30/03/1997
1997-1998	11956	21.370	02/08/1997	7.740	8.935	25/05/1998
1998-1999	5751	16.865	18/09/1998	10.000	9.010	06/09/1998
1999-2000	291.7	10.020	21/07/1999	4.785	8.680	29/04/2000
2000-2001	884.5	11.495	14/07/2000	2.844	8.850	03/01/2001
2001-2002	378.6	10.440	08/08/2001	4.845	8.830	21/07/2001
2002-2003	992.5	11.130	04/09/2002	1.490	8.870	15/03/2003
2003-2004	1677	12.210	27/09/2003	1.800	8.850	15/06/2003
2004-2005	9717	19.020	15/08/2004	10.000	9.070	25/07/2004
2005-2006	1675	12.750	03/08/2005	15.800	8.770	24/04/2006
2006-2007	31062	26.820	12/08/2006	17.150	8.770	03/07/2006
2007-2008	11480	21.235	10/07/2007	15.050	8.720	21/05/2008
2008-2009	441.7	10.690	13/08/2008	10.010	8.700	23/04/2009
2009-2010	465.4	10.850	31/08/2009	5.203	8.690	18/05/2010
2010-2011	1156	11.795	05/08/2010	3.273	8.750	31/05/2011
2011-2012	4362.8	15.240	13/09/2011	2.371	8.470	29/05/2012
2012-2013	12403.0	20.820	07/09/2012	2.346	8.470	06/06/2012
2013-2014	5348	16.695	03/08/2013	7.011	8.52	07/06/2013
2014-2015	4868	16.35	10/09/2014	8.482	8.29	25/04/2015
2015-2016	7091	16.14	29/07/2015	9.978	8.37	19/05/2016
2016-2017	13879	21.39	22/08/2016	7.483	8.36	31/05/2017
2017-2018	3395	13.77	28/07/2017	4.020	8.26	12/05/2017

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	8.360	7.749	8.720	30.71	10.598	898.1	11.030	1132	8.970	82.24 *	8.480	18.89
2	8.360	7.864	8.690	40.87 *	10.475	693.4	11.350	1272	8.930	75.47 *	8.480	19.00
3	8.360	7.646	8.640	25.68	10.305	552.5	10.325	557.4	8.855	53.53	8.470	18.43
4	8.370	11.67 *	8.610	23.58	10.080	482.7	10.415	630.5	8.730	41.40	8.460	17.99 *
5	8.380	10.28	8.890	54.39	9.555	218.9	10.300	561.5	8.630	37.76	8.450	17.22 *
6	8.390	10.71	8.770	32.21	9.175	116.3	10.260	568.3	8.570	32.36	8.450	17.10
7	8.390	10.19	8.650	25.90	8.895	67.69	10.050	474.5	8.510	27.49	8.450	17.43
8	8.390	10.78	8.600	23.31	8.760	35.12	9.510	191.3	8.510	22.13 *	8.450	17.29
9	8.400	11.00	8.550	25.78 *	8.850	51.95	9.280	149.1	8.520	27.99	8.450	17.15
10	8.480	14.94	8.550	20.81	8.740	48.19	9.335	156.5	8.530	28.00	8.450	15.61
11	8.470	18.78 *	8.540	19.51	8.730	47.75	9.290	154.5	8.520	26.73	8.460	16.14
12	8.410	12.54	8.530	16.54	8.810	52.99	9.720	235.2	8.480	20.44	8.460	17.99 *
13	8.410	11.88	8.520	16.37	8.820	54.43	9.400	174.3	8.490	20.10	8.460	16.10
14	8.400	11.04	8.530	16.57	8.820	54.42	9.875	311.2	8.590	25.01	8.470	16.52
15	8.390	10.53	8.540	16.86	8.800	51.69	10.590	711.2	8.590	29.71 *	8.520	17.72
16	8.370	9.606	8.570	17.93	8.850	56.52	9.665	264.9	8.650	33.40	8.560	19.20
17	8.370	10.51	8.760	30.19	8.860	57.48	10.445	646.3	8.680	33.83	8.540	19.01
18	8.370	11.67 *	8.910	40.02	8.850	56.38	10.405	597.5	8.650	32.36	8.490	16.80
19	8.380	10.57	8.830	33.17	8.820	53.60	13.260	2580	8.670	38.49 *	8.380	15.53
20	8.410	12.15	8.720	23.11	8.790	46.33	10.525	703.8	8.640	31.07	8.530	18.53
21	8.410	13.33	8.710	22.45	8.670	39.84	9.530	218.4	8.650	31.77	8.530	18.86
22	8.410	13.44	8.830	32.92	9.965	379.4	9.935	386.7	8.640	35.06 *	8.470	18.29
23	8.420	13.58	9.350	139.7	10.925	1112	10.020	436.5	8.580	28.15	8.450	16.39
24	8.470	15.07	10.295	392.5	10.340	564.1	9.800	337.1	8.550	27.02	8.450	16.15
25	8.480	19.59 *	10.070	305.8	9.505	208.0	9.630	244.0	8.500	20.19	8.440	15.52
26	8.500	21.27 *	9.720	239.5	9.240	134.0	9.305	179.7	8.520	20.66	8.420	15.00 *
27	8.500	15.26	11.890	1813	9.170	125.8	9.250	161.2	8.480	18.79	8.410	14.10
28	8.550	21.00	13.770	3395	10.990	1100	9.145	128.3	8.490	19.10	8.400	13.82
29	8.780	47.24	11.515	1444	12.070	1830	9.320	188.0	8.480	19.59 *	8.400	13.86
30	8.740	47.16 *	11.900	1650	10.860	1035	9.210	130.2 *	8.480	18.84	8.390	13.37
31			11.415	1276	11.050	1133			8.470	18.55		
Ten-Daily Mean												
I Ten-Daily	8.388	10.28	8.667	30.32	9.543	316.5	10.186	569.4	8.676	42.84	8.459	17.61
II Ten-Daily	8.398	11.93	8.645	23.03	8.815	53.16	10.318	637.9	8.596	29.11	8.487	17.35
III Ten-Daily	8.526	22.69	10.679	973.7	10.253	696.5	9.515	241.0	8.531	23.43	8.436	15.54
Monthly												
Min.	8.360	7.646	8.520	16.37	8.670	35.12	9.145	128.3	8.470	18.55	8.380	13.37
Max.	8.780	47.24	13.770	3395	12.070	1830	13.260	2580	8.970	82.24	8.560	19.20
Mean	8.437	14.97	9.374	362.7	9.560	366.4	10.006	482.7	8.599	31.52	8.461	16.83

Annual Runoff in MCM = 3546 Annual Runoff in mm = 109

Peak Observed Discharge = 3395 cumecs on 28-07-2017 Corres. Water Level :13.77 m

Lowest Observed Discharge = 4.020 cumecs on 12-05-2018 Corres. Water Level :8.26 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	8.390	13.36	8.400	15.80	8.300	10.81	8.380	14.22	8.310	8.250 *	8.340	12.79
2	8.380	12.30 *	8.400	16.40	8.290	10.16	8.380	12.30 *	8.310	8.275	8.320	11.28
3	8.380	12.30 *	8.390	15.93	8.320	11.69	8.380	14.30	8.300	7.844	8.310	9.470
4	8.380	11.09	8.410	16.04	8.380	12.30 *	8.380	13.30 *	8.300	7.846	8.300	6.846
5	8.380	12.14	8.410	14.15	8.390	16.45	8.370	14.24	8.310	8.121	8.300	6.481
6	8.370	11.53	8.460	16.57	8.360	14.84	8.370	14.80	8.310	8.144	8.290	7.250 *
7	8.370	11.58	8.420	15.00 *	8.350	14.18	8.380	14.64	8.310	8.247	8.280	5.198
8	8.380	11.87	8.410	14.15	8.350	14.06	8.390	15.01	8.310	8.250 *	8.280	5.117
9	8.410	14.03	8.370	12.68	8.360	14.52	8.380	14.39	8.320	8.325	8.270	4.272
10	8.430	15.72 *	8.350	9.083	8.360	14.48	8.370	13.31	8.320	8.475	8.260	4.137
11	8.420	14.19	8.350	9.447	8.350	10.46 *	8.370	11.67 *	8.320	8.516	8.260	4.129
12	8.410	14.15	8.340	9.367	8.370	15.21	8.370	13.23	8.320	8.502	8.260	4.020
13	8.400	13.64	8.340	9.173	8.370	14.70	8.370	13.40	8.320	8.780 #	8.260	5.880 *
14	8.400	13.62 *	8.360	11.06 *	8.350	13.53	8.370	13.56	8.320	10.17	8.260	4.074
15	8.400	13.78	8.440	15.74	8.350	13.40	8.370	12.70	8.320	8.780	8.260	5.780
16	8.390	13.48	8.400	13.96	8.350	13.43	8.360	12.40	8.320	10.29	8.260	4.964
17	8.380	12.30 *	8.380	12.86	8.350	13.48	8.360	12.42	8.320	10.01	8.260	5.384
18	8.380	15.55	8.380	12.92	8.350	10.46 *	8.350	10.46 *	8.320	9.788	8.260	5.028
19	8.380	12.30 *	8.380	12.81	8.350	13.64	8.350	12.73	8.320	11.90	8.260	5.101
20	8.380	15.40	8.380	12.98	8.350	13.77	8.370	13.52	8.320	11.67	8.260	5.880 *
21	8.380	15.35	8.380	12.30 *	8.350	13.68	8.330	10.58	8.320	11.84	8.260	5.554
22	8.380	15.44	8.370	12.22	8.390	17.09	8.350	12.75	8.320	8.780 *	8.260	4.391
23	8.380	15.56	8.340	9.267	8.370	15.17	8.340	12.43	8.320	11.65	8.260	5.466
24	8.380	12.30 *	8.310	7.728	8.370	14.91	8.320	11.56	8.320	11.29	8.260	4.841
25	8.380	12.30 *	8.320	12.94	8.370	11.67 *	8.290	7.250 *	8.320	11.48	8.250	4.754
26	8.380	15.31	8.330	9.320 *	8.370	14.70	8.270	7.705	8.320	11.69	8.250	4.939
27	8.380	15.45	8.460	16.67	8.370	15.03	8.270	8.495	8.320	11.44	8.250	5.460 *
28	8.380	15.27	8.400	13.62 *	8.380	14.14	8.290	9.755	8.320	11.90	8.250	5.119
29	8.380	15.07	8.340	9.373			8.310	8.250 *	8.320	8.780 *	8.250	5.398
30	8.370	14.02	8.360	10.01			8.310	8.250 *	8.320	8.780 *	8.250	5.301
31	8.370	11.67 *	8.300	7.877			8.310	8.364			8.250	6.095
Ten-Daily Mean												
I Ten-Daily	8.387	12.59	8.402	14.58	8.346	13.35	8.378	14.05	8.310	8.178	8.295	7.284
II Ten-Daily	8.394	13.84	8.375	12.03	8.354	13.21	8.364	12.61	8.320	9.841	8.260	5.024
III Ten-Daily	8.378	14.34	8.355	11.03	8.371	14.55	8.308	9.581	8.320	10.76	8.254	5.211
Monthly												
Min.	8.370	11.09	8.300	7.728	8.290	10.16	8.270	7.250	8.300	7.844	8.250	4.020
Max.	8.430	15.72	8.460	16.67	8.390	17.09	8.390	15.01	8.320	11.90	8.340	12.79
Mean	8.386	13.61	8.377	12.5	8.356	13.64	8.349	12	8.317	9.594	8.269	5.819

Peak Computed Discharge = 130.2 cumecs on 30-09-2017

Corres. Water Level :9.21 m

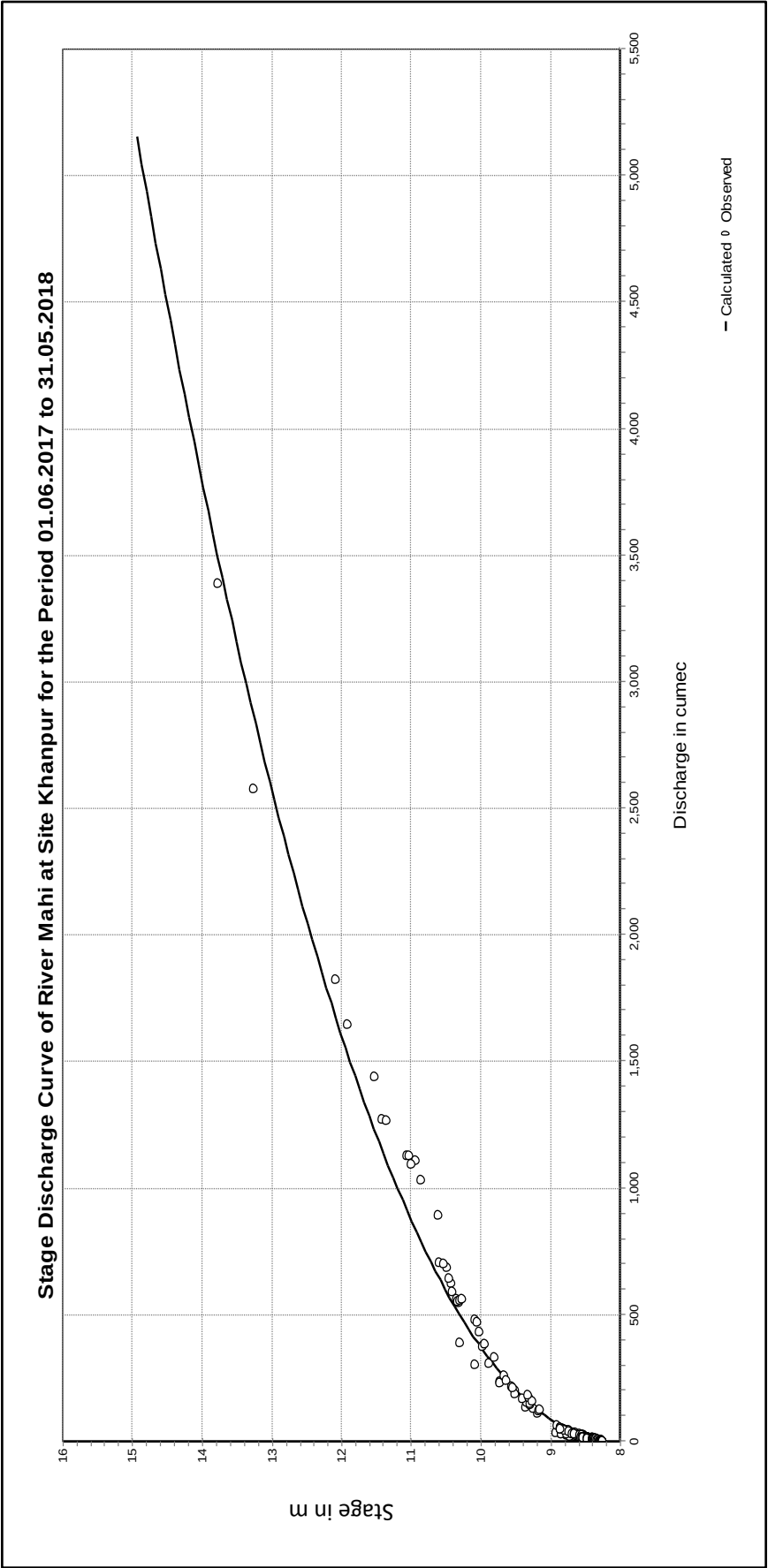
Lowest Computed Discharge = 5.460 cumecs on 27-05-2018

Corres. Water Level :8.25 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

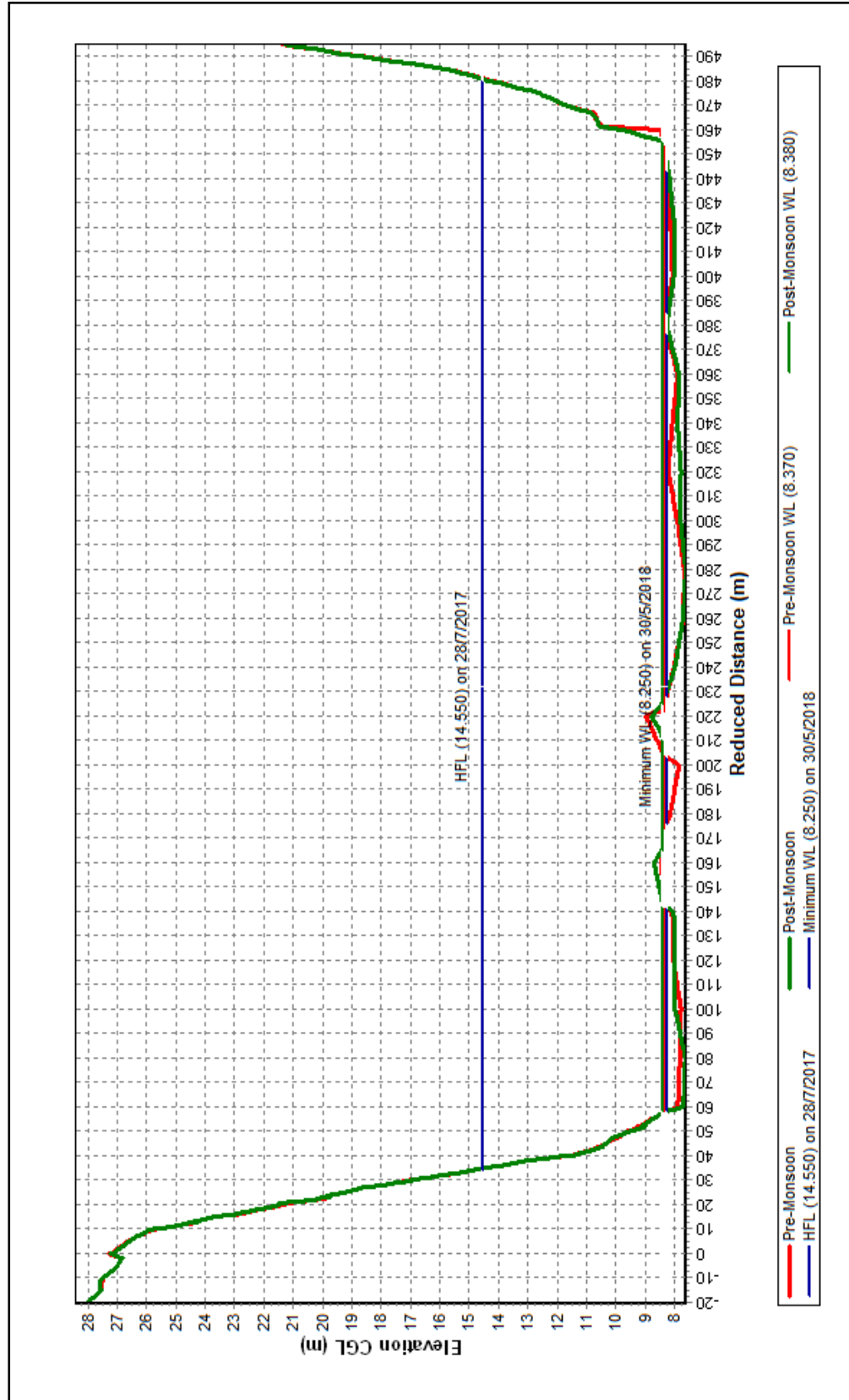
Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
8.200	15.000	-7.97	2.132	82.335

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

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

Local River : Mahi

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



Historic Flood Level - 28.270 m on 24.08.1990 at 1600 hrs

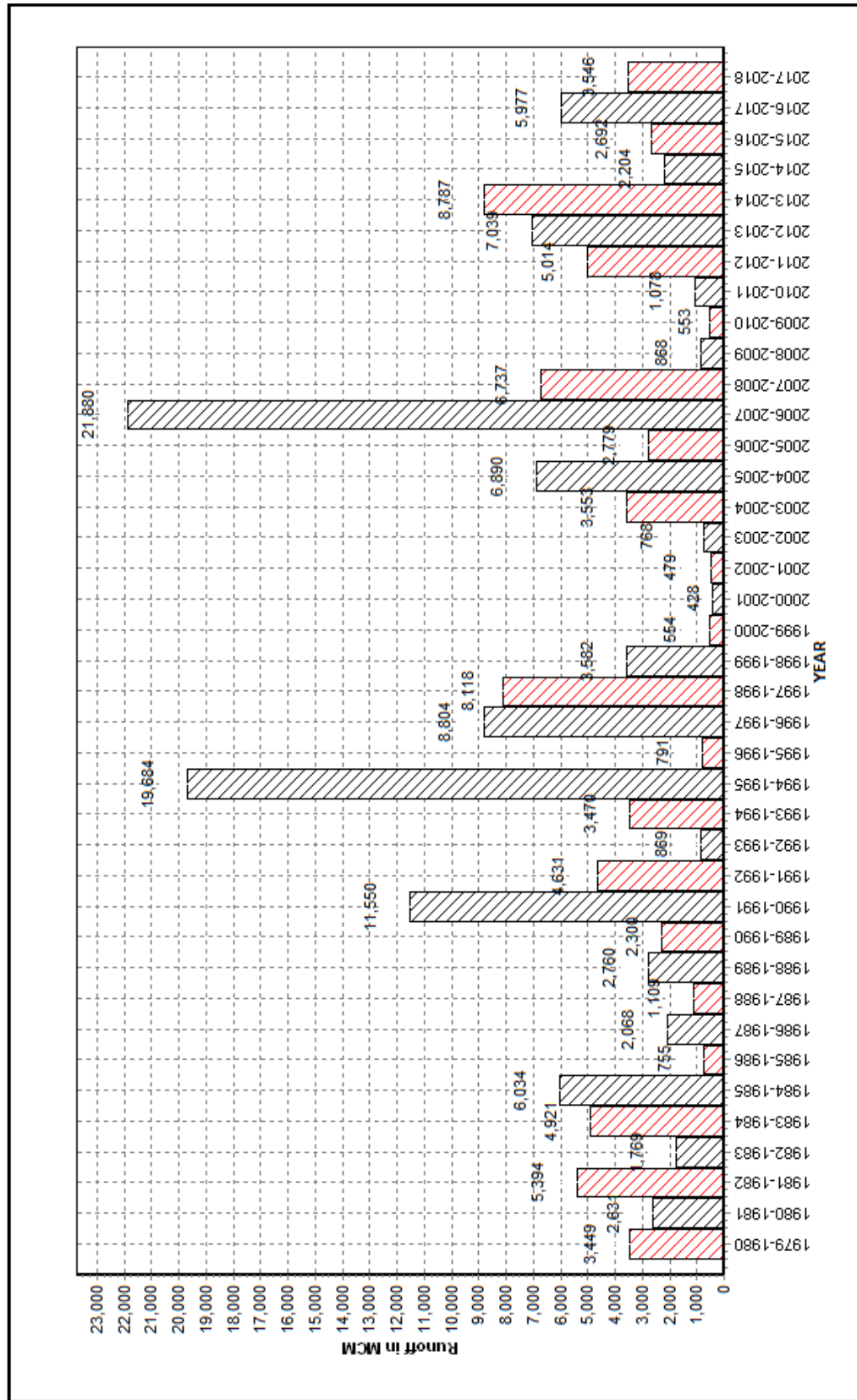
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017 - 18

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

Local River : Mahi

Annual Runoff Values for the period: 1979 - 2018

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

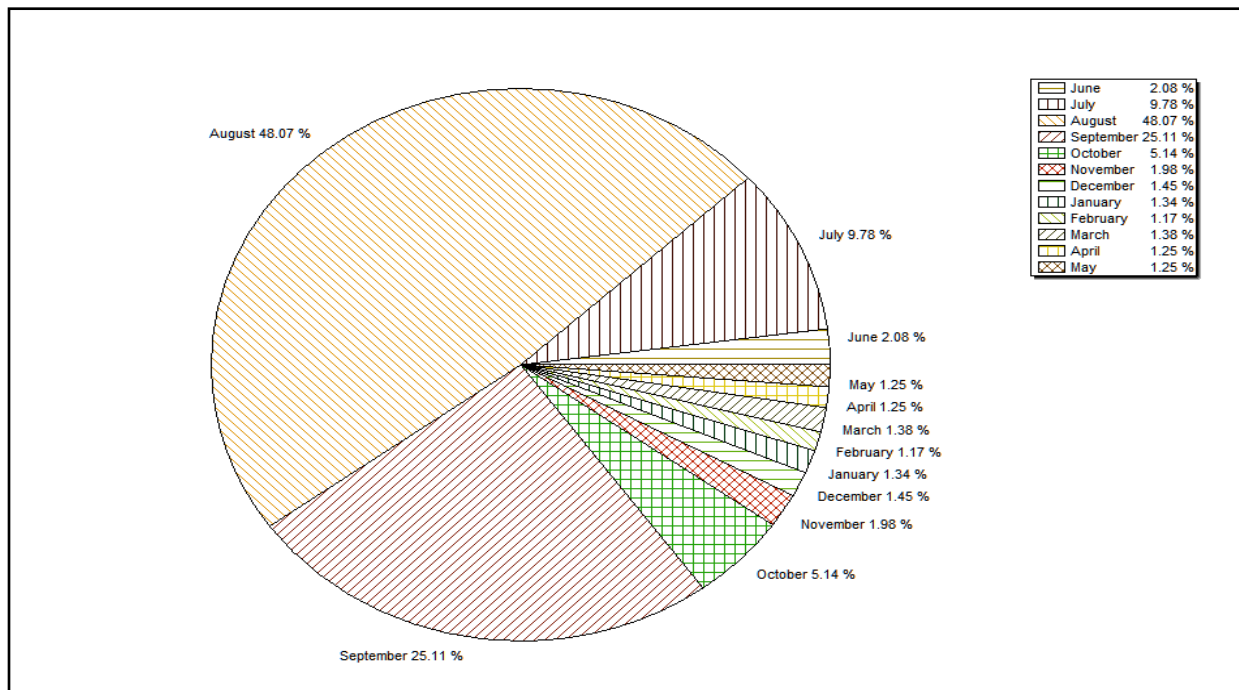


Note: Missing values have not been considered while arriving at Annual Runoff

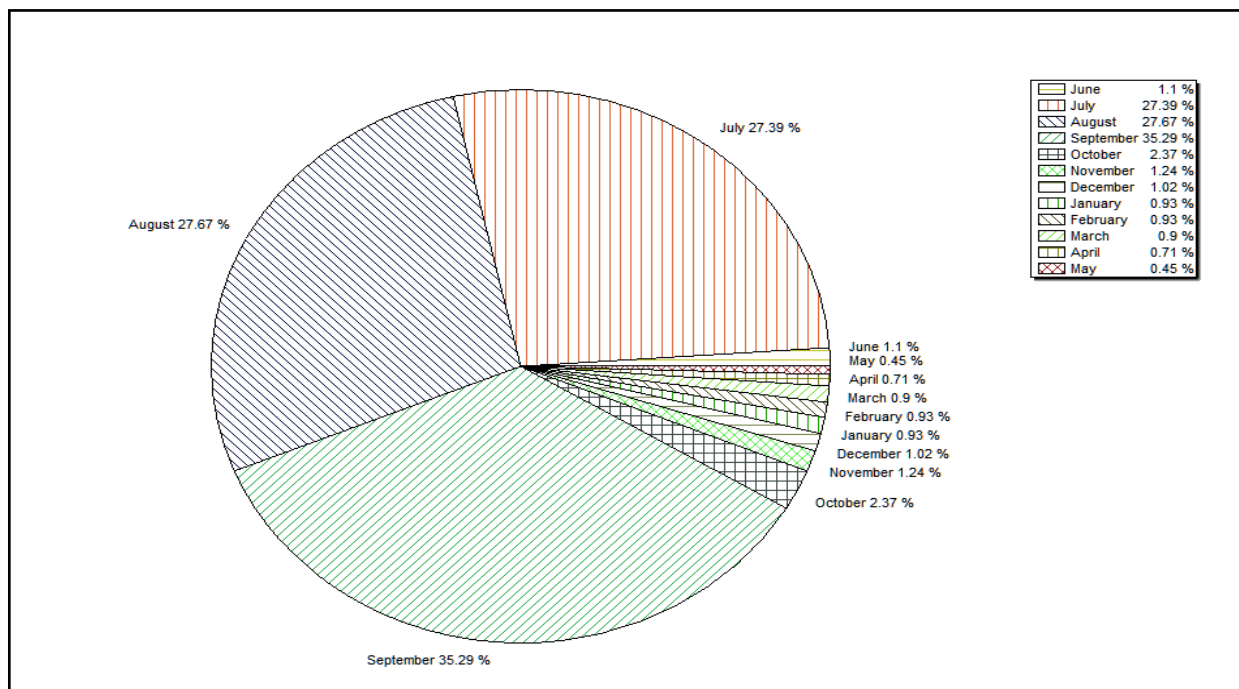
Station Name : Mahi at Khanpur (01 02 13 012)
Local River : Mahi

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

Monthly Average Runoff based on period : 1979-2017



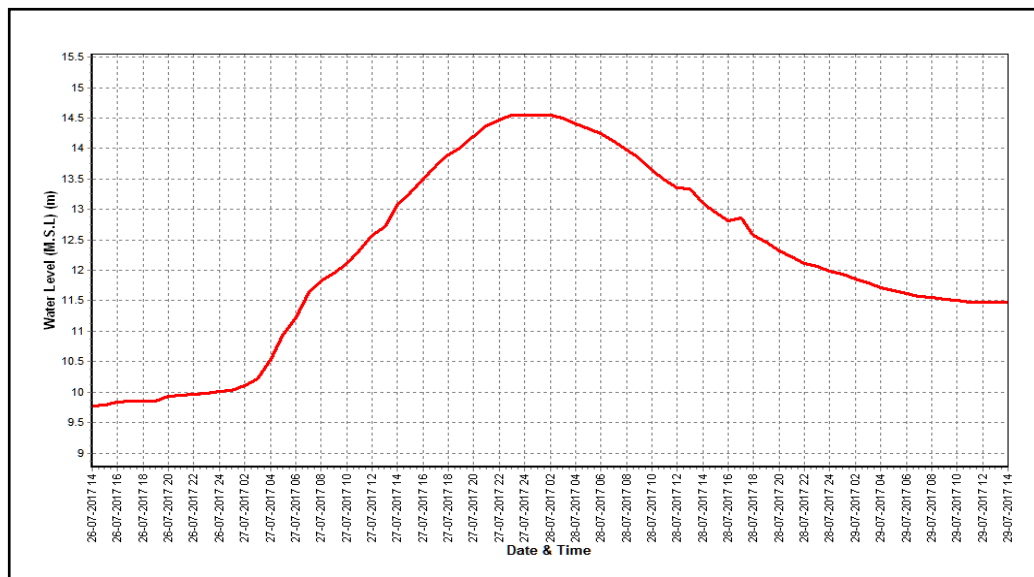
Monthly Runoff for the Year : 2017-2018



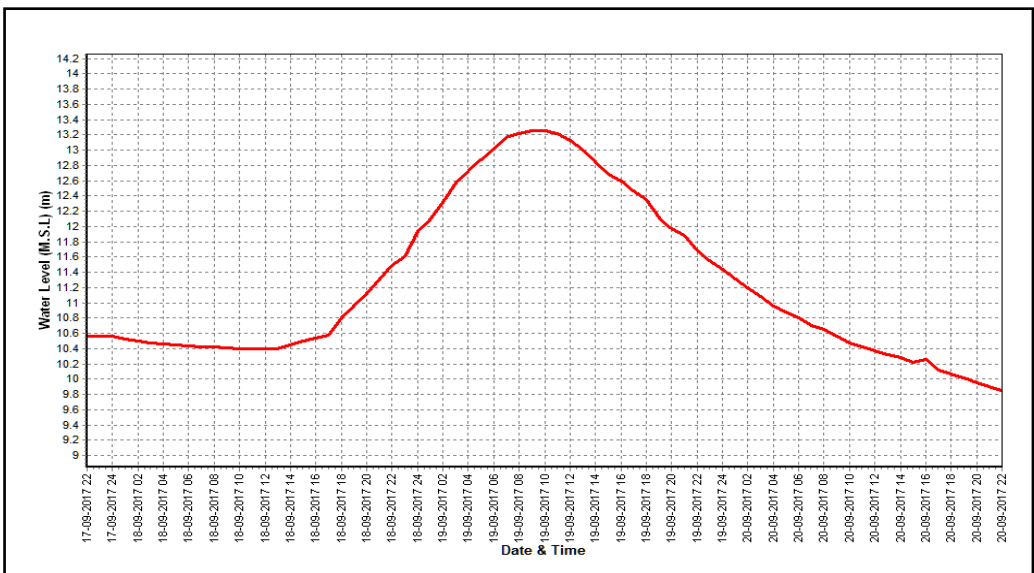
Station Name : Mahi at Khanpur (01 02 13 012)
Local River : Mahi

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

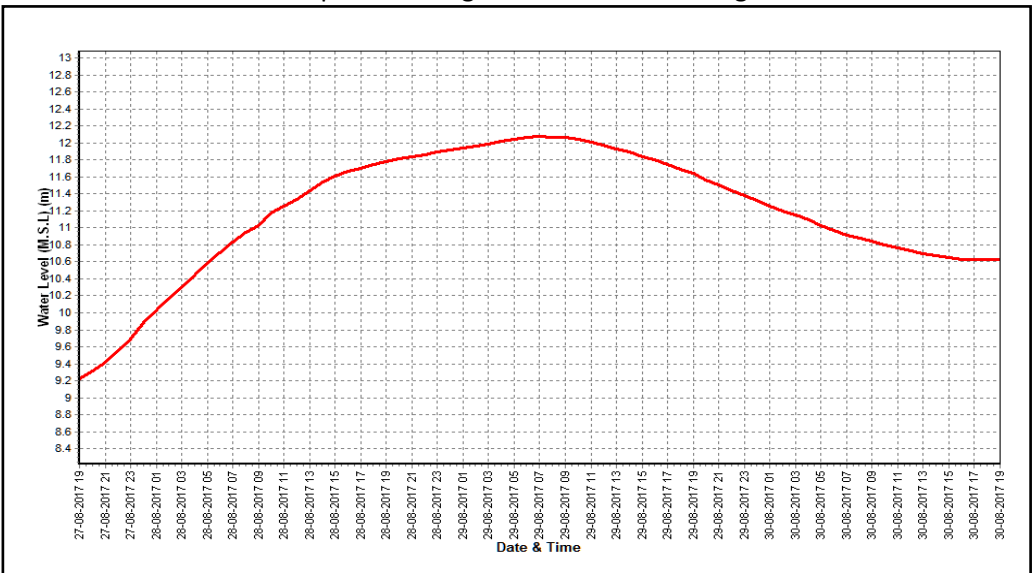
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Anas at Chakaliya
State : Gujarat
Basin : Mahi
Tributary : Anas
Sub-Sub Tributary :
Division : Mahi Division, Gandhinagar
Drainage Area : 3121 Sq. Km.

Code : 01 02 13 007
District : Panchmahal
Independent R : Mahi
Sub Tributary :
Local River : Anas
Sub-Division : Mahi Sub Divn., Kadana
Bank : Left

Latitude : 23°02'58" N

Longitude : 74°19'14" E

Zero of Gauge (m) : 180 (m.s.l)
215 (m.s.l)

01/03/1991 - 30/04/2003
01/05/2003 -

Opening Date

Closing Date

Gauge : 13/02/1991

Discharge : 13/02/1991

Sediment : -

Water Quality : -

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

Year	Maximum			Minimum		Date
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	
1991-1992	2583	188.125	31/07/1991	0.000	181.360	29/04/1992
1992-1993	674	183.925	07/09/1992	0.000	180.890	15/06/1992
1993-1994	3717	192.100	17/07/1993	0.000	181.350	04/04/1994
1994-1995	4128	190.000	07/09/1994	0.000	181.440	17/04/1995
1995-1996	1387	184.350	25/07/1995	0.000	180.760	09/05/1996
1996-1997	3933	188.525	28/07/1996	0.000	181.400	22/04/1997
1997-1998	3419	187.400	01/08/1997	0.000	181.490	12/05/1998
1998-1999	1505	182.320	26/09/1998	0.000	181.160	11/06/1998
1999-2000	223	182.950	20/06/1999	0.000	181.350	13/01/2000
2000-2001	60	182.200	13/08/2000	0.000	181.370	14/11/2000
2001-2002	1525	185.050	18/06/2001	0.000	River Dry	23/01/2002
2002-2003	4226	189.800	03/09/2002	0.000	River Dry	25/03/2003
2003-2004	3228	223.950	24/08/2003	0.000	217.410	22/02/2004
2004-2005	5874	224.250	14/08/2004	0.000	217.250	01/03/2005
2005-2006	6956	224.350	28/07/2005	0.000	216.920	01/06/2005
2006-2007	5474	226.900	11/08/2006	0.000	River Dry	01/06/2006
2007-2008	3227	224.650	08/08/2007	0.000	217.360	01/06/2007
2008-2009	691	219.700	12/08/2008	0.000	217.020	12/05/2009
2009-2010	736	220.675	23/07/2009	0.000	218.200	04/11/2009
2010-2011	631	220.550	31/08/2010	0.000	218.060	20/05/2011
2011-2012	258	219.700	02/09/2011	0.000	River Dry	21/06/2011
2012-2013	2858	226.200	06/09/2012	0.000	218.150	01/06/2012
2013-2014	1025	222.100	02/08/2013	0.000	218.220	01/06/2013
2014-2015	486.2	222.275	09/09/2014	0.000	218.140	01/06/2014
2015-2016	1032	222.760	28/07/2015	0.000	218.330	17/06/2015
2016-2017	704	220.670	22/08/2016	0.000	218.330	01/06/2017
2017-2018	723.8	220.900	18/09/2017	0.000	218.250	26/05/2018

Stage-Discharge Data for the period 2017 - 2018

Station Name : Anas at Chakaliya (01 02 13 007)

Division : Mahi Division, Gandhinagar

Local River : Anas

Sub-Division : Mahi Sub Divn., Kadana

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	218.20	0.000	218.30	0.000	219.100	165.5	219.280	187.7	218.720	45.46 *	218.340	0.000
2	218.17	0.000	218.30	0.000	219.000	110.2 *	219.080	129.4 *	218.650	36.01 *	218.340	0.000
3	218.16	0.000	218.30	0.000	218.940	125.9	219.060	124.5 *	218.640	22.38	218.340	0.000
4	218.15	0.000	218.30	0.000	218.900	119.7	219.040	142.6	218.630	21.65	218.340	0.000
5	218.15	0.000	218.35	0.000	218.850	114.4	219.030	136.5	218.630	21.49	218.340	0.000
6	218.15	0.000	218.35	0.000	218.810	67.76 *	219.020	128.7	218.620	19.76	218.340	0.000
7	218.15	0.000	218.35	0.000	218.760	88.81	219.000	123.7	218.550	15.96	218.340	0.000
8	218.15	0.000	218.35	0.000	218.720	81.71	218.980	115.0	218.450	4.600 *	218.360	0.000
9	218.15	0.000	218.35	0.000	218.680	41.62 #	218.860	98.07	218.530	15.20	218.360	0.000
10	218.15	0.000	218.35	0.000	218.650	36.01 #	218.720	49.36 *	218.520	14.61	218.360	0.000
11	218.20	0.000	218.33	0.000	218.630	32.37 #	218.750	88.06	218.500	13.97	218.340	0.000
12	218.60	27.07 #	218.33	0.000	218.600	27.07 #	218.920	126.4	218.480	10.32	218.340	0.000
13	218.24	0.000	218.33	0.000	218.570	22.00 *	219.260	180.7	218.570	16.52	218.340	0.000
14	218.24	0.000	218.34	0.000	218.550	18.74 #	219.200	173.4	218.590	15.61	218.340	0.000
15	218.24	0.000	218.38	0.000	218.570	22.00 *	218.980	114.2	218.590	25.36 *	218.360	0.000
16	218.29	0.000	218.45	4.600 *	218.650	20.73	220.300	472.1	218.570	15.04	218.360	0.000
17	218.30	0.000	218.44	3.460 #	218.650	20.57	219.620	273.0 *	218.580	17.18	218.350	0.000
18	218.30	0.000	218.70	45.46 #	218.630	19.88	220.900	723.8	218.600	18.36	218.360	0.000
19	218.30	0.000	218.50	14.90	218.620	15.00	219.700	253.9	218.590	25.36 *	218.360	0.000
20	218.30	0.000	218.50	13.90	218.600	27.07 *	219.480	263.5	218.580	16.95	218.360	0.000
21	218.30	0.000	218.58	15.52	219.300	190.2	219.630	266.8	218.500	12.85	218.360	0.000
22	218.28	0.000	218.85	61.65	219.950	306.8	219.340	184.0	218.430	2.400 *	218.360	0.000
23	218.28	0.000	219.06	124.5 *	219.100	159.8	219.200	176.2	218.410	0.590 *	218.360	0.000
24	218.33	0.000	219.90	300.7	219.060	148.9	219.150	146.6 *	218.380	0.000	218.360	0.000
25	218.32	0.000	219.88	296.4	218.970	103.2 *	219.080	141.4	218.400	0.000	218.360	0.000
26	218.32	0.000	219.70	274.9	218.900	134.8	218.920	130.1	218.430	3.311	218.360	0.000
27	218.32	0.000	220.15	486.1	219.050	122.1 *	218.880	120.4	218.420	2.120	218.360	0.000
28	218.30	0.000	219.90	301.6	219.400	211.8 #	218.760	104.6	218.420	1.835	218.360	0.000
29	218.30	0.000	219.80	276.0	219.360	201.0 #	218.800	109.4	218.430	2.400 *	218.360	0.000
30	218.30	0.000	219.46	228.1 *	219.550	256.3	218.770	59.43 *	218.450	2.495 #	218.340	0.000
31			219.28	200.3	219.350	188.6			218.380	0.000		
Ten-Daily Mean												
I Ten-Daily	218.16	0.000	218.33	0.000	218.841	95.16	219.007	123.6	218.594	21.71	218.346	0.000
II Ten-Daily	218.30	2.707	218.43	8.232	218.607	22.54	219.511	266.9	218.565	17.47	218.351	0.000
III Ten-Daily	218.31	0.000	219.51	233.3	219.272	183.9	219.053	143.9	218.423	2.546	218.358	0.000
Monthly												
Min.	218.15	0.000	218.30	0.000	218.550	15.00	218.720	49.36	218.380	0.000	218.340	0.000
Max.	218.60	27.07	220.15	486.1	219.950	306.8	220.900	723.8	218.720	45.46	218.360	0.000
Mean	218.25	0.902	218.78	85.43	218.918	103.2	219.190	178.1	218.524	13.54	218.352	0

Annual Runoff in MCM = 1012 Annual Runoff in mm = 324

Peak Observed Discharge = 723.8 cumecs on 18-09-2017 Corres. Water Level :220.9 m

Lowest Observed Discharge = 0.000 cumecs on 26-05-2018 Corres. Water Level :218.25 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Anas at Chakaliya (01 02 13 007)

Division : Mahi Division, Gandhinagar

Local River : Anas

Sub-Division : Mahi Sub Divn., Kadana

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	218.340	0.000	218.330	0.000	218.340	0.000	218.330	0.000	218.290	0.000	218.300	0.000
2	218.340	0.000	218.330	0.000	218.340	0.000	218.330	0.000	218.290	0.000	218.300	0.000
3	218.340	0.000	218.330	0.000	218.340	0.000	218.330	0.000	218.280	0.000	218.300	0.000
4	218.340	0.000	218.370	0.000	218.340	0.000	218.330	0.000	218.270	0.000	218.300	0.000
5	218.340	0.000	218.370	0.000	218.340	0.000	218.330	0.000	218.270	0.000	218.300	0.000
6	218.340	0.000	218.370	0.000	218.340	0.000	218.330	0.000	218.270	0.000	218.300	0.000
7	218.340	0.000	218.370	0.000	218.340	0.000	218.330	0.000	218.270	0.000	218.310	0.000
8	218.340	0.000	218.330	0.000	218.440	3.460 *	218.420	1.430 *	218.290	0.000	218.310	0.000
9	218.340	0.000	218.330	0.000	218.440	3.460 *	218.420	1.430 *	218.300	0.000	218.300	0.000
10	218.340	0.000	218.330	0.000	218.440	3.460 *	218.420	1.430 *	218.300	0.000	218.300	0.000
11	218.340	0.000	218.330	0.000	218.440	3.460 *	218.420	1.430 *	218.300	0.000	218.300	0.000
12	218.360	0.000	218.330	0.000	218.440	3.460 *	218.420	1.430 *	218.300	0.000	218.300	0.000
13	218.380	0.000	218.330	0.000	218.440	3.460 *	218.420	1.430 *	218.290	0.000	218.300	0.000
14	218.380	0.000	218.330	0.000	218.440	3.460 *	218.330	0.000	218.290	0.000	218.280	0.000
15	218.380	0.000	218.330	0.000	218.440	3.460 *	218.330	0.000	218.290	0.000	218.280	0.000
16	218.380	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.300	0.000	218.270	0.000
17	218.400	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.300	0.000	218.270	0.000
18	218.450	4.600	218.340	0.000	218.440	3.460 *	218.320	0.000	218.340	0.000	218.270	0.000
19	218.390	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.330	0.000	218.260	0.000
20	218.390	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.330	0.000	218.260	0.000
21	218.370	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.330	0.000	218.260	0.000
22	218.370	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.330	0.000	218.240	0.000
23	218.340	0.000	218.340	0.000	218.440	3.460 *	218.320	0.000	218.310	0.000	218.240	0.000
24	218.340	0.000	218.340	0.000	218.440	3.460 *	218.300	0.000	218.310	0.000	218.240	0.000
25	218.340	0.000	218.340	0.000	218.440	3.460 *	218.300	0.000	218.310	0.000	218.250	0.000
26	218.330	0.000	218.340	0.000	218.440	3.460 *	218.300	0.000	218.310	0.000	218.250	0.000
27	218.330	0.000	218.340	0.000	218.340	0.000	218.300	0.000	218.310	0.000	218.240	0.000
28	218.330	0.000	218.340	0.000	218.330	0.000	218.300	0.000	218.300	0.000	218.240	0.000
29	218.330	0.000	218.340	0.000			218.290	0.000	218.300	0.000	218.230	0.000
30	218.330	0.000	218.340	0.000			218.290	0.000	218.300	0.000	218.220	0.000
31	218.330	0.000	218.340	0.000			218.290	0.000			218.220	0.000
Ten-Daily Mean												
I Ten-Daily	218.340	0.000	218.346	0.000	218.370	1.038	218.357	0.429	218.283	0.000	218.302	0.000
II Ten-Daily	218.385	0.460	218.335	0.000	218.440	3.460	218.352	0.429	218.307	0.000	218.279	0.000
III Ten-Daily	218.340	0.000	218.340	0.000	218.414	2.595	218.303	0.000	218.311	0.000	218.239	0.000
Monthly												
Min.	218.330	0.000	218.330	0.000	218.330	0.000	218.290	0.000	218.270	0.000	218.220	0.000
Max.	218.450	4.600	218.370	0.000	218.440	3.460	218.420	1.430	218.340	0.000	218.310	0.000
Mean	218.355	0.148	218.340	0	218.407	2.348	218.336	0.277	218.300	0	218.272	0

Peak Computed Discharge = 273.0 cumecs on 17-09-2017

Corres. Water Level :219.62 m

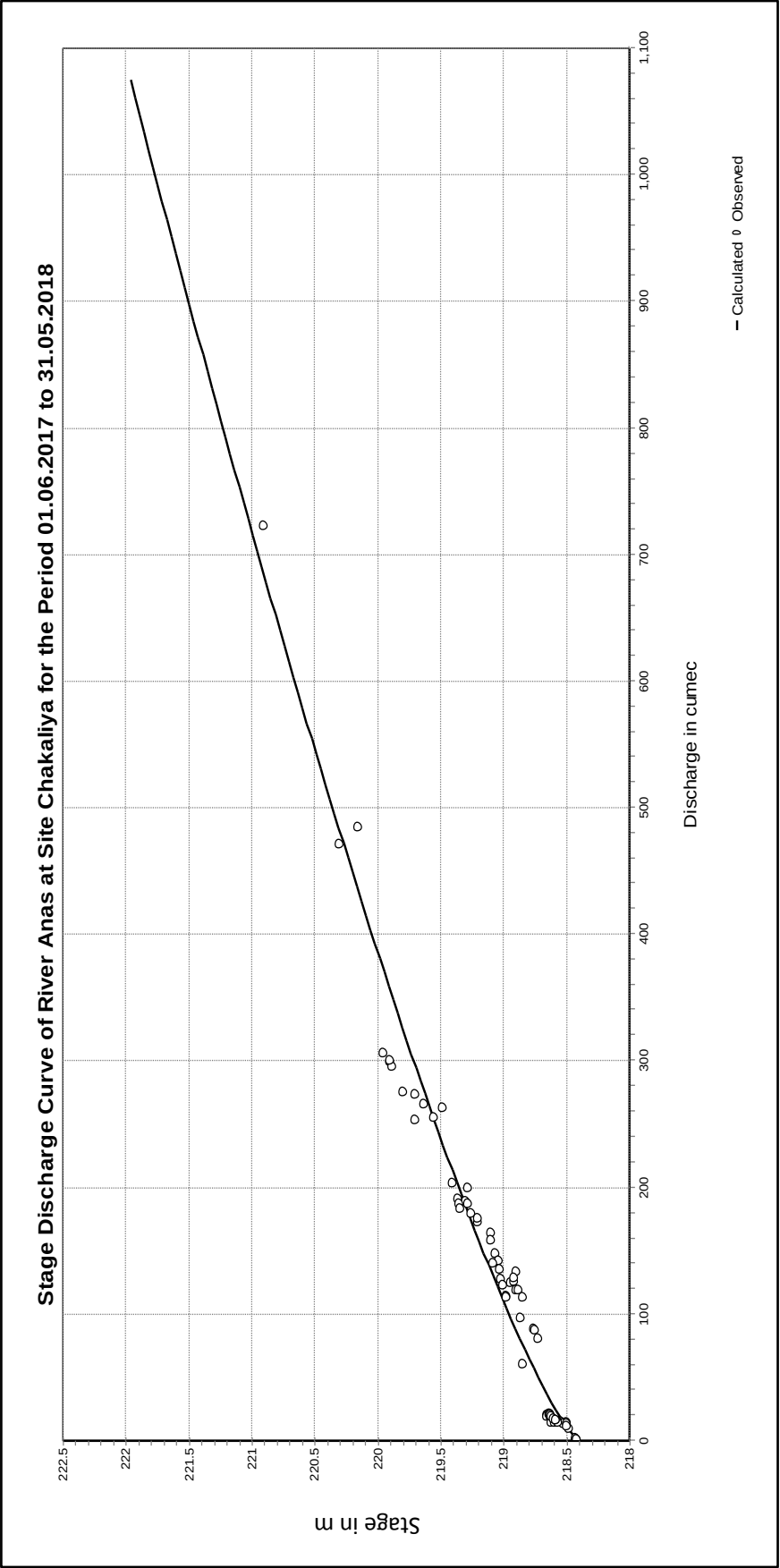
Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

Corres. Water Level :218.2 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

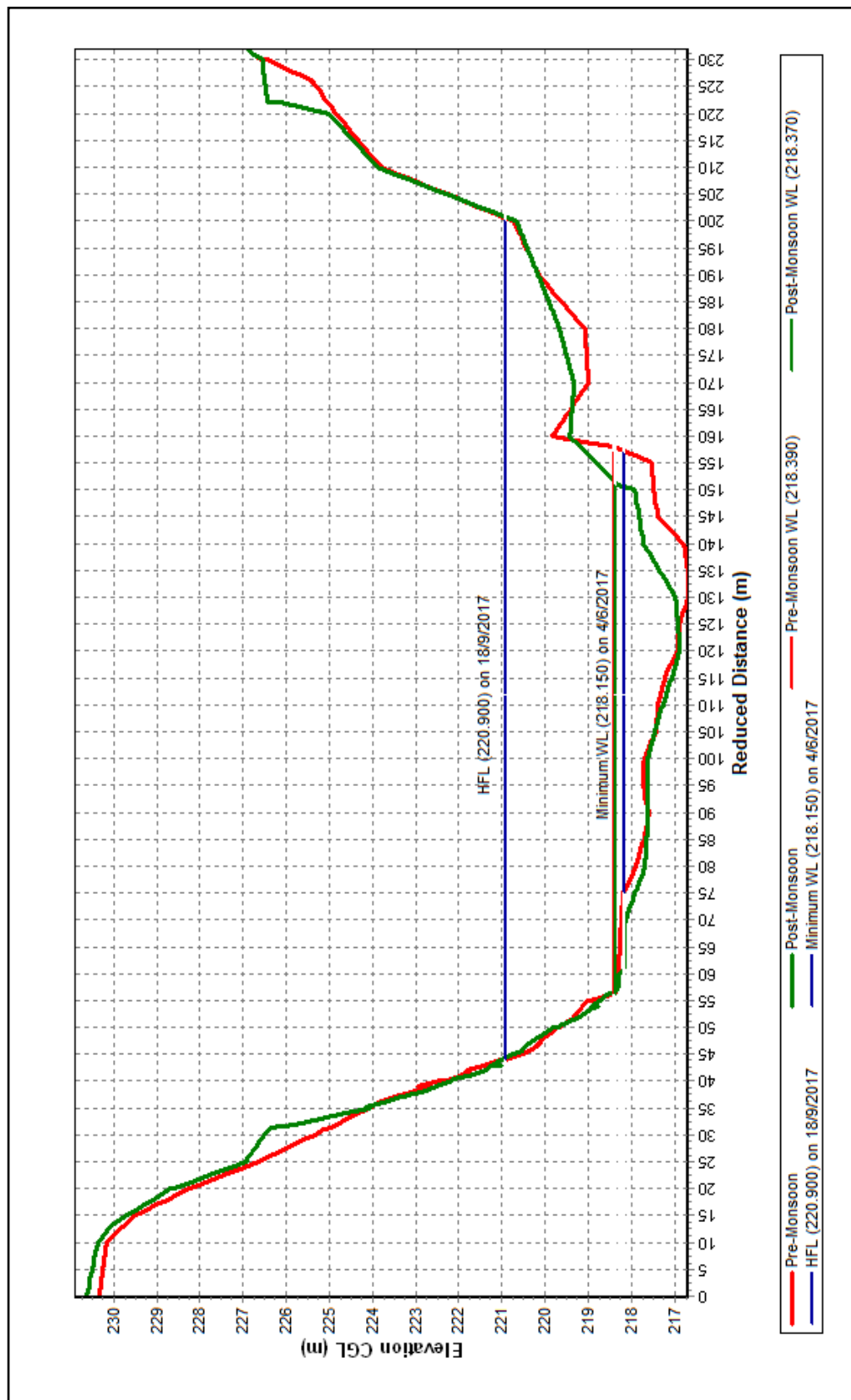
Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
218.400	222.000	-218.400	1.278	211.750

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Anas at Chakaliya (01 02 13 007)

Local River : Anas

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



Historic Flood Level - 230.200 m on 11.08.2006 at 1400 hrs

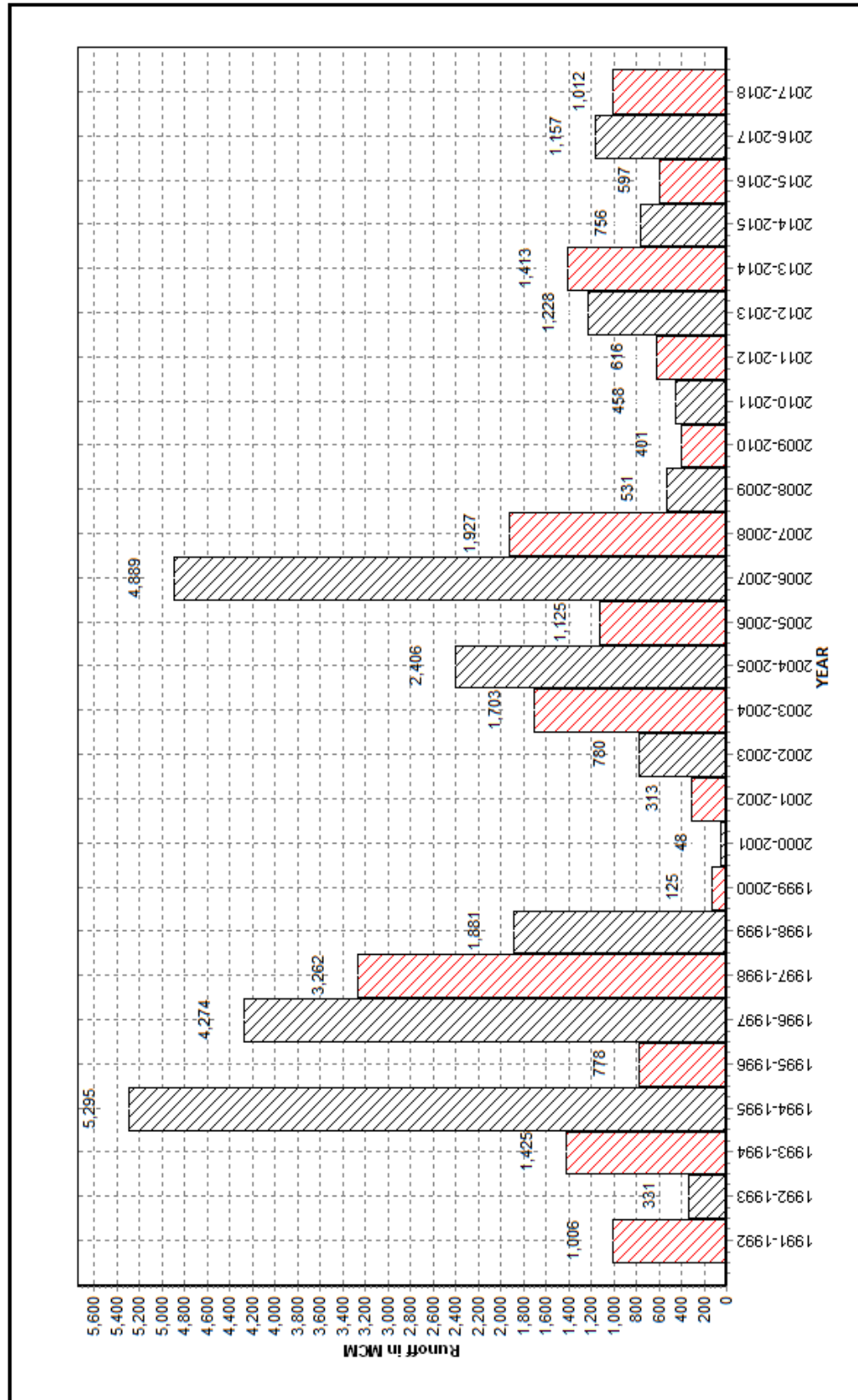
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017 - 18

Station Name : Anas at Chakaliya (01 02 13 007)

Local River : Anas

Annual Runoff Values for the period: 1991 - 2018

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

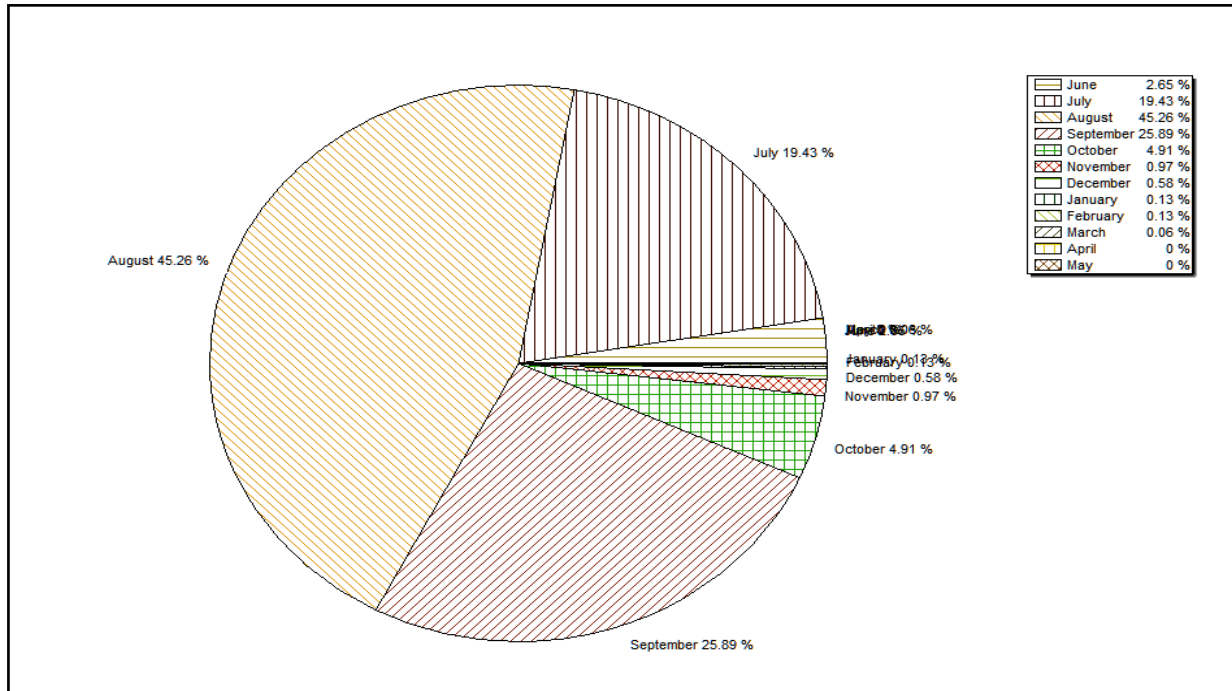


Note: Missing values have not been considered while arriving at Annual Runoff

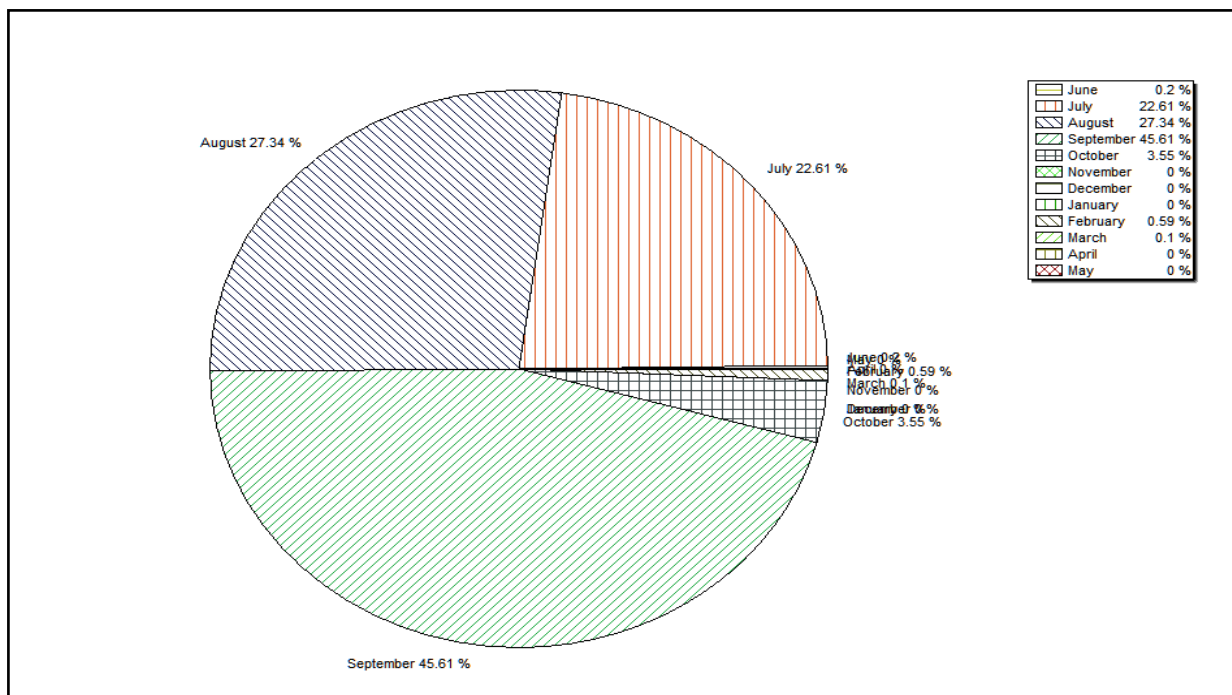
Station Name : Anas at Chakaliya (01 02 13 007)
Local River : Anas

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

Monthly Average Runoff based on period : 1991-2017



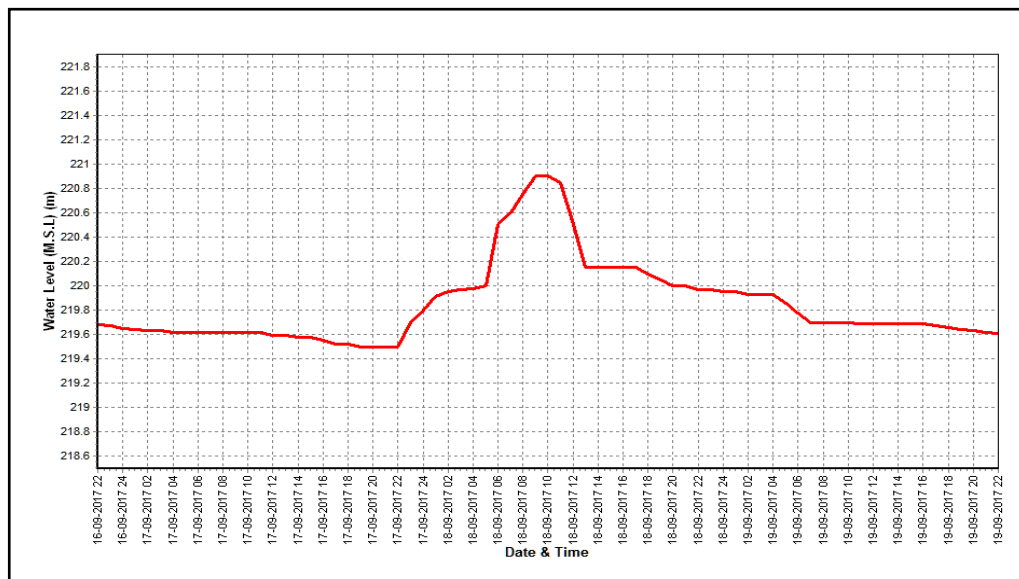
Monthly Runoff for the Year : 2017-2018



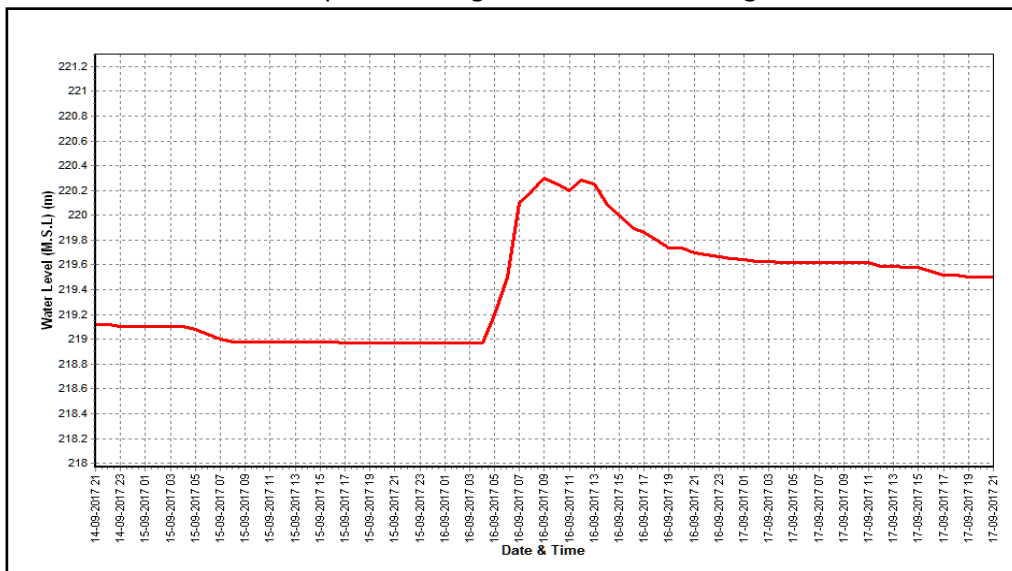
Station Name : Anas at Chakaliya (01 02 13 007)
Local River : Anas

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

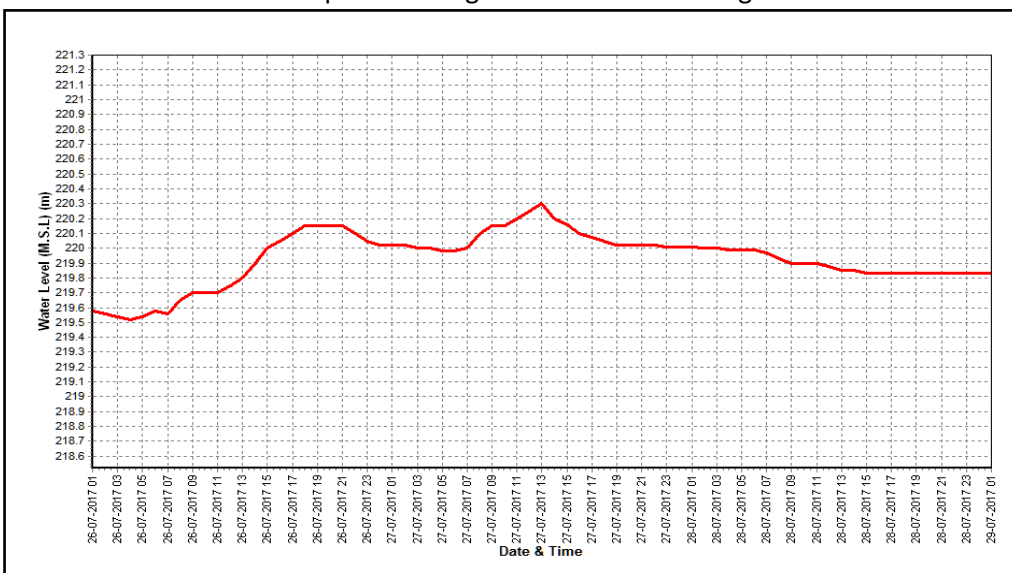
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Mahi at Paderdibadi

Code : 01 02 13 006

State : Rajasthan

District : Dungarpur

Basin : Mahi

Independent Ri : 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

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1978-1979	4615	141.355	17/08/1978	0.000	River Dry	31/05/1979
1979-1980	6206	141.390	10/08/1979	0.000	River Dry	12/05/1980
1980-1981	3886	140.050	31/08/1980	0.000	River Dry	02/05/1981
1981-1982	5720	142.100	17/08/1981	0.000	River Dry	15/06/1981
1982-1983	1725	137.700	19/08/1982	0.000	132.775	17/06/1982
1983-1984	1090	137.130	16/08/1983	0.100	132.970	06/06/1983
1984-1985	9343	143.080	20/08/1984	0.000	River Dry	13/05/1985
1985-1986	523.5	135.785	25/09/1985	0.000	132.840	08/07/1985
1986-1987	6818	141.800	16/08/1986	0.000	132.945	31/05/1987
1987-1988	2154	139.110	26/08/1987	0.000	132.970	09/08/1987
1988-1989	1320	137.450	06/08/1988	0.000	132.945	27/05/1989
1989-1990	584.7	135.970	02/09/1989	0.000	132.925	07/06/1989
1990-1991	4760	141.600	24/08/1990	2.000	133.150	30/05/1991
1991-1992	3037	139.897	24/08/1991	0.125	133.105	30/06/1991
1992-1993	328.6	135.088	09/09/1992	0.000	133.015	20/06/1992
1993-1994	1580	137.125	17/07/1993	0.000	133.090	07/06/1993
1994-1995	6684	142.250	02/08/1994	0.000	133.115	07/06/1994
1995-1996	303.4	134.983	26/07/1995	0.000	133.110	30/06/1995
1996-1997	3143	139.310	08/08/1996	0.000	132.795	13/06/1996
1997-1998	2440	138.250	24/08/1997	0.000	133.015	16/06/1997
1998-1999	6699	141.700	17/09/1998	0.000	133.070	29/04/1999
1999-2000	531.5	135.250	19/07/1999	0.000	132.890	13/05/2000
2000-2001	158	134.410	13/07/2000	0.000	132.350	22/12/2000
2001-2002	204	134.625	12/07/2001	0.000	River Dry	02/06/2001

	Maximum			Minimum		
Year	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2002-2003	243.9	134.880	04/09/2002	0.000	132.580	18/01/2003
2003-2004	1777	137.140	26/09/2003	0.000	133.075	21/06/2003
2004-2005	2888	139.990	24/08/2004	0.000	133.115	02/07/2004
2005-2006	3637	141.525	28/07/2005	0.558	133.180	17/05/2006
2006-2007	16153	147.525	19/08/2006	0.000	132.550	01/06/2006
2007-2008	3802	140.080	09/08/2007	0.000	133.130	02/05/2008
2008-2009	262.7	135.150	12/08/2008	0.000	132.930	27/05/2009
2009-2010	438.9	135.850	05/09/2009	0.000	133.180	17/03/2010
2010-2011	204.9	134.180	09/09/2010	1.619	133.190	12/04/2011
2011-2012	2382.2	140.520	12/09/2011	0.000	133.000	16/05/2012
2012-2013	2034.0	140.200	07/09/2012	0.000	132.750	01/06/2012
2013-2014	1788	139.75	02/08/2013	0.000	133.11	01/06/2013
2014-2015	519.6	135.57	10/09/2014	0.000	133.15	01/06/2014
2015-2016	2250	139.1	28/07/2015	1.710	133	12/12/2015
2016-2017	3497	140.65	22/08/2016	0.000	133	01/06/2016
2017-2018	708.3	136.25	31/08/2017	1.238	133	25/05/2018

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	133.190	4.109	133.410	8.645	135.250	359.6	135.875	515.3	133.730	90.91 *	133.390	13.79
2	133.190	4.130 *	133.390	8.520 *	135.120	363.6	135.700	525.6 *	133.710	86.39 *	133.680	32.27 *
3	133.180	3.940 *	133.360	7.493	134.950	307.4	135.180	402.7 *	133.690	120.6	133.470	19.57 *
4	133.180	3.940 *	133.330	7.100 *	134.785	281.9	135.125	340.1	134.050	161.6	133.390	15.67 *
5	133.180	3.778	133.320	6.870 *	134.710	265.6	135.010	321.5	133.940	131.5 *	133.360	14.34 *
6	133.170	3.427	133.290	6.459	134.560	262.4 *	134.720	268.8	133.670	78.81 *	133.340	13.50 *
7	133.170	3.861	133.270	6.113	134.220	182.9	134.630	259.1	133.610	27.73	133.340	11.89
8	133.160	3.570 *	133.265	5.920	134.160	172.8	134.600	244.9	133.580	62.11 *	133.340	12.03
9	133.200	4.162	133.260	5.550 *	134.220	181.9	134.550	237.6	133.560	26.36	133.330	11.75
10	133.200	4.330 *	133.255	5.666	134.320	204.1	134.480	244.9 *	133.550	25.99	133.320	11.32
11	133.210	4.530 *	133.250	5.486	134.435	223.3	134.150	178.7	134.000	150.9	133.310	10.95
12	133.230	5.303	133.240	5.310	134.370	204.1	134.605	246.9	133.850	130.3	133.300	11.90 *
13	133.220	4.884	133.235	5.146	134.120	168.3 *	134.640	311.4	133.580	26.97	133.290	10.22
14	133.210	4.596	133.510	13.26	133.980	172.6	135.595	517.5	133.530	25.22	133.290	9.976
15	133.210	4.502	134.950	317.3	134.080	160.0 *	134.770	339.5	133.520	22.27 *	133.290	9.816
16	133.200	4.228	134.460	240.6 *	134.030	179.1	135.100	410.4	133.510	23.08	133.300	11.90 *
17	133.200	4.164	133.900	137.9	134.180	215.5	135.350	442.4 *	133.500	21.43	133.310	10.98
18	133.200	4.330 *	133.760	116.9	134.150	205.3	135.270	437.4	133.490	19.73	133.320	11.23
19	133.310	6.605	133.670	97.68	134.060	186.9	136.380	691.9 *	133.490	20.62 *	133.320	12.68 *
20	133.310	6.460	133.600	86.45	135.650	513.6 *	135.150	395.8 *	133.480	19.09	133.320	11.62
21	133.280	5.943	133.630	86.79	135.330	437.7 *	134.750	304.6 *	133.470	17.99	133.340	11.82
22	133.270	5.760 *	134.180	179.5	135.250	410.0	134.930	345.2 *	133.460	19.05 *	133.360	12.55
23	133.270	5.610	134.600	271.3 *	134.795	325.0	134.780	311.3 *	133.450	17.20	133.370	14.78 *
24	133.370	8.040 *	134.800	291.3	134.645	302.6	134.140	172.5 *	133.440	16.79	133.370	12.89
25	133.360	7.800 *	135.080	359.8	135.505	480.0	133.950	171.7	133.440	16.68	133.390	13.18
26	133.440	9.770 *	135.300	396.4	135.520	522.5	133.890	163.1	133.440	16.29	133.390	15.67 *
27	133.450	9.389	135.500	427.1	135.440	463.6 *	134.340	264.9	133.430	15.82	133.410	13.86
28	133.715	17.55 #	135.610	461.3	135.740	583.8	134.290	252.7	133.430	15.47	133.410	13.92
29	133.550	12.10	135.510	436.7	136.050	620.3	133.870	161.3	133.430	17.55 *	133.420	14.29
30	133.450	9.536	135.500	477.8 *	135.950	620.7	133.760	95.98 *	133.420	14.90	133.430	14.63
31			135.450	417.5	136.250	708.3			133.420	14.65		
Ten-Daily Mean												
I Ten-Daily	133.182	3.925	133.315	6.834	134.629	258.2	134.987	336.0	133.709	81.20	133.396	15.61
II Ten-Daily	133.230	4.960	133.751	102.6	134.306	222.9	135.101	397.2	133.595	45.96	133.305	11.13
III Ten-Daily	133.415	9.150	135.015	345.9	135.498	497.7	134.270	224.3	133.439	16.58	133.389	13.76
Monthly												
Min.	133.160	3.427	133.235	5.146	133.980	160.0	133.760	95.98	133.420	14.65	133.290	9.816
Max.	133.715	17.55	135.610	477.8	136.250	708.3	136.380	691.9	134.050	161.6	133.680	32.27
Mean	133.276	6.012	134.059	158.1	134.833	331.8	134.786	319.2	133.576	46.9	133.363	13.5

Annual Runoff in MCM = 2576 Annual Runoff in mm = 159

Peak Observed Discharge = 708.3 cumecs on 31-08-2017

Corres. Water Level :136.25 m

Lowest Observed Discharge = 1.238 cumecs on 25-05-2018

Corres. Water Level :133 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	133.430	14.82	133.480	16.78	133.560	22.11	133.480	20.09 *	133.390	15.67 *	133.340	12.11
2	133.440	18.04 *	133.520	22.27 *	133.530	21.27	133.480	20.09 *	133.390	13.93	133.340	13.50 *
3	133.460	19.05 *	133.530	22.83 *	133.530	22.83 *	133.470	17.91	133.390	15.67 *	133.330	13.09 *
4	133.460	15.70	133.530	22.83 *	133.510	21.71 *	133.470	19.57 *	133.390	13.77	133.330	13.09 *
5	133.460	19.05 *	133.530	17.28	133.500	20.62	133.470	17.88	133.390	15.67 *	133.320	12.68 *
6	133.470	16.24	133.530	17.34	133.530	21.71	133.490	20.62 *	133.390	15.67 *	133.310	12.29 *
7	133.470	16.55	133.560	24.57 *	133.530	22.83 *	133.490	20.62 *	133.390	15.67 *	133.300	11.02
8	133.460	16.26	133.560	25.56	133.540	23.40 *	133.480	20.09 *	133.390	15.67 *	133.260	10.22
9	133.460	19.05 *	133.520	23.64	133.550	23.98 *	133.480	20.09 *	133.390	13.23	133.180	6.827
10	133.460	19.05 *	133.510	21.33	133.550	23.98 *	133.480	20.09 *	133.390	13.00	133.090	3.570
11	133.450	18.54 *	133.500	20.61	133.550	23.98 *	133.480	20.09 *	133.380	12.82	133.050	3.508
12	133.450	18.54 *	133.500	20.34	133.530	22.83 *	133.470	19.57 *	133.380	12.58	133.040	3.319
13	133.470	19.57 *	133.490	20.62 *	133.520	21.04	133.470	19.57 *	133.380	12.25	133.040	4.730 *
14	133.470	19.57 *	133.490	20.62 *	133.520	20.80	133.460	19.05 *	133.380	15.22 *	133.040	3.261
15	133.470	16.19	133.490	19.65	133.510	19.94	133.460	19.05 *	133.380	15.22 *	133.070	3.570
16	133.480	16.86	133.480	19.71	133.510	19.58	133.440	18.04 *	133.380	12.03	133.140	6.188
17	133.480	20.09 *	133.480	19.33	133.520	20.00	133.440	18.04 *	133.380	11.78	133.150	6.146
18	133.470	19.57 *	133.500	20.38	133.520	22.27 *	133.440	18.04 *	133.380	11.61	133.140	6.840 *
19	133.470	19.57 *	133.510	21.71 *	133.520	20.23	133.440	18.04 *	133.290	11.53 *	133.090	5.680 *
20	133.470	19.57 *	133.520	21.26	133.520	20.43	133.430	17.55 *	133.250	7.631	133.090	5.680 *
21	133.470	19.57 *	133.530	22.83 *	133.520	19.75	133.430	17.55 *	133.290	11.53 *	133.080	3.677
22	133.460	19.05 *	133.530	21.65	133.510	21.71 *	133.430	17.55 *	134.000	58.52 *	133.060	3.393
23	133.460	19.05 *	133.530	21.59	133.500	19.25	133.430	17.55 *	133.620	23.79	133.050	2.230
24	133.450	18.54 *	133.560	23.00	133.500	19.98	133.430	17.55 *	133.500	18.81	133.040	1.991
25	133.450	18.54 *	133.560	22.85	133.490	20.62 *	133.430	17.55 *	133.470	17.75	133.000	1.238
26	133.440	18.04 *	133.450	18.54 *	133.490	19.08	133.420	17.07 *	133.410	15.67	132.950	3.520 *
27	133.440	18.04 *	133.350	13.02	133.480	18.68	133.410	14.96	133.370	14.29	132.940	3.430 *
28	133.450	15.24	133.380	15.22 *	133.480	18.45	133.410	15.00	133.360	13.40	133.930	3.340 *
29	133.460	15.63	133.450	16.13			133.410	16.59 *	133.350	13.91 *	132.910	3.200 *
30	133.470	16.08	133.550	21.72			133.400	16.13 *	133.340	13.50 *	132.880	3.040 *
31	133.470	19.57 *	133.550	21.43			133.390	14.17			132.840	2.940 *
Ten-Daily Mean												
I Ten-Daily	133.457	17.38	133.527	21.44	133.533	22.44	133.479	19.70	133.390	14.79	133.280	10.84
II Ten-Daily	133.468	18.81	133.496	20.42	133.522	21.11	133.453	18.70	133.358	12.27	133.085	4.892
III Ten-Daily	133.456	17.94	133.495	19.82	133.496	19.69	133.417	16.52	133.471	20.12	133.062	2.909
Monthly												
Min.	133.430	14.82	133.350	13.02	133.480	18.45	133.390	14.17	133.250	7.631	132.840	1.238
Max.	133.480	20.09	133.560	25.56	133.560	23.98	133.490	20.62	134.000	58.52	133.930	13.50
Mean	133.460	18.04	133.505	20.54	133.519	21.18	133.449	18.25	133.406	15.73	133.140	6.107

Peak Computed Discharge = 691.9 cumecs on 19-09-2017

Corres. Water Level :136.38 m

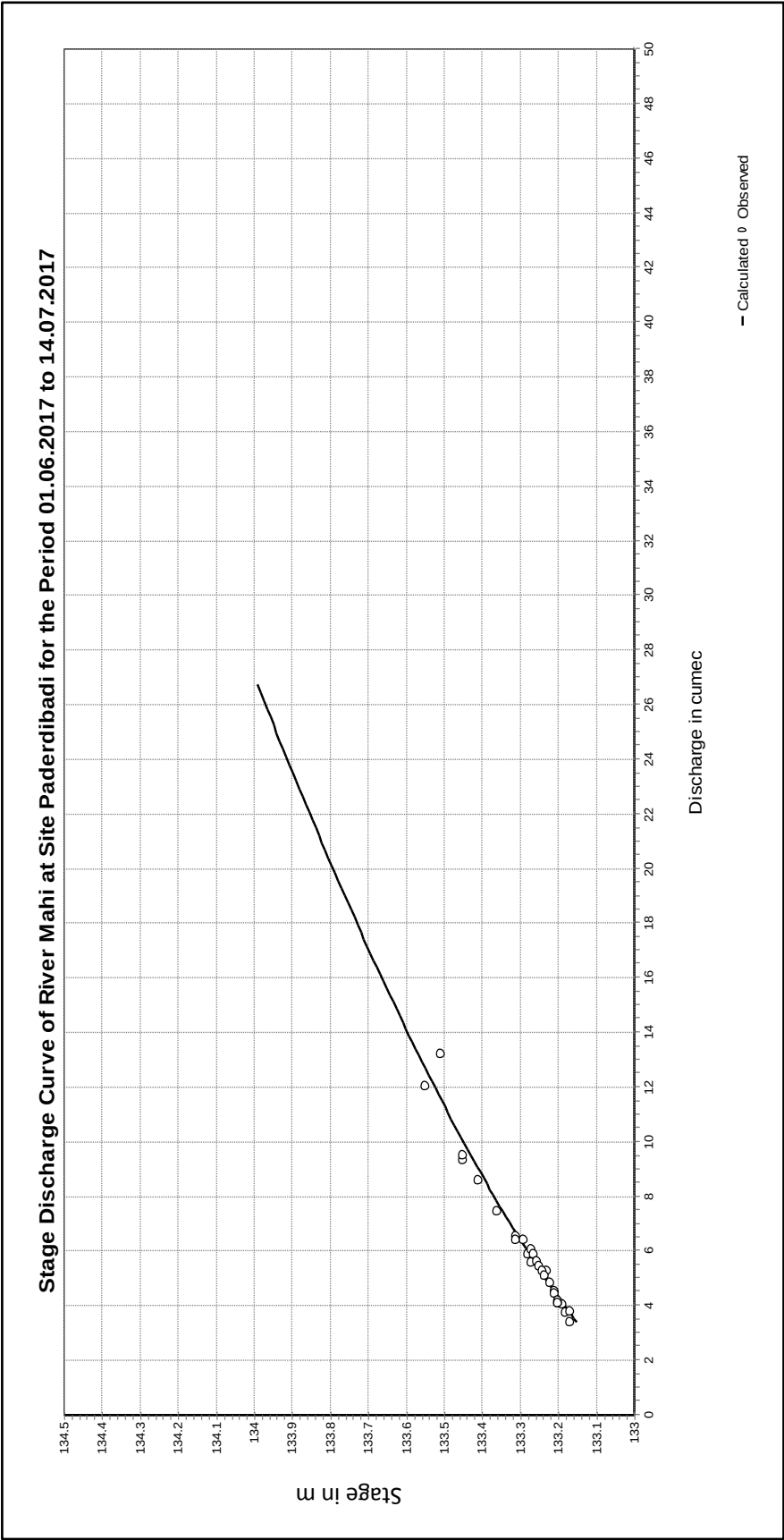
Lowest Computed Discharge = 2.940 cumecs on 31-05-2018

Corres. Water Level :132.84 m

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

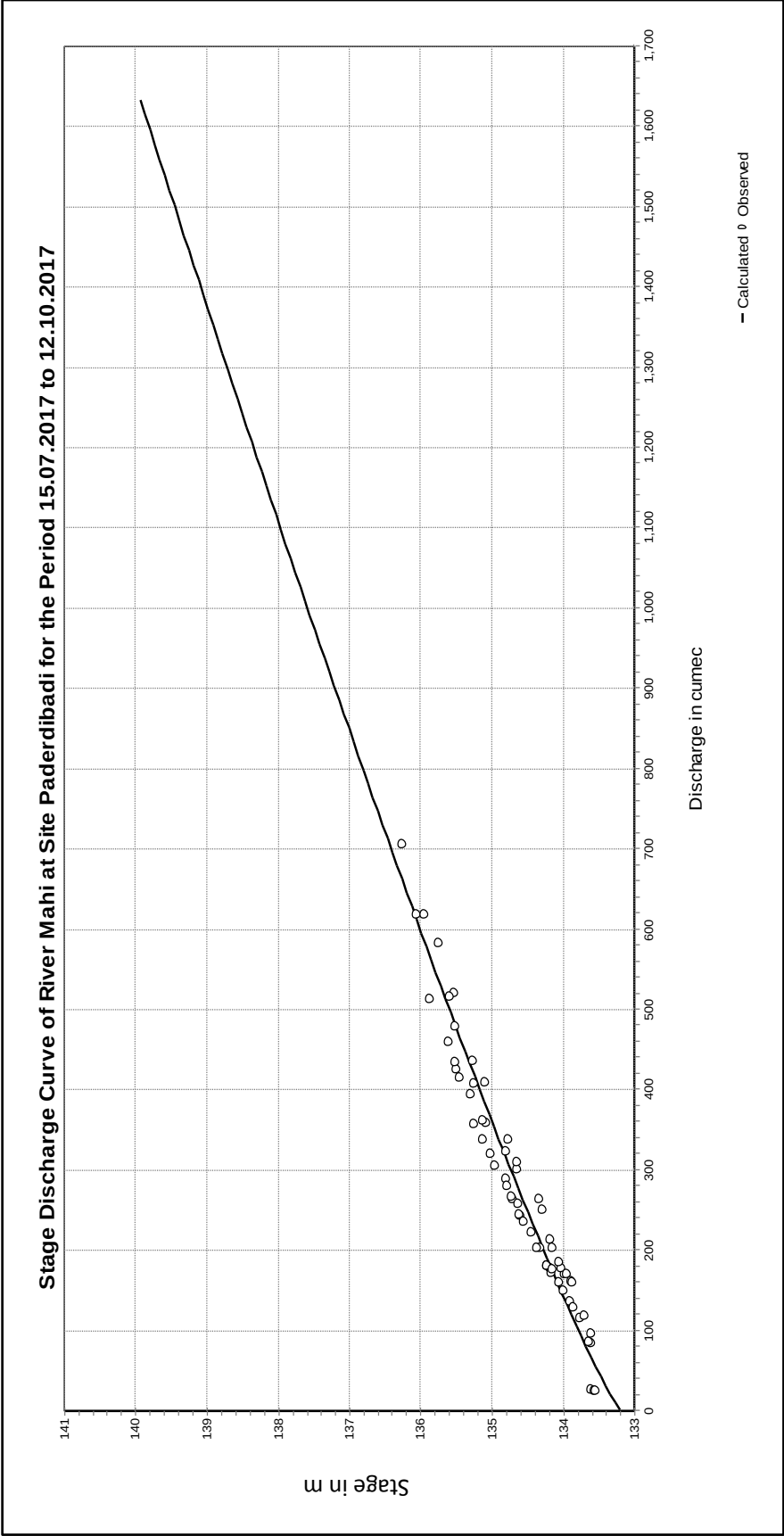
#:Discarded Discharge (values changed as per rating curve)

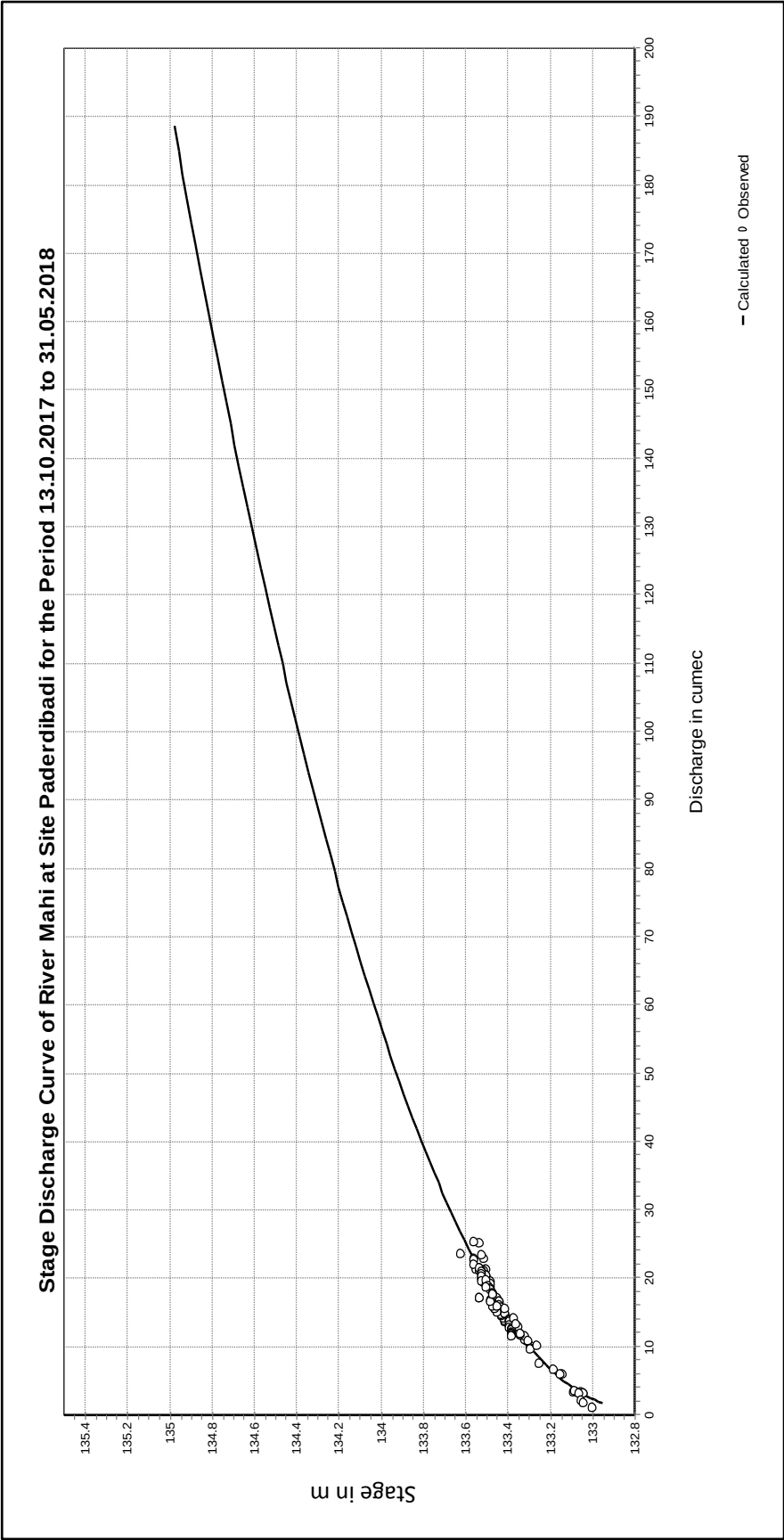
Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
133.150	134.000	-132.87	1.489	22.557



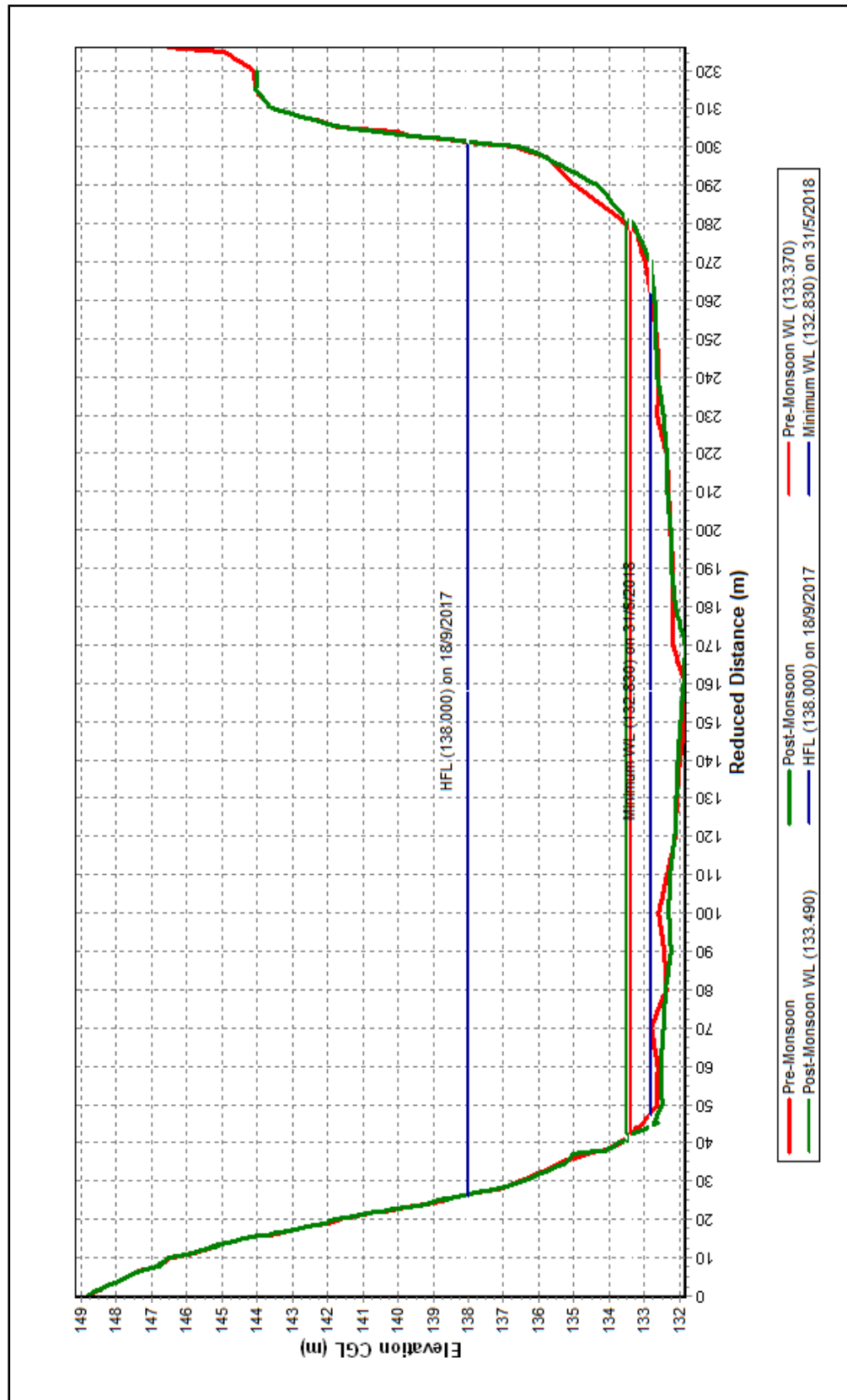


Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Mahi at Paderibadi (01 02 13 006)

Local River : Mahi

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



Historic Flood Level- 149.650m on 19.08.2006 at 1600 hrs

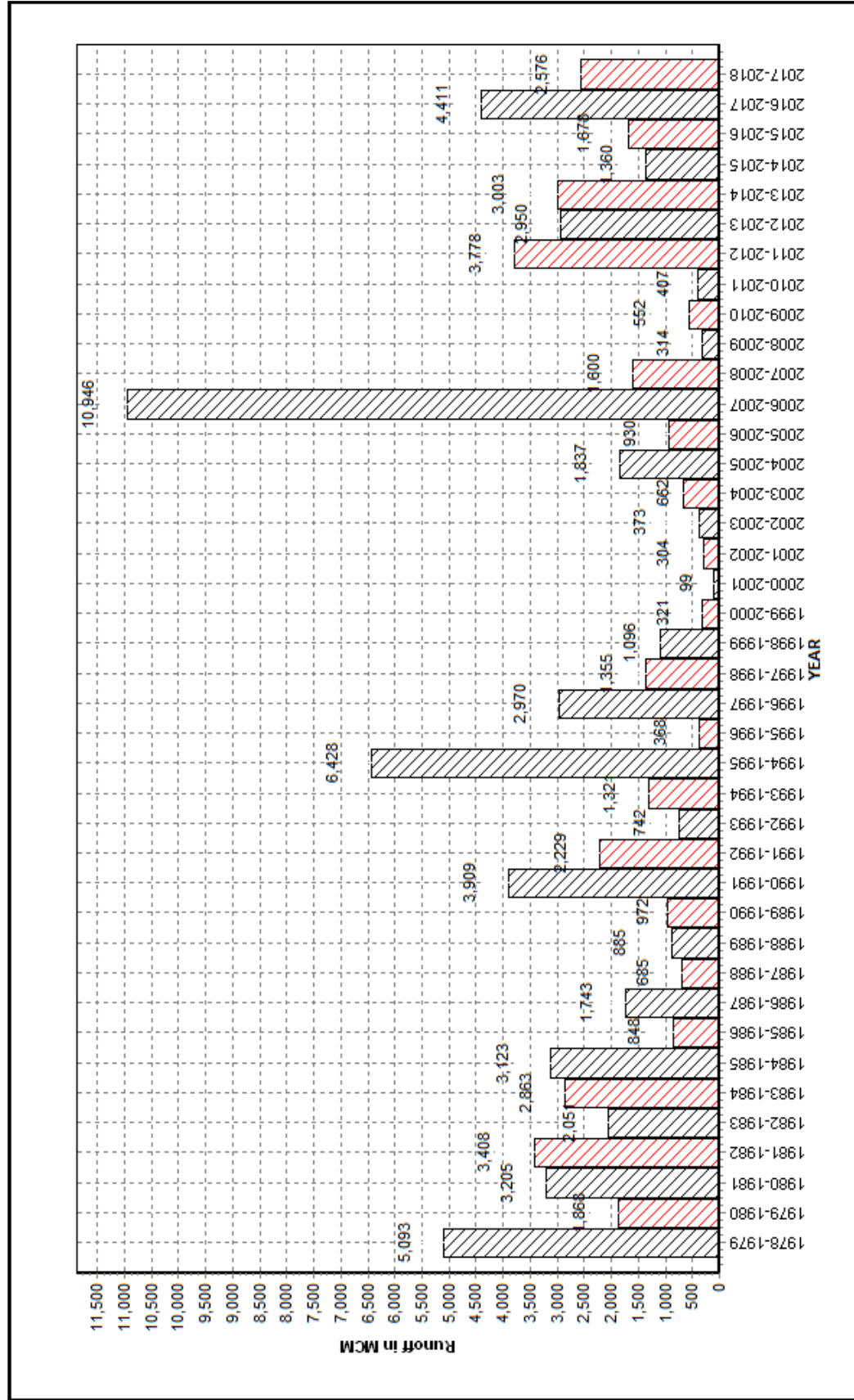
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2017-18

Station Name : Mahi at Paderibadi (01 02 13 006)

Local River : Mahi

Annual Runoff Values for the period: 1978 - 2018

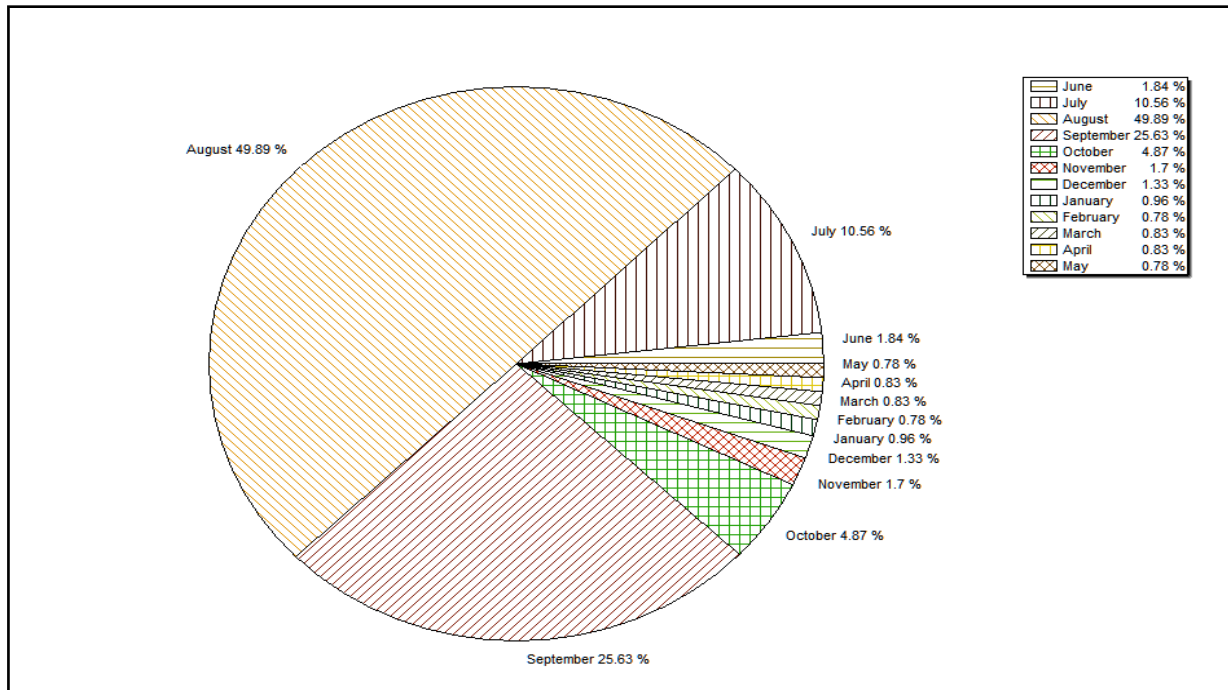
Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana



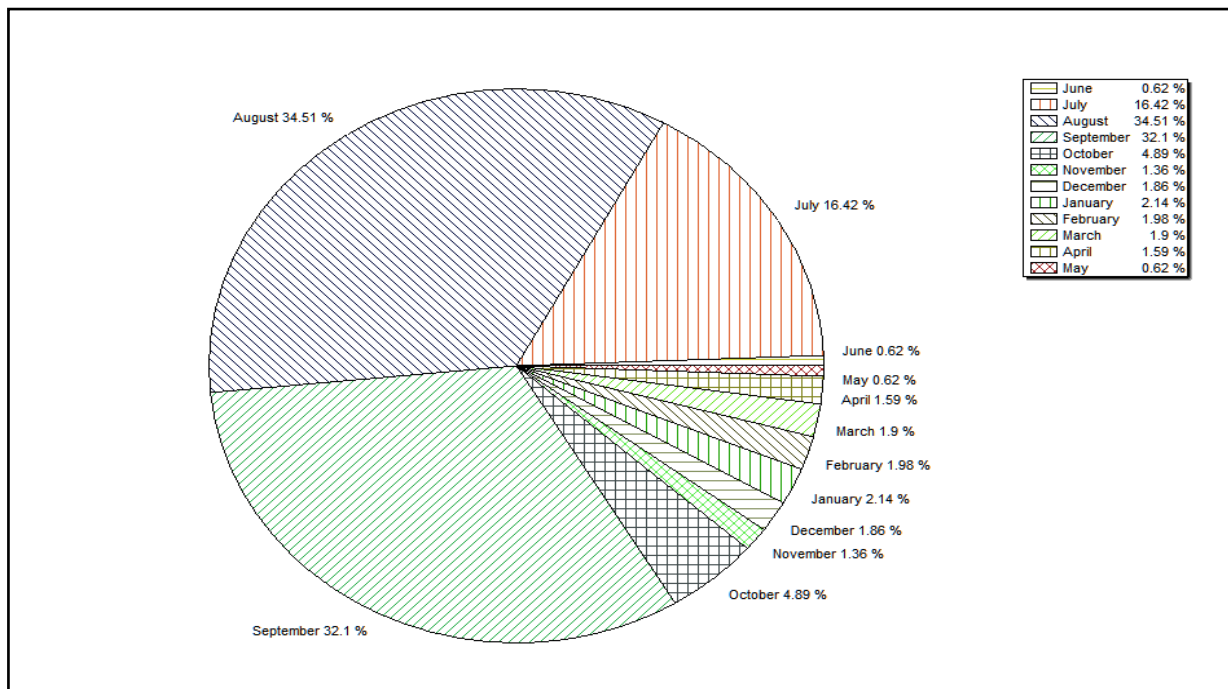
Station Name : Mahi at Paderdibadi (01 02 13 006)
Local River : Mahi

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

Monthly Average Runoff based on period : 1978-2017



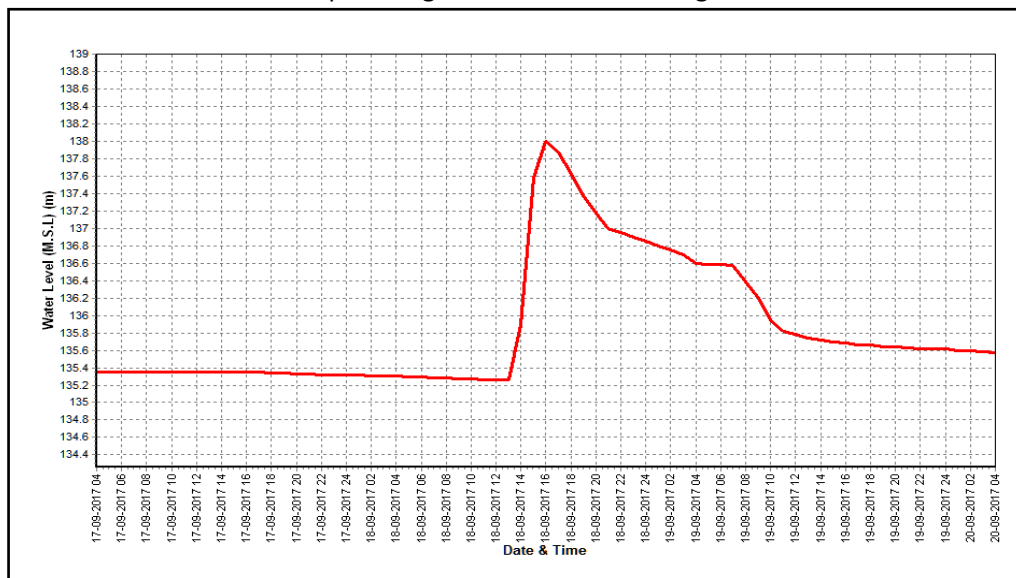
Monthly Runoff for the Year : 2017-2018



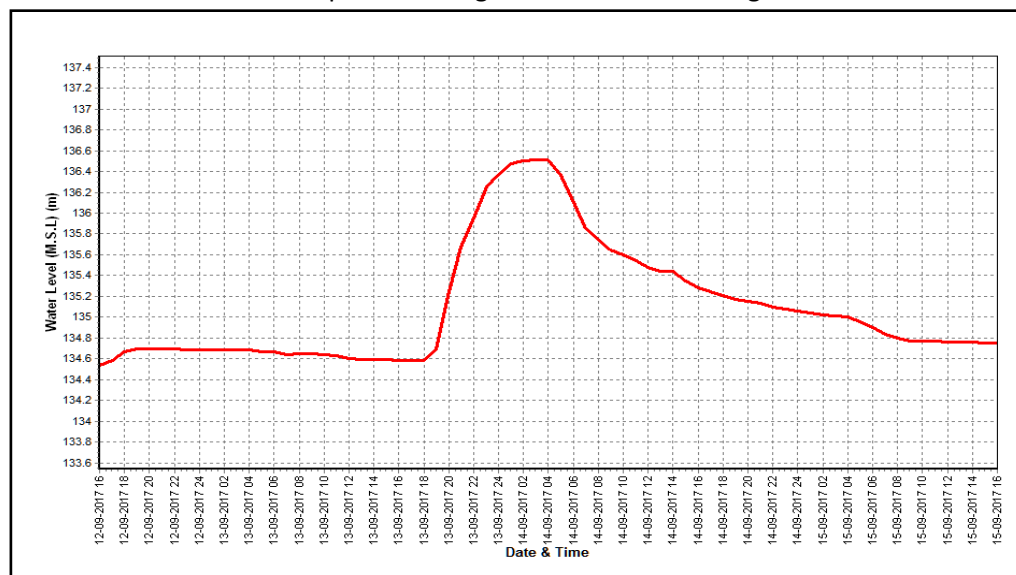
Station Name : Mahi at Paderdibadi (01 02 13 006)
Local River : Mahi

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

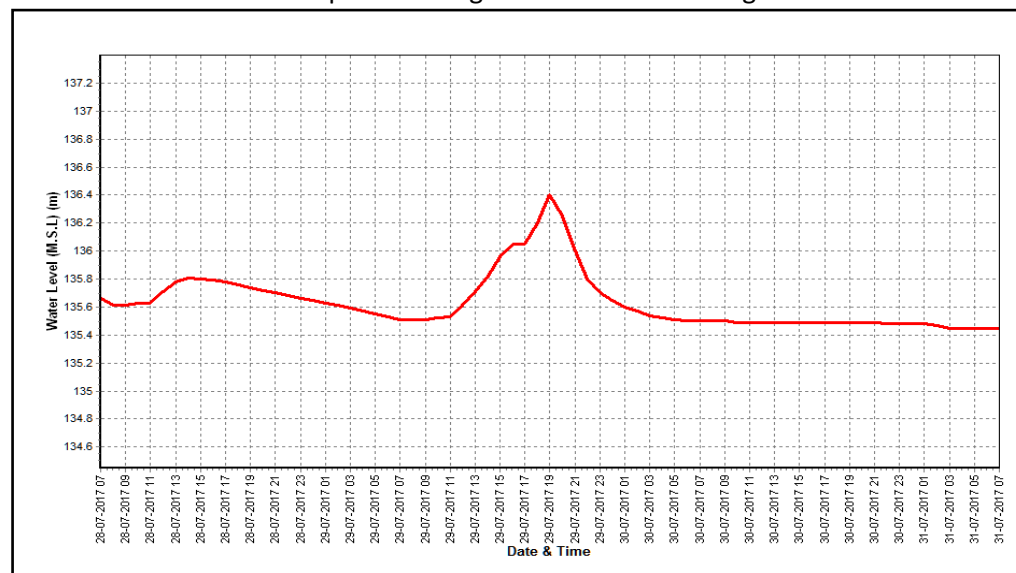
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Som at Rangeli

Code : 01 02 13 005

State : Rajasthan

District : Dungarpur

Basin : Mahi

Independent River : Mahi

Tributary : Som

Sub Tributary :

Sub-Sub Tributary :

Local River : Som

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

Drainage Area : 8329 Sq. Km.

Bank : Right

Latitude : 23°52'22" N

Longitude : 74°13'25" E

Zero of Gauge (m) : 150 (m.s.l)

01/01/1978 -

Opening Date

Closing Date

Gauge : 15/07/1978

Discharge : 15/07/1978

Sediment : -

Water

Quality : 01/07/1988

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1979-1980	205.0	152.650	11/08/1979	0.000	River Dry	27/05/1980
1980-1981	707.1	154.350	24/06/1980	0.000	River Dry	13/06/1980
1981-1982	560.0	154.310	10/07/1981	0.000	River Dry	24/06/1981
1982-1983	664.4	153.990	23/08/1982	0.000	151.545	05/06/1982
1983-1984	715.0	154.550	16/08/1983	0.000	River Dry	08/06/1983
1984-1985	1020	155.405	20/08/1984	0.000	151.510	06/06/1984
1985-1986	444.3	154.075	05/08/1985	0.000	151.375	13/04/1986
1986-1987	958.6	155.190	16/08/1986	0.000	River Dry	16/06/1986
1987-1988	720.0	153.900	26/08/1987	0.000	151.510	14/08/1987
1988-1989	1261	155.400	06/08/1988	0.100	151.460	31/05/1989
1989-1990	401.3	153.945	29/08/1989	0.063	151.435	13/06/1989
1990-1991	920.3	155.095	24/08/1990	2.040	151.715	25/05/1991
1991-1992	1984	155.609	31/07/1991	1.025	151.551	11/07/1991
1992-1993	233.0	153.475	09/09/1992	1.065	151.515	10/07/1992
1993-1994	978.9	154.910	18/07/1993	0.288	151.490	14/06/1993
1994-1995	3072	156.800	02/08/1994	1.000	151.550	09/06/1994
1995-1996	83.50	152.490	26/07/1995	0.000	151.050	30/05/1996

1996-1997	269.0	153.925	08/09/1996	0.000	River Dry	19/06/1996
1997-1998	147.0	152.945	08/09/1997	0.000	150.970	23/06/1997
1998-1999	77.72	152.105	24/09/1998	0.000	151.070	17/05/1999
1999-2000	268.6	153.360	19/07/1999	0.000	151.065	25/04/2000
2000-2001	58.50	152.230	13/07/2000	0.000	River Dry	19/06/2000
2001-2002	118.0	152.125	12/07/2001	0.000	River Dry	09/06/2001
2002-2003	215.2	152.420	04/09/2002	0.000	River Dry	25/12/2002
2003-2004	98.71	152.240	20/09/2003	0.000	151.030	26/03/2004
2004-2005	412.8	154.250	24/08/2004	0.000	151.020	29/05/2005
2005-2006	905.3	155.480	28/07/2005	0.810	151.240	30/04/2006
2006-2007	5179	158.240	19/08/2006	0.000	River Dry	01/06/2006
2007-2008	187.5	153.315	30/08/2007	0.000	151.110	01/06/2007
2008-2009	228.7	153.370	11/07/2008	0.000	151.100	16/05/2009
2009-2010	331.3	153.725	23/07/2009	0.476	151.270	09/07/2009
2010-2011	284.6	153.750	10/09/2010	0.083	151.250	30/04/2011
2011-2012	1195.0	156.650	11/09/2011	0.000	River Dry	22/06/2012
2012-2013	344.8	153.900	08/09/2012	0.000	151.080	01/06/2012
2013-2014	1128	153.805	30/09/2013	0.241	151.260	01/06/2013
2014-2015	1717	154.760	10/09/2014	0.000	151.210	01/06/2014
2015-2016	473.1	154.100	30/07/2015	0.000	151.090	27/04/2016
2016-2017	598.5	154.800	21/08/2016	0.000	151.010	01/06/2016
2017-2018	162.9	154.435	21/08/2017	0.948	151.380	13/07/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Som at Rangeli (01 02 13 005)

Division : Mahi Division, Gandhinagar

Local River : Som

Sub-Division : Mahi Sub Divn., Kadana

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	151.250	0.000	151.550	6.785	153.200	129.5 *	153.250	135.2 *	151.930	22.59 *	151.530	5.610 *
2	151.250	0.000	151.520	5.310 *	152.880	93.88 *	153.280	138.6 *	151.920	22.05 *	151.750	13.78 *
3	151.240	0.000	151.520	6.407	152.860	90.97 *	153.200	129.5 *	152.150	35.71 *	151.650	9.690 *
4	151.240	0.000	151.510	6.358	152.830	88.09 *	152.950	125.6	152.310	46.78 *	151.600	7.880 *
5	151.240	0.000	151.480	4.341	152.800	74.30 *	152.940	101.8 *	152.280	44.61 *	151.580	7.200 *
6	151.250	0.000	151.480	4.341	152.650	61.51 *	152.850	92.90 *	151.880	19.96 *	151.550	6.220 *
7	151.260	0.000	151.480	4.341	152.500	48.25 *	152.710	79.70 *	151.780	15.12 *	151.500	4.740 *
8	151.260	0.000	151.450	3.686	152.330	51.25 *	152.650	74.30 *	151.750	13.78 *	151.480	4.190 *
9	151.340	0.000	151.440	3.180 *	152.370	65.66 *	152.620	71.66 *	151.700	13.62	151.450	3.420 *
10	151.340	0.000	151.410	2.315	152.550	71.66 *	152.580	68.21 *	151.700	11.66 *	151.450	3.420 *
11	151.330	0.000	151.400	1.774	152.620	71.66 *	152.210	35.89	152.300	46.05 *	151.440	3.180 *
12	151.580	7.052	151.390	1.774	152.580	68.21 *	152.200	39.03 *	152.200	39.03 *	151.440	3.180 *
13	151.500	6.358	151.380	0.948	152.480	59.88 *	152.500	61.51 *	151.800	16.04 *	151.430	2.950 *
14	151.430	3.327	151.850	13.49	152.250	39.01	152.450	57.47 *	151.740	13.34 *	151.430	2.950 *
15	151.380	0.000	152.550	67.25	152.300	46.05 *	152.480	59.88 *	151.740	13.34 *	151.420	2.720 *
16	151.360	0.000	152.300	46.05 *	152.260	43.19 *	152.550	65.66 *	151.730	12.91 *	151.420	2.720 *
17	151.330	0.000	152.000	33.71	152.365	38.67	152.650	74.30 *	151.720	12.49 *	151.430	2.950 *
18	151.320	0.000	151.730	12.33	152.350	49.74 *	152.800	88.09 *	151.710	12.07 *	151.420	2.720 *
19	151.290	0.000	151.720	11.59	152.260	43.19 *	152.750	83.39 *	151.700	11.66 *	151.450	3.420 *
20	151.280	0.000	151.650	11.39	152.300	46.05 *	152.650	74.30 *	151.690	11.25 *	151.480	4.190 *
21	151.280	0.000	151.780	12.70	153.435	162.9	152.560	66.50 *	151.690	11.25 *	151.500	4.740 *
22	151.280	0.000	152.150	37.03	153.350	146.8 *	152.500	62.51 *	151.680	10.85 *	151.500	4.740 *
23	151.600	7.579	152.550	65.66 *	152.840	91.93 *	152.450	57.47 *	151.670	13.45	151.500	4.740 *
24	151.660	10.01	152.730	68.11	152.680	76.98 *	152.250	42.48 *	151.660	10.07 *	151.500	4.740 *
25	151.570	6.870 *	152.780	72.05	152.650	74.30 *	152.035	32.20	151.640	9.320 *	151.500	4.740 *
26	151.480	4.190 *	153.100	122.1	153.030	111.1 *	151.970	24.78 *	151.630	8.950 *	151.500	4.740 *
27	151.440	3.327	153.150	124.1	152.980	105.9 *	152.400	53.55 *	151.620	8.580 *	151.500	4.740 *
28	151.800	12.48	153.300	136.1	153.160	152.3	152.380	52.01 *	151.590	7.530 *	151.520	5.310 *
29	151.680	11.05	153.520	153.1	153.050	113.2 *	152.100	32.51 *	151.580	7.200 *	151.520	5.310 *
30	151.580	7.052	153.630	181.3 *	153.030	111.1 *	151.940	23.13 *	151.550	10.01	151.540	5.910 *
31			153.450	144.9	153.050	113.2 *			151.540	5.910 *		
<u>Ten-Daily Mean</u>												
I Ten-Daily	151.267	0.000	151.484	4.706	152.697	77.51	152.903	101.8	151.940	24.59	151.554	6.615
II Ten-Daily	151.380	1.674	151.797	20.03	152.376	50.56	152.524	63.95	151.833	18.82	151.436	3.098
III Ten-Daily	151.537	6.255	152.922	101.5	153.023	114.5	152.258	44.71	151.623	9.374	151.508	4.971
<u>Monthly</u>												
Min.	151.240	0.000	151.380	0.948	152.250	38.67	151.940	23.13	151.540	5.910	151.420	2.720
Max.	151.800	12.48	153.630	181.3	153.435	162.9	153.280	138.6	152.310	46.78	151.750	13.78
Mean	151.395	2.643	152.095	44.01	152.709	81.95	152.562	70.14	151.793	17.33	151.499	4.895

Annual Runoff in MCM = 648 Annual Runoff in mm = 78

Peak Observed Discharge = 162.9 cumecs on 21-08-2017 Corres. Water Level :153.435 m

Lowest Observed Discharge = 0.948 cumecs on 13-07-2017 Corres. Water Level :151.38 m

River in pooling condition from 01/06/17 to 11/06/17, 15/06/17 to 22/06/17

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

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Som at Rangeli (01 02 13 005)

Division : Mahi Division, Gandhinagar

Local River : Som

Sub-Division : Mahi Sub Divn., Kadana

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	151.540	5.910 *	151.580	7.200 *	151.560	6.540 *	151.560	6.540 *	151.380	0.000	151.170	0.000
2	151.550	6.220 *	151.580	7.200 *	151.560	6.540 *	151.560	6.540 *	151.380	0.000	151.170	0.000
3	151.550	6.220 *	151.570	6.870 *	151.560	6.540 *	151.560	6.540 *	151.380	0.000	151.170	0.000
4	151.520	5.310 *	151.570	6.870 *	151.550	6.220 *	151.560	6.540 *	151.380	0.000	151.130	0.000
5	151.540	5.910 *	151.570	6.870 *	151.530	5.610 *	151.560	6.540 *	151.380	0.000	151.130	0.000
6	151.570	6.870 *	151.580	7.200 *	151.530	5.610 *	151.560	6.540 *	151.300	0.000	151.130	0.000
7	151.570	6.870 *	151.580	7.200 *	151.520	5.310 *	151.560	6.540 *	151.300	0.000	151.130	0.000
8	151.570	6.870 *	151.600	7.880 *	151.590	7.530 *	151.560	6.540 *	151.300	0.000	151.130	0.000
9	151.580	7.200 *	151.600	7.880 *	151.550	6.220 *	151.560	6.540 *	151.280	0.000	151.130	0.000
10	151.580	7.200 *	151.580	7.200 *	151.550	6.220 *	151.560	6.540 *	151.280	0.000	151.110	0.000
11	151.580	7.200 *	151.580	7.200 *	151.550	6.220 *	151.550	6.220 *	151.280	0.000	151.110	0.000
12	151.560	6.540 *	151.570	6.870 *	151.550	6.220 *	151.550	6.220 *	151.270	0.000	151.110	0.000
13	151.550	6.220 *	151.570	6.870 *	151.500	4.740 *	151.550	6.220 *	151.270	0.000	151.110	0.000
14	151.550	6.220 *	151.570	6.870 *	151.550	6.220 *	151.540	5.910 *	151.270	0.000	151.110	0.000
15	151.550	6.220 *	151.570	6.870 *	151.550	6.220 *	151.540	5.910 *	151.270	0.000	151.110	0.000
16	151.550	6.220 *	151.570	6.870 *	151.560	6.540 *	151.540	5.910 *	151.270	0.000	151.110	0.000
17	151.550	6.220 *	151.560	6.540 *	151.560	6.540 *	151.500	4.740 *	151.300	0.000	151.100	0.000
18	151.550	6.220 *	151.560	6.540 *	151.560	6.540 *	151.500	4.740 *	151.300	0.000	151.100	0.000
19	151.550	6.220 *	151.580	7.200 *	151.560	6.540 *	151.500	4.740 *	151.260	0.000	151.100	0.000
20	151.560	6.540 *	151.540	5.910 *	151.550	6.220 *	151.400	2.290 *	151.260	0.000	151.100	0.000
21	151.560	6.540 *	151.550	6.220 *	151.550	6.220 *	151.400	2.290 *	151.260	0.000	151.100	0.000
22	151.560	6.540 *	151.550	6.220 *	151.550	6.220 *	151.400	2.290 *	151.170	0.000	151.100	0.000
23	151.550	6.220 *	151.550	6.220 *	151.550	6.220 *	151.380	1.890 *	151.170	0.000	151.080	0.000
24	151.550	6.220 *	151.560	6.540 *	151.550	6.220 *	151.380	1.890 *	151.170	0.000	151.080	0.000
25	151.550	6.220 *	151.560	6.540 *	151.550	6.220 *	151.380	1.890 *	151.130	0.000	151.060	0.000
26	151.550	6.220 *	151.560	6.540 *	151.550	6.220 *	151.380	1.890 *	151.130	0.000	151.060	0.000
27	151.550	6.220 *	151.560	6.540 *	151.560	6.540 *	151.400	2.290 *	151.130	0.000	151.060	0.000
28	151.570	6.870 *	151.580	7.200 *	151.560	6.540 *	151.400	2.290 *	151.130	0.000	151.060	0.000
29	151.570	6.870 *	151.580	7.200 *			151.400	2.290 *	151.170	0.000	151.060	0.000
30	151.580	7.200 *	151.600	7.880 *			151.400	2.290 *	151.170	0.000	151.060	0.000
31	151.580	7.200 *	151.600	7.880 *			151.400	2.290 *			151.060	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	151.557	6.458	151.581	7.237	151.550	6.234	151.560	6.540	151.336	0.000	151.140	0.000
II Ten-Daily	151.555	6.382	151.567	6.774	151.549	6.200	151.517	5.290	151.275	0.000	151.106	0.000
III Ten-Daily	151.561	6.575	151.568	6.816	151.552	6.300	151.393	2.145	151.163	0.000	151.071	0.000
<u>Monthly</u>												
Min.	151.520	5.310	151.540	5.910	151.500	4.740	151.380	1.890	151.130	0.000	151.060	0.000
Max.	151.580	7.200	151.600	7.880	151.590	7.530	151.560	6.540	151.380	0.000	151.170	0.000
Mean	151.558	6.475	151.572	6.938	151.550	6.241	151.487	4.577	151.258	0.000	151.105	0.000

Peak Computed Discharge = 181.3 cumecs on 30-07-2017

Corres. Water Level :153.63 m

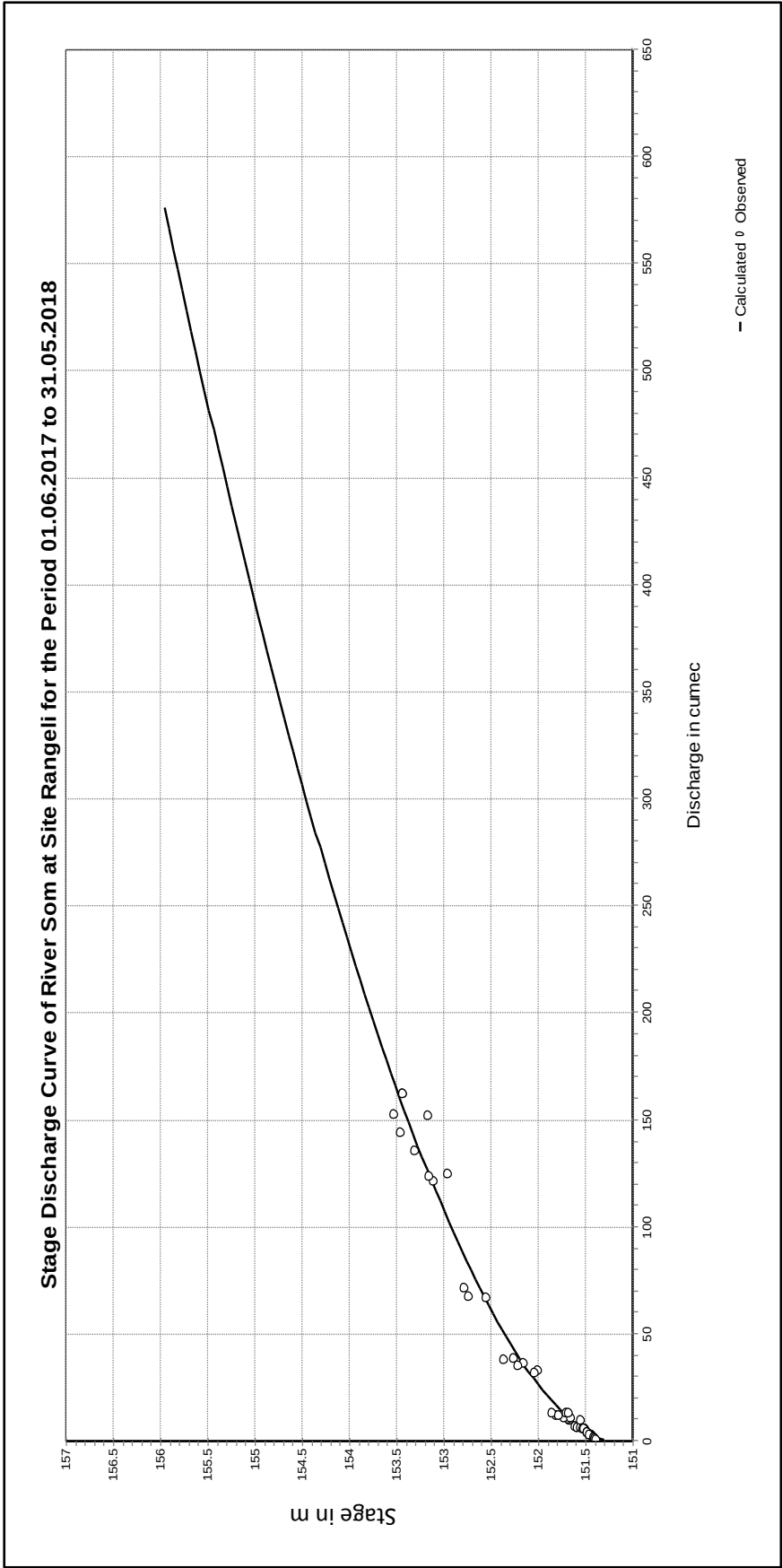
Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

Corres. Water Level :151.25 m

River in pooling condition from 01/04/18 to 31/05/18

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

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
151.300	156.000	-151.21	1.718	39.713

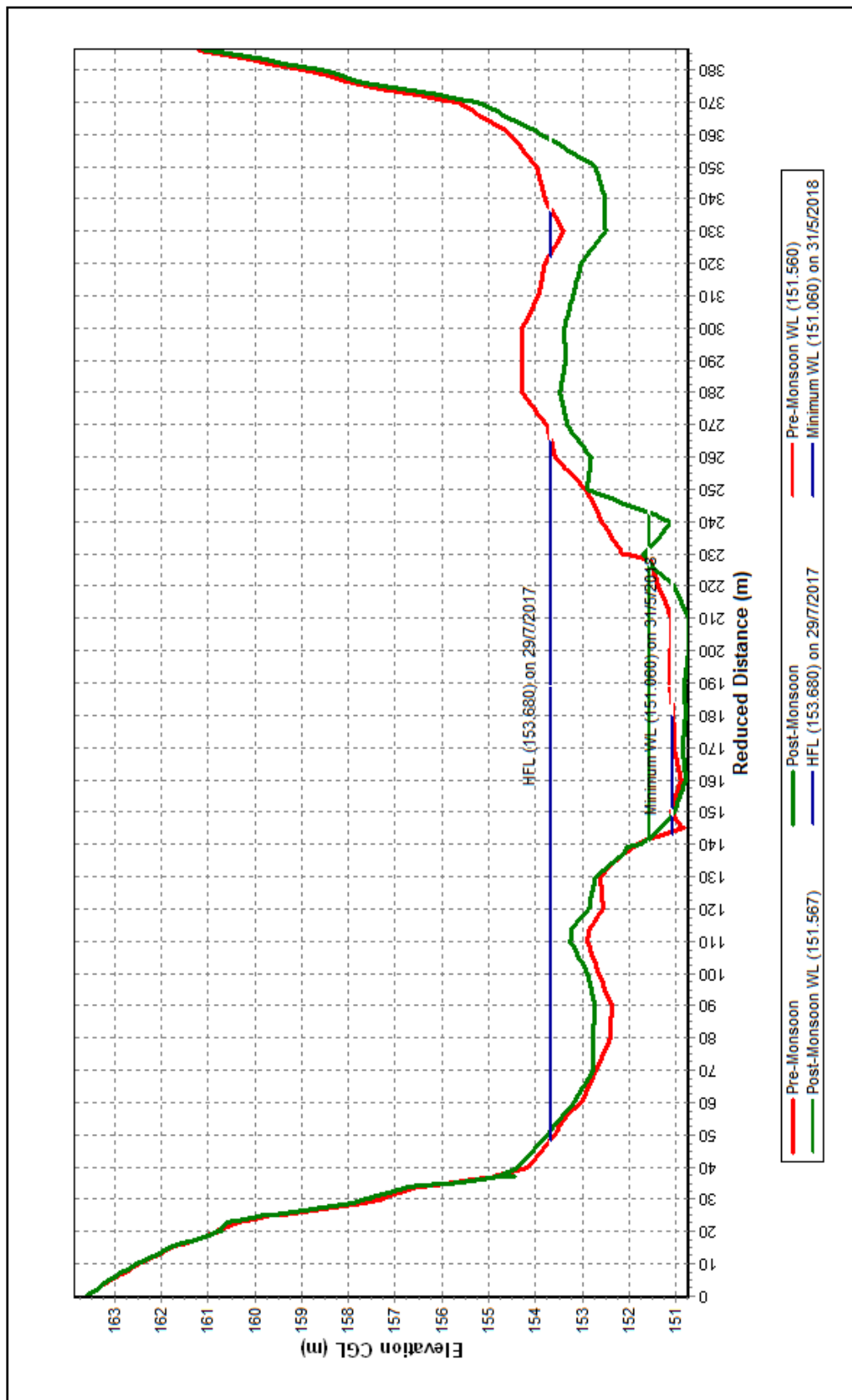
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Som at Rangeli (01 02 13 005)

Local River : Som

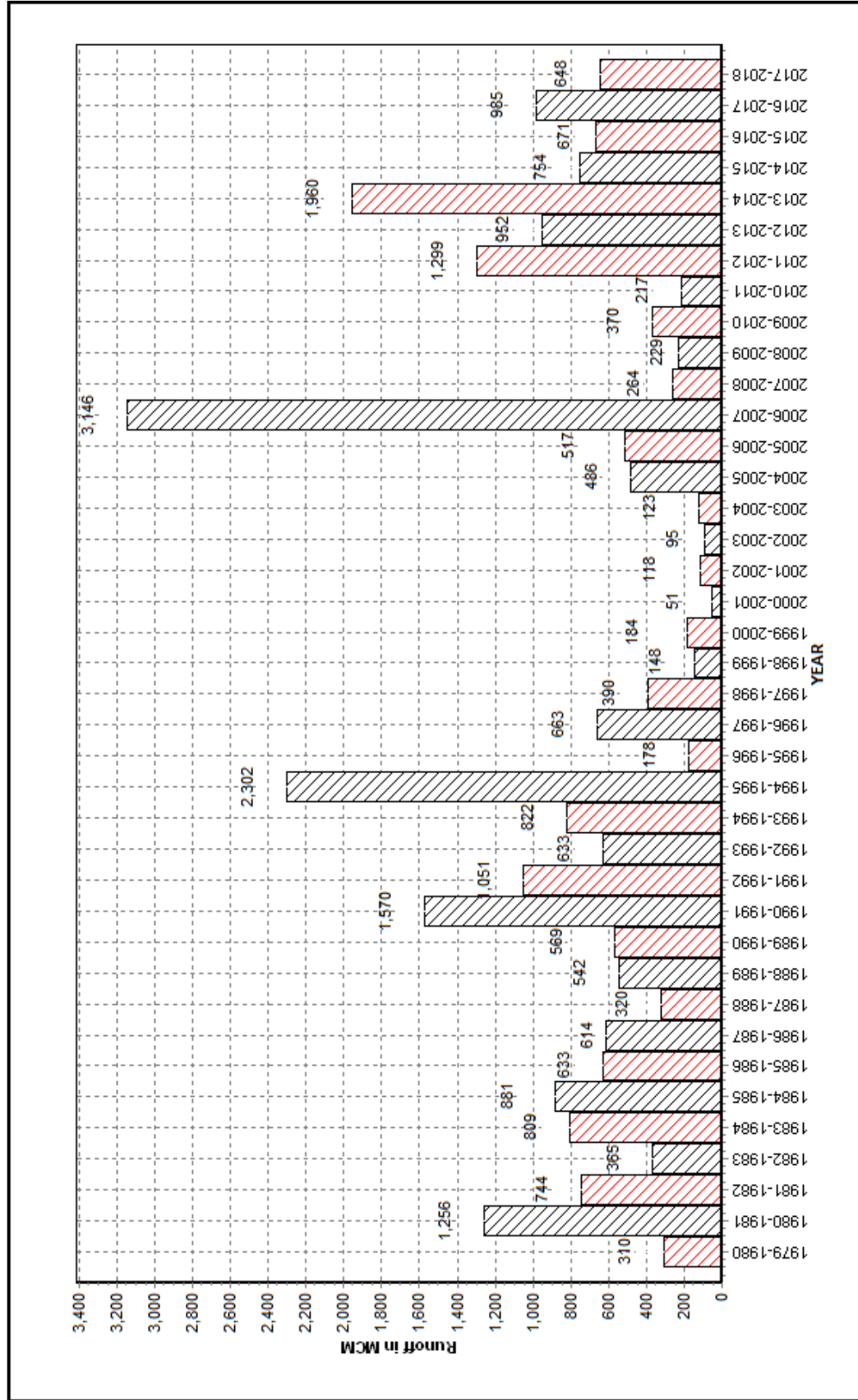
Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana



Historical Flood level - 160.86 m on 19.08.2006 at 1700 hrs

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2017-18

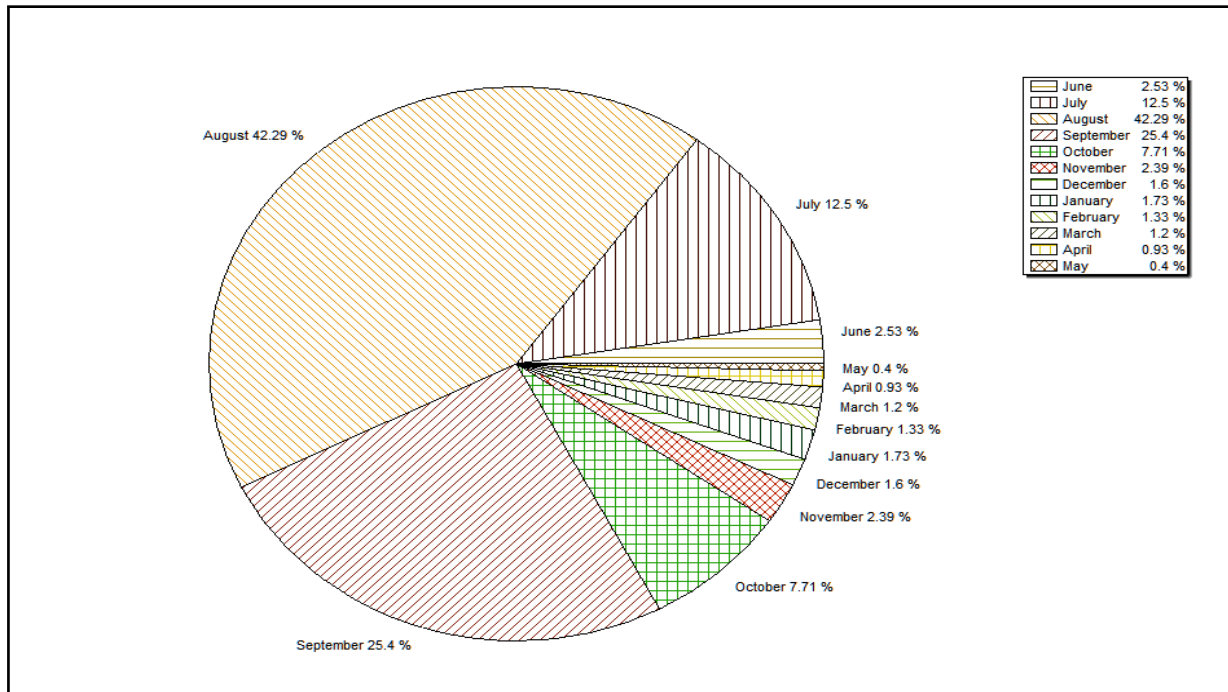


Note: Missing values have not been considered while arriving at Annual Runoff

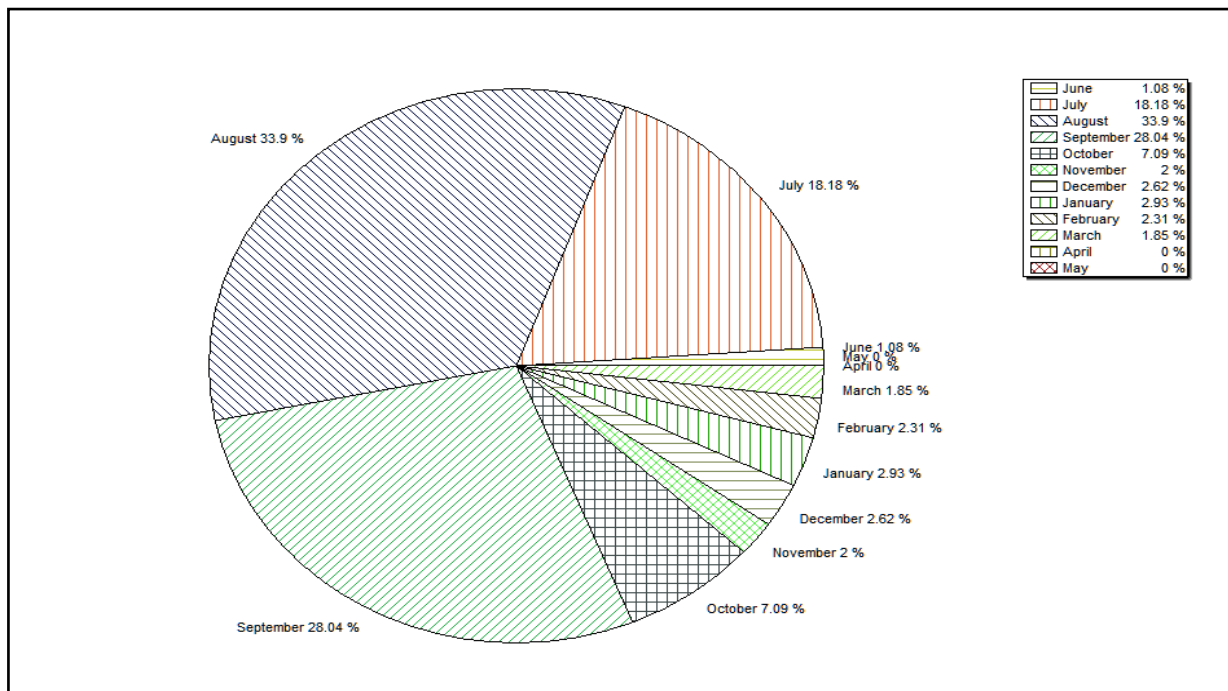
Station Name : Som at Rangeli (01 02 13 005)
Local River : Som

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

Monthly Average Runoff based on period : 1979-2017



Monthly Runoff for the Year : 2017-2018



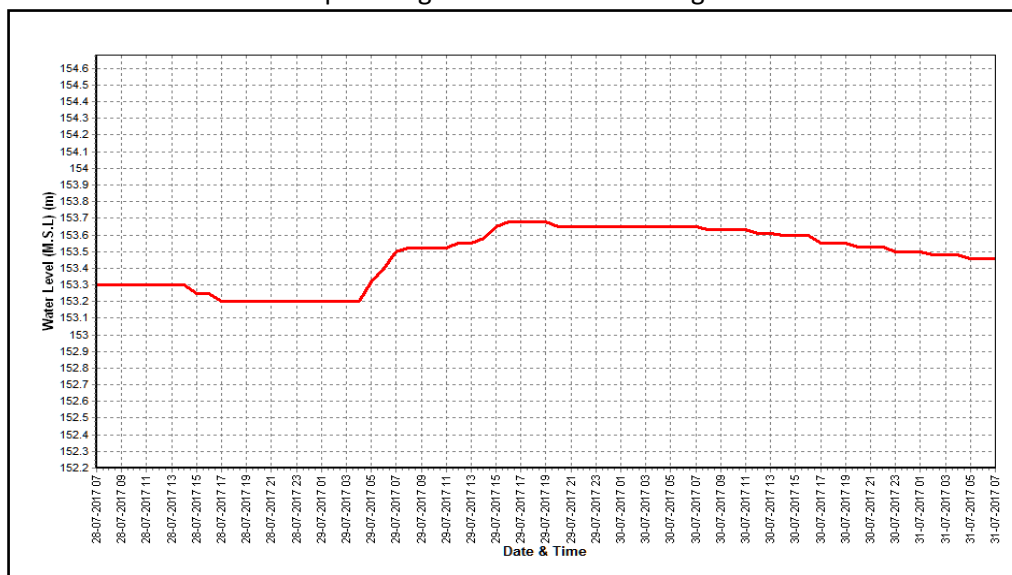
Station Name : Som at Rangeli (01 02 13 005)

Local River : Som

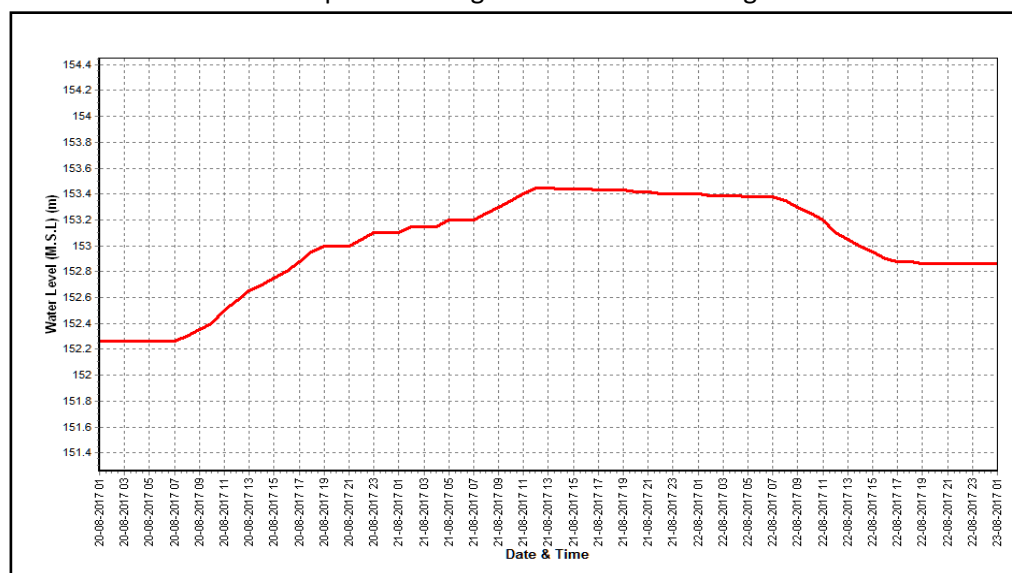
Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

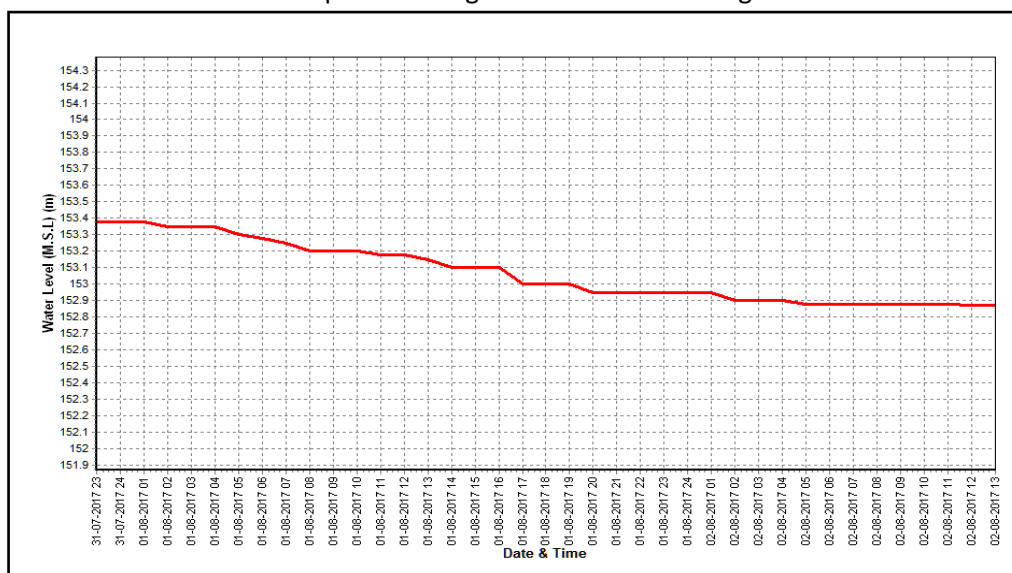
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Jakham at Dhariawad

State : Rajasthan

Code : 01 02 13 004

District : Udaipur

Independent

Basin : Mahi

Tributary : Jakham

Sub-Sub

River : Mahi

Sub Tributary :

Tributary :

Local River : Jakham

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

Drainage Area : 1510 Sq. Km.

Bank : Right

Latitude : 24°04'43" N

Longitude : 74°28'02" E

Zero of Gauge

(m) : 203 (m.s.l)

17/07/1984

-

Opening Date

Closing Date

Gauge : 17/07/1984

Discharge : 01/06/1988

Sediment : -

Water Quality : -

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1988-1989	219.3	204.080	05/08/1988	0.000	River Dry	01/04/1989
1989-1990	Data not published					
1990-1991	484.2	206.300	07/09/1990	0.000	River Dry	23/05/1991
1991-1992	278.9	205.460	25/08/1991	0.000	203.170	11/12/1991
1992-1993	25.47	204.650	17/08/1992	0.060	203.120	08/06/1992
1993-1994	210.2	203.890	16/08/1993	0.040	203.120	06/06/1993
1994-1995	281.7	206.600	03/09/1994	0.000	203.250	11/06/1994
1995-1996	21.58	204.250	25/07/1995	0.000	203.270	25/02/1996
1996-1997	295.1	205.980	16/09/1996	0.000	203.100	16/06/1996
1997-1998	41.00	204.525	10/09/1997	0.000	203.190	05/07/1997
1998-1999	12.37	204.030	18/10/1998	0.000	203.240	07/04/1999
1999-2000	51.60	204.440	31/07/1999	0.000	203.140	17/05/2000
2000-2001	265.4	205.780	21/07/2000	0.000	203.180	25/01/2001
2001-2002	16.10	204.100	08/07/2001	0.000	River Dry	06/06/2001
2002-2003	64.41	204.560	06/09/2002	0.000	203.200	24/12/2002
2003-2004	17.25	204.400	25/09/2003	0.000	203.190	07/04/2004
2004-2005	682.4	207.350	24/08/2004	0.000	203.300	02/04/2005
2005-2006	939.8	207.600	28/07/2005	0.582	203.360	05/09/2005
2006-2007	1980	209.350	11/08/2006	0.285	203.360	12/12/2006
2007-2008	198.1	205.450	21/08/2007	0.000	203.280	01/06/2007
2008-2009	533.5	206.590	11/07/2008	0.410	203.380	12/06/2008
2009-2010	396.7	206.500	23/07/2009	0.498	203.370	20/10/2009
2010-2011	397.8	206.450	10/09/2010	0.658	203.390	03/03/2011
2011-2012	1296.7	208.000	12/09/2011	0.000	203.350	15/04/2012
2012-2013	211.1	205.500	16/08/2012	0.000	River Dry	01/06/2012
2013-2014	331.7	206.3	14/08/2013	0.000	203.29	01/06/2013
2014-2015	24.37	204.16	12/09/2014	0.000	203.34	01/06/2014
2015-2016	491.3	206.8	26/07/2015	0.000	203.35	16/06/2015
2016-2017	1038	208.000	22/08/2016	0.000	203.360	01/06/2016
2017-2018	132.9	204.970	29/08/2017	0.121	203.370	23/06/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Jakham at Dhariawad (01 02 13 004)

Division : Mahi Division, Gandhinagar

Local River : Jakham

Sub-Division : Mahi Sub Divn., Kadana

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	203.260	0.000	203.380	0.000	204.850	110.4	204.800	107.0 #	203.890	11.98 *	203.400	0.420 *
2	203.400	0.420 *	203.350	0.000	204.660	89.55	204.580	72.98 *	203.870	11.09 *	203.390	0.360 *
3	203.650	3.860 *	203.340	0.000	204.590	80.74	204.410	51.90 *	203.840	8.412	203.390	0.360 *
4	203.600	2.820 *	203.330	0.000	204.560	74.30	204.330	43.46 #	203.830	8.080	203.380	0.310 *
5	203.400	0.407	203.320	0.000	204.500	67.67	204.240	17.88	203.800	7.708	203.380	0.310 *
6	203.380	0.135	203.320	0.000	204.480	60.06 *	204.160	28.34	203.770	7.461	203.380	0.310 *
7	203.360	0.000	203.310	0.000	204.400	59.74	204.340	44.25	203.750	7.192	203.380	0.310 *
8	203.340	0.000	203.310	0.000	204.360	46.09	204.300	40.52 #	203.730	5.970 *	203.380	0.310 *
9	203.340	0.000	203.300	0.000	204.300	42.72	204.250	35.27	203.700	4.341	203.380	0.310 *
10	203.390	0.000	203.300	0.000	204.250	37.59	204.200	33.00	203.690	4.323	203.390	0.360 *
11	203.470	0.000	203.290	0.000	204.220	32.95	204.200	33.00	203.680	4.275	203.390	0.360 *
12	203.380	0.000	203.750	6.590 #	204.240	36.82	204.180	30.19	203.650	3.975	203.400	0.420 *
13	203.360	0.000	203.500	1.122	204.260	36.80 *	204.150	27.79	203.640	3.947	203.400	0.420 *
14	203.350	0.000	204.450	52.92	204.310	41.29	204.130	25.25	203.630	3.801	203.400	0.420 *
15	203.350	0.000	203.930	9.235	204.290	39.57 *	204.120	26.62	203.630	3.420 *	203.400	0.420 *
16	203.340	0.000	203.650	3.860 *	204.260	38.76	204.270	40.95	203.620	3.396	203.430	0.620 *
17	203.340	0.000	203.520	1.138	204.200	36.30	204.300	40.52 *	203.610	3.278	203.450	0.780 *
18	203.330	0.000	203.490	1.090	204.160	27.52	204.380	55.92	203.610	3.267	203.450	0.780 *
19	203.330	0.000	203.460	0.997	204.100	23.58	204.350	52.46	203.600	2.820 *	203.460	0.870 *
20	203.320	0.000	203.500	1.164	204.450	56.47 *	204.250	39.42	203.600	3.108	203.460	0.870 *
21	203.320	0.000	203.880	8.208	204.360	52.93	204.210	35.65	203.590	3.060	203.460	0.870 *
22	203.670	3.812	203.760	4.356	204.400	52.78	204.240	37.85	203.590	2.630 *	203.470	0.970 *
23	203.370	0.121	204.250	6.910 #	204.320	42.65	204.180	29.68	203.550	1.822	203.470	0.970 *
24	203.350	0.000	204.160	35.91	204.230	34.99	204.120	25.45 *	203.540	1.760	203.480	1.070 *
25	203.340	0.000	204.180	30.37	204.300	40.01	203.520	1.578	203.520	1.589	203.480	1.070 *
26	203.340	0.000	204.370	51.65	204.440	59.47	203.510	1.534	203.510	1.542	203.490	1.180 *
27	203.640	3.640 #	204.180	32.84	204.750	98.57 *	204.000	13.20	203.500	1.460	203.500	1.290 *
28	203.520	1.072	204.080	21.09	204.760	92.12	203.980	11.69	203.450	1.060	203.500	1.290 *
29	203.410	0.567	204.890	123.8	204.970	132.9	203.940	10.62	203.420	0.550 *	203.510	1.410 *
30	203.340	0.000	204.810	108.7 *	204.840	113.4	203.910	12.92 *	203.400	0.843	203.520	1.540 *
31			204.890	123.9	203.400	0.831			203.400	0.831		
<u>Ten-Daily Mean</u>												
I Ten-Daily	203.412	0.764	203.326	0.000	204.495	66.89	204.361	47.46	203.787	7.656	203.385	0.336
II Ten-Daily	203.357	0.000	203.654	7.811	204.249	37.01	204.233	37.21	203.627	3.529	203.424	0.596
III Ten-Daily	203.430	0.921	204.314	49.80	204.434	65.51	203.961	18.02	203.497	1.559	203.488	1.166
<u>Monthly</u>												
Min.	203.260	0.000	203.290	0.000	203.400	0.831	203.510	1.534	203.400	0.550	203.380	0.310
Max.	203.670	3.860	204.890	123.9	204.970	132.9	204.800	107.0	203.890	11.98	203.520	1.540
Mean	203.400	0.562	203.782	20.19	204.394	56.76	204.185	34.23	203.633	4.161	203.432	0.699

Annual Runoff in MCM = 331 Annual Runoff in mm = 219

Peak Observed Discharge = 132.9 cumecs on 29-08-2017

Corres. Water Level :204.97 m

Lowest Observed Discharge = 0.121 cumecs on 23-06-2017

Corres. Water Level :203.37 m

River in Pooling condition from 01/06/17, 07/06/17 to 21/07/17, 24/06/17 to 26/06/17, 30/6/17 to 11/07/17

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Jakham at Dhariawad (01 02 13 004)

Division : Mahi Division, Gandhinagar

Local River : Jakham

Sub-Division : Mahi Sub Divn., Kadana

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	203.520	1.540 *	203.570	2.280 *	203.580	2.460 *	203.620	3.210 *	203.410	0.480 *	203.350	0.000
2	203.520	1.540 *	203.570	2.280 *	203.580	2.460 *	203.620	3.210 *	203.400	0.000	203.350	0.000
3	203.510	1.410 *	203.580	2.460 *	203.600	2.820 *	203.620	3.210 *	203.400	0.000	203.350	0.000
4	203.500	1.290 *	203.580	2.460 *	203.600	2.820 *	203.610	3.010 *	203.400	0.000	203.350	0.000
5	203.500	1.290 *	203.570	2.280 *	203.600	2.820 *	203.600	2.820 *	203.400	0.000	203.340	0.000
6	203.490	1.180 *	203.570	2.280 *	203.610	3.010 *	203.600	2.820 *	203.400	0.000	203.340	0.000
7	203.490	1.180 *	203.570	2.280 *	203.610	3.010 *	203.590	2.630 *	203.400	0.000	203.340	0.000
8	203.480	1.070 *	203.560	2.120 *	203.620	3.210 *	203.580	2.460 *	203.400	0.000	203.340	0.000
9	203.480	1.070 *	203.560	2.120 *	203.620	3.210 *	203.570	2.280 *	203.400	0.000	203.340	0.000
10	203.480	1.070 *	203.550	1.970 *	203.610	3.010 *	203.560	2.120 *	203.400	0.000	203.340	0.000
11	203.480	1.070 *	203.550	1.970 *	203.600	2.820 *	203.550	1.970 *	203.380	0.000	203.340	0.000
12	203.480	1.070 *	203.550	1.970 *	203.600	2.820 *	203.540	1.820 *	203.380	0.000	203.340	0.000
13	203.490	1.180 *	203.550	1.970 *	203.600	2.820 *	203.530	1.680 *	203.370	0.000	203.340	0.000
14	203.500	1.290 *	203.560	2.120 *	203.600	2.820 *	203.520	1.540 *	203.370	0.000	203.340	0.000
15	203.500	1.290 *	203.560	2.120 *	203.600	2.820 *	203.510	1.410 *	203.370	0.000	203.330	0.000
16	203.510	1.410 *	203.560	2.120 *	203.610	3.010 *	203.510	1.410 *	203.370	0.000	203.330	0.000
17	203.510	1.410 *	203.570	2.280 *	203.620	3.210 *	203.500	1.290 *	203.370	0.000	203.330	0.000
18	203.520	1.540 *	203.570	2.280 *	203.620	3.210 *	203.500	1.290 *	203.370	0.000	203.330	0.000
19	203.520	1.540 *	203.570	2.280 *	203.620	3.210 *	203.490	1.180 *	203.370	0.000	203.330	0.000
20	203.530	1.680 *	203.570	2.280 *	203.610	3.010 *	203.490	1.180 *	203.360	0.000	203.330	0.000
21	203.530	1.680 *	203.570	2.280 *	203.610	3.010 *	203.480	1.070 *	203.360	0.000	203.330	0.000
22	203.530	1.680 *	203.580	2.460 *	203.610	3.010 *	203.480	1.070 *	203.360	0.000	203.320	0.000
23	203.540	1.820 *	203.580	2.460 *	203.610	3.010 *	203.470	0.970 *	203.360	0.000	203.320	0.000
24	203.540	1.820 *	203.580	2.460 *	203.600	2.820 *	203.470	0.970 *	203.360	0.000	203.320	0.000
25	203.540	1.820 *	203.580	2.460 *	203.600	2.820 *	203.460	0.870 *	203.360	0.000	203.320	0.000
26	203.550	1.970 *	203.580	2.460 *	203.600	2.820 *	203.460	0.870 *	203.360	0.000	203.320	0.000
27	203.550	1.970 *	203.580	2.460 *	203.620	3.210 *	203.450	0.780 *	203.350	0.000	203.320	0.000
28	203.560	2.120 *	203.580	2.460 *	203.620	3.210 *	203.450	0.780 *	203.350	0.000	203.310	0.000
29	203.560	2.120 *	203.570	2.280 *			203.440	0.700 *	203.350	0.000	203.310	0.000
30	203.560	2.120 *	203.570	2.280 *			203.430	0.620 *	203.350	0.000	203.310	0.000
31	203.560	2.120 *	203.570	2.280 *			203.420	0.550 *			203.310	0.000
Ten-Daily Mean												
I Ten-Daily	203.497	1.264	203.568	2.253	203.603	2.883	203.597	2.777	203.401	0.048	203.344	0.000
II Ten-Daily	203.504	1.348	203.561	2.139	203.608	2.975	203.514	1.477	203.371	0.000	203.334	0.000
III Ten-Daily	203.547	1.931	203.576	2.395	203.609	2.989	203.455	0.841	203.356	0.000	203.317	0.000
Monthly												
Min.	203.480	1.070	203.550	1.970	203.580	2.460	203.420	0.550	203.350	0.000	203.310	0.000
Max.	203.560	2.120	203.580	2.460	203.620	3.210	203.620	3.210	203.410	0.480	203.350	0.000
Mean	203.517	1.528	203.569	2.266	203.606	2.946	203.520	1.671	203.376	0.016	203.331	0.000

Peak Computed Discharge = 108.7 cumecs on 30-07-2017

Corres. Water Level :204.81 m

Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

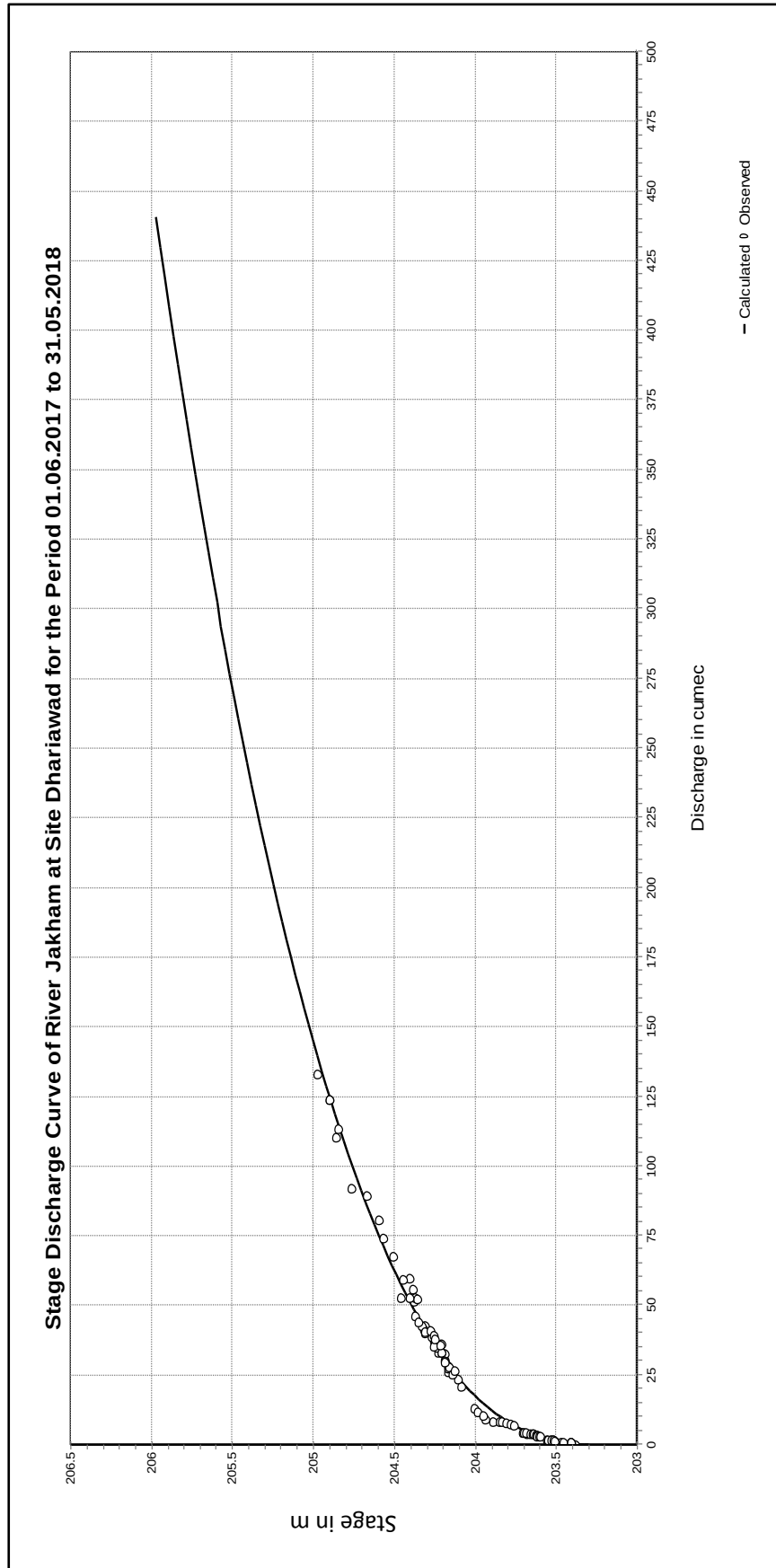
Corres. Water Level :203.26 m

River in Pooling condition from 01/04/18 to 31/05/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power

$$Q=c*(h+a)^b$$

LB	UB	a	b	c
203.300	206.000	-203.22	2.552	33.297

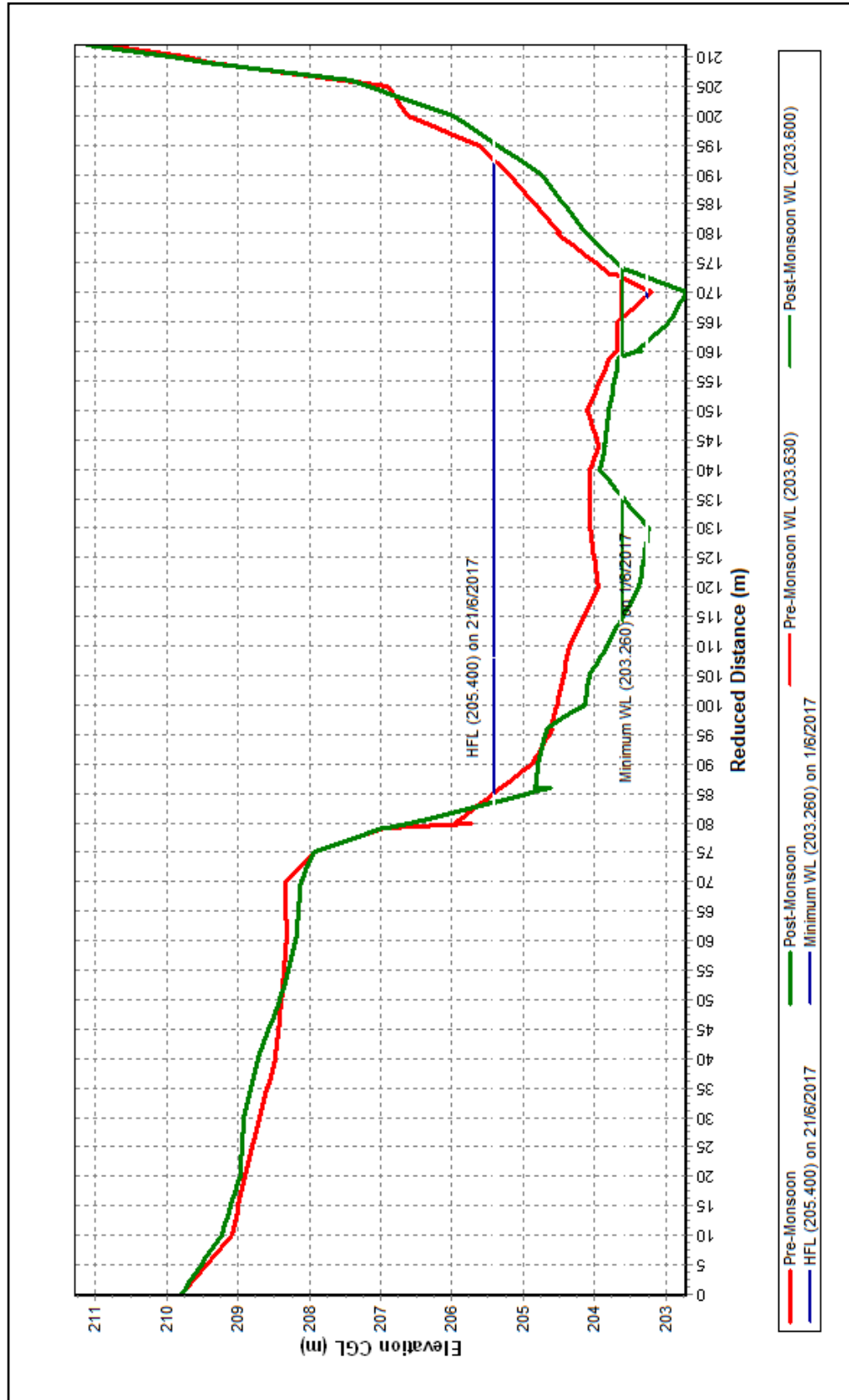
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Jakham at Dhariawad (01 02 13 004)

Local River : Jakham

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana



Highest flood level observed : 211.0 m dt 21/08/16 at 08:00 hrs

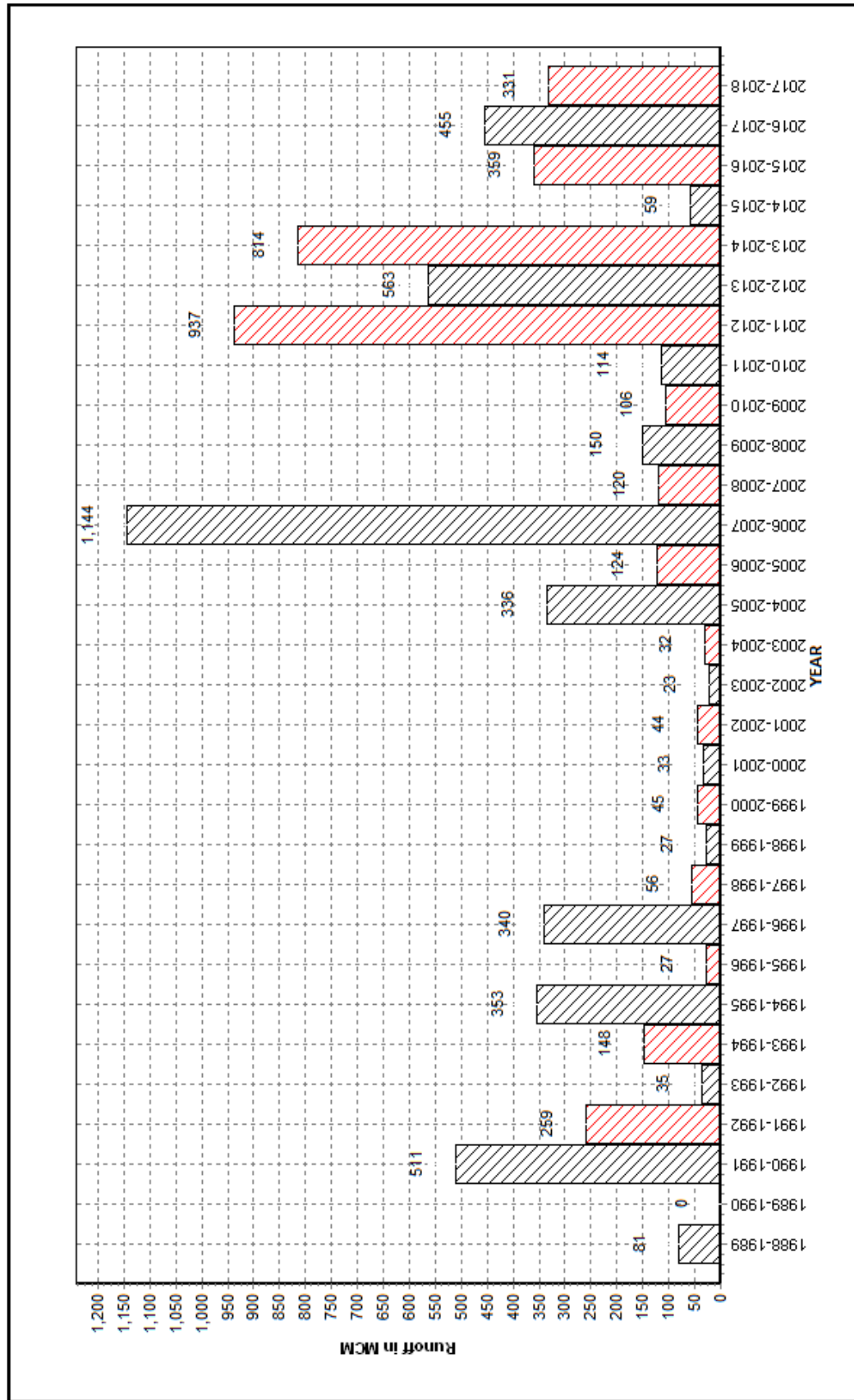
HFL in graph shows Max Water level observed during 2017-18

Station Name : Jakham at Dhariawad (01 02 13 004)

Local River : Jakham

Annual Runoff Values for the period: 1988 - 2018

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

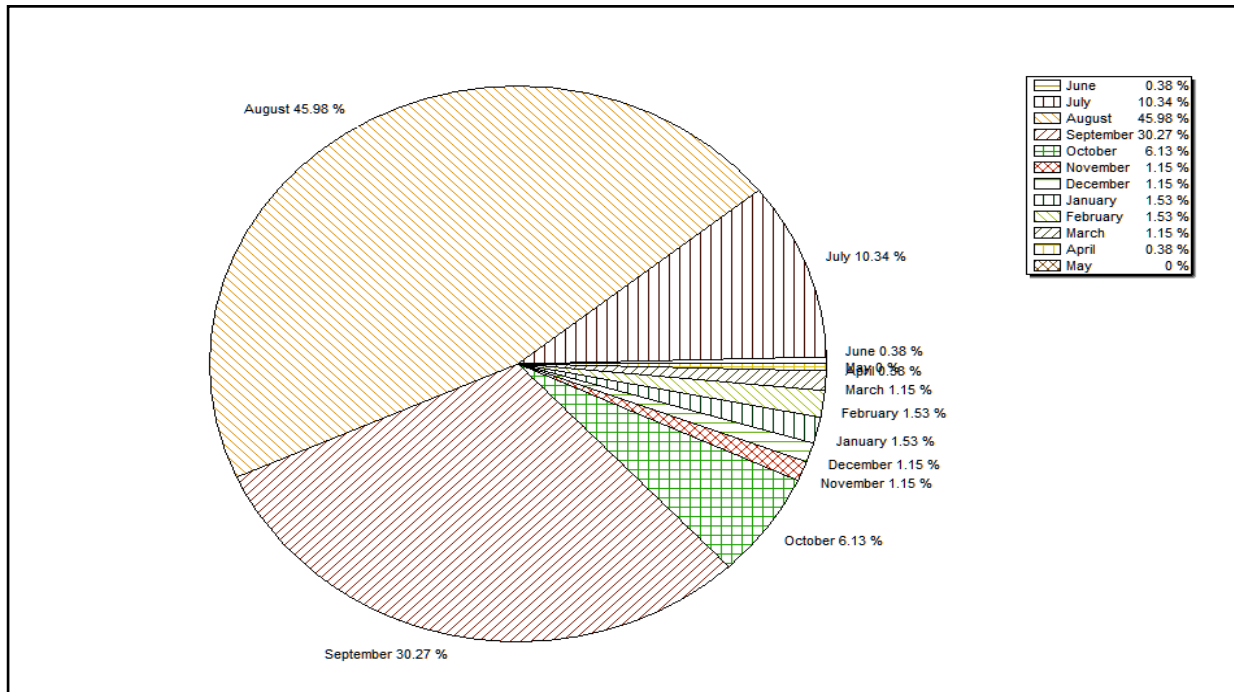


Note: Missing values have not been considered while arriving at Annual Runoff

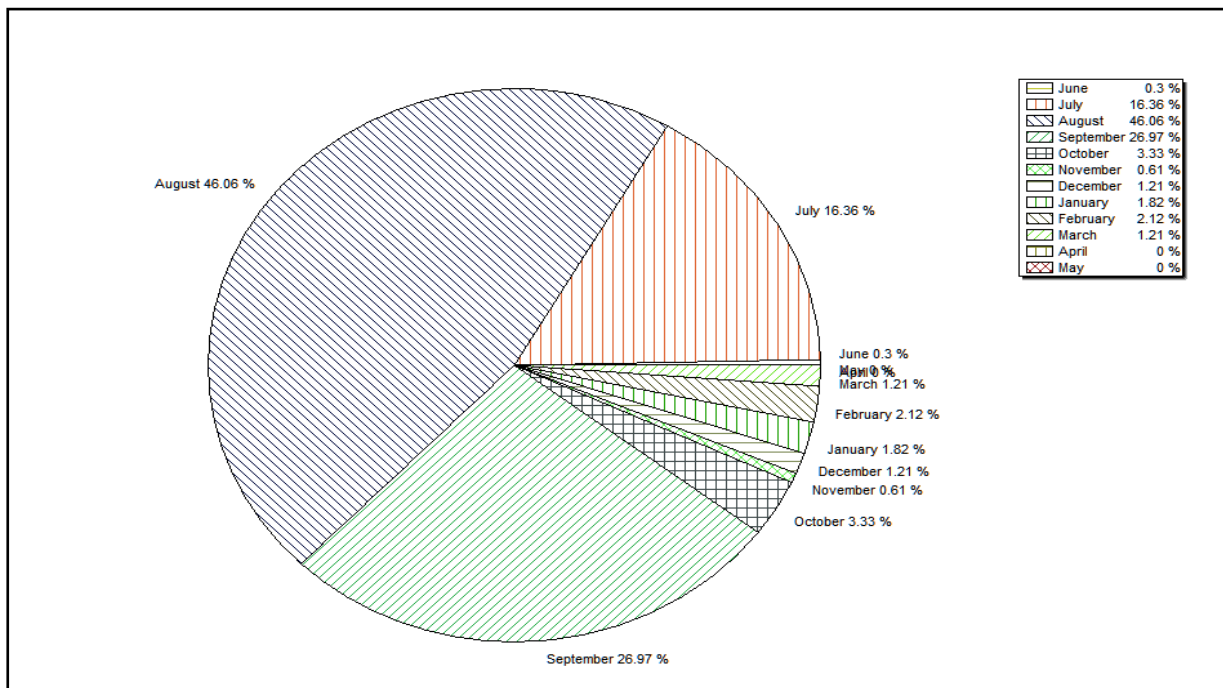
Station Name : Jakham at Dhariawad (01 02 13 004)
Local River : Jakham

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

Monthly Average Runoff based on period : 1988-2017



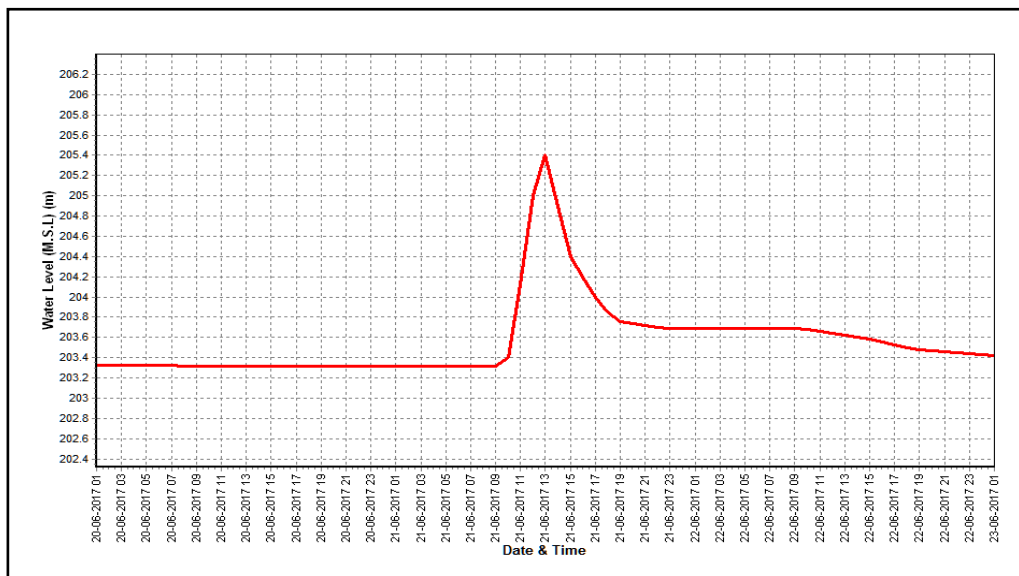
Monthly Runoff for the Year : 2017-2018



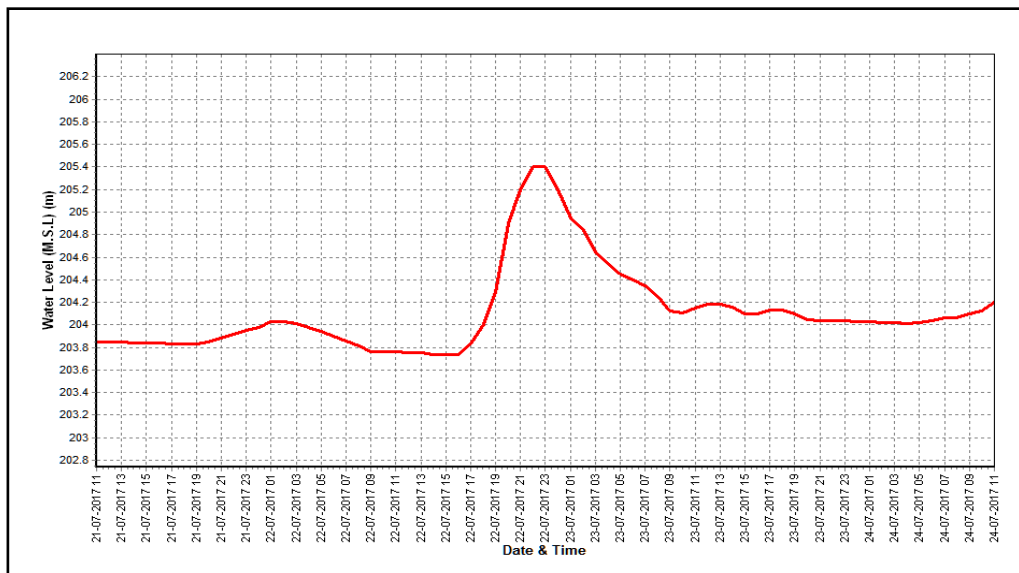
Station Name : Jakham at Dhariawad (01 02 13 004)
Local River : Jakham

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

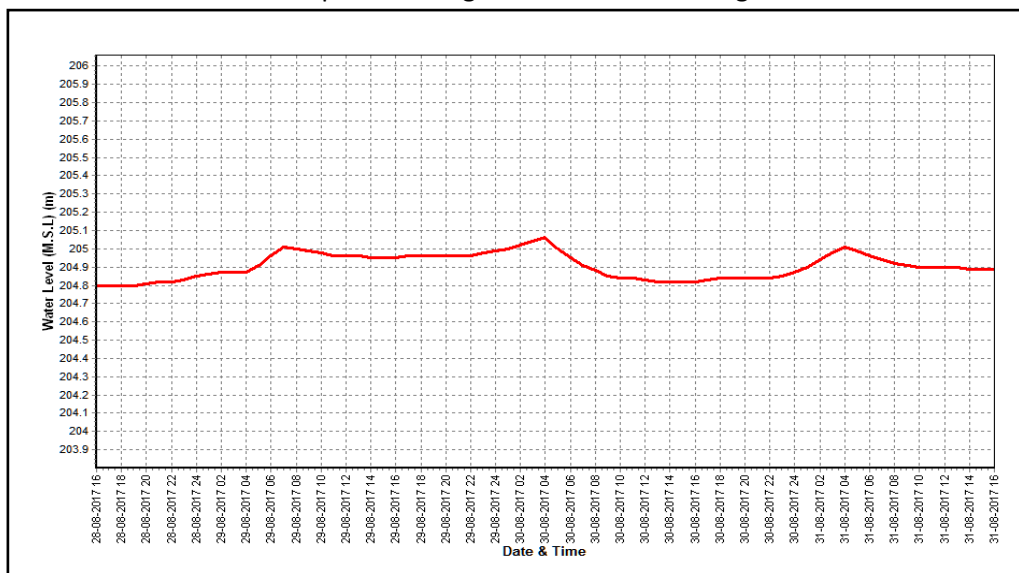
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

		Water Year : 2017-18	
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"	Longitude	: 74°43'31"
Zero of Gauge (m)	: 295 (m.s.l) 284 (m.s.l)	01/01/1982 - 31/12/2003 01/01/2004	
	Opening Date	Closing Date	
Gauge	: 21/07/1982		
Discharge	: 21/07/1982		
Sediment	: 21/07/1982		
Water Quality	: 21/07/1982		

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1982-1983	2688	302.515	16/08/1982	0.000	297.760	07/04/1983
1983-1984	723.8	300.455	11/07/1983	0.000	296.895	28/04/1984
1984-1985	5636	303.895	11/08/1984	0.000	296.970	05/04/1985
1985-1986	165	298.800	04/08/1985	0.000	297.015	28/03/1986
1986-1987	6363	305.600	24/07/1986	0.000	297.145	02/03/1987
1987-1988	1080	301.200	25/08/1987	0.000	297.090	30/01/1988
1988-1989	8387	307.000	04/10/1988	0.000	297.100	30/03/1989
1989-1990	1586	297.800	02/07/1989	0.000	297.100	24/01/1990
1990-1991	3436	302.050	23/08/1990	0.000	296.990	27/04/1991
1991-1992	3154	304.800	31/07/1991	0.000	296.730	22/06/1991
1992-1993	475.7	299.800	07/09/1992	0.000	296.940	02/05/1993
1993-1994	1779	305.500	17/07/1993	0.000	296.970	09/06/1993
1994-1995	3453	306.550	02/08/1994	0.000	296.740	03/06/1994
1995-1996	1312	302.425	25/07/1995	0.000	296.990	14/04/1996
1996-1997	10257	306.300	28/07/1996	0.000	296.910	16/04/1997
1997-1998	2210	302.730	31/07/1997	0.000	296.560	01/06/1997
1998-1999	2430	302.150	16/09/1998	0.000	296.680	13/05/1999
1999-2000	284	299.230	26/09/1999	0.000	296.990	25/01/2000
2000-2001	134	299.050	13/08/2000	0.000	296.870	25/01/2001
2001-2002	166	299.220	17/08/2001	0.000	296.525	25/01/2002
2002-2003	414.1	299.750	04/09/2002	0.000	River Dry	13/05/2003
2003-2004	8252	306.300	28/07/2003	0.000	286.440	15/04/2004
2004-2005	1230	290.030	14/08/2004	0.000	286.080	21/05/2005
2005-2006	8075	294.480	28/07/2005	0.000	286.330	01/01/2006
2006-2007	7296	294.190	10/08/2006	0.217	286.610	19/07/2006
2007-2008	8074	294.300	09/07/2007	0.000	285.650	01/06/2007
2008-2009	202.3	288.890	12/09/2008	0.000	285.550	31/05/2009
2009-2010	6579	293.720	23/07/2009	0.000	286.500	20/11/2009
2010-2011	1017	290.460	30/08/2010	0.000	286.630	20/01/2011
2011-2012	1227.3	290.600	10/08/2011	0.000	286.610	10/02/2012
2012-2013	2631.0	292.120	07/09/2012	0.000	286.420	01/06/2012
2013-2014	1720	291.45	02/08/2013	0.000	286.02	01/06/2013
2014-2015	563.3	289.525	09/09/2014	0.000	286.36	01/06/2014
2015-2016	2643	291.225	26/07/2015	0.000	286.670	19/10/2015
2016-2017	671	289.500	27/07/2016	0.000	285.400	01/06/2016
2017-2018	458.6	289.200	18/09/2017	0.000	286.550	07/11/2017

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	286.320	0.000	286.520	0.000	287.980	125.2 #	287.810	71.98	287.460	45.53 *	286.640	0.700
2	286.300	0.000	286.550	0.000	287.570	56.64	287.790	90.81 *	287.460	45.53 *	286.620	0.475
3	286.290	0.000	286.550	0.000	287.560	56.17	287.760	85.95 *	287.460	29.01	286.620	0.458
4	286.290	0.000	286.580	0.000	287.540	54.69	287.670	65.93	287.400	26.00	286.620	0.350 *
5	286.280	0.000	286.590	0.000	287.540	54.45	287.600	62.51	287.160	21.26	286.620	0.350 *
6	286.270	0.000	286.590	0.000	287.530	53.67 *	287.590	61.93	287.140	20.72	286.610	0.304
7	286.260	0.000	286.590	0.000	287.520	53.10	287.590	61.94	287.120	19.02	286.550	0.000
8	286.260	0.000	286.580	0.000	287.520	53.12	287.560	58.65	287.110	15.78 *	286.550	0.000
9	286.260	0.000	286.580	0.000	287.510	52.57	287.480	31.22	287.100	17.07	286.540	0.000
10	286.250	0.000	286.580	0.000	287.460	30.89	287.500	50.08 *	287.080	15.56	286.540	0.000
11	286.470	0.000	286.580	0.000	287.420	27.66	287.480	30.70	287.050	13.67	286.540	0.000
12	286.590	0.000	286.580	0.000	287.320	31.50 *	287.490	32.88	287.040	12.33	286.530	0.000
13	286.580	0.000	286.580	0.000	287.270	27.19 *	288.900	385.2	287.060	14.31	286.530	0.000
14	286.570	0.000	286.620	0.350 #	287.170	19.64 *	288.082	165.5	287.060	14.77	286.530	0.000
15	286.570	0.000	288.390	256.0	287.140	17.65 *	288.000	145.5	287.050	12.39 *	286.520	0.000
16	286.570	0.000	287.800	92.47 *	287.100	20.32	288.450	276.7	287.050	13.70	286.520	0.000
17	286.560	0.000	287.550	58.20	287.100	18.67	288.190	170.7 *	287.040	12.78	286.520	0.000
18	286.560	0.000	287.750	66.53	287.100	18.20	289.200	458.6	287.040	12.80	286.510	0.000
19	286.550	0.000	287.780	68.10	287.090	16.75	288.800	341.1	287.040	11.87 *	286.510	0.000
20	286.540	0.000	287.920	113.7 #	288.720	322.9 *	288.400	253.9	287.030	11.92	286.510	0.000
21	286.530	0.000	288.200	222.7	288.100	196.2	288.000	153.2	287.030	11.76	286.510	0.000
22	286.530	0.000	288.540	293.5	287.460	29.71	288.000	152.3	287.030	11.36 *	286.510	0.000
23	286.530	0.000	288.480	247.2 *	288.100	196.1	287.900	125.3	287.000	9.138	286.500	0.000
24	286.530	0.000	288.650	322.3	288.080	167.7	287.780	89.18 *	286.980	6.759	286.500	0.000
25	286.520	0.000	288.600	307.0	287.750	84.37 *	287.600	62.02	286.850	3.981	286.500	0.000
26	286.520	0.000	288.810	362.0	288.470	288.9	287.490	32.65	286.850	4.310 *	286.500	0.000
27	286.520	0.000	288.640	322.0	288.450	238.5 *	287.480	30.51	286.750	1.960 *	286.500	0.000
28	286.510	0.000	288.580	297.4	288.200	220.7	287.460	29.67	286.720	1.368	286.500	0.000
29	286.510	0.000	288.300	236.2	288.900	362.5	287.480	30.93	286.700	1.160 *	286.500	0.000
30	286.510	0.000	288.250	185.2 *	288.380	257.6	287.480	47.77 *	286.680	1.009	286.550	0.000
31			288.250	225.6	288.200	220.3			286.640	0.716		
Ten-Daily Mean												
I Ten-Daily	286.278	0.000	286.571	0.000	287.573	59.05	287.635	64.10	287.249	25.55	286.591	0.264
II Ten-Daily	286.556	0.000	287.355	65.53	287.343	52.05	288.299	226.1	287.046	13.05	286.522	0.000
III Ten-Daily	286.521	0.000	288.482	274.7	288.190	205.7	287.667	75.35	286.839	4.866	286.507	0.000
Monthly												
Min.	286.250	0.000	286.520	0.000	287.090	16.75	287.460	29.67	286.640	0.716	286.500	0.000
Max.	286.590	0.000	288.810	362.0	288.900	362.5	289.200	458.6	287.460	45.53	286.640	0.700
Mean	286.452	0	287.502	118.6	287.718	108.8	287.867	121.8	287.038	14.18	286.540	0.088

Annual Runoff in MCM = 969 Annual Runoff in mm = 250

Peak Observed Discharge = 458.6 cumecs on 18-09-2017 Corres. Water Level :289.2 m

Lowest Observed Discharge = 0.000 cumecs on 07-11-2017 Corres. Water Level :286.55 m

River was in Pooling condition from 01/06/17 to 13/07/17, 07/11/17 to 17/01/2018

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	286.550	0.000	286.580	0.000	286.720	1.463	286.700	1.160 *	286.520	0.000	286.340	0.000
2	286.550	0.000	286.580	0.000	286.700	1.160 *	286.700	1.160 *	286.510	0.000	286.330	0.000
3	286.550	0.000	286.590	0.000	286.700	1.160 *	286.700	1.160 *	286.510	0.000	286.330	0.000
4	286.540	0.000	286.590	0.000	286.700	1.160 *	286.680	0.910 *	286.510	0.000	286.320	0.000
5	286.540	0.000	286.580	0.000	286.750	1.960 *	286.640	0.630	286.490	0.000	286.320	0.000
6	286.540	0.000	286.570	0.000	286.750	1.960 *	286.640	0.510 *	286.470	0.000	286.320	0.000
7	286.540	0.000	286.570	0.000	286.750	1.960 *	286.660	0.768	286.470	0.000	286.320	0.000
8	286.560	0.000	286.570	0.000	286.750	1.960 *	286.650	0.590 *	286.470	0.000	286.320	0.000
9	286.560	0.000	286.570	0.000	286.750	1.634	286.600	0.230 *	286.470	0.000	286.320	0.000
10	286.560	0.000	286.570	0.000	286.750	1.960 *	286.600	0.230 *	286.460	0.000	286.310	0.000
11	286.550	0.000	286.570	0.000	286.750	1.960 *	286.600	0.230 *	286.460	0.000	286.310	0.000
12	286.550	0.000	286.580	0.000	286.750	1.845	286.600	0.230 *	286.460	0.000	286.310	0.000
13	286.550	0.000	286.580	0.000	286.750	1.629	286.600	0.230 *	286.450	0.000	286.310	0.000
14	286.550	0.000	286.580	0.000	286.730	1.450	286.600	0.230 *	286.450	0.000	286.310	0.000
15	286.550	0.000	286.580	0.000	286.730	1.448	286.580	0.000	286.450	0.000	286.310	0.000
16	286.550	0.000	286.580	0.000	286.720	1.280	286.580	0.000	286.430	0.000	286.300	0.000
17	286.550	0.000	286.580	0.000 *	286.720	1.279	286.580	0.000	286.430	0.000	286.160	0.000
18	286.550	0.000	286.700	1.160 *	286.720	1.460 *	286.580	0.000	286.420	0.000	286.120	0.000
19	286.560	0.000	286.770	2.005	286.720	1.460 *	286.580	0.000	286.410	0.000	286.120	0.000
20	286.560	0.000	286.770	1.980	286.720	1.460 *	286.580	0.000	286.400	0.000	286.120	0.000
21	286.560	0.000	286.770	2.350 *	286.720	1.460 *	286.580	0.000	286.400	0.000	286.120	0.000
22	286.560	0.000	286.750	1.699	286.720	1.460 *	286.580	0.000	286.400	0.000	286.110	0.000
23	286.560	0.000	286.730	1.649	286.720	1.460 *	286.580	0.000	286.400	0.000	286.110	0.000
24	286.560	0.000	286.730	1.610 *	286.710	1.310 *	286.550	0.000	286.380	0.000	286.110	0.000
25	286.550	0.000	286.730	1.610 *	286.710	1.310 *	286.550	0.000	286.380	0.000	286.100	0.000
26	286.550	0.000	286.730	1.610 *	286.700	1.170	286.550	0.000	286.380	0.000	286.100	0.000
27	286.550	0.000	286.720	1.460 *	286.700	1.159	286.540	0.000	286.360	0.000	286.100	0.000
28	286.570	0.000	286.720	1.460 *	286.700	1.160 *	286.530	0.000	286.350	0.000	286.080	0.000
29	286.570	0.000	286.720	1.460 *			286.530	0.000	286.350	0.000	286.060	0.000
30	286.570	0.000	286.720	1.460 *			286.530	0.000	286.350	0.000	286.050	0.000
31	286.580	0.000	286.720	1.460 *			286.530	0.000			286.050	0.000
Ten-Daily Mean												
I Ten-Daily	286.549	0.000	286.577	0.000	286.732	1.638	286.657	0.735	286.488	0.000	286.323	0.000
II Ten-Daily	286.552	0.000	286.629	0.515	286.731	1.527	286.588	0.092	286.436	0.000	286.237	0.000
III Ten-Daily	286.562	0.000	286.731	1.621	286.710	1.311	286.550	0.000	286.375	0.000	286.090	0.000
Monthly												
Min.	286.540	0.000	286.570	0.000	286.700	1.159	286.530	0.000	286.350	0.000	286.050	0.000
Max.	286.580	0.000	286.770	2.350	286.750	1.960	286.700	1.160	286.520	0.000	286.340	0.000
Mean	286.555	0	286.648	0.741	286.725	1.505	286.597	0.267	286.433	0.000	286.213	0.000

Peak Computed Discharge = 322.9 cumecs on 20-08-2017

Corres. Water Level :288.72 m

Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

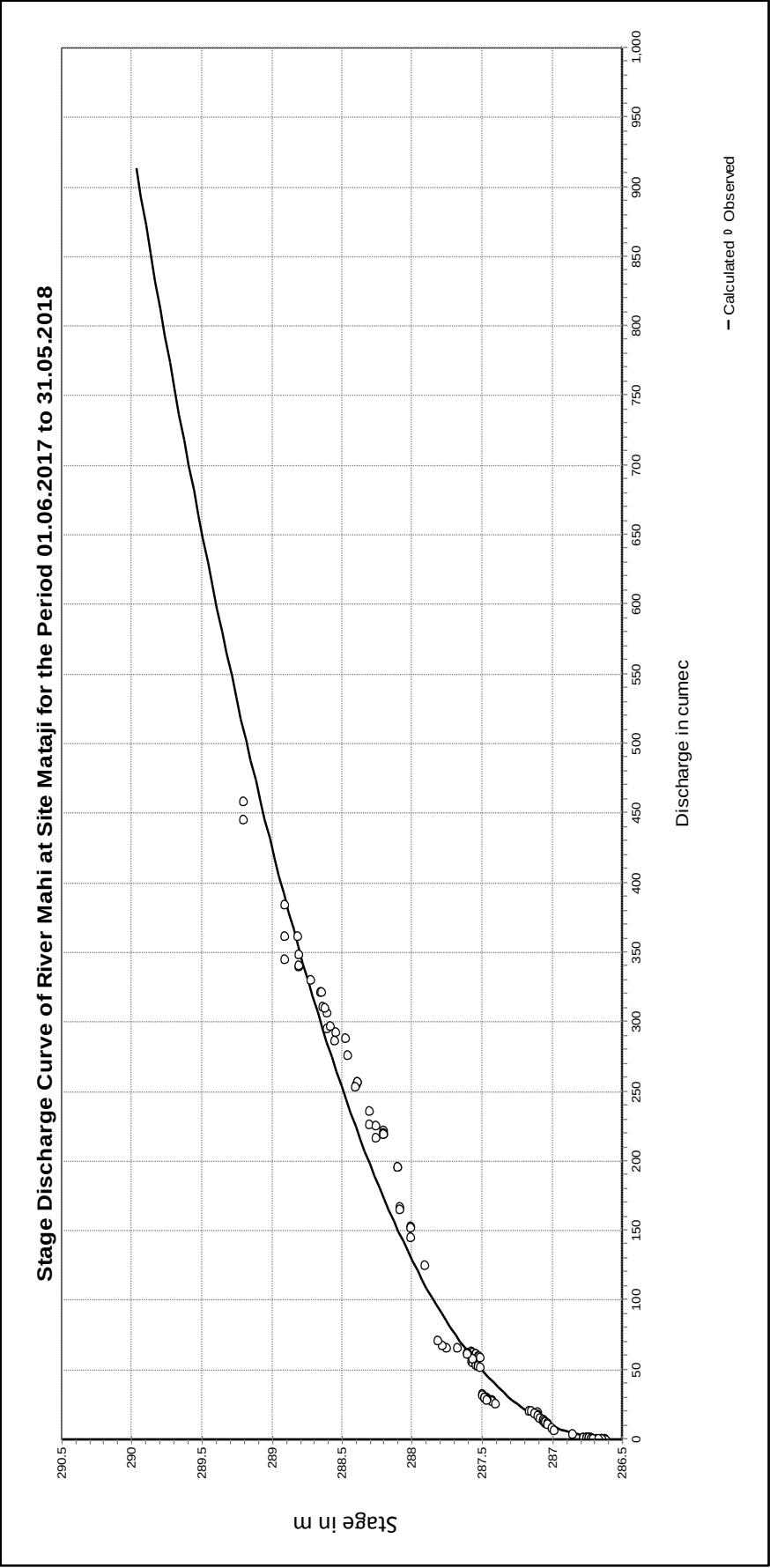
Corres. Water Level :286.32 m

River was in Pooling condition from 15/03/18 to 31/05/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		Q=c*(h+a) ^b		
LB	UB	a	b	c
286.600	290.000	-286.5	2.337	50.084

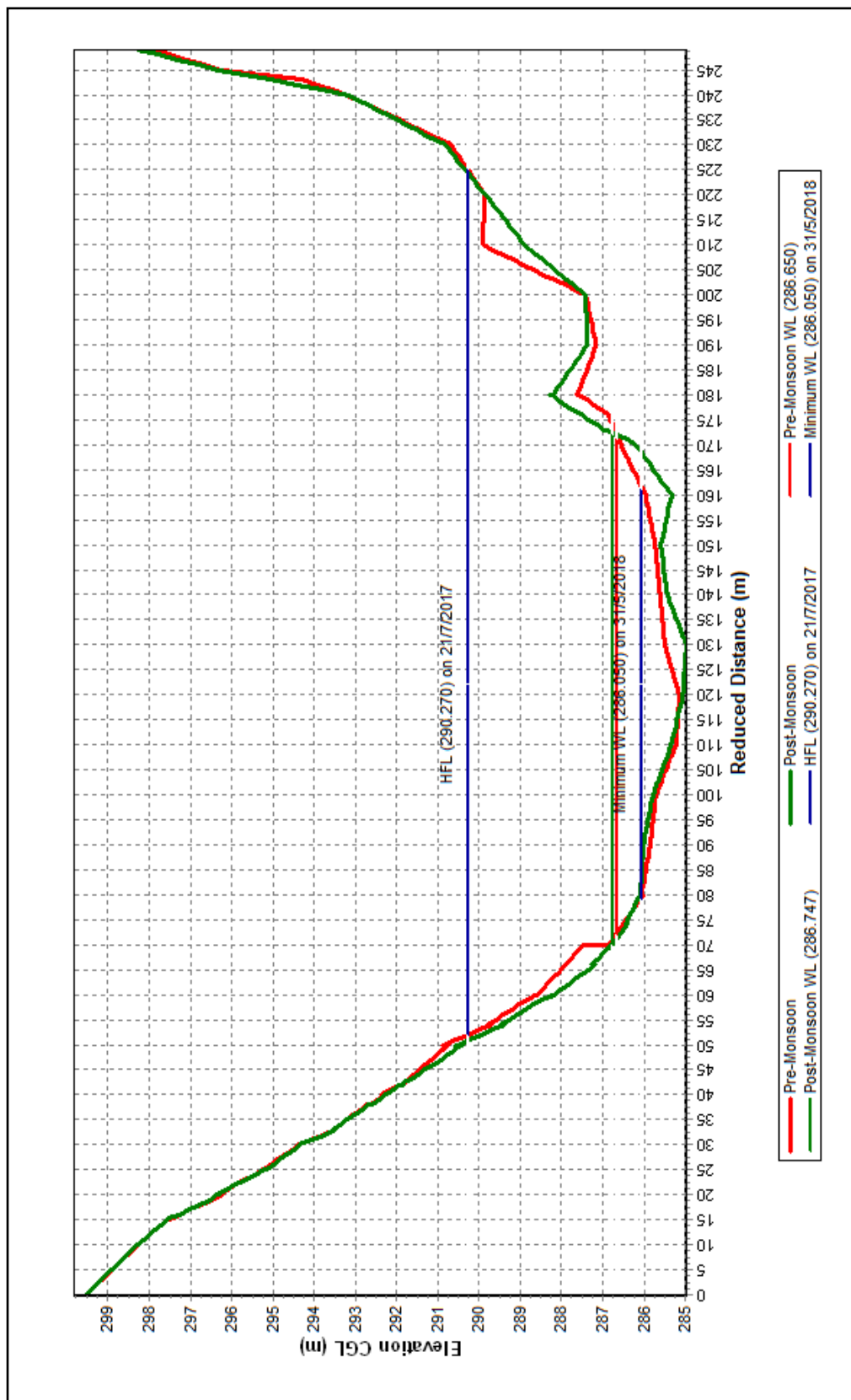
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

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

Local River : Mahi

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana



Historical flood level - 298.32 m on 06.09.2006 at 1800 hrs

Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

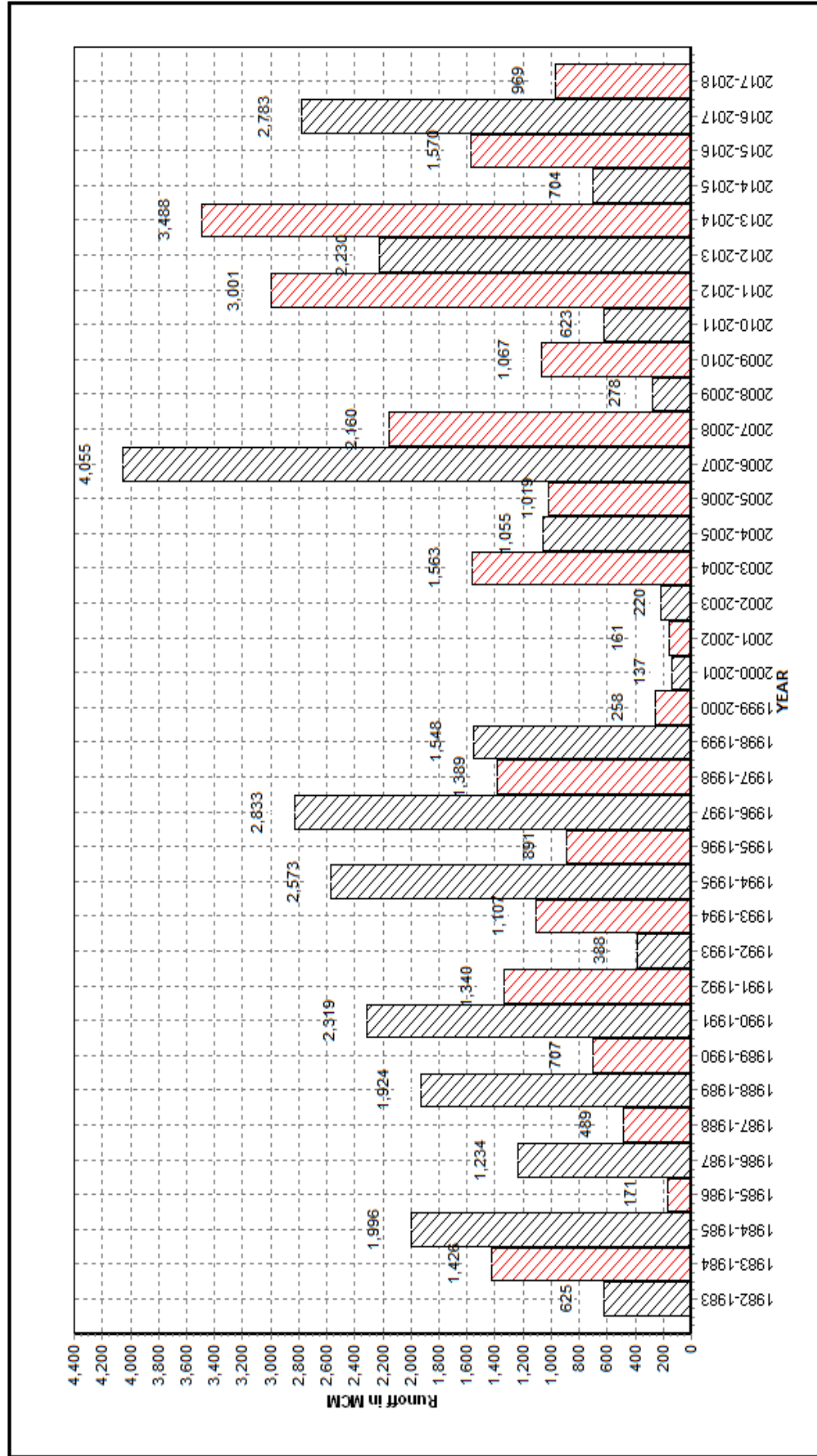
Station Name : Mahi at Mataji (01 02 13 001)

Local River : Mahi

Annual Runoff Values for the period: 1982 - 2018

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

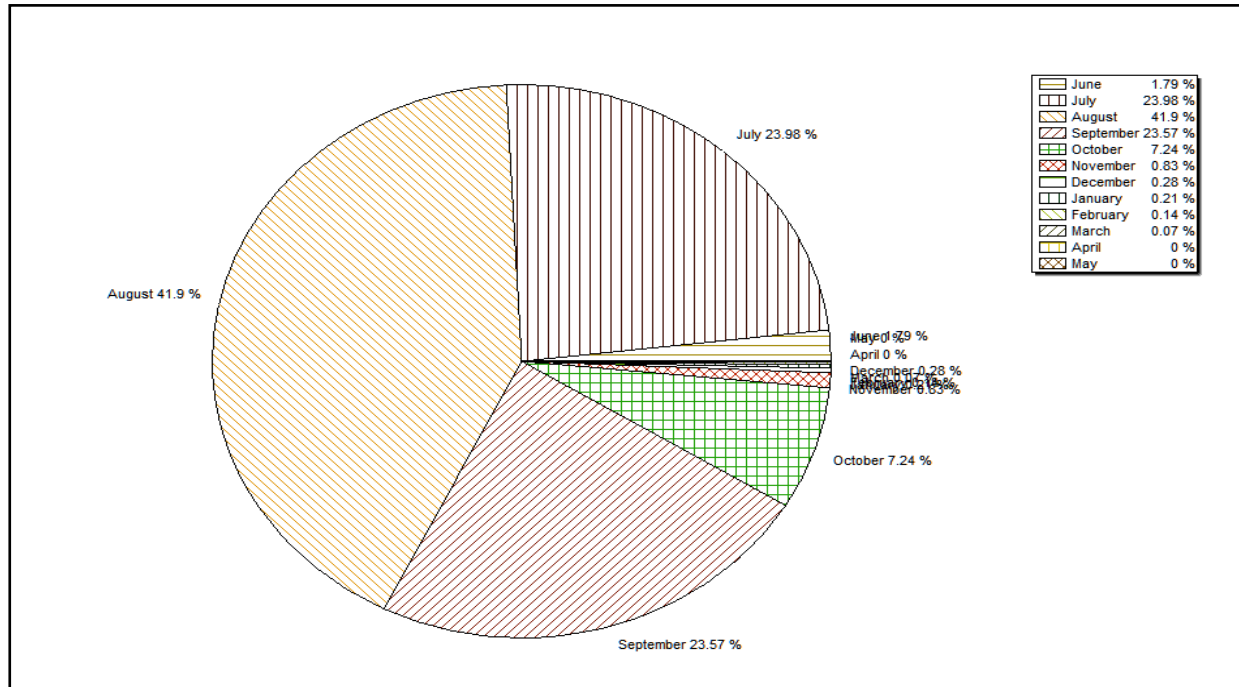


Note: Missing values have not been considered while arriving at Annual Runoff

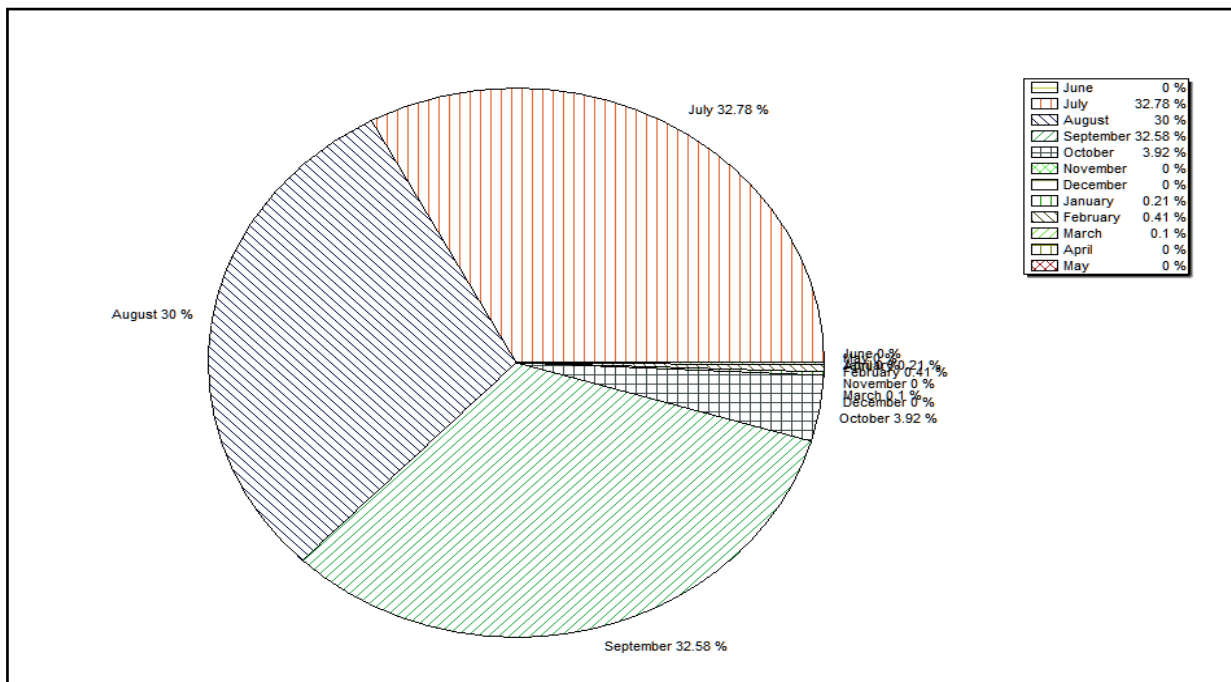
Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

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

Monthly Average Runoff based on period : 1982-2017



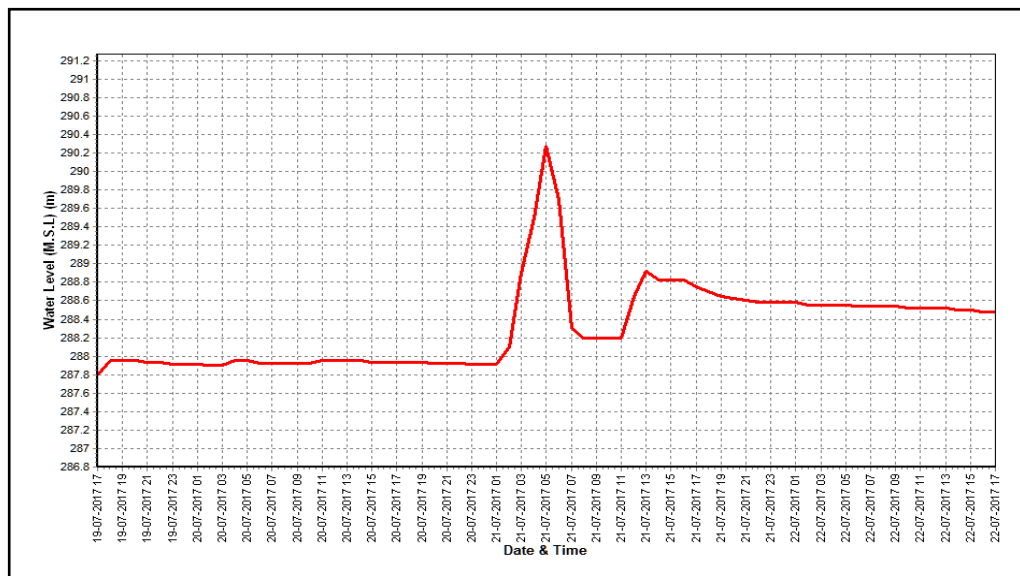
Monthly Runoff for the Year : 2017-2018



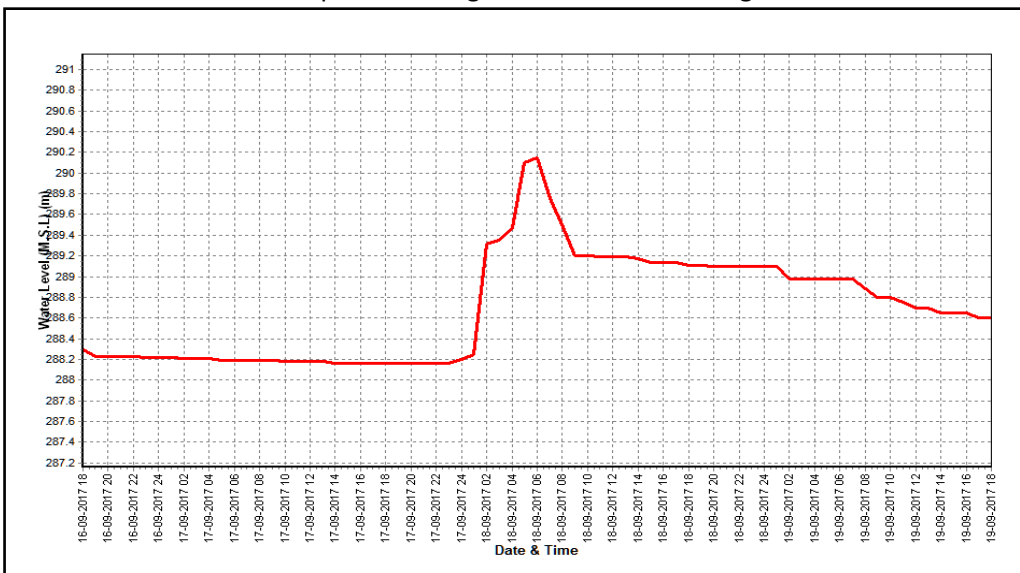
Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

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

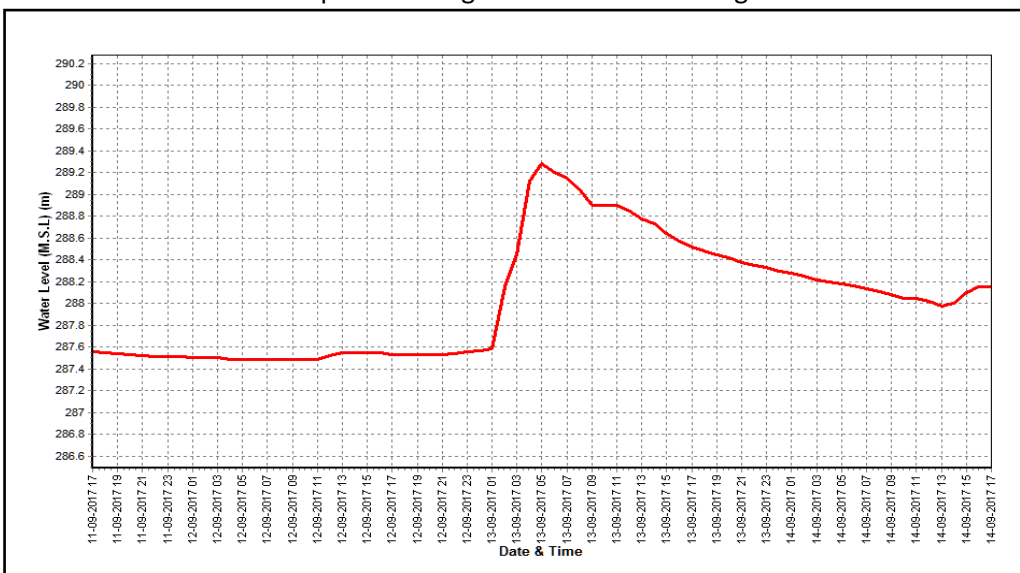
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Som at Khandiovri

Code : 010213UA3

State : Rajasthan

District : Udaipur

Basin : Mahi

Independent River : Mahi

Tributary : Som

Sub Tributary : -

Sub-Sub Tributary : -

Local River : Som

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

Drainage Area : 1136 Sq. Km.

Bank : Left

Latitude : 24°00'41"

Longitude : 73°39'51"

Zero of Gauge (m) : 263 (m.s.l)

Opening Date : 06/03/2016

Gauge : 06/03/2016

Discharge : 15/07/2017

Sediment : -

Water Quality : -

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2017-18	206.5	268.220	27/07/2017	0.020	264.960	23/11/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Som at Khandiovri (010213UA3)

Division : EE. MDN,GANDHINAGAR

Local River : Som

Sub-Division : MSD, KADANA

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R.Dry	0.000	266.350	97.82	266.650	97.29	265.430	11.96 *	265.060	1.119
2	R.Dry	0.000	263.930	0.000	266.180	77.53	266.540	81.49 *	265.410	11.17 *	265.060	1.130 *
3	R.Dry	0.000	264.920	0.000	266.130	42.22	266.380	68.76 *	265.390	7.214	265.060	1.056
4	R.Dry	0.000	264.920	0.000	266.100	48.50 #	266.230	82.28	265.370	7.106	265.060	1.130 *
5	R.Dry	0.000	264.870	0.000	266.050	45.16 #	266.140	66.34	265.350	6.914	265.060	1.130 *
6	R.Dry	0.000	264.840	0.000	265.970	40.02 *	266.020	50.00	265.340	6.261	265.050	1.021
7	R.Dry	0.000	264.800	0.000	265.855	32.70	265.880	37.83	265.330	6.191	265.040	0.991
8	R.Dry	0.000	264.800	0.000	265.700	30.08	265.800	34.02	265.310	7.550 *	265.030	0.680 *
9	R.Dry	0.000	264.800	0.000	265.740	31.99	265.760	32.18	265.280	5.964	265.030	0.937
10	R.Dry	0.000	264.800	0.000	265.750	32.26	265.780	28.76 *	265.270	6.250 *	265.020	0.903
11	R.Dry	0.000	264.800	0.000	265.710	31.41	265.850	33.75	265.260	5.422	265.010	0.792
12	R.Dry	0.000	264.800	0.000	265.700	32.08	265.890	33.33	265.260	5.314	265.000	0.320 *
13	R.Dry	0.000	264.800	0.000	265.700	29.67	265.950	34.24	265.260	5.159	264.990	0.220 #
14	R.Dry	0.000	265.500	14.88 *	265.690	28.28	266.070	53.64	265.260	4.768	264.980	0.140 #
15	R.Dry	0.000	265.570	18.03 #	265.690	23.93 *	266.100	54.88	265.260	5.940 *	264.980	0.140 *
16	R.Dry	0.000	265.480	14.02 *	265.690	28.28	266.290	60.20	265.250	5.630 *	264.970	0.070 #
17	R.Dry	0.000	265.270	6.250 #	265.680	23.08	266.240	58.30 *	265.250	4.644	264.970	0.070 #
18	R.Dry	0.000	265.190	1.136	265.660	20.82	266.050	56.08	265.240	4.348	264.970	0.070 #
19	R.Dry	0.000	265.200	4.210 #	265.630	19.54	265.930	28.56	265.230	5.040 *	264.970	0.070 *
20	R.Dry	0.000	265.160	0.731	266.230	57.58 *	265.810	28.47	265.220	3.251	264.970	0.070 #
21	R.Dry	0.000	265.210	4.480 #	266.230	78.30	265.720	24.29	265.210	2.805	264.970	0.070 #
22	R.Dry	0.000	265.350	8.930 #	266.060	52.19	265.600	17.69	265.200	4.210 *	264.970	0.070 *
23	R.Dry	0.000	266.280	61.22 *	266.010	45.65	265.580	17.25	265.170	2.301	264.960	0.020 #
24	R.Dry	0.000	267.925	180.1	266.020	50.01	265.560	17.56 *	265.160	2.262	264.960	0.020 #
25	R.Dry	0.000	268.007	189.1	265.980	40.65 *	265.540	16.82	265.140	2.247	264.960	0.020 #
26	R.Dry	0.000	267.030	182.7	266.050	51.74	265.520	12.42	265.110	1.621	264.960	0.020 *
27	R.Dry	0.000	268.220	206.5	266.300	62.70 *	265.500	10.50	265.100	1.549	264.960	0.020 #
28	R.Dry	0.000	266.863	157.4	266.210	77.93	265.480	9.541	265.090	1.481	264.970	0.070 #
29	R.Dry	0.000	267.350	203.2	266.090	55.65	265.460	9.042	265.080	1.480 *	264.970	0.070 *
30	R.Dry	0.000	267.290	151.4 *	266.220	78.58	265.450	12.77 *	265.080	1.207	264.970	0.070 #
31			266.520	109.4	266.500	94.41			265.070	1.163		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	264.742	0.000	265.982	47.83	266.118	57.89	265.348	7.658	265.047	1.010
II Ten-Daily	R.Dry	0.000	265.177	5.926	265.738	29.47	266.018	44.15	265.249	4.952	264.981	0.196
III Ten-Daily	R.Dry	0.000	266.913	132.2	266.152	62.53	265.541	14.79	265.128	2.030	264.965	0.045
Monthly												
Min.	R.Dry	0.000	263.930	0.000	265.630	19.54	265.450	9.042	265.070	1.163	264.960	0.020
Max.	R.Dry	0.000	268.220	206.5	266.500	97.82	266.650	97.29	265.430	11.96	265.060	1.130
Mean	R.Dry	0.000	265.683	50.45	265.964	47.12	265.892	38.94	265.238	4.788	264.998	0.417

Annual Runoff in MCM = 372 Annual Runoff in mm =

Peak Observed Discharge = 206.5 cumecs on 27-07-2017 Corres. Water Level :268.22 m

Lowest Observed Discharge = 0.020 cumecs on 23-11-2017 Corres. Water Level :264.96 m

Negligible flow existed in river from 2/7/17 to 13/7/17

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Som at Khandiovri (010213UA3)

Division : EE. MDN,GANDHINAGAR

Local River : Som

Sub-Division : MSD, KADANA

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	264.980	0.187	264.980	0.140 *	264.910	0.000	264.830	0.000	264.810	0.000	264.780	0.000
2	264.980	0.140 *	264.970	0.000	264.910	0.000	264.830	0.000	264.810	0.000	264.780	0.000
3	264.980	0.140 *	264.970	0.000	264.910	0.000	264.830	0.000	264.810	0.000	264.780	0.000
4	264.980	0.186	264.970	0.000	264.910	0.000	264.830	0.000	264.810	0.000	264.780	0.000
5	265.000	0.320 #	264.960	0.000	264.910	0.000	264.830	0.000	264.810	0.000	264.780	0.000
6	265.000	0.320 *	264.960	0.000	264.890	0.000	264.830	0.000	264.810	0.000	264.780	0.000
7	265.000	0.320 *	264.960	0.000	264.900	0.000	264.830	0.000	264.810	0.000	264.780	0.000
8	265.000	0.293	264.950	0.000	264.920	0.000	264.830	0.000	264.810	0.000	264.780	0.000
9	265.000	0.300	264.950	0.000	264.930	0.000	264.830	0.000	264.810	0.000	264.780	0.000
10	265.000	0.320 *	264.950	0.000	264.930	0.000	264.830	0.000	264.810	0.000	264.780	0.000
11	264.990	0.242	264.950	0.000	264.930	0.000	264.830	0.000	264.810	0.000	264.770	0.000
12	264.980	0.291	264.950	0.000	264.930	0.000	264.830	0.000	264.810	0.000	264.770	0.000
13	264.980	0.140 *	264.950	0.000	264.920	0.000	264.820	0.000	264.810	0.000	264.770	0.000
14	264.980	0.230	264.950	0.000	264.920	0.000	264.820	0.000	264.810	0.000	264.770	0.000
15	264.970	0.070 #	264.950	0.000	264.920	0.000	264.820	0.000	264.810	0.000	264.770	0.000
16	264.970	0.116	264.950	0.000	264.920	0.000	264.820	0.000	264.810	0.000	264.770	0.000
17	264.970	0.070 *	264.950	0.000	264.910	0.000	264.820	0.000	264.810	0.000	264.770	0.000
18	264.970	0.070 #	264.950	0.000	264.910	0.000	264.820	0.000	264.810	0.000	264.760	0.000
19	264.970	0.070 #	264.950	0.000	264.910	0.000	264.810	0.000	264.810	0.000	264.760	0.000
20	264.970	0.070 *	264.940	0.000	264.900	0.000	264.810	0.000	264.810	0.000	264.760	0.000
21	264.960	0.020 #	264.940	0.000	264.900	0.000	264.810	0.000	264.810	0.000	264.760	0.000
22	264.960	0.020 *	264.940	0.000	264.890	0.000	264.810	0.000	264.810	0.000	264.760	0.000
23	264.950	0.000 *	264.940	0.000	264.890	0.000	264.810	0.000	264.800	0.000	264.760	0.000
24	264.960	0.020 *	264.940	0.000	264.880	0.000	264.810	0.000	264.800	0.000	264.760	0.000
25	264.970	0.070 *	264.940	0.000	264.870	0.000	264.810	0.000	264.800	0.000	264.750	0.000
26	264.970	0.070 #	264.910	0.000	264.860	0.000	264.810	0.000	264.800	0.000	264.750	0.000
27	264.990	0.220 #	264.910	0.000	264.850	0.000	264.810	0.000	264.800	0.000	264.750	0.000
28	264.990	0.220 *	264.910	0.000	264.840	0.000	264.810	0.000	264.800	0.000	264.750	0.000
29	264.990	0.220 *	264.910	0.000			264.810	0.000	264.790	0.000	264.750	0.000
30	264.990	0.220 *	264.910	0.000			264.810	0.000	264.780	0.000	264.750	0.000
31	264.990	0.220 *	264.910	0.000			264.810	0.000			264.750	0.000
Ten-Daily Mean												
I Ten-Daily	264.992	0.253	264.962	0.014	264.912	0.000	264.830	0.000	264.810	0.000	264.780	0.000
II Ten-Daily	264.975	0.137	264.949	0.000	264.917	0.000	264.820	0.000	264.810	0.000	264.767	0.000
III Ten-Daily	264.975	0.118	264.924	0.000	264.872	0.000	264.810	0.000	264.799	0.000	264.754	0.000
Monthly												
Min.	264.950	0.000	264.910	0.000	264.840	0.000	264.810	0.000	264.780	0.000	264.750	0.000
Max.	265.000	0.320	264.980	0.140	264.930	0.000	264.830	0.000	264.810	0.000	264.780	0.000
Mean	264.980	0.168	264.944	0.005	264.902	0.000	264.820	0.000	264.806	0.000	264.766	0.000

Peak Computed Discharge = 151.4 cumecs on 30-07-2017

Corres. Water Level :267.29 m

Lowest Computed Discharge = 0.000 cumecs on 02-07-2017

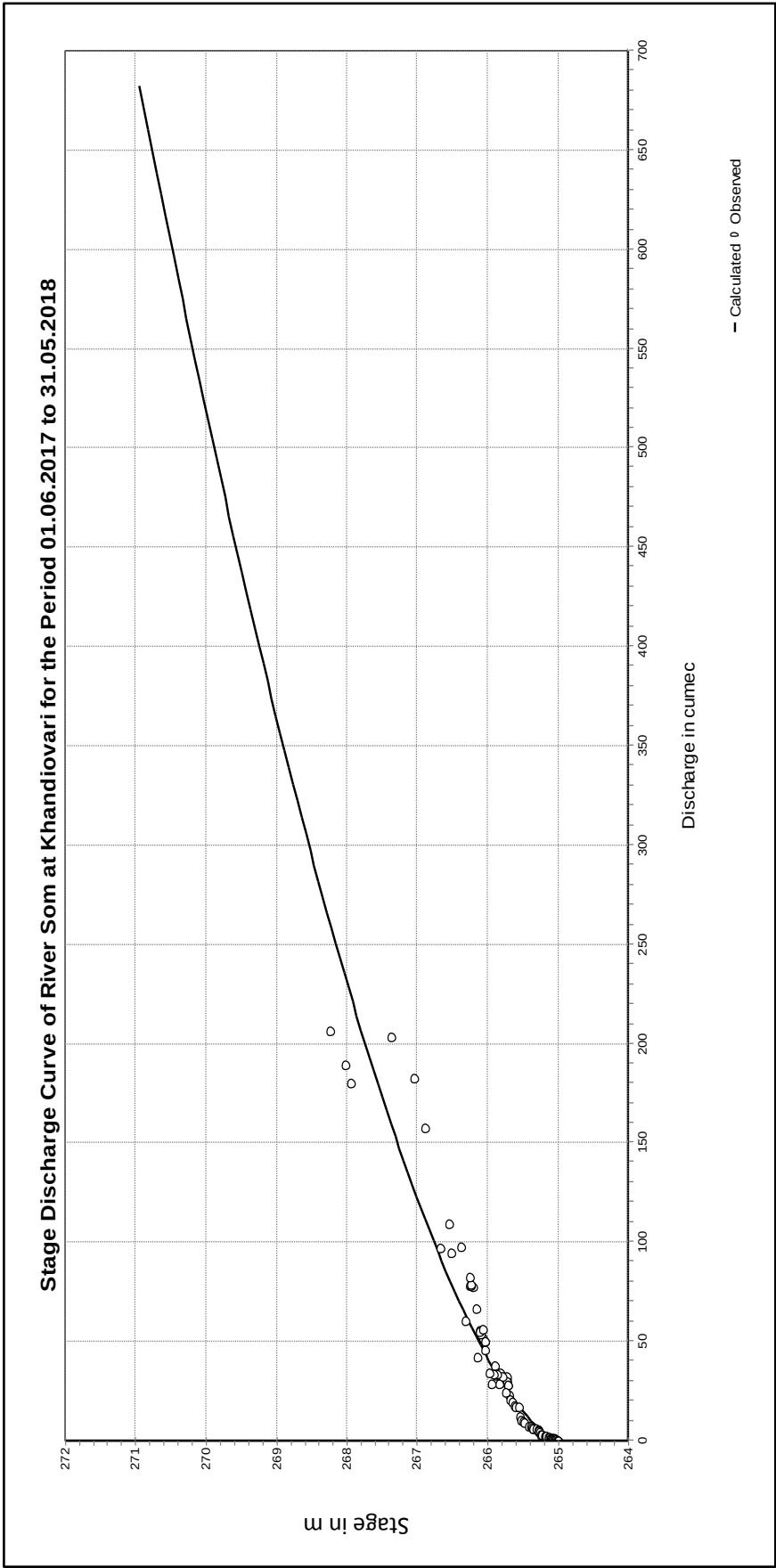
Corres. Water Level :263.93 m

Negligible flow existed in river from 2/1/17 to 31/3/17. River was in Pooling condition from 1/4/18 to 31/5/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power

$$Q=c*(h+a)^b$$

LB	UB	a	b	c
264.950	271.000	-264.96	1.602	38.769

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Som at Khandiovri (010213UA3)

Local River : Som

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



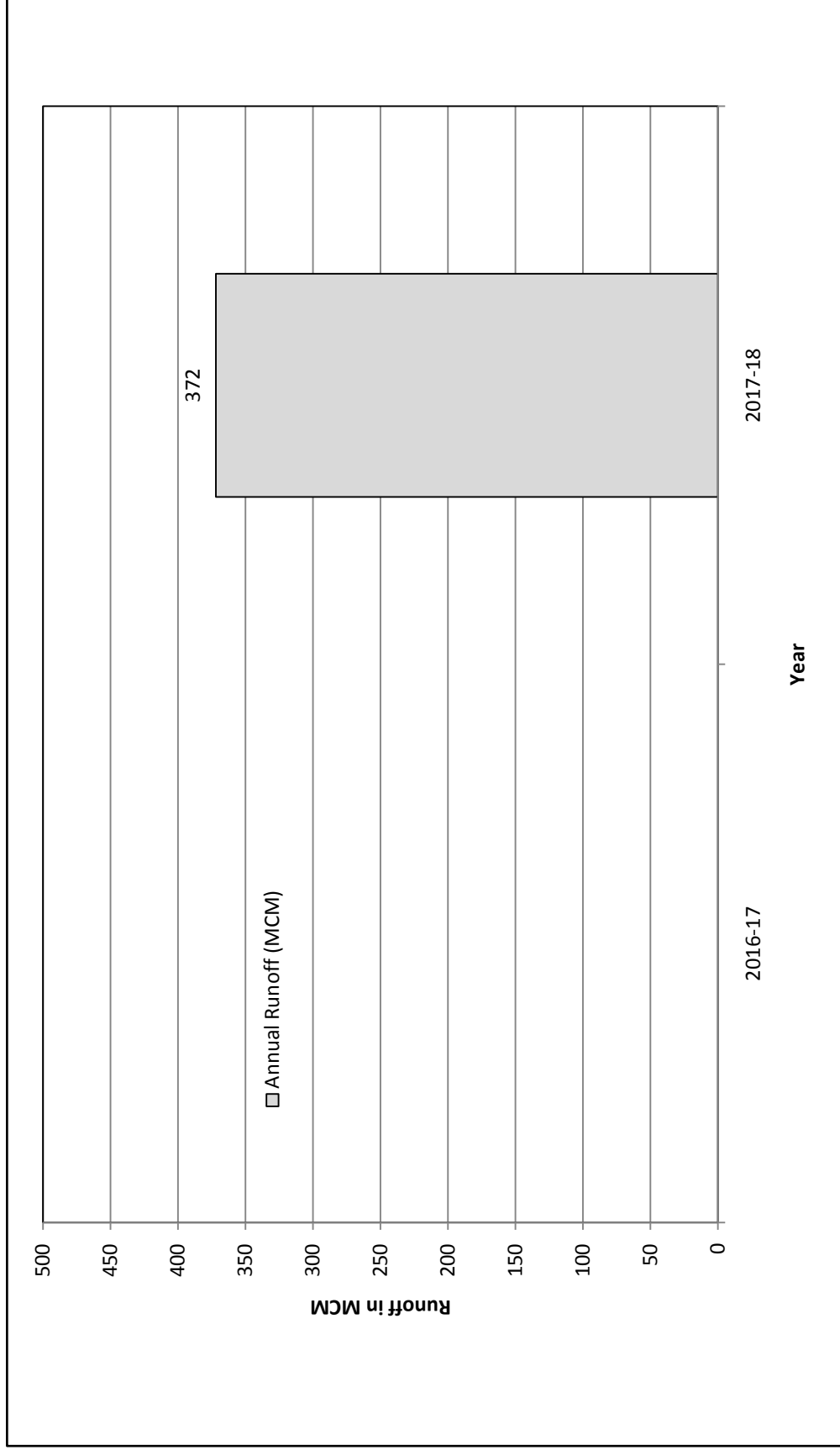
Note: Khandiovri is newly opened site; historic data not available

Annual Runoff Values for the period: 2017 - 2018

Station Name : Som at Khandiovri (010213UA3)

Local River : Som

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



Note: Khandiovri is newly opened site

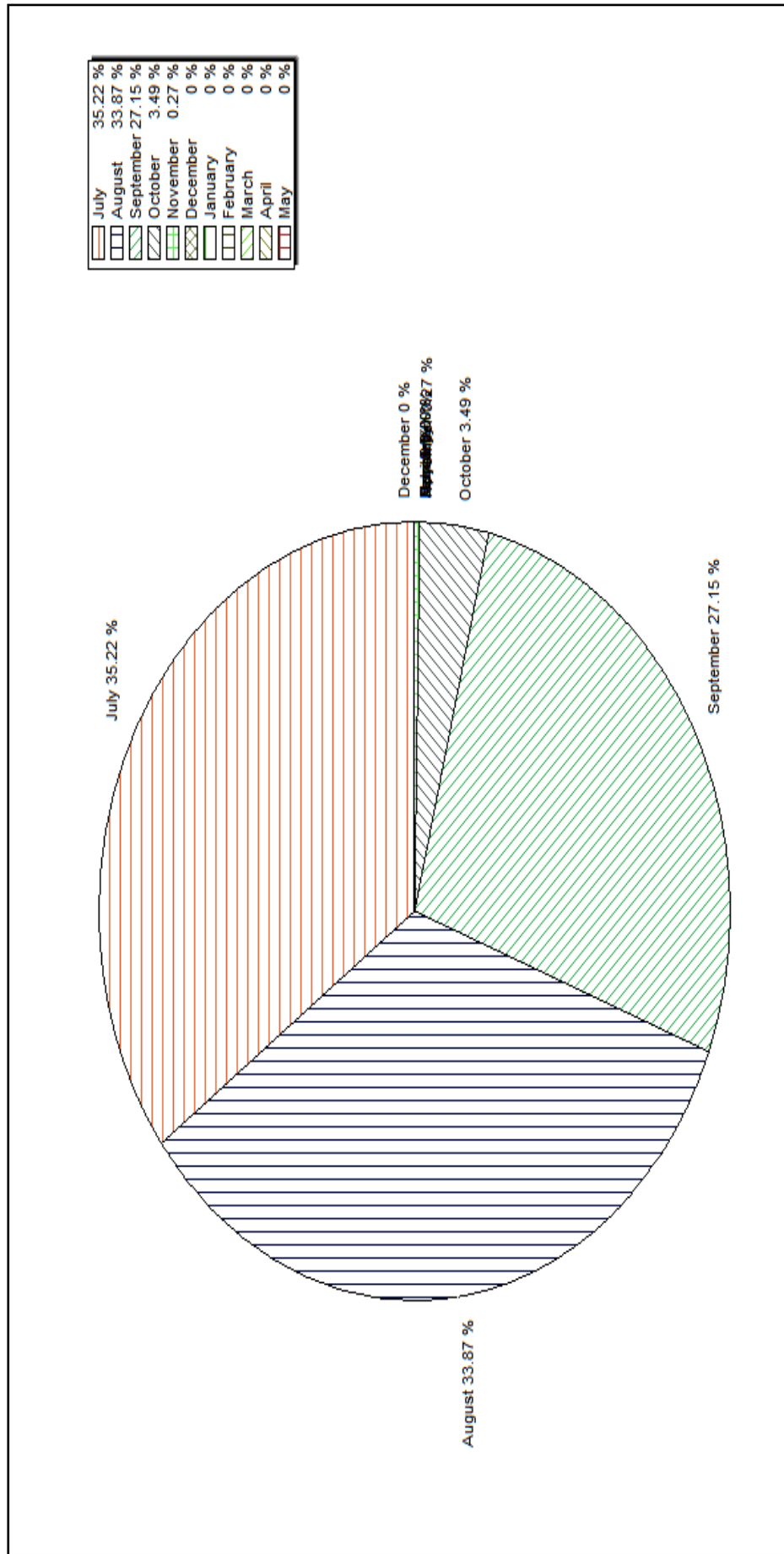
Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Runoff for the Year : 2017-2018

Station Name : Som at Khandiovri (010213UA3)

Local River : Som

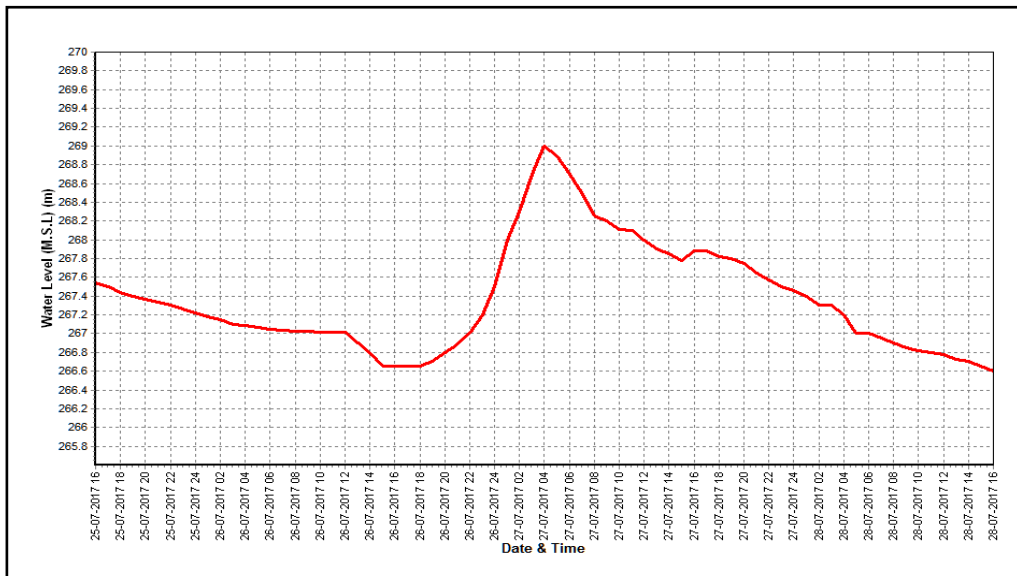
Division : Mahi Division, Gandhinagar
Sub-Division : Mahi Sub Divn., Kadana



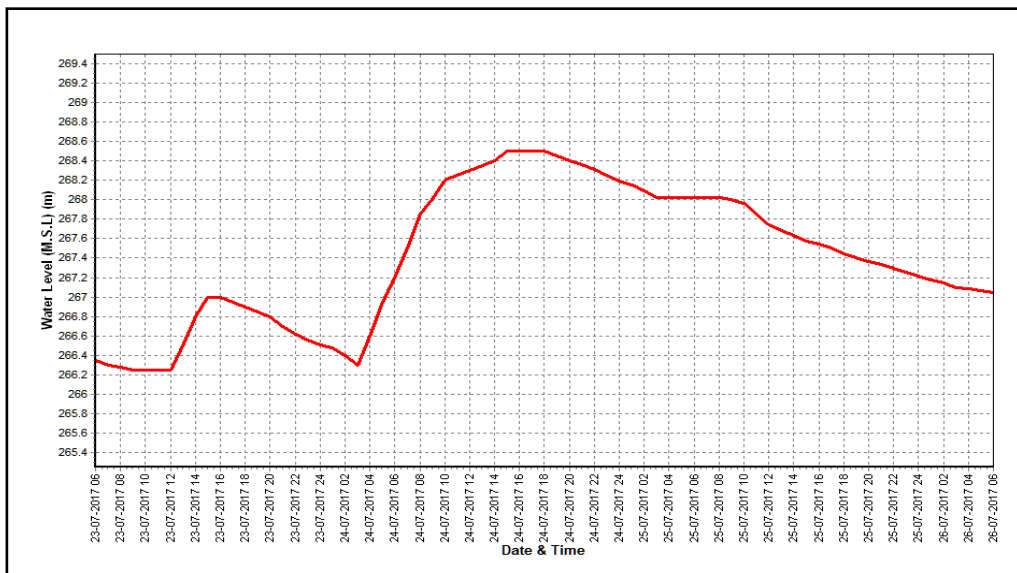
Station Name : Som at Khandiovri (010213UA3)
Local River : Som

Division : EE. MDN,GANDHINAGAR
Sub-Division : MSD, KADANA

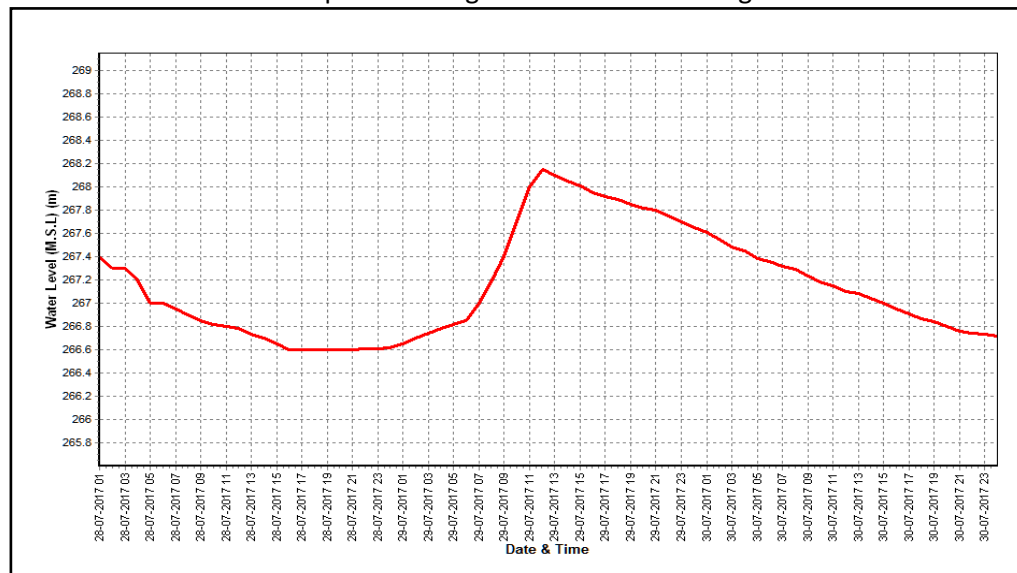
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Erau at Sohagpura

Code : 010213UB1

State : Rajasthan

District : Pratapgarh

Basin : Mahi

Independent
River : Mahi

Tributary : Erau

Sub Tributary : -

Sub-Sub
Tributary : -

Local River : Erau

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

Drainage Area : 183 Sq. Km.

Bank : Right

Latitude : 23°55'06"

Longitude : 74°42'01"

**Zero of Gauge
(m) : 397 (m.s.l)**

Opening Date : 06/08/2015

Gauge : 06/08/2015

Discharge : 03/08/2017

Sediment : -

Water Quality : -

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2017-18	9.455	399.150	29/08/2017	0.000	398.720	30/10/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Erau at Sohagpura (010213UB1)

Division : EE. MDN,GANDHINAGAR

Local River : Erau

Sub-Division : MSD, KADANA

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R.Dry	0.000	399.250	12.78 *	399.400	17.82 *	398.830	1.430 *	398.720	0.000
2	R.Dry	0.000	R.Dry	0.000	399.230	12.15 *	399.100	8.260 *	398.860	2.110 *	398.700	0.000
3	R.Dry	0.000	R.Dry	0.000	399.100	8.794	399.020	6.060 *	398.860	1.815	398.700	0.000
4	R.Dry	0.000	R.Dry	0.000	399.100	8.931	399.100	8.221	398.850	1.689	398.700	0.000
5	R.Dry	0.000	R.Dry	0.000	399.100	8.521	399.000	5.094	398.850	1.727	398.700	0.000
6	R.Dry	0.000	R.Dry	0.000	399.050	6.870 *	398.980	4.847	398.800	0.619	398.700	0.000
7	R.Dry	0.000	R.Dry	0.000	399.050	7.372	398.980	4.913	398.800	0.642	398.700	0.000
8	R.Dry	0.000	R.Dry	0.000	399.000	5.488	398.950	4.147	398.800	0.780 *	398.700	0.000
9	R.Dry	0.000	R.Dry	0.000	398.960	4.772	398.900	3.116	398.790	0.557	398.650	0.000
10	R.Dry	0.000	R.Dry	0.000	398.910	3.411	398.900	3.040 *	398.790	0.565	398.650	0.000
11	R.Dry	0.000	R.Dry	0.000	398.910	3.203	398.900	3.126	398.790	0.555	398.650	0.000
12	R.Dry	0.000	R.Dry	0.000	398.950	4.399	398.900	3.161	398.790	0.561	398.650	0.000
13	R.Dry	0.000	R.Dry	0.000	398.950	4.260 *	398.980	4.964	398.790	0.563	398.650	0.000
14	R.Dry	0.000	399.300	14.40 *	398.920	3.564	398.980	4.741	398.790	0.560	398.650	0.000
15	R.Dry	0.000	399.050	6.870 *	398.920	3.520 *	398.980	5.048	398.790	0.570 *	398.650	0.000
16	R.Dry	0.000	398.950	4.260 *	398.920	3.624	398.980	5.230	398.790	0.567	398.650	0.000
17	R.Dry	0.000	398.880	2.570 *	398.920	3.669	399.100	8.260 *	398.790	0.558	398.650	0.000
18	R.Dry	0.000	398.830	1.430 *	398.900	3.040 *	399.000	5.203	398.790	0.558	398.650	0.000
19	R.Dry	0.000	398.780	0.360 *	398.890	3.041	398.890	3.374	398.790	0.570 *	398.650	0.000
20	R.Dry	0.000	398.740	0.000 *	399.250	12.78 *	398.890	2.973	398.780	0.360 #	398.650	0.000
21	R.Dry	0.000	398.960	4.510 *	399.000	5.235	398.890	2.987	398.780	0.360 #	398.650	0.000
22	R.Dry	0.000	398.970	4.760 *	399.100	8.506	398.860	1.925	398.780	0.360 #	398.650	0.000
23	R.Dry	0.000	399.700	29.47 *	399.000	5.288	398.850	1.671	398.780	0.360 #	398.650	0.000
24	R.Dry	0.000	400.200	53.51 *	398.980	5.052	398.850	1.880 *	398.780	0.360 #	398.650	0.000
25	R.Dry	0.000	400.100	48.24 *	399.100	8.533	398.890	2.974	398.780	0.360 #	398.650	0.000
26	R.Dry	0.000	400.050	45.69 *	399.100	8.260 *	398.860	1.773	398.780	0.360 #	398.650	0.000
27	R.Dry	0.000	399.650	27.38 *	399.000	5.540 *	398.850	1.710	398.780	0.360 #	398.650	0.000
28	R.Dry	0.000	399.400	17.82 *	399.130	8.909	398.850	1.720	398.800	0.780 #	398.650	0.000
29	R.Dry	0.000	400.750	86.64 *	399.150	9.455	398.850	1.719	398.800	0.780 #	398.650	0.000
30	R.Dry	0.000	399.600	25.36 *	399.500	21.47 *	398.850	1.880 *	398.720	0.000	398.650	0.000
31			399.400	17.82 *	399.600	25.36 *			398.720	0.000		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	R.Dry	0.000	399.075	7.909	399.033	6.552	398.823	1.193	398.692	0.000
II Ten-Daily	R.Dry	0.000	398.933	4.270	398.953	4.510	398.960	4.608	398.789	0.542	398.650	0.000
III Ten-Daily	R.Dry	0.000	399.707	32.84	399.151	10.15	398.860	2.024	398.773	0.371	398.650	0.000
Monthly												
Min.	R.Dry	0.000	398.740	0.000	398.890	3.040	398.850	1.671	398.720	0.000	398.650	0.000
Max.	R.Dry	0.000	400.750	86.64	399.600	25.36	399.400	17.82	398.860	2.110	398.720	0.000
Mean	R.Dry	0.000	399.406	21.73	399.063	7.606	398.951	4.395	398.794	0.692	398.664	0.000

Annual Runoff in MCM = 67 Annual Runoff in mm =

Peak Observed Discharge = 9.455 cumecs on 29-08-2017 Corres. Water Level :399.15 m

Lowest Observed Discharge = 0.000 cumecs on 30-10-2017 Corres. Water Level :398.72 m

River was in Pooling Condition/ Negligible flow from 30/10/17 to 31/05/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Erau at Sohagpura (010213UB1)

Division : EE. MDN,GANDHINAGAR

Local River : Erau

Sub-Division : MSD, KADANA

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
2	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
3	398.650	0.000	398.690	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
4	398.650	0.000	398.690	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
5	398.650	0.000	398.690	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
6	398.650	0.000	398.690	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
7	398.650	0.000	398.690	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
8	398.650	0.000	398.690	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000
9	398.650	0.000	398.690	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.600	0.000
10	398.650	0.000	398.690	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.500	0.000
11	398.650	0.000	398.690	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.500	0.000
12	398.650	0.000	398.690	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.500	0.000
13	398.650	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.500	0.000
14	398.650	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.500	0.000
15	398.650	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.500	0.000
16	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.500	0.000
17	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.500	0.000
18	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.400	0.000
19	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.400	0.000
20	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.400	0.000
21	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.400	0.000
22	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.400	0.000
23	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.400	0.000
24	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.650	0.000	398.300	0.000
25	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000	398.300	0.000
26	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000	398.300	0.000
27	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000	398.300	0.000
28	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.600	0.000	398.300	0.000
29	398.600	0.000	398.650	0.000			398.650	0.000	398.600	0.000	398.300	0.000
30	398.600	0.000	398.650	0.000			398.650	0.000	398.600	0.000	398.300	0.000
31	398.600	0.000	398.650	0.000			398.650	0.000			398.300	0.000
Ten-Daily Mean												
I Ten-Daily	398.650	0.000	398.672	0.000	398.650	0.000	398.610	0.000	398.650	0.000	398.590	0.000
II Ten-Daily	398.625	0.000	398.658	0.000	398.625	0.000	398.650	0.000	398.650	0.000	398.470	0.000
III Ten-Daily	398.600	0.000	398.650	0.000	398.600	0.000	398.650	0.000	398.620	0.000	398.327	0.000
Monthly												
Min.	398.600	0.000	398.600	0.000	398.600	0.000	398.600	0.000	398.600	0.000	398.300	0.000
Max.	398.650	0.000	398.690	0.000	398.650	0.000	398.650	0.000	398.650	0.000	398.600	0.000
Mean	398.624	0.000	398.660	0.000	398.627	0.000	398.637	0.000	398.640	0.000	398.458	0.000

Peak Computed Discharge = 86.64 cumecs on 29-07-2017

Corres. Water Level :400.75 m

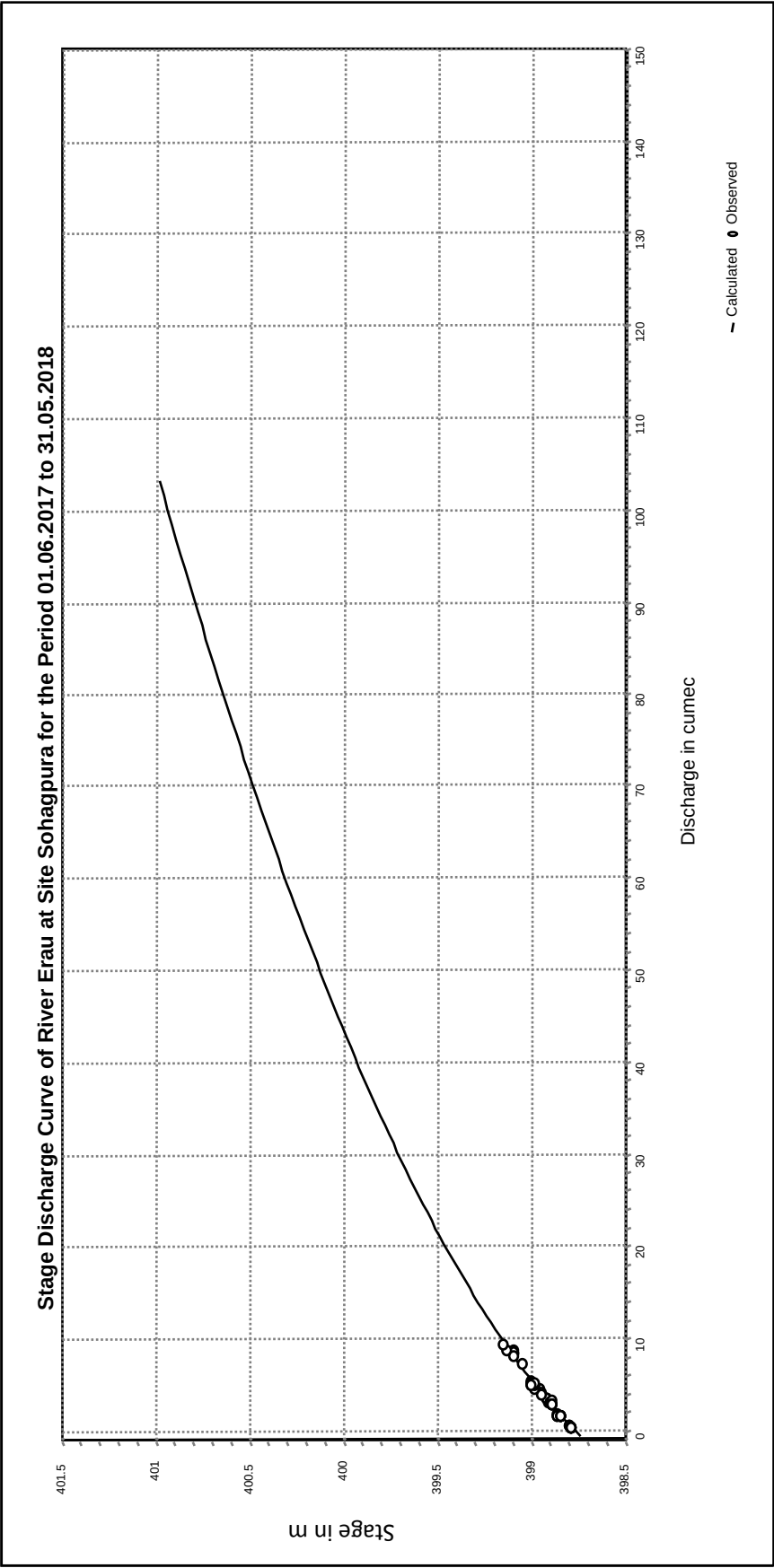
Lowest Computed Discharge = 0.000 cumecs on 20-07-2017

Corres. Water Level :398.74 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Parabolic		$Q=(a+bh+ch^2)$		
LB	UB	a	b	c
398.740	401.000	1832826	-9213.157	11.578

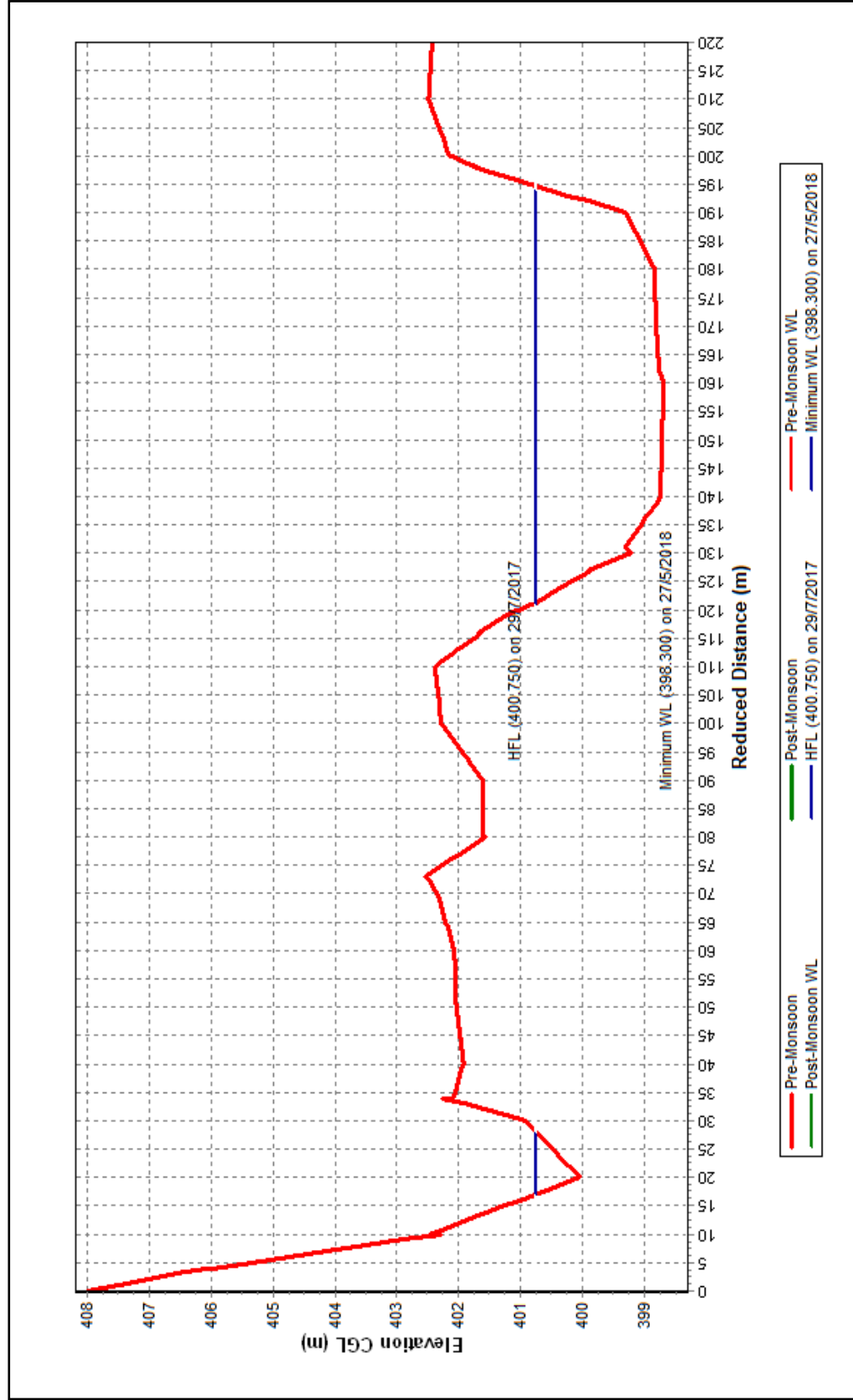
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Erau at Sohagpura (010213UB1)

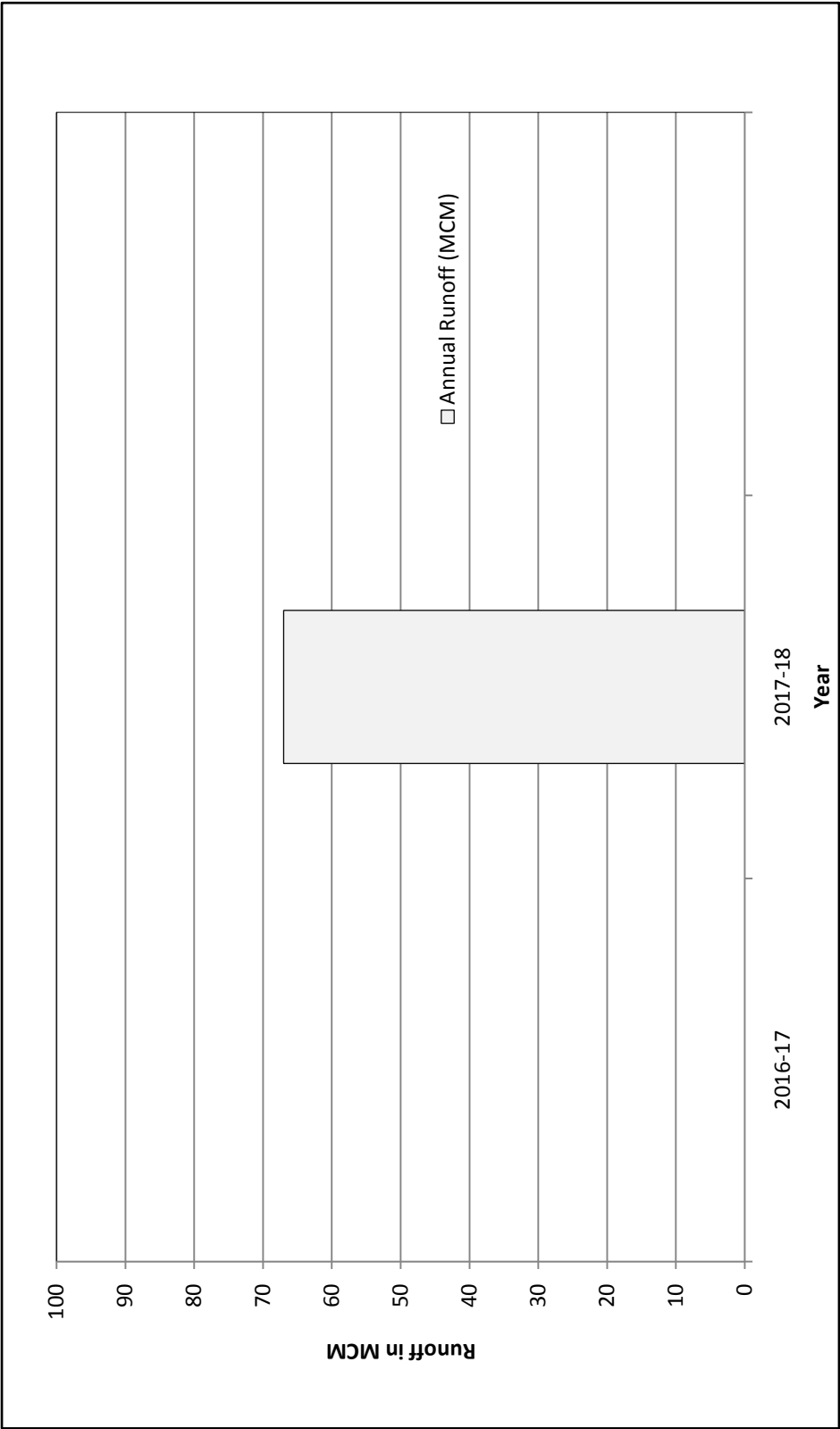
Local River : Erau

Division : EE. MDN,GANDHINAGAR

Sub-Division : MSD, KADANA



Note: Sohagpura is newly opened site; historic data not available



Note: Sohagpura is Newly Opened Site

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

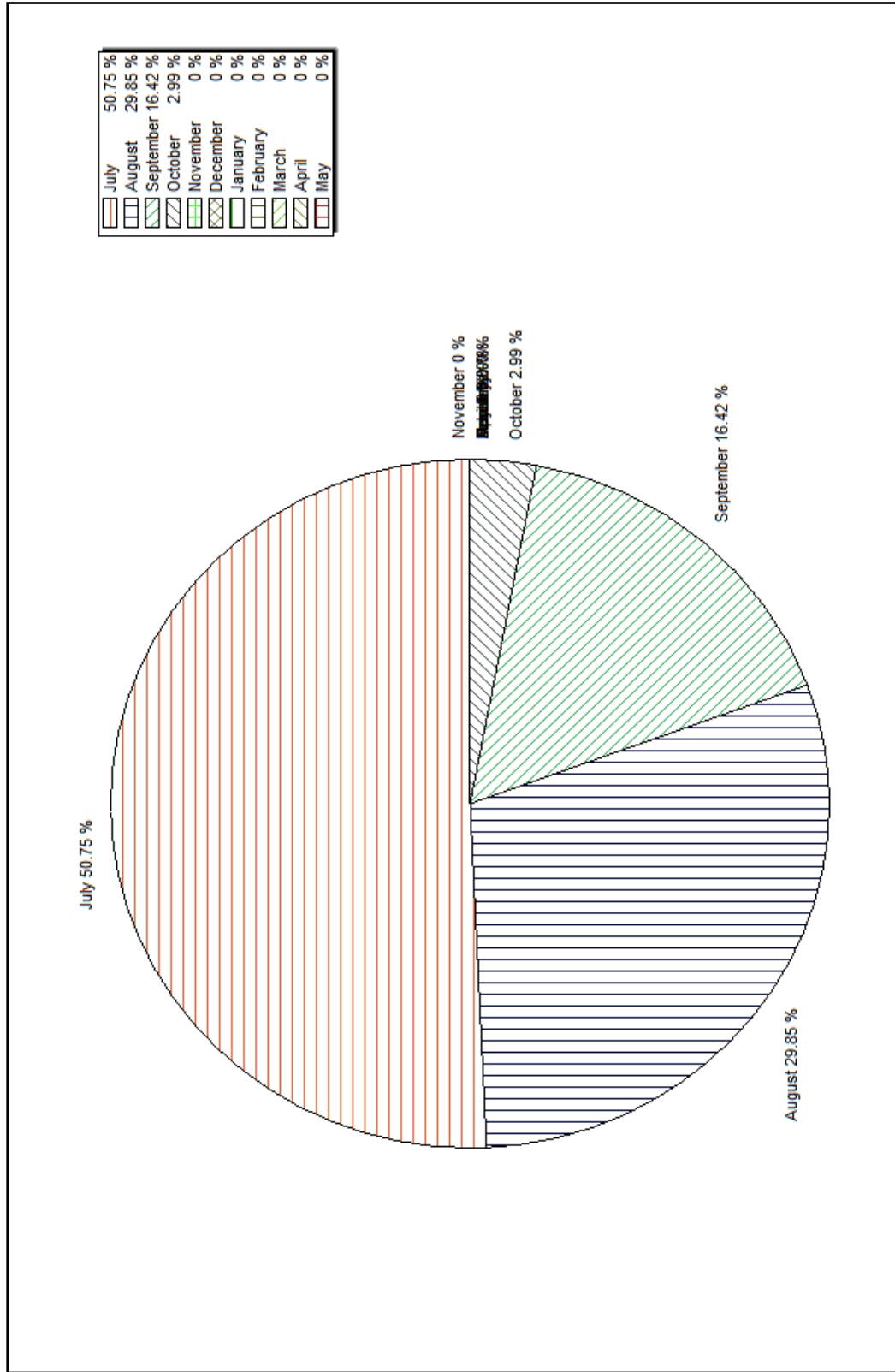
Monthly Runoff for the Year : 2017-2018

Station Name : Erau at Sohagpura (010213UB1)

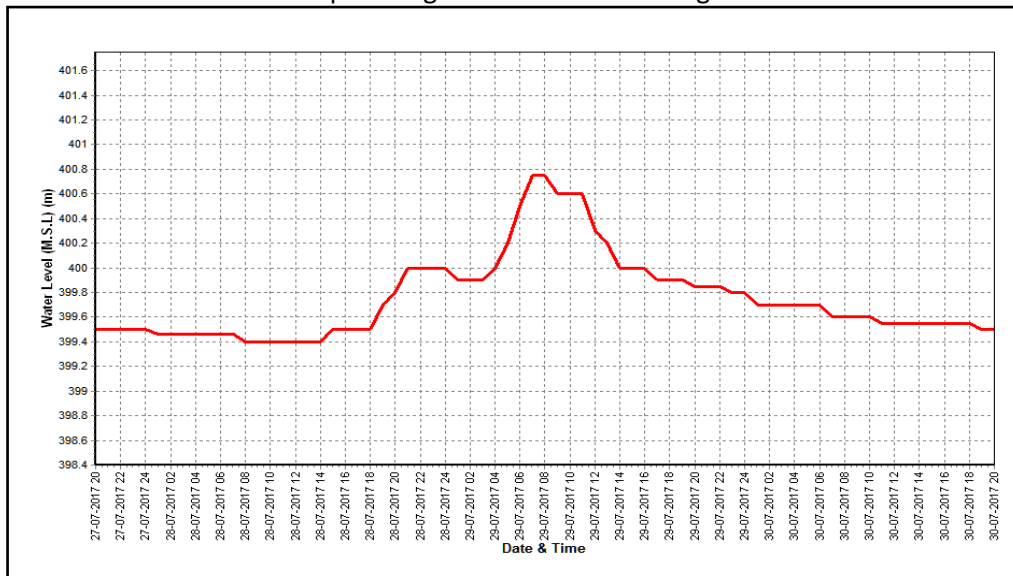
Local River : Erau

Division : EE. MDN,GANDHINAGAR

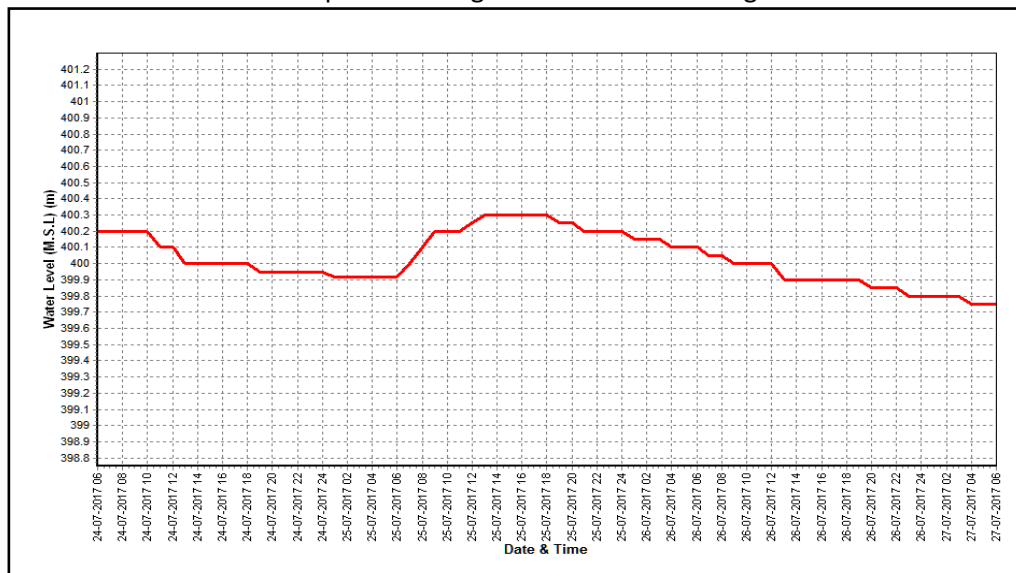
Sub-Division : MSD, KADANA



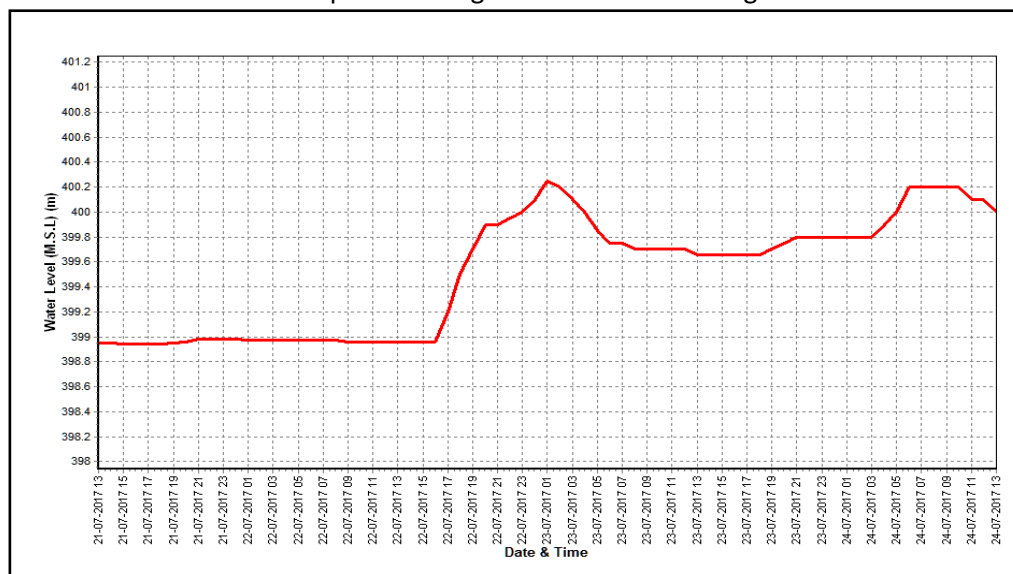
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Sabarmati at Voutha

Code : 01 02 12 013

State : Gujarat

District : Ahmedabad

Basin : Sabarmati

Independent River : Sabarmati

Tributary : Sabarmati

Sub Tributary :

Sub-Sub Tributary :

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

**Sub-Division : Sabarmati Sub Divn.,
Ahmedabad**

Drainage Area : 19636 Sq. Km.

Bank : Left

Latitude : 22°38'59"N

Longitude : 72°32'08"E

Zero of Gauge

(m) : 12 (m.s.l)

01/06/1999 -

Opening Date

Closing Date

Gauge : 05/08/1999

Discharge : 24/06/2000

Sediment : ---

Water Quality : 01/01/2000

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2001-2002	168	15.198	09/08/2001	0.000	River Dry	10/10/2001
2002-2003	145.3	15.048	06/09/2002	0.000	12.970	18/05/2003
2003-2004	2220	19.025	25/08/2003	0.000	13.100	01/06/2003
2004-2005	1205	17.810	07/08/2004	0.000	13.480	30/06/2004
2005-2006	3141	19.000	01/07/2005	3.857	13.250	07/06/2005
2006-2007	3351	19.865	09/08/2006	3.565	13.510	15/07/2006
2007-2008	4958	20.660	10./07/2007	6.546	13.800	18/06/2007
2008-2009	704.2	17.170	13/08/2008	9.093	13.880	10/07/2008
2009-2010	972.5	16.500	24/07/2009	8.605	13.650	23/11/2009
2010-2011	880.1	16.550	09/08/2010	5.275	13.760	21/07/2010
2011-2012	1744.1	18.140	13/09/2011	6.296	13.710	24/06/2011
2012-2013	2223.0	19.145	08/09/2012	7.106	13.710	19/11/2012
2013-2014	1269	17.380	04/08/2013	4.500	13.360	19/09/2013
2014-2015	1201	17.745	10/09/2014	8.339	13.620	04/04/2015
2015-2016	3137	20.320	31/07/2015	10.11	13.750	05/03/2016
2016-2017	1499	18.500	25/08/2016	8.458	13.950	23/05/2017
2017-2018	1833	20.325	26/07/2017	7.808	14.000	28/06/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Sabarmati at Voutha (01 02 12 013)

Division : Mahi Division, Gandhinagar

Local River : Sabarmati

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	13.920	10.25	14.210	28.83	16.880	345.6	15.850	184.9 *	13.720	26.52 *	13.640	28.79
2	13.910	10.66	14.180	31.69	16.150	244.3		142.4 #	13.750	45.84	13.640	24.33
3	13.900	10.81	14.565	35.42	16.145	204.7	15.810	217.3	13.730	35.46	13.680	26.44
4	13.900	10.17 *	14.190	23.42	15.978	218.7	15.550	174.7	13.660	35.06	13.690	24.79 *
5	13.910	10.92	14.440	34.00	15.810	123.0	15.305	90.00	13.670	33.27	13.640	22.08 *
6	13.910	10.01	14.180	23.16	15.370	134.9	14.870	42.77	13.760	28.95 #	13.700	37.92
7	13.910	9.830	14.100	19.59	16.005	223.0	14.640	40.28	13.640	27.47	13.700	42.63
8	13.910	10.28	14.160	16.72	15.535	109.3	14.540	28.73	13.670	35.10	13.680	31.85
9	13.910	13.26	14.150	23.74	14.815	99.63	14.480	33.49	13.680	24.23 #	13.650	35.13
10	13.940	11.94	14.110	10.94	14.870	102.3	14.430	25.75	13.790	29.74	13.720	29.93
11	13.950	11.51	14.090	13.53	14.600	73.90	14.380	28.08 *	13.770	38.62	13.670	27.96
12	13.950	12.89	14.080	14.69	14.270	29.31	14.120	19.30 #	13.750	36.10	13.690	24.79 *
13	13.950	10.78	14.100	10.78	14.500	51.64	14.080	31.59	13.760	33.98	13.670	20.17
14	13.950	11.03	14.100	13.44	14.230	33.54	14.110	18.82 #	13.770	32.95	13.660	29.36
15	13.950	10.60	14.125	20.54	14.750	84.74	14.440	112.5	13.760	36.24	13.660	32.60
16	13.950	10.52	14.590	50.82	14.830	92.69	14.215	67.62 #	13.750	34.61	13.640	30.76
17	13.960	11.19	14.360	54.67	14.415	43.16	14.435	99.40	13.700	26.36	13.630	30.70
18	13.960	9.662	14.258	27.01	14.160	21.29 #	14.170	77.84	13.700	27.21	13.760	38.55
19	13.960	11.32	14.610	82.64	14.530	53.64	14.175	75.11	13.700	25.36 *	13.700	25.36 *
20	13.950	11.42	14.300	34.26	14.100	18.34 #	14.365	72.73	13.730	35.84	13.640	26.94
21	13.950	11.93	14.190	28.50	14.925	138.0	14.025	48.85 #	14.010	46.04	13.590	26.29
22	13.950	12.16	14.640	48.24	15.705	215.1	14.010	58.72	13.740	27.72 *	13.670	27.21
23	13.950	11.86	15.600	179.5	14.900	77.06 #	14.010	46.95	13.720	37.97	13.590	25.51
24	13.960	11.98	16.000	223.0	14.730	61.00 #	14.210	63.39	13.700	40.85	13.570	30.56
25	13.980	11.64	16.700	270.1	14.230	32.24	14.010	41.29	13.870	42.63	13.540	18.87
26	13.990	8.294	20.325	1833	14.075	31.00	13.730	45.13	13.740	40.91	13.550	17.70 *
27	14.000	7.911	20.690	1900 *	15.030	130.1	13.770	46.89	13.750	32.17	13.540	24.56
28	14.000	7.808	21.200	2186 *	14.560	46.90 #	13.740	31.95	13.780	30.75	13.540	21.42
29	14.000	27.00	20.630	1868 *	14.565	47.28 #	13.650	36.14	13.700	25.36 *	13.530	21.70
30	14.200	27.17	18.930	950.0	15.640	274.9	13.650	32.65	13.700	33.72	13.540	24.95
31			18.630	808.8	16.340	329.7			13.680	30.48		
Ten-Daily Mean												
I Ten-Daily	13.912	10.81	14.229	24.75	15.756	180.6	15.053	98.04	13.707	32.16	13.674	30.39
II Ten-Daily	13.953	11.09	14.261	32.24	14.439	50.23	14.249	60.30	13.739	32.73	13.672	28.72
III Ten-Daily	13.998	13.77	17.958	935.9	14.973	125.7	13.880	45.20	13.763	35.32	13.566	23.88
Monthly												
Min.	13.900	7.808	14.080	10.78	14.075	18.34	13.650	18.82	13.640	24.23	13.530	17.70
Max.	14.200	27.17	21.200	2186	16.880	345.6	15.850	217.3	14.010	46.04	13.760	42.63
Mean	13.954	11.89	15.562	350.5	15.053	119.1	14.371	67.85	13.737	33.47	13.637	27.66

Annual Runoff in MCM = 1893 Annual Runoff in mm = 96

Peak Observed Discharge = 1833 cumecs on 26-07-2017 Corres. Water Level :20.325 m

Lowest Observed Discharge = 7.808 cumecs on 28-06-2017 Corres. Water Level :14 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Sabarmati at Voutha (01 02 12 013)

Division : Mahi Division, Gandhinagar

Local River : Sabarmati

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	13.520	16.92	13.460	19.95	13.430	16.07	13.640	17.08	13.580	19.09 *	13.540	17.64
2	13.500	15.54 *	13.460	18.67	13.430	14.15	13.640	22.08 *	13.580	14.68	13.550	18.13
3	13.500	15.54 *	13.560	23.23	13.430	15.87	13.660	16.75	13.570	14.99	13.600	14.96
4	13.510	25.74	13.450	13.56	13.430	12.81 *	13.680	24.23 *	13.580	16.77	13.600	15.13
5	13.500	25.10	13.460	15.69	13.570	20.60	13.650	17.82	13.550	8.692	13.610	16.43
6	13.610	24.49	13.450	15.70	13.540	14.54	13.740	17.08	13.550	8.868	13.610	20.55 *
7	13.600	31.20	13.450	13.56 *	13.530	15.90	13.670	17.66	13.570	14.67	13.600	23.53
8	13.550	23.22	13.450	13.28	13.560	16.93	13.630	13.36	13.560	18.15 *	13.600	21.28
9	13.540	17.25 *	13.440	15.01	13.490	15.46	13.620	14.36	13.590	9.827	13.590	20.19
10	13.550	17.70 *	13.440	18.35	13.450	16.27	13.660	22.48	13.600	14.36	13.620	24.68
11	13.560	22.05	13.430	19.04	13.430	12.81 *	13.680	24.23 *	13.600	12.04	13.630	24.89
12	13.570	23.75	13.510	17.15	13.430	11.81	13.670	20.54	13.590	9.990	13.630	13.20
13	13.630	28.22	13.540	19.68	13.430	13.12	13.650	17.88	13.590	9.801	13.620	21.05 *
14	13.610	25.80	13.550	17.70 *	13.420	13.27	13.680	22.85	13.590	19.57 *	13.610	20.40
15	13.580	16.52	13.550	17.25	13.470	13.88	13.670	18.29	13.580	19.09 *	13.600	13.20
16	13.570	15.99	13.560	17.31	13.500	19.56	13.630	14.19	13.580	17.96	13.610	15.52
17	13.550	17.70 *	13.460	12.50	13.300	8.630 #	13.470	13.80	13.580	14.26	13.620	9.059
18	13.550	17.70	13.430	13.05	13.540	17.25 *	13.450	13.56 *	13.570	8.898	13.620	15.10
19	13.540	16.40	13.430	14.63	13.550	24.45	13.870	34.25	13.590	17.50	13.620	14.31
20	13.530	21.18	13.430	13.93	13.420	14.94	13.630	17.40	13.580	14.65	13.600	20.05 *
21	13.530	21.68	13.430	12.81 *	13.640	14.49	13.610	15.23	13.590	12.35	13.790	21.73
22	13.520	18.78	13.450	16.33	13.630	16.39	13.640	13.35	13.590	19.57 *	13.610	13.93
23	13.530	22.87	13.440	10.33	13.640	17.93	13.610	14.58	13.600	11.99	13.630	22.45
24	13.520	16.38 *	13.440	11.42	13.640	18.32	13.600	10.95	13.600	11.84	13.620	16.49
25	13.510	15.95 *	13.430	13.63	13.640	22.08 *	13.570	18.62 *	13.600	15.10	13.630	20.90
26	13.500	22.26	13.430	12.81 *	13.460	13.94 #	13.600	12.80	13.600	21.53	13.630	21.56 #
27	13.510	16.37	13.430	13.53	13.740	18.74	13.510	11.56	13.610	12.22	13.630	21.56 #
28	13.510	16.79	13.430	12.81 *	13.660	17.81	13.660	14.13	13.610	21.12	13.630	10.12
29	13.510	16.63	13.430	14.23			13.620	21.05 *	13.600	20.05 *	13.620	18.30
30	13.490	15.36	13.430	11.97			13.600	20.05 *	13.600	20.05 *	13.620	17.64
31	13.480	14.72 *	13.430	12.39			13.440	13.15			13.620	21.05 *
Ten-Daily Mean												
I Ten-Daily	13.538	21.27	13.462	16.70	13.486	15.86	13.659	18.29	13.573	14.01	13.592	19.25
II Ten-Daily	13.569	20.53	13.489	16.22	13.449	14.97	13.640	19.70	13.585	14.38	13.616	16.68
III Ten-Daily	13.510	17.98	13.434	12.93	13.631	17.46	13.587	15.04	13.600	16.58	13.639	18.70
Monthly												
Min.	13.480	14.72	13.430	10.33	13.300	8.630	13.440	10.95	13.550	8.692	13.540	9.059
Max.	13.630	31.20	13.560	23.23	13.740	24.45	13.870	34.25	13.610	21.53	13.790	24.89
Mean	13.538	19.86	13.461	15.21	13.514	16	13.627	17.59	13.586	14.99	13.616	18.23

Peak Computed Discharge = 2186 cumecs on 28-07-2017

Corres. Water Level :21.2 m

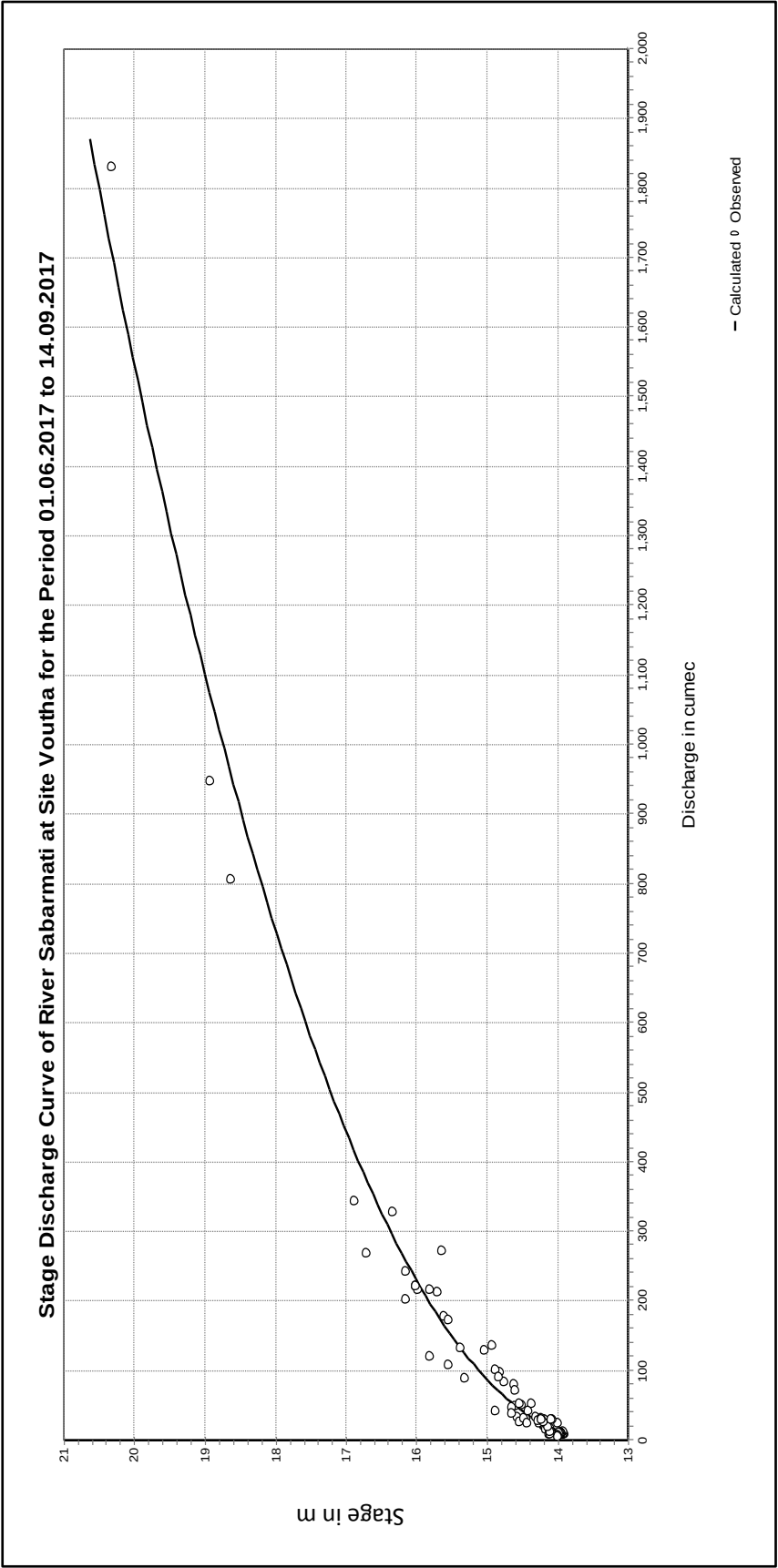
Lowest Computed Discharge = 10.17 cumecs on 04-06-2017

Corres. Water Level :13.9 m

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

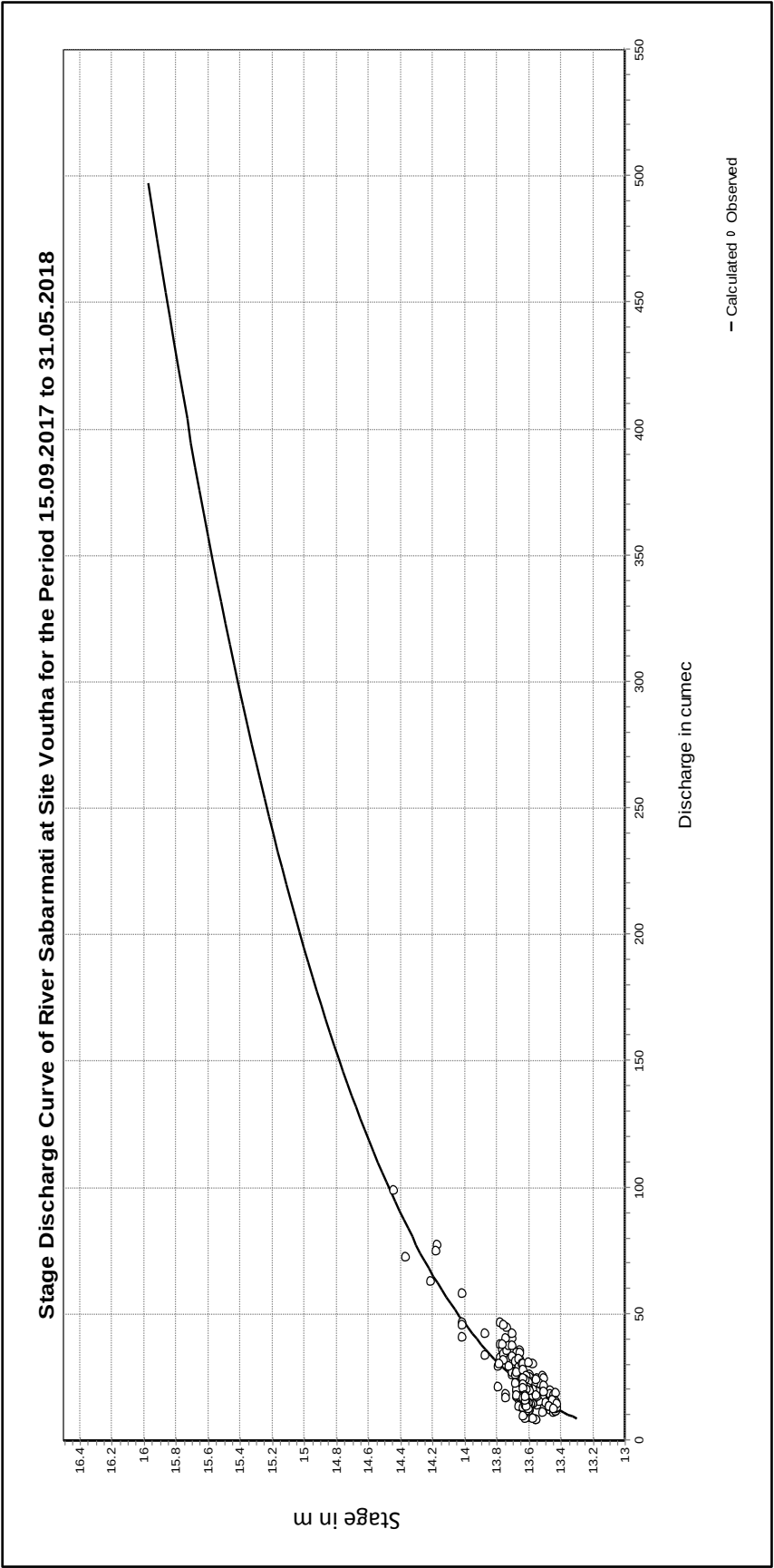
#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
13.990	20.700	-13.28	2.108	27.871



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
13.300	16.000	-12.39	2.958	11.410

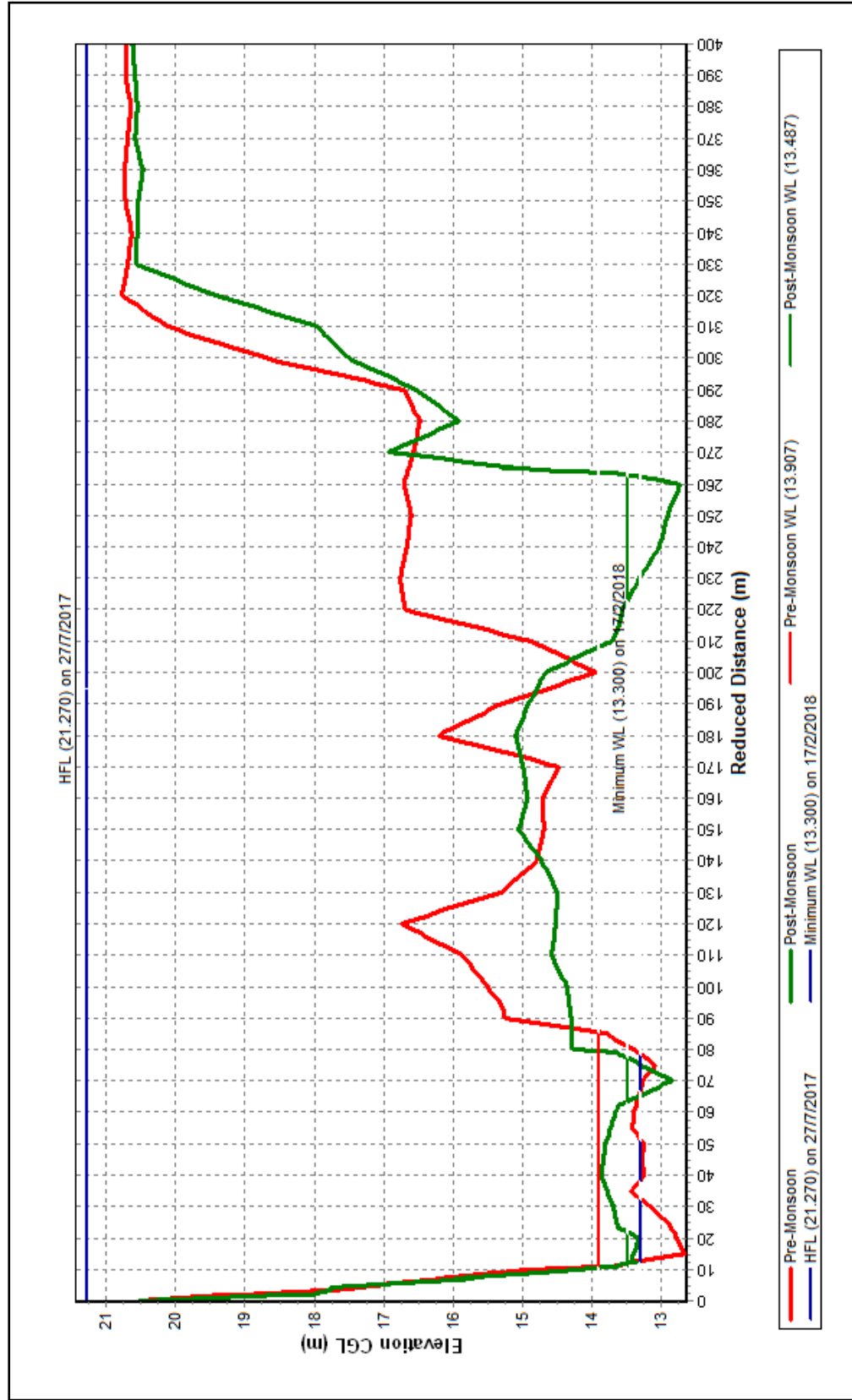
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Sabarmati at Voutha (01 02 12 013)

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



Historic Flood Level- 21.27 m on 28.07.2017 at 0000 hrs

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2017-18

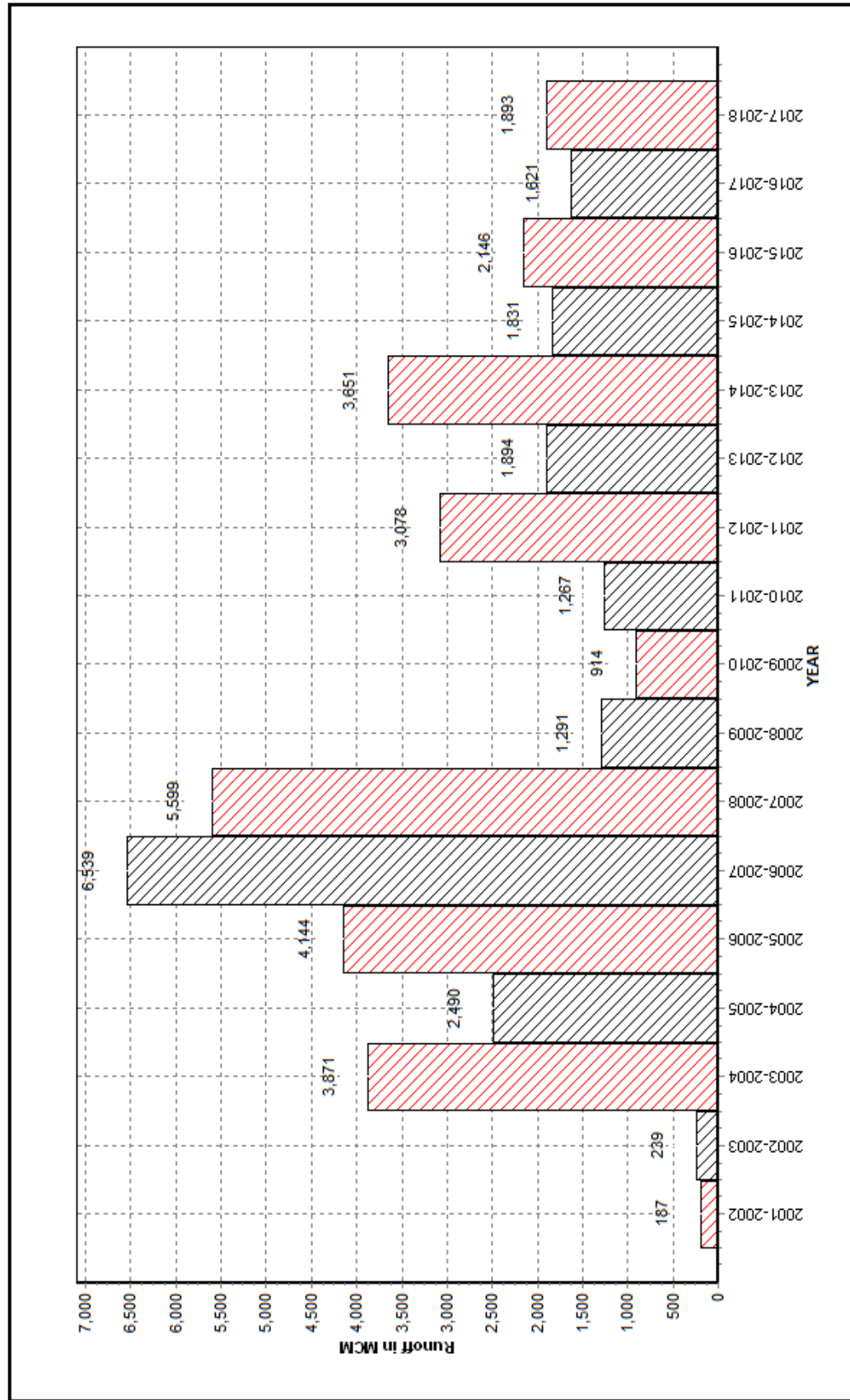
Station Name : Sabarmati at Voutha (01 02 12 013)

Local River : Sabarmati

Annual Runoff Values for the period: 2001 - 2018

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

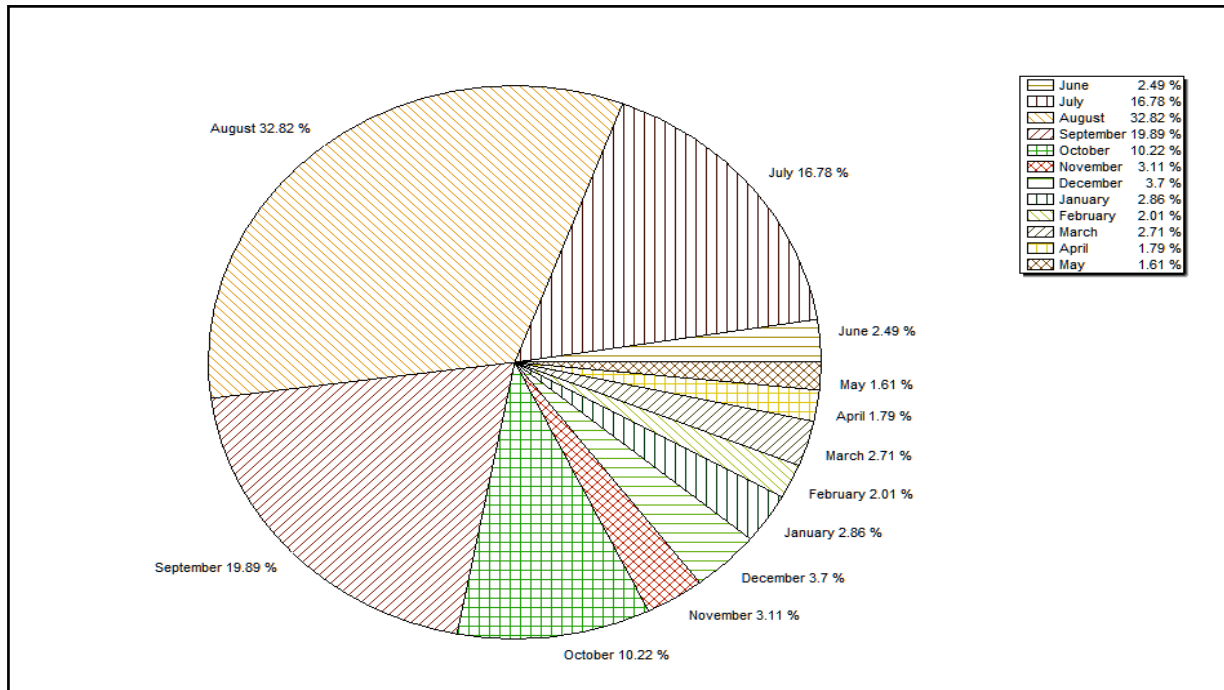


Note: Missing values have not been considered while arriving at Annual Runoff

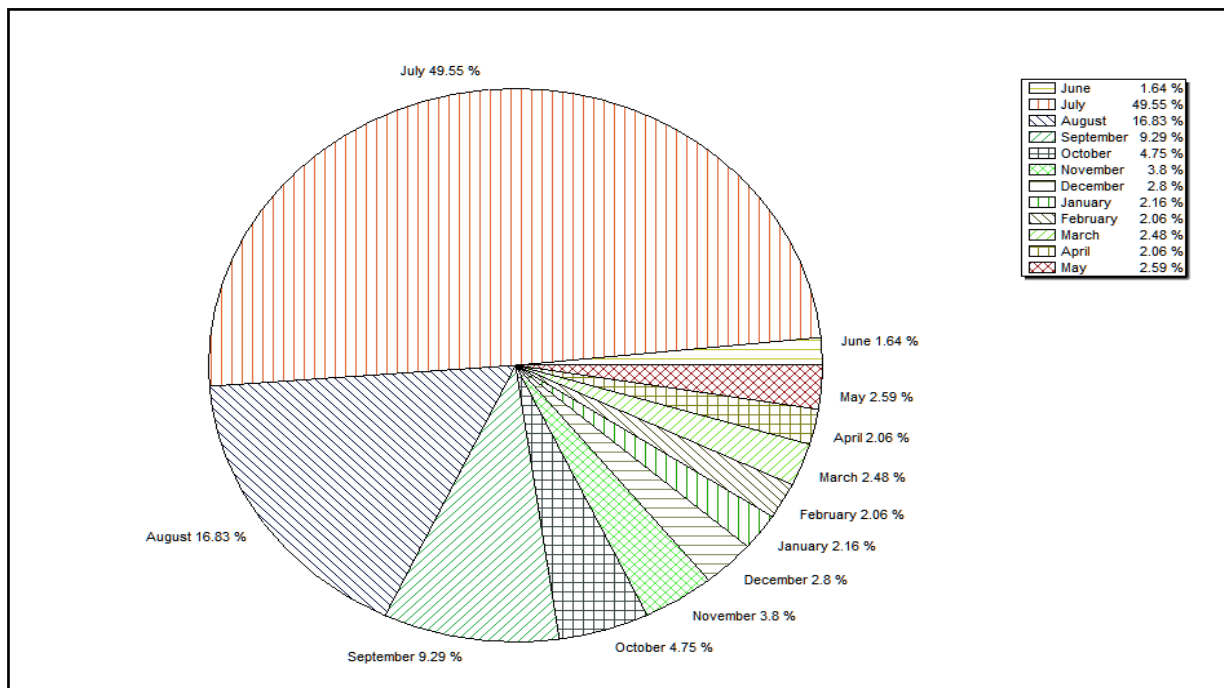
Station Name : Sabarmati at Voutha (01 02 12 013)
Local River : Sabarmati

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

Monthly Average Runoff based on period : 2001-2017



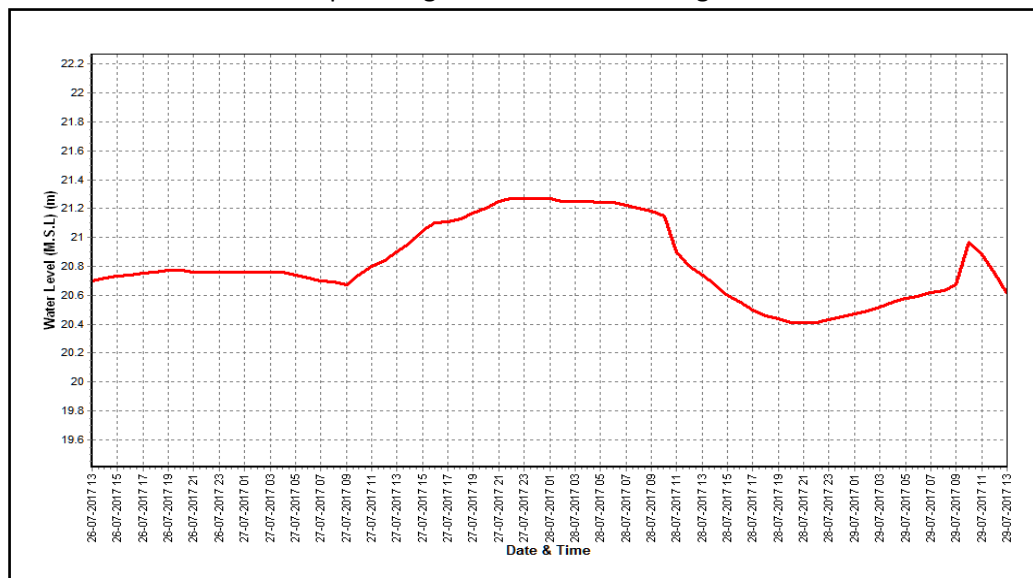
Monthly Runoff for the Year : 2017-2018



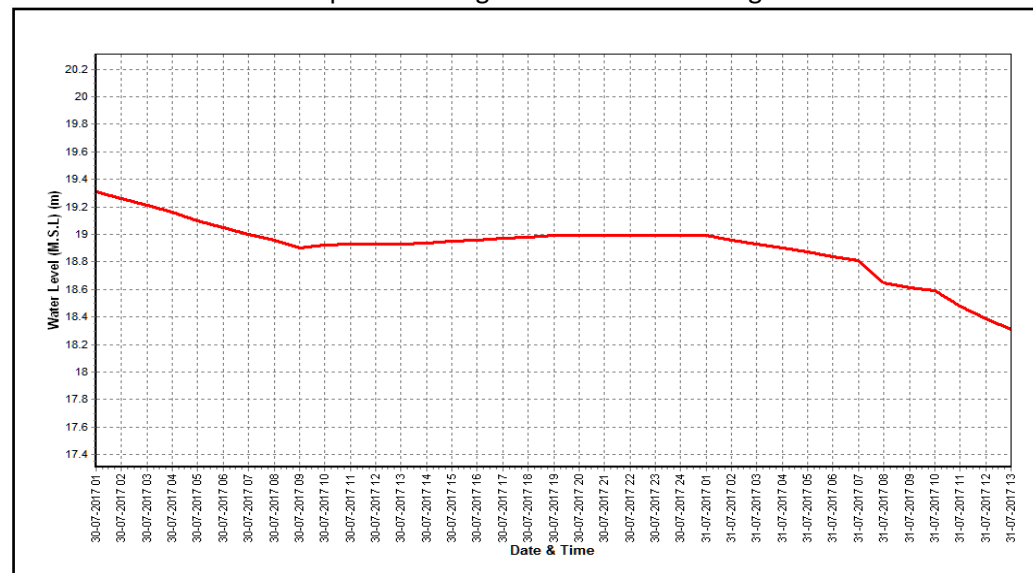
Station Name : Sabarmati at Voutha (01 02 12 013)
Local River : Sabarmati

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

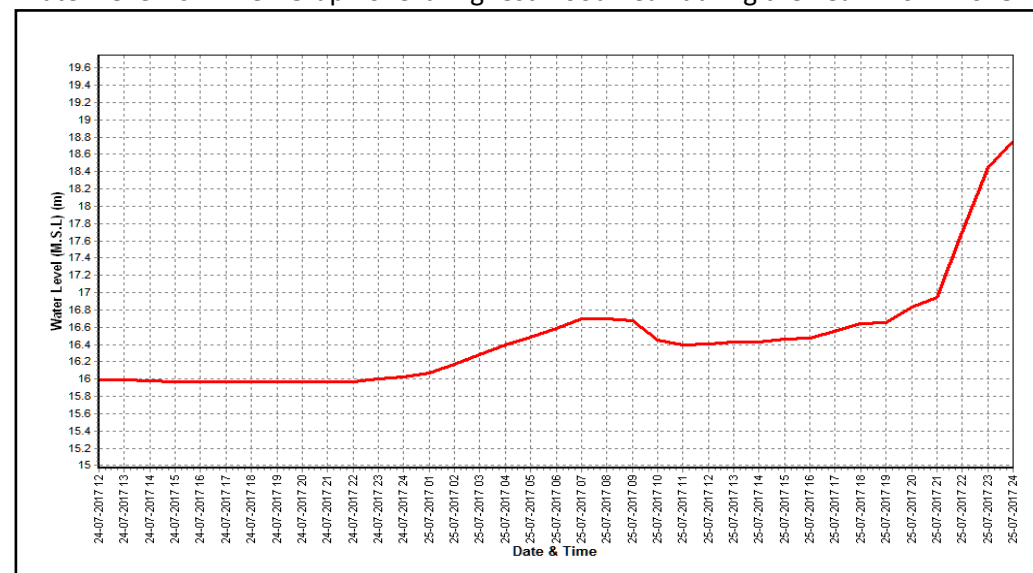
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Watrak at Kheda

Code : 01 02 12 012

State : Gujarat

District : Kheda

Basin : Sabarmati

Independent River : Sabarmati

Tributary : Watrak

Sub Tributary :

Sub-Sub Tributary :

Local River : Watrak

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn.,
Ahmedabad

Drainage Area : 7550 Sq. Km.

Bank : Right

Latitude : 22°44'45"N

Longitude : 72°40'49"E

Zero of Gauge (m) : 19.5 (m.s.l)
19.75 (m.s.l)
19 (m.s.l)

29/03/1985 - 31/05/1989
01/06/1989 - 31/05/1994
01/06/1994 -

Opening Date

Closing Date

Gauge : 29/03/1985

Discharge : 10/07/1989

Sediment : ---

Water Quality : ---

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

Year	Maximum			Minimum		Date
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	
1989-1990	239.7	22.450	21/08/1989	0.000	River Dry	25/01/1990
1990-1991	1626.0	28.200	25/08/1990	0.000	River Dry	26/01/1991
1991-1992	707.9	23.475	01/08/1991	0.000	River Dry	26/01/1992
1992-1993	57.1	20.830	08/09/1992	0.000	River Dry	25/01/1993
1993-1994	845.5	24.000	18/07/1993	0.000	River Dry	08/11/1993
1994-1995	1617.0	25.015	09/09/1994	0.000	River Dry	25/01/1995
1995-1996	31.5	20.100	31/07/1995	0.000	River Dry	27/01/1996
1996-1997	310.3	22.175	29/07/1996	0.000	River Dry	25/01/1997
1997-1998	2380.0	25.950	28/07/1997	0.000	River Dry	25/01/1998
1998-1999	1677.0	24.100	18/09/1998	0.000	River Dry	12/03/1999
1999-2000	154.2	21.480	21/07/1999	0.000	River Dry	27/01/2000
2000-2001	100.2	21.195	15/07/2000	0.000	River Dry	04/12/2000
2001-2002	0.0	19.230	04/10/2001	0.000	River Dry	25/01/2002
2002-2003	0.0	19.460	21/09/2002	0.000	River Dry	25/01/2003
2003-2004	324.6	22.985	25/08/2003	0.000	River Dry	26/01/2004
2004-2005	182.2	22.220	07/08/2004	0.000	River Dry	29/03/2005
2005-2006	872.0	26.825	07/07/2005	0.000	River Dry	01/06/2005
2006-2007	4508.0	25.326	12/08/2006	0.000	River Dry	01/06/2006
2007-2008	1682.0	26.000	10/07/2007	0.000	River Dry	01/06/2007
2008-2009	278.6	22.370	13/08/2008	0.000	19.000	01/11/2008
2009-2010	270.1	21.700	23/07/2009	0.000	19.010	01/12/2009
2010-2011	163.7	21.070	09/08/2010	0.000	19.650	01/06/2010
2011-2012	232.7	21.110	13/09/2011	9.412	19.570	05/10/2011
2012-2013	849.3	24.200	08/09/2012	0.000	18.840	01/06/2012
2013-2014	261.4	21.630	30/09/2013	0.000	River dry	01/06/2013
2014-2015	286	22.270	10/09/2014	0.000	18.4	01/06/2014
2015-2016	272.1	22.140	30/07/2015	0.000	18.35	05/09/2015
2016-2017	295.8	21.550	25/08/2016	0.000	18.06	01/06/2016
2017-2018	393.7	23.500	27/07/2017	2.387	18.31	23/11/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Watrak at Kheda (01 02 12 012)

Division : Mahi Division, Gandhinagar

Local River : Watrak

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	18.000	0.000	18.270	0.000	19.900	52.70 #	20.470	81.48	18.510	4.070 *	18.560	3.955
2	18.000	0.000	18.220	0.000	19.675	38.86	20.100	63.96 *	18.630	5.627	18.570	4.426
3	18.000	0.000	18.210	0.000	19.550	38.34	19.900	66.82	18.590	5.234	18.640	5.147
4	18.000	0.000	18.210	0.000	19.430	31.13	19.750	43.27	18.560	4.774	18.600	5.600 *
5	18.000	0.000	18.200	0.000	19.350	30.53	19.930	53.28	18.540	4.802	18.630	6.160 *
6	18.000	0.000	18.200	0.000	19.260	23.77 *	19.780	46.27	18.520	4.694	18.700	5.958
7	18.000	0.000	18.200	0.000	19.170	25.14	19.600	44.93	18.410	3.311	18.710	6.372
8	18.000	0.000	18.200	0.000	19.140	24.40	19.460	35.60	18.400	2.520 *	18.650	5.883
9	18.000	0.000	18.200	0.000	19.120	21.45	19.250	30.55	18.420	3.684	18.700	5.979
10	18.030	0.000	18.200	0.000	19.060	16.99 #	19.310	25.63 *	18.550	4.203	18.590	5.176
11	18.100	0.000	18.200	0.000	19.010	15.46 #	18.970	14.29 #	18.500	3.955	18.660	5.812
12	18.070	0.000	18.200	0.000	18.900	12.36 #	18.850	11.05 #	18.500	3.881	18.610	5.780 *
13	18.060	0.000	18.200	0.000	18.900	12.36 *	18.830	10.55 #	18.570	4.571	18.610	5.612
14	18.050	0.000	18.200	0.000	18.900	12.36 #	18.980	14.58 #	18.660	5.623	18.580	5.033
15	18.050	0.000	18.250	0.000	18.890	12.09 #	19.550	39.09	18.630	6.160 *	18.570	4.818
16	18.050	0.000	18.250	0.000	18.860	11.31 #	19.200	29.36	18.600	5.231	18.500	4.448
17	18.040	0.000	18.740	0.000	18.850	11.05 #	19.220	22.32 *	18.570	4.683	18.490	3.873
18	18.040	0.000	18.320	0.000	18.830	10.55 #	19.100	18.26 #	18.560	4.518	18.470	3.567
19	18.040	0.000	18.410	0.000	18.810	10.06 #	19.280	31.89	18.550	4.720 *	18.400	2.520 *
20	18.040	0.000	18.400	0.000	18.780	9.350 *	19.090	24.32	18.550	4.595	18.320	2.481
21	18.040	0.000	18.380	0.000	18.750	8.660 #	18.930	11.15	18.550	4.639	18.350	2.566
22	18.040	0.000	18.710	0.000	18.900	12.36 #	18.940	10.77	18.540	4.550 *	18.360	2.796
23	18.040	0.000	19.020	0.000	18.900	12.36 #	18.900	12.58	18.540	4.550 *	18.310	2.387
24	18.120	0.000	19.720	0.000	19.015	15.61 #	18.860	11.31 *	18.620	5.171	18.120	0.000
25	18.070	0.000	20.490	33.93	18.960	14.01 #	18.720	6.223	18.670	6.562	18.100	0.000
26	18.070	0.000	22.720	334.7	18.930	13.17 #	18.730	6.754	18.620	4.961	18.170	0.000
27	18.150	0.000	23.500	393.7	19.050	16.68 *	18.700	6.761	18.610	4.888	18.200	0.000
28	18.270	0.000	23.230	377.9	19.110	18.58 #	18.630	5.446	18.600	5.039	18.200	0.000
29	18.460	0.000	21.700	169.2	19.220	22.32 #	18.580	5.014	18.590	5.420 *	18.200	0.000
30	18.300	0.000	21.130	138.4 *	20.410	75.39	18.520	4.432	18.580	4.438	18.140	0.000
31			20.430	90.95	20.500	84.63			18.560	4.056		
Ten-Daily Mean												
I Ten-Daily	18.003	0.000	18.211	0.000	19.365	30.33	19.755	49.18	18.513	4.292	18.635	5.466
II Ten-Daily	18.054	0.000	18.317	0.000	18.873	11.70	19.107	21.57	18.569	4.794	18.521	4.394
III Ten-Daily	18.156	0.000	20.821	139.9	19.250	26.71	18.751	8.044	18.589	4.934	18.215	0.775
Monthly												
Min.	18.000	0.000	18.200	0.000	18.750	8.660	18.520	4.432	18.400	2.520	18.100	0.000
Max.	18.460	0.000	23.500	393.7	20.500	84.63	20.470	81.48	18.670	6.562	18.710	6.372
Mean	18.071	0	19.171	49.64	19.165	23.03	19.204	26.27	18.558	4.682	18.457	3.545

Annual Runoff in MCM = 284 Annual Runoff in mm = 38

Peak Observed Discharge = 393.7 cumecs on 27-07-2017 Corres. Water Level :23.5 m

Lowest Observed Discharge = 2.387 cumecs on 23-11-2017 Corres. Water Level :18.31 m

River was in Pooling condition from 1/6/17 to 24/7/17, 24/11/17 to 31/5/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Watrak at Kheda (01 02 12 012)

Division : Mahi Division, Gandhinagar

Local River : Watrak

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	18.070	0.000	18.050	0.000	18.050	0.000	18.070	0.000	18.050	0.000	18.030	0.000
2	18.060	0.000	18.050	0.000	18.050	0.000	18.070	0.000	18.040	0.000	18.030	0.000
3	18.060	0.000	18.070	0.000	18.050	0.000	18.060	0.000	18.040	0.000	18.030	0.000
4	18.050	0.000	18.060	0.000	18.120	0.000	18.060	0.000	18.040	0.000	18.030	0.000
5	18.050	0.000	18.060	0.000	18.130	0.000	18.160	0.000	18.040	0.000	18.060	0.000
6	18.050	0.000	18.050	0.000	18.120	0.000	18.110	0.000	18.040	0.000	18.070	0.000
7	18.050	0.000	18.050	0.000	18.180	0.000	18.100	0.000	18.040	0.000	18.070	0.000
8	18.050	0.000	18.050	0.000	18.170	0.000	18.100	0.000	18.040	0.000	18.070	0.000
9	18.090	0.000	18.050	0.000	18.140	0.000	18.150	0.000	18.040	0.000	18.070	0.000
10	18.100	0.000	18.050	0.000	18.100	0.000	18.140	0.000	18.030	0.000	18.070	0.000
11	18.130	0.000	18.050	0.000	18.090	0.000	18.120	0.000	18.030	0.000	18.070	0.000
12	18.120	0.000	18.080	0.000	18.080	0.000	18.090	0.000	18.030	0.000	18.070	0.000
13	18.120	0.000	18.150	0.000	18.070	0.000	18.090	0.000	18.030	0.000	18.070	0.000
14	18.110	0.000	18.140	0.000	18.070	0.000	18.090	0.000	18.030	0.000	18.100	0.000
15	18.080	0.000	18.140	0.000	18.070	0.000	18.090	0.000	18.030	0.000	18.100	0.000
16	18.080	0.000	18.130	0.000	18.100	0.000	18.080	0.000	18.030	0.000	18.100	0.000
17	18.070	0.000	18.130	0.000	18.110	0.000	18.070	0.000	18.030	0.000	18.100	0.000
18	18.060	0.000	18.100	0.000	18.110	0.000	18.070	0.000	18.030	0.000	18.100	0.000
19	18.050	0.000	18.080	0.000	18.100	0.000	18.060	0.000	18.030	0.000	18.100	0.000
20	18.050	0.000	18.070	0.000	18.080	0.000	18.060	0.000	18.030	0.000	18.100	0.000
21	18.050	0.000	18.070	0.000	18.070	0.000	18.060	0.000	18.030	0.000	18.100	0.000
22	18.050	0.000	18.060	0.000	18.070	0.000	18.060	0.000	18.030	0.000	18.100	0.000
23	18.050	0.000	18.060	0.000	18.120	0.000	18.060	0.000	18.030	0.000	18.100	0.000
24	18.050	0.000	18.050	0.000	18.090	0.000	18.060	0.000	18.030	0.000	18.100	0.000
25	18.040	0.000	18.050	0.000	18.080	0.000	18.050	0.000	18.030	0.000	18.100	0.000
26	18.040	0.000	18.050	0.000	18.080	0.000	18.050	0.000	18.030	0.000	18.100	0.000
27	18.040	0.000	18.050	0.000	18.070	0.000	18.050	0.000	18.030	0.000	18.100	0.000
28	18.040	0.000	18.050	0.000	18.070	0.000	18.050	0.000	18.030	0.000	18.100	0.000
29	18.040	0.000	18.050	0.000			18.050	0.000	18.030	0.000	18.100	0.000
30	18.070	0.000	18.050	0.000			18.050	0.000	18.030	0.000	18.100	0.000
31	18.070	0.000	18.050	0.000			18.050	0.000			18.100	0.000
Ten-Daily Mean												
I Ten-Daily	18.063	0.000	18.054	0.000	18.111	0.000	18.102	0.000	18.040	0.000	18.053	0.000
II Ten-Daily	18.087	0.000	18.107	0.000	18.088	0.000	18.082	0.000	18.030	0.000	18.091	0.000
III Ten-Daily	18.049	0.000	18.054	0.000	18.081	0.000	18.054	0.000	18.030	0.000	18.100	0.000
Monthly												
Min.	18.040	0.000	18.050	0.000	18.050	0.000	18.050	0.000	18.030	0.000	18.030	0.000
Max.	18.130	0.000	18.150	0.000	18.180	0.000	18.160	0.000	18.050	0.000	18.100	0.000
Mean	18.066	0.000	18.071	0.000	18.094	0.000	18.078	0.000	18.033	0.000	18.082	0.000

Peak Computed Discharge = 138.4 cumecs on 30-07-2017

Corres. Water Level :21.13 m

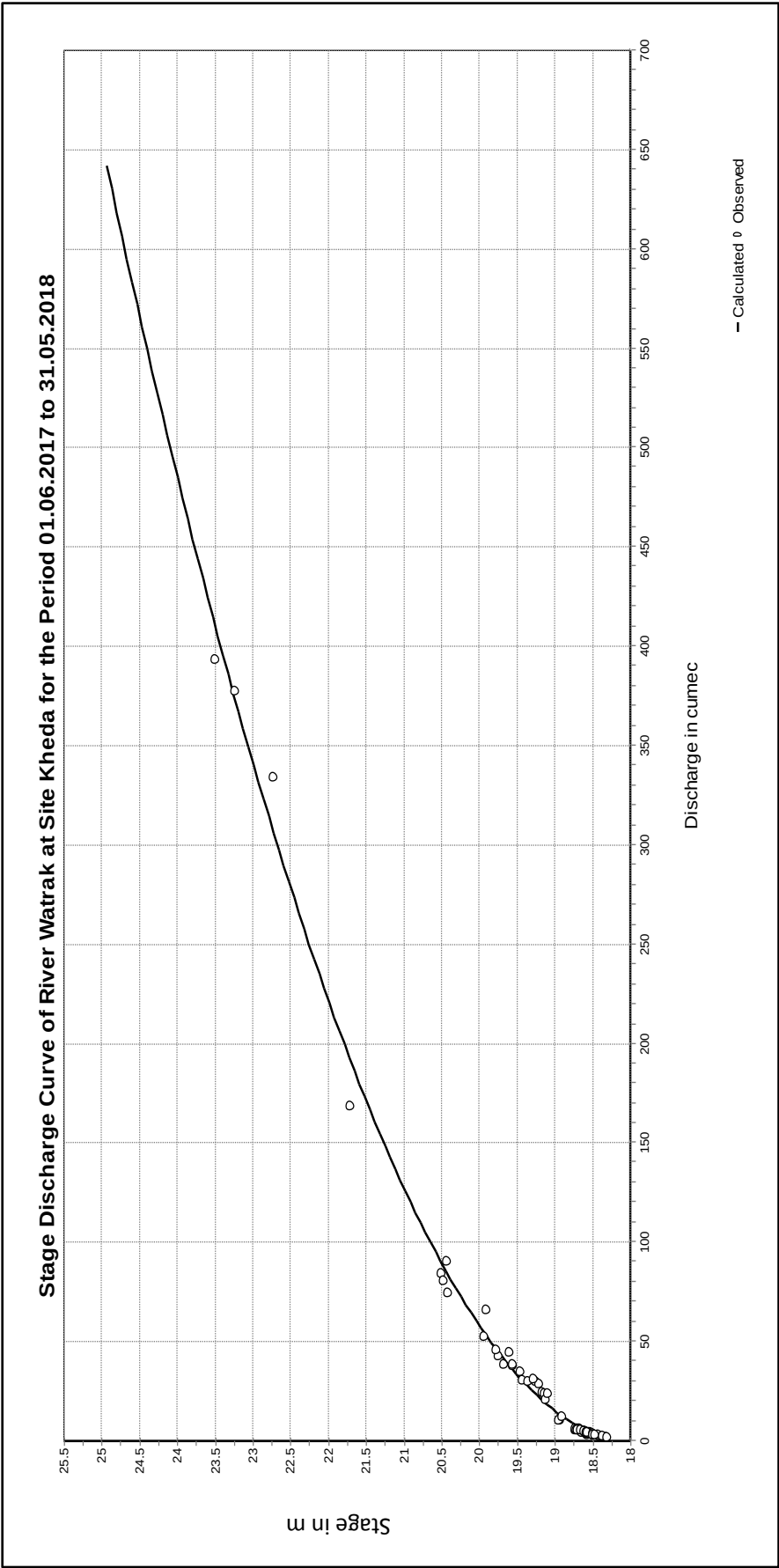
Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

Corres. Water Level :18 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
18.300	25.000	-18.01	1.926	15.464

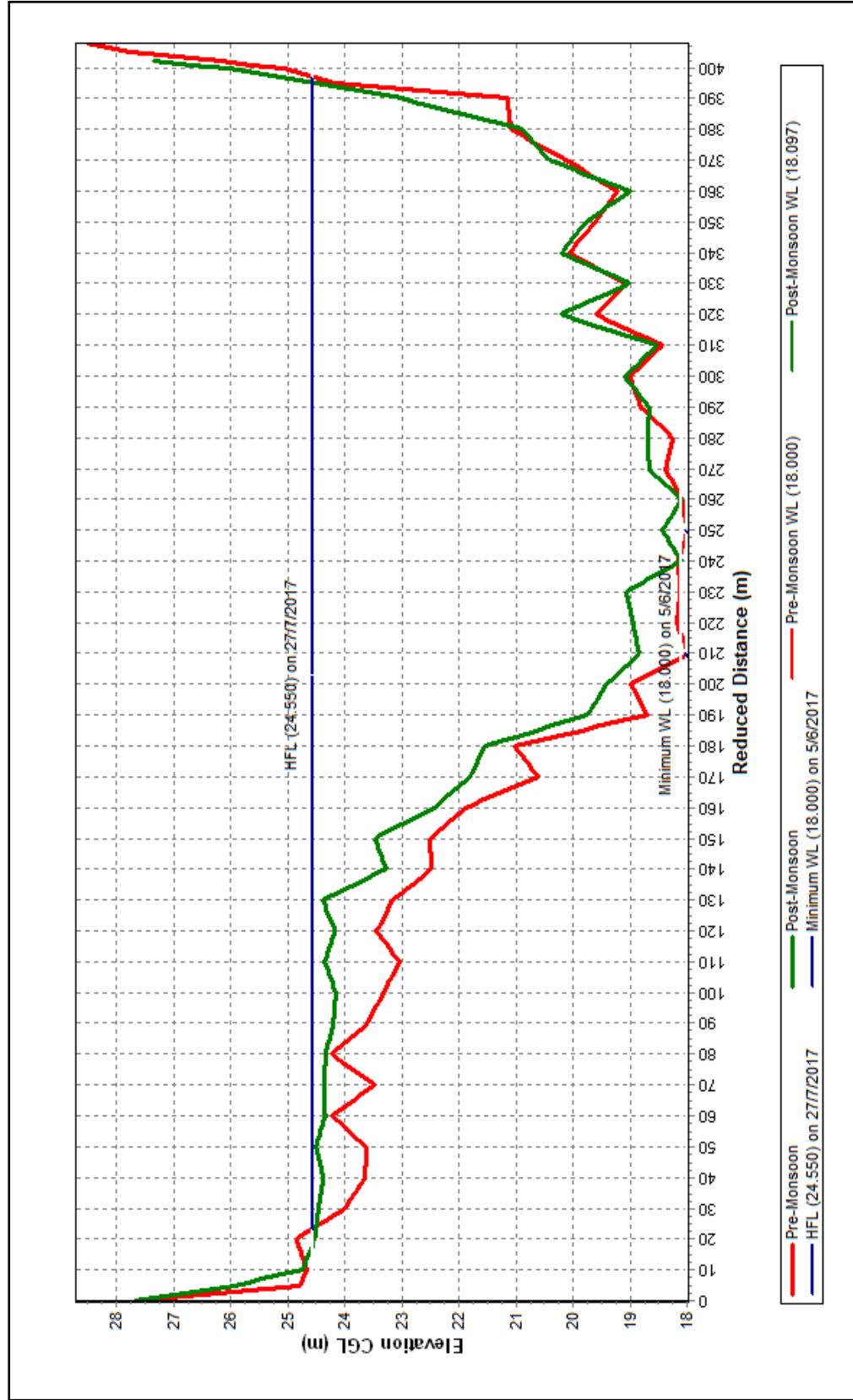
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Watrak at Kheda (01 02 12 012)

Local River : Watrak

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



Historic Flood Level-28.2m on 25.08.1990 at 0800hrs

Note: HFL marked on graph denotes High Flood Level observed during the Water Year 2017-18

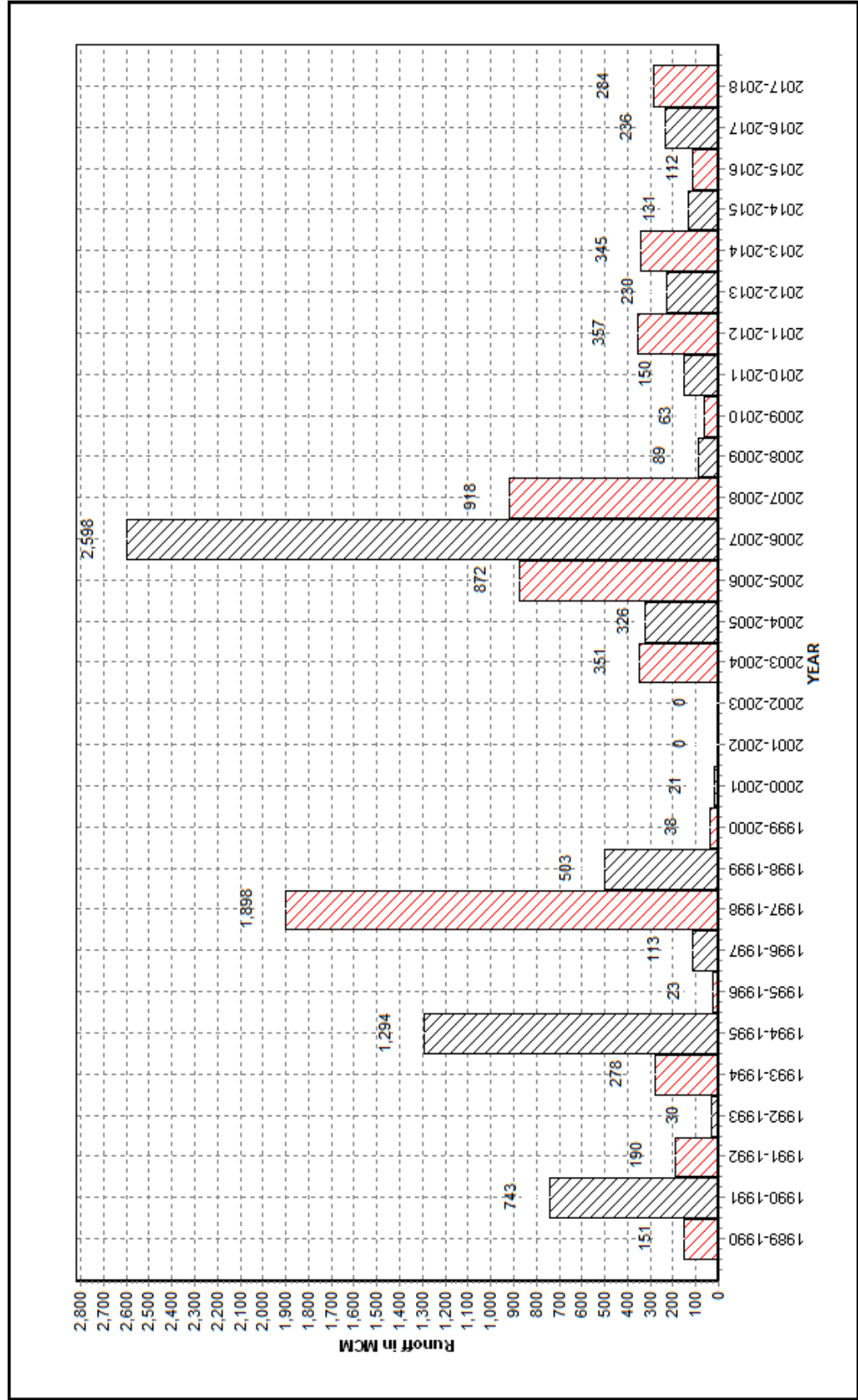
Station Name : Watrak at Kheda (01 02 12 012)

Local River : Watrak

Annual Runoff Values for the period: 1989 - 2018

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

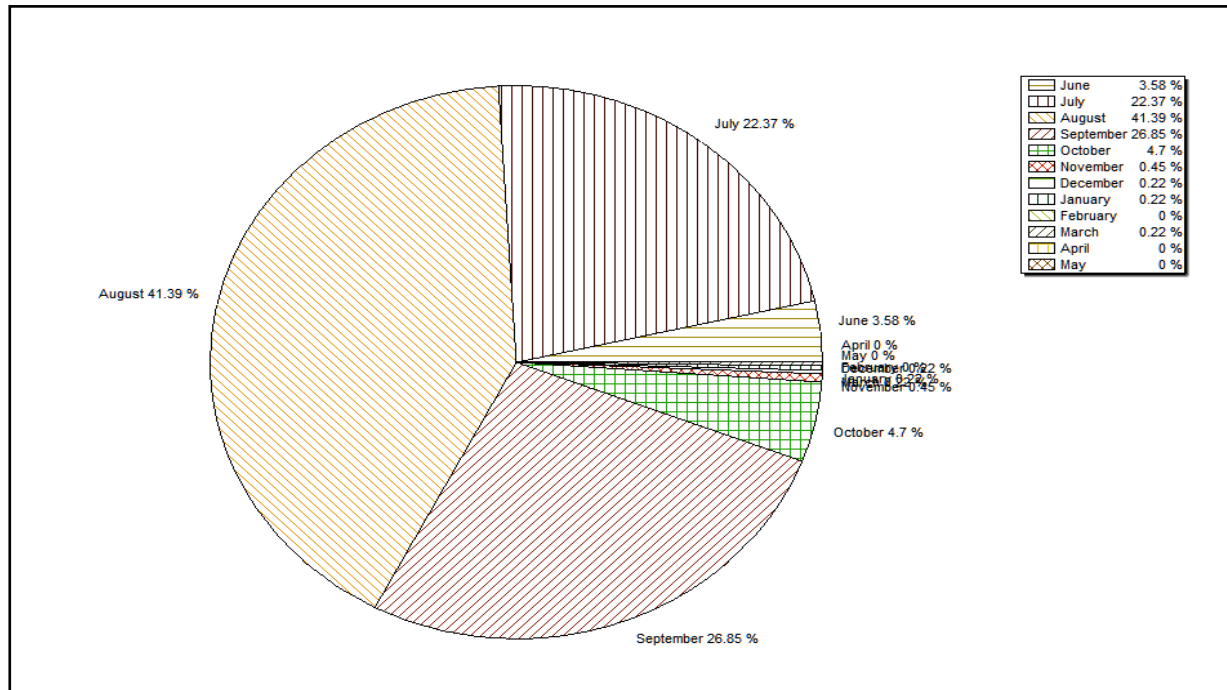


Note: Missing values have not been considered while arriving at Annual Runoff

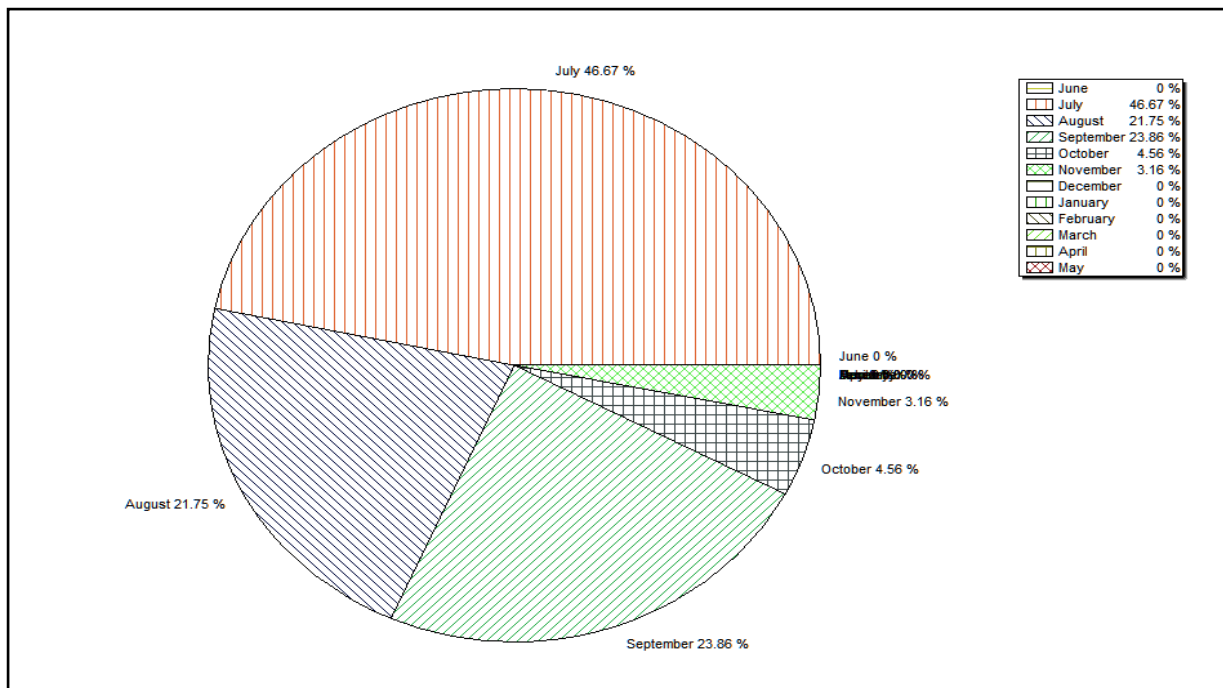
Station Name : Watrak at Kheda (01 02 12 012)
Local River : Watrak

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

Monthly Average Runoff based on period : 1989-2017



Monthly Runoff for the Year : 2017-2018



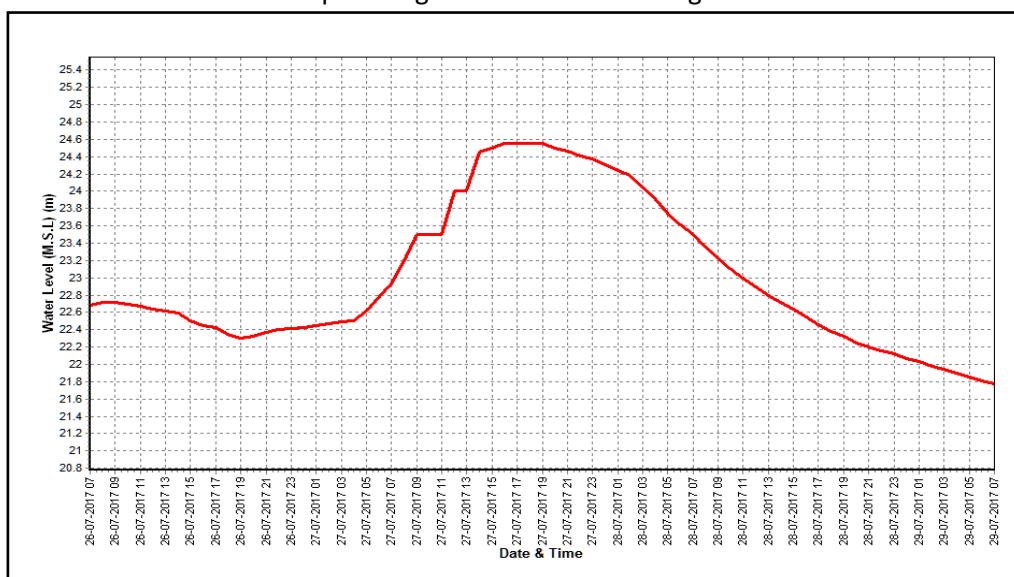
Station Name : Watrak at Kheda (01 02 12 012)

Local River : Watrak

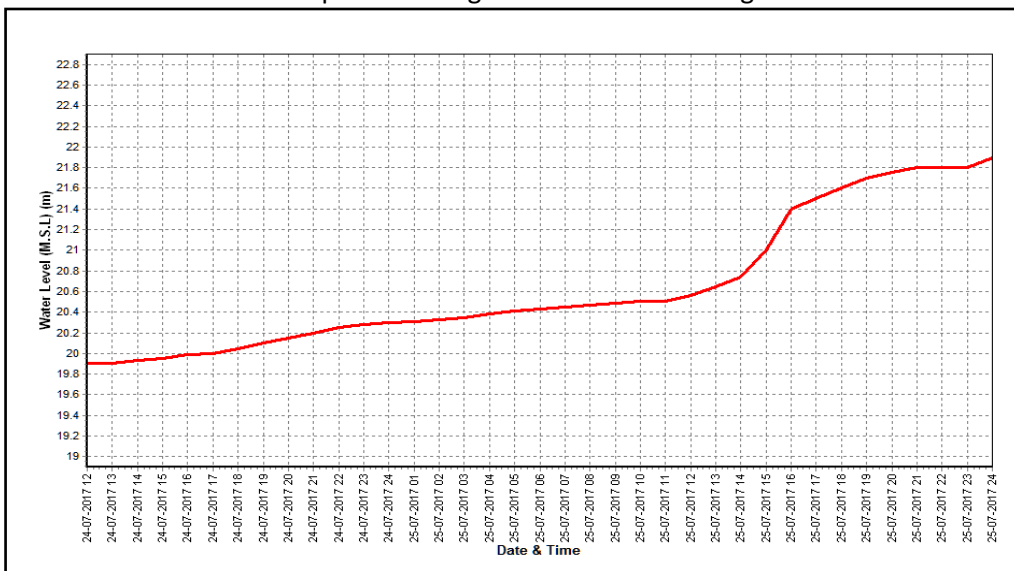
Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

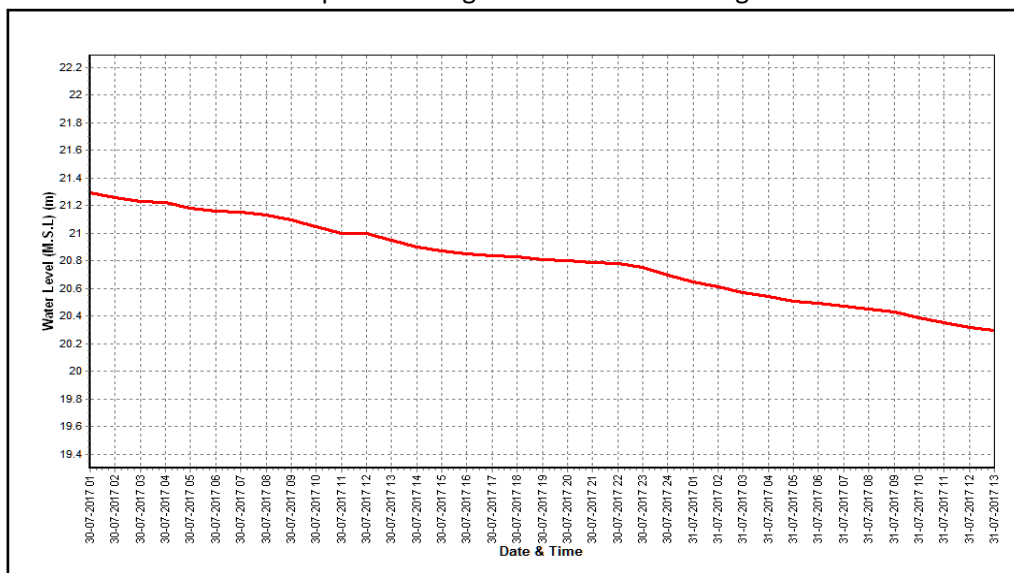
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Watrak at Gadvel (Ratanpur)

Code : 01 02 12 010

State : Gujarat

District Kheda

Basin : Sabarmati

Independent

River : Sabarmati

Tributary : Watrak

Sub

Tributary :

Sub-Sub

Tributary :

Local River : Watrak

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn.,
Ahmedabad

Drainage

Area : 2916 Sq. Km.

Bank : Left

Latitude : 22°58'31"N

Longitude : 72°53'02"E

Zero of

Gauge (m) : 39.1 (m.s.l)
37 (m.s.l)

30/03/1985 - 15/06/1990
16/06/1990 -

Opening Date

Closing Date

Gauge : 30/03/1985

Discharge : 11/07/1989

Sediment : ---

Water

Quality : ---

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

Year	Maximum			Minimum		Date
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	
1991-1992	467.8	41.000	01/08/1991	0.000	River Dry	05/03/1992
1992-1993	56.13	39.150	08/09/1992	0.000	River Dry	09/05/1993
1993-1994	672.0	41.400	18/07/1993	0.000	River Dry	13/09/1993
1994-1995	735.8	42.185	08/09/1994	0.000	River Dry	09/03/1995
1995-1996	39.38	38.500	20/07/1995	0.000	River Dry	30/01/1996
1996-1997	213.4	39.100	29/07/1996	0.000	River Dry	16/03/1997
1997-1998	1978	44.750	01/08/1997	0.000	River Dry	27/01/1998
1998-1999	365.0	40.725	18/09/1998	0.000	River Dry	10/02/1999

1999-2000	77.92	38.365	21/07/1999	0.000	River Dry	14/02/2000
2000-2001	150.0	38.815	14/07/2000	0.000	River Dry	25/01/2001
2001-2002	17.30	37.890	12/08/2001	0.000	River Dry	25/01/2002
2002-2003	60.50	38.250	05/09/2002	0.000	River Dry	12/01/2003
2003-2004	159.0	39.040	24/08/2003	0.000	River Dry	12/07/2003
2004-2005	253.0	39.400	02/08/2004	0.000	River Dry	18/05/2005
2005-2006	340.6	40.400	01/07/2005	0.000	River Dry	01/06/2005
2006-2007	3732	44.980	12/08/2006	0.000	River Dry	01/06/2006
2007-2008	1526	43.950	10/07/2007	0.000	River Dry	01/06/2007
2008-2009	98.714	40.043	13/08/2010	0.000	River Dry	01/06/2008
2009-2010	101	39.230	24/07/2009	0.000	River Dry	01/06/2009
2010-2011	102.2	39.150	19/09/2010	0.000	River Dry	19/06/2010
2011-2012	134.8	39.000	05/09/2011	0.000	River Dry	09/04/2012
2012-2013	314.9	40.735	08/09/2012	0.000	River Dry	01/06/2012
2013-2014	186.5	40.2	14/08/2013	0.000	River Dry	01/06/2013
2014-2015	142.5	39.325	11/09/2014	0.000	37.1	08/06/2014
2015-2016	132	39.3	29/07/2015	0.000	37.030	04/01/2016
2016-2017	266.1	39.45	11/08/2016	0.000	River Dry	01/06/2016
2017-2018	134	39.8	26/072017	1.891	37.32	28/09/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)

Division : Mahi Division, Gandhinagar

Local River : Watrak

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R.Dry	0.000	37.880	7.780	38.470	50.10	37.280	1.830 *	37.090	0.840 *
2	R.Dry	0.000	R.Dry	0.000	37.800	4.647	38.450	33.37	37.280	1.830 *	37.090	0.840 *
3	R.Dry	0.000	R.Dry	0.000	37.785	5.785	37.850	9.400 *	37.260	1.700 *	37.090	0.840 *
4	R.Dry	0.000	R.Dry	0.000	37.740	5.755	38.250	23.70	37.250	1.640 *	37.090	0.840 *
5	R.Dry	0.000	R.Dry	0.000	37.700	3.044	38.150	20.05	37.240	1.580 *	37.090	0.840 *
6	R.Dry	0.000	R.Dry	0.000	37.670	6.080 *	38.020	14.40	37.220	1.460 *	37.090	0.840 *
7	R.Dry	0.000	R.Dry	0.000	37.630	3.271	37.889	14.30	37.200	1.350 *	37.090	0.840 *
8	R.Dry	0.000	R.Dry	0.000	37.570	3.259	37.750	6.863	37.170	1.190 *	37.080	0.800 *
9	R.Dry	0.000	R.Dry	0.000	37.550	3.109	37.850	13.28	37.150	1.090 *	37.080	0.800 *
10	R.Dry	0.000	R.Dry	0.000	37.530	4.046	37.600	5.040 *	37.140	1.050 *	37.080	0.800 *
11	R.Dry	0.000	R.Dry	0.000	37.520	4.539	37.500	4.730	37.130	1.000 *	37.080	0.800 *
12	R.Dry	0.000	R.Dry	0.000	37.490	4.172	37.530	5.219	37.130	1.000 *	37.080	0.800 *
13	R.Dry	0.000	R.Dry	0.000	37.470	3.470 *	37.480	4.263	37.130	1.000 *	37.080	0.800 *
14	R.Dry	0.000	R.Dry	0.000	37.460	3.700	38.100	17.34	37.130	1.000 *	37.080	0.800 *
15	R.Dry	0.000	37.5	3.790 *	37.460	3.360 *	37.740	13.58	37.120	0.960 *	37.070	0.760 *
16	R.Dry	0.000	37.41	2.870 *	37.450	3.768	37.640	4.672	37.120	0.960 *	37.060	0.730 *
17	R.Dry	0.000	37.25	1.640 *	37.440	3.647	37.660	5.920 *	37.120	0.960 *	37.050	0.690 *
18	R.Dry	0.000	37.290	1.900 *	37.430	3.357	37.640	5.620 #	37.120	0.960 *	37.040	0.660 *
19	R.Dry	0.000	37.290	1.900 *	37.420	3.674	37.610	5.180 #	37.120	0.960 *	37.030	0.630 *
20	R.Dry	0.000	37.290	1.900 *	37.410	2.870 *	37.580	4.770 #	37.120	0.960 *	37.020	0.590 *
21	R.Dry	0.000	37.280	1.830 *	37.500	4.526	37.620	5.330 #	37.120	0.960 *	37.020	0.590 *
22	R.Dry	0.000	37.280	1.830 *	37.600	5.554	37.520	4.020 #	37.120	0.960 *	37.020	0.590 *
23	R.Dry	0.000	37.470	3.470 *	37.640	4.343	37.470	6.151	37.120	0.960 *	37.020	0.590 *
24	R.Dry	0.000	38.200	14.90	37.560	3.738	37.420	2.960 *	37.120	0.960 *	37.020	0.590 *
25	R.Dry	0.000	38.900	57.35 #	37.720	9.309	37.400	2.780 #	37.120	0.960 *	37.020	0.590 *
26	R.Dry	0.000	39.800	134.0	37.640	6.105	37.430	3.060 #	37.110	0.920 *	37.020	0.590 *
27	R.Dry	0.000	41.500	625.6 *	37.550	4.390 *	37.370	2.344	37.100	0.880 *	37.020	0.590 *
28	R.Dry	0.000	39.100	87.82	37.600	5.040 #	37.320	1.891	37.100	0.880 *	37.010	0.560 *
29	R.Dry	0.000	38.250	16.57	37.775	16.53	37.300	1.970 *	37.100	0.880 *	37.010	0.560 *
30	R.Dry	0.000	38.000	13.02 *	38.490	19.87	37.280	1.830 *	37.100	0.880 *	37.010	0.560 *
31			37.880	8.929	38.580	47.09			37.090	0.840 *		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	R.Dry	0.000	37.685	4.678	38.028	19.05	37.219	1.472	37.087	0.828
II Ten-Daily	R.Dry	0.000	37.203	2.333	37.455	3.656	37.648	7.129	37.124	0.976	37.059	0.726
III Ten-Daily	R.Dry	0.000	38.515	87.76	37.787	11.50	37.413	3.234	37.109	0.916	37.017	0.581
Monthly												
Min.	R.Dry	0.000	37.000	1.640	37.410	2.870	37.280	1.830	37.090	0.840	37.010	0.560
Max.	R.Dry	0.000	41.500	625.6	38.580	47.09	38.470	50.10	37.280	1.830	37.090	0.840
Mean	R.Dry	0.000	37.603	57.61	37.647	6.769	37.696	9.804	37.149	1.115	37.054	0.712

Annual Runoff in MCM = 133 Annual Runoff in mm = 46

Peak Observed Discharge = 134.0 cumecs on 26-07-2017 Corres. Water Level :39.8 m

Lowest Observed Discharge = 1.891 cumecs on 28-09-2017 Corres. Water Level :37.32 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)

Division : Mahi Division, Gandhinagar

Local River : Watrak

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	37.010	0.560 *	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000
2	37.010	0.560 *	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000
3	37.010	0.560 *	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000
4	37.010	0.560 *	37.000	0.000	37.000	0.000	36.890	0.000	36.840	0.000	R.Dry	0.000
5	37.010	0.560 *	37.000	0.000	37.000	0.000	36.890	0.000	36.840	0.000	R.Dry	0.000
6	37.000	0.000	37.000	0.000	37.000	0.000	36.890	0.000	36.840	0.000	R.Dry	0.000
7	37.000	0.000	37.000	0.000	37.000	0.000	36.890	0.000	36.840	0.000	R.Dry	0.000
8	37.000	0.000	37.000	0.000	37.000	0.000	36.880	0.000	36.840	0.000	R.Dry	0.000
9	37.000	0.000	37.000	0.000	37.000	0.000	36.880	0.000	36.840	0.000	R.Dry	0.000
10	37.000	0.000	37.000	0.000	37.000	0.000	36.880	0.000	36.830	0.000	R.Dry	0.000
11	37.000	0.000	37.000	0.000	37.000	0.000	36.880	0.000	36.810	0.000	R.Dry	0.000
12	37.000	0.000	37.000	0.000	37.000	0.000	36.880	0.000	36.780	0.000	R.Dry	0.000
13	37.000	0.000	37.000	0.000	37.000	0.000	36.880	0.000	36.750	0.000	R.Dry	0.000
14	37.000	0.000	37.000	0.000	37.000	0.000	36.870	0.000	36.720	0.000	R.Dry	0.000
15	37.000	0.000	37.000	0.000	37.000	0.000	36.870	0.000	36.710	0.000	R.Dry	0.000
16	37.000	0.000	37.000	0.000	37.000	0.000	36.870	0.000	36.700	0.000	R.Dry	0.000
17	37.000	0.000	37.000	0.000	37.000	0.000	36.870	0.000	R.Dry	0.000	R.Dry	0.000
18	37.000	0.000	37.000	0.000	37.000	0.000	36.870	0.000	R.Dry	0.000	R.Dry	0.000
19	37.000	0.000	37.000	0.000	37.000	0.000	36.870	0.000	R.Dry	0.000	R.Dry	0.000
20	37.000	0.000	37.000	0.000	36.900	0.000	36.870	0.000	R.Dry	0.000	R.Dry	0.000
21	37.000	0.000	37.000	0.000	36.900	0.000	36.860	0.000	R.Dry	0.000	R.Dry	0.000
22	37.000	0.000	37.000	0.000	36.900	0.000	36.860	0.000	R.Dry	0.000	R.Dry	0.000
23	37.000	0.000	37.000	0.000	36.900	0.000	36.860	0.000	R.Dry	0.000	R.Dry	0.000
24	37.000	0.000	37.000	0.000	36.900	0.000	36.860	0.000	R.Dry	0.000	R.Dry	0.000
25	37.000	0.000	37.000	0.000	36.890	0.000	36.860	0.000	R.Dry	0.000	R.Dry	0.000
26	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000	R.Dry	0.000
27	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000	R.Dry	0.000
28	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000	R.Dry	0.000
29	37.000	0.000	37.000	0.000			36.850	0.000	R.Dry	0.000	R.Dry	0.000
30	37.000	0.000	37.000	0.000			36.850	0.000	R.Dry	0.000	R.Dry	0.000
31	37.000	0.000	37.000	0.000			36.850	0.000	R.Dry	0.000	R.Dry	0.000
Ten-Daily Mean												
I Ten-Daily	37.005	0.280	37.000	0.000	37.000	0.000	36.887	0.000	36.842	0.000	R.Dry	0.000
II Ten-Daily	37.000	0.000	37.000	0.000	36.990	0.000	36.873	0.000	36.745	0.000	R.Dry	0.000
III Ten-Daily	37.000	0.000	37.000	0.000	36.895	0.000	36.855	0.000	R.Dry	0.000	R.Dry	0.000
Monthly												
Min.	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	36.700	0.000	R.Dry	0.000
Max.	37.010	0.560	37.000	0.000	37.000	0.000	36.890	0.000	36.850	0.000	R.Dry	0.000
Mean	37.002	0.09	37.000	0.000	36.966	0.000	36.871	0.000	36.806	0.000	R.Dry	0.000

Peak Computed Discharge = 625.6 cumecs on 27-07-2017

Corres. Water Level :41.5 m

Lowest Computed Discharge = 0.000 cumecs on 06-12-2017

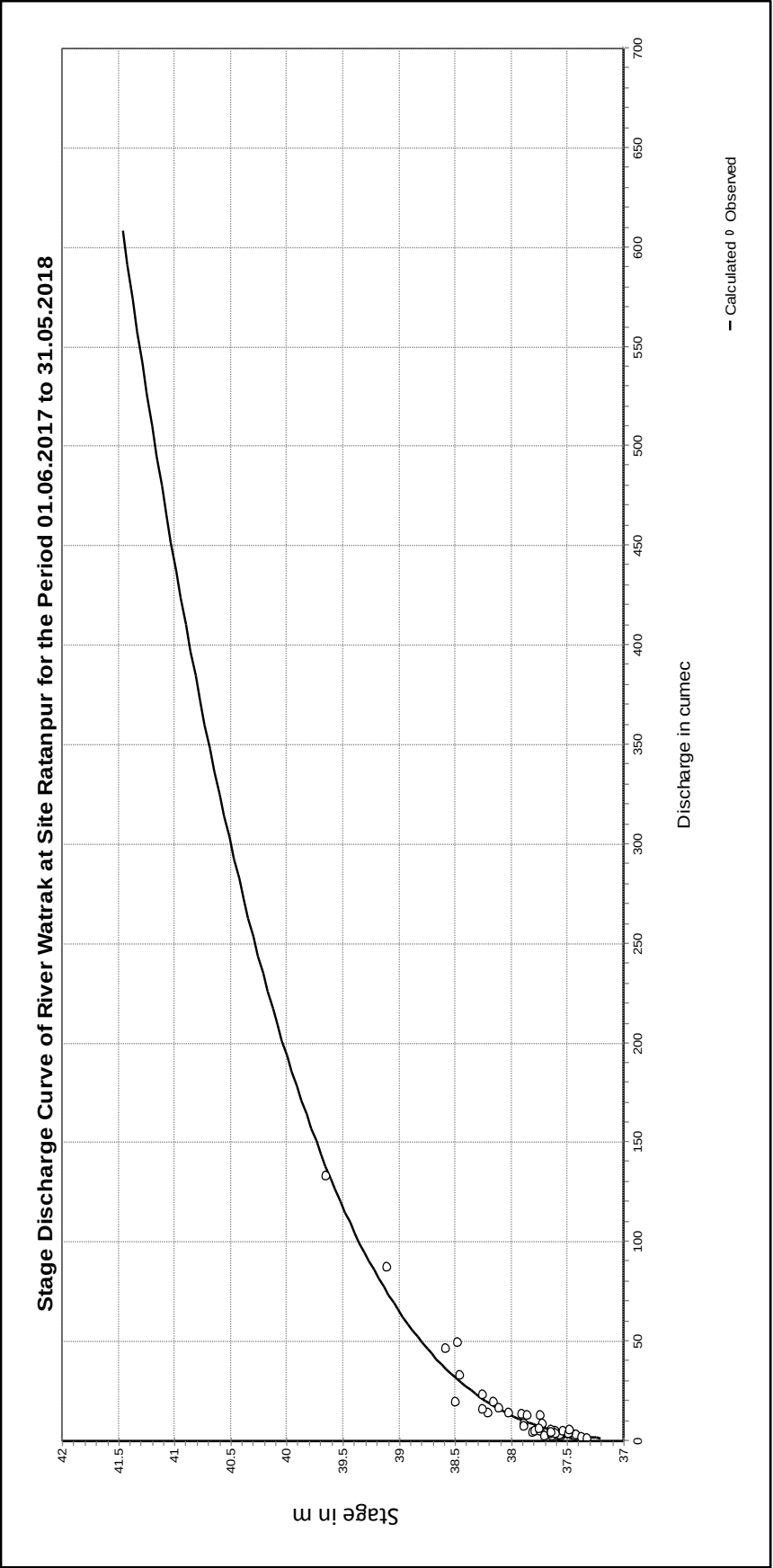
Corres. Water Level :37 m

River was in Pooling condition/ Negligible flow from 06/12/17 to 16/04/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
37.200	41.500	-36.36	3.39	2.433

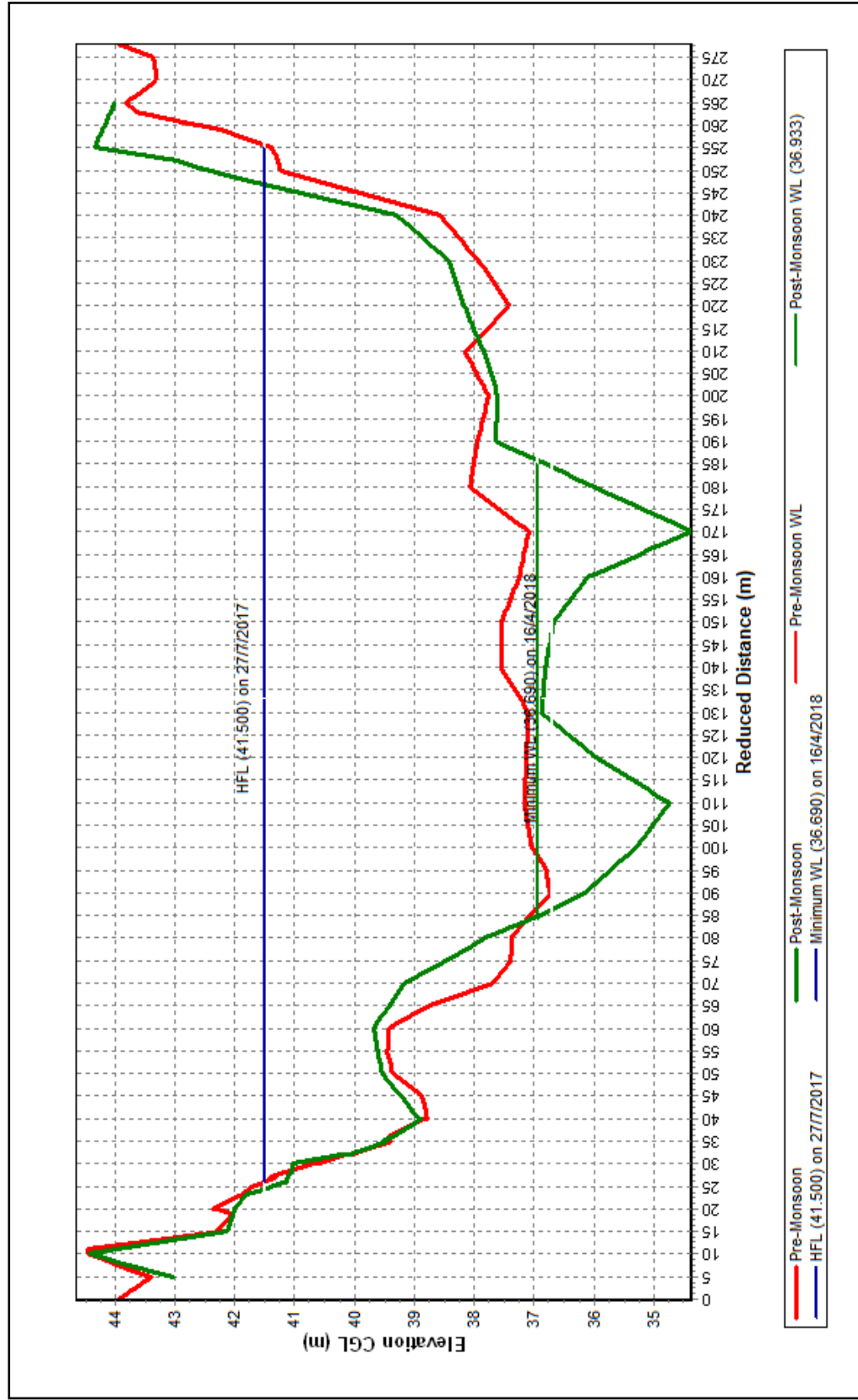
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)

Local River : Watrak

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



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

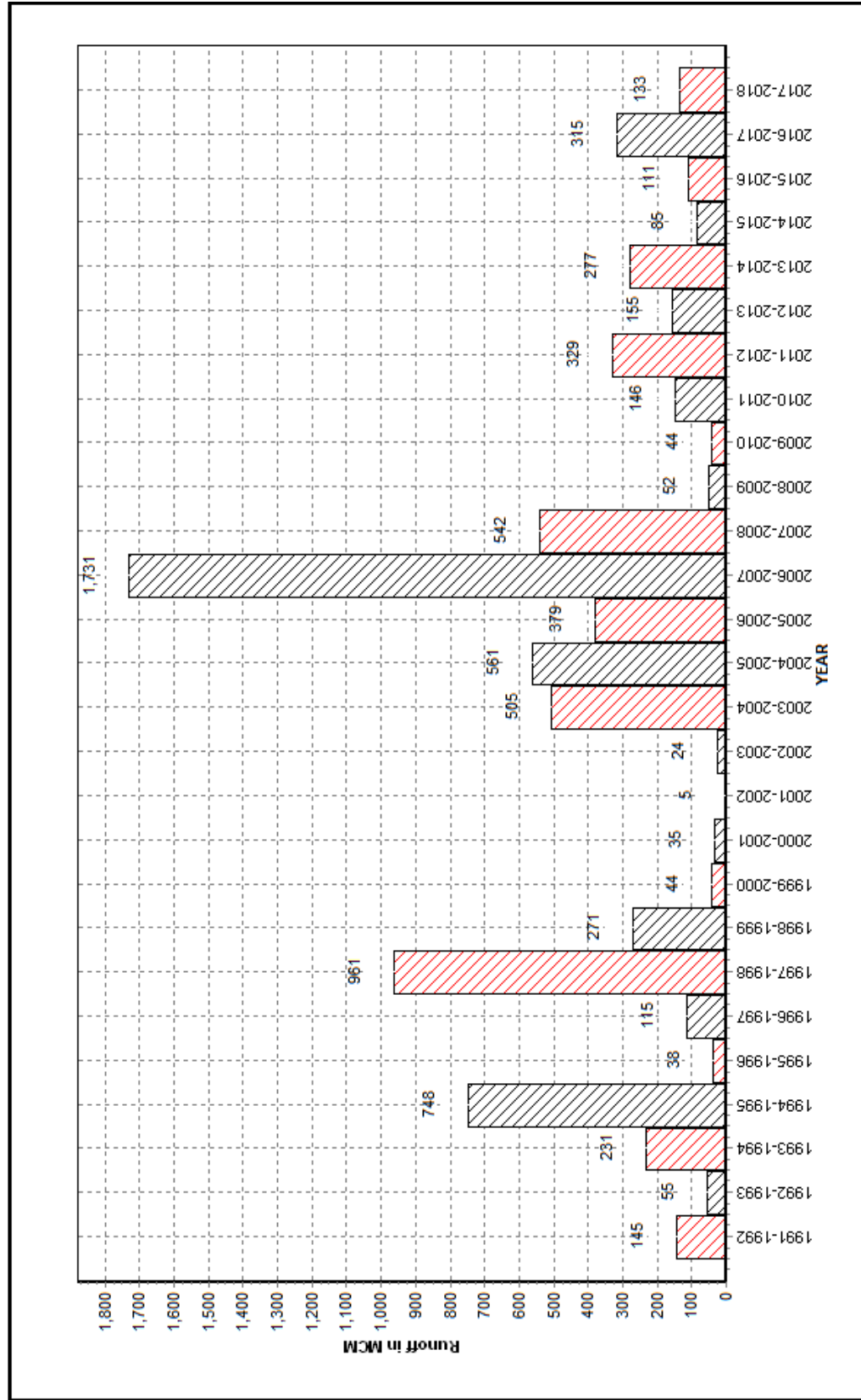
Annual Runoff Values for the period: 1991 - 2018

Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)

Local River : Watrak

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

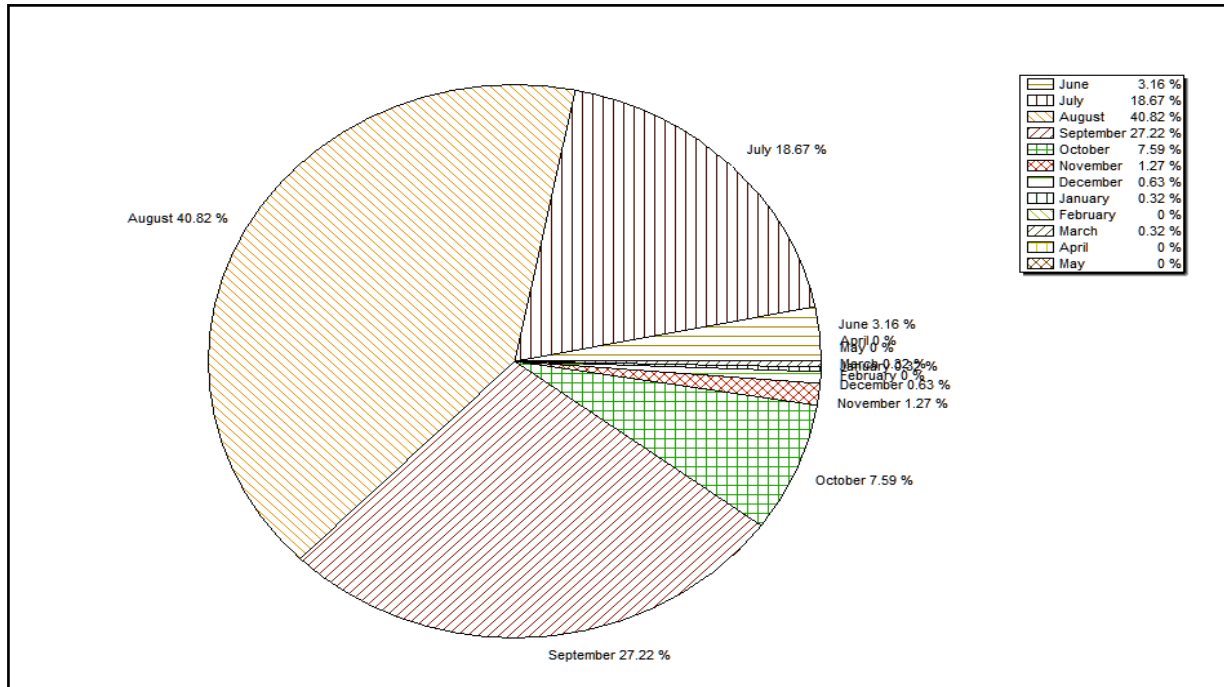


Note: Missing values have not been considered while arriving at Annual Runoff

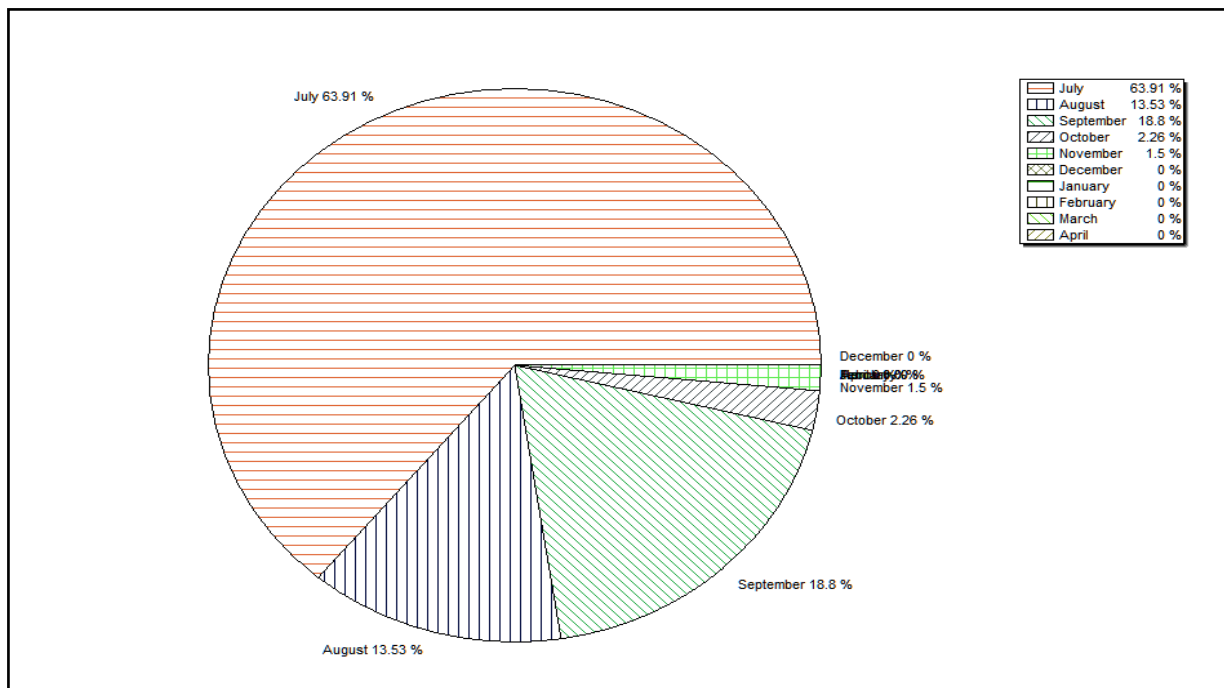
Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)
Local River : Watrak

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

Monthly Average Runoff based on period : 1991-2017



Monthly Runoff for the Year : 2017-2018



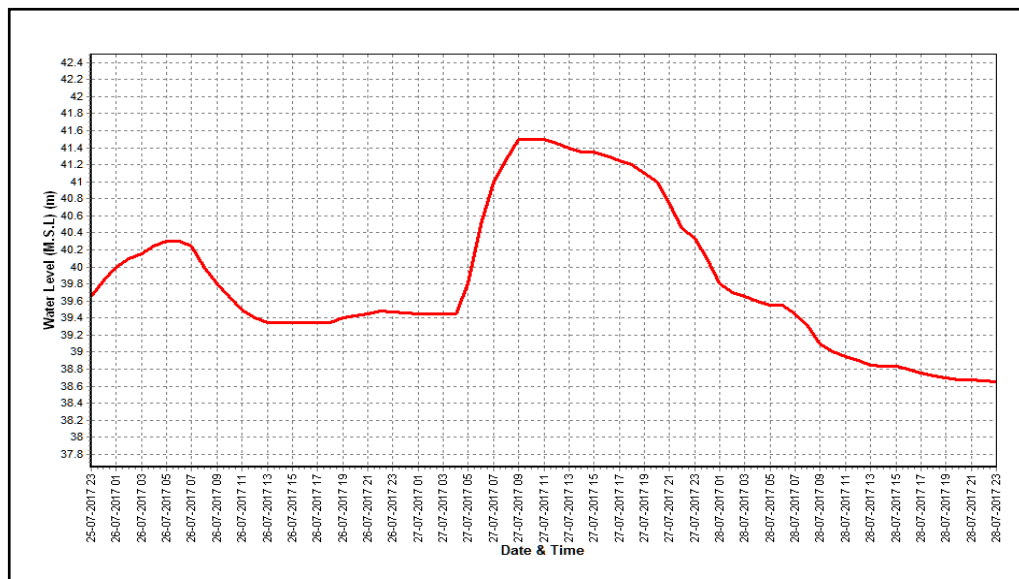
Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)

Division : Mahi Division, Gandhinagar

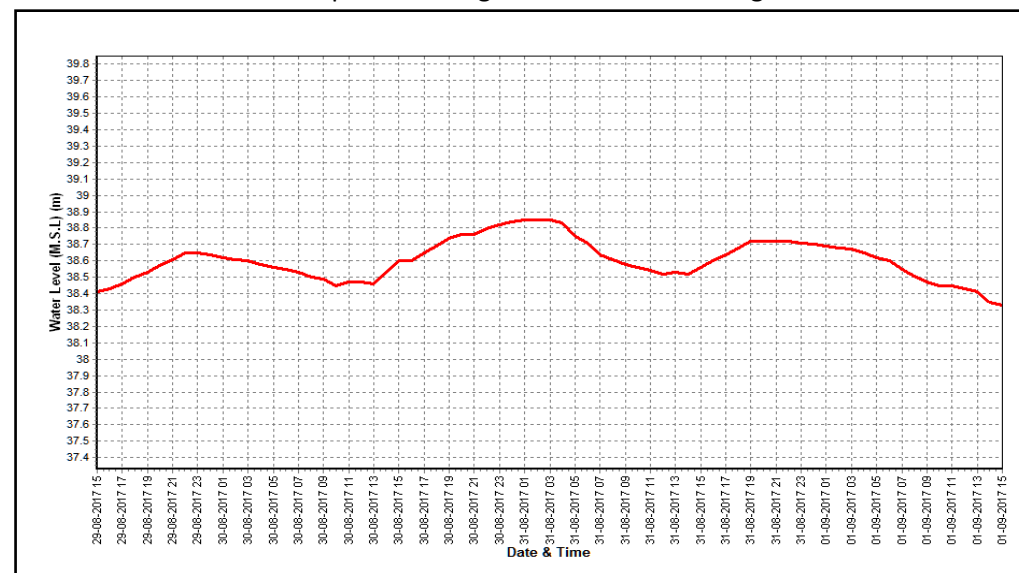
Local River : Watrak

Sub-Division : Sabarmati Sub Divn., Ahmedabad

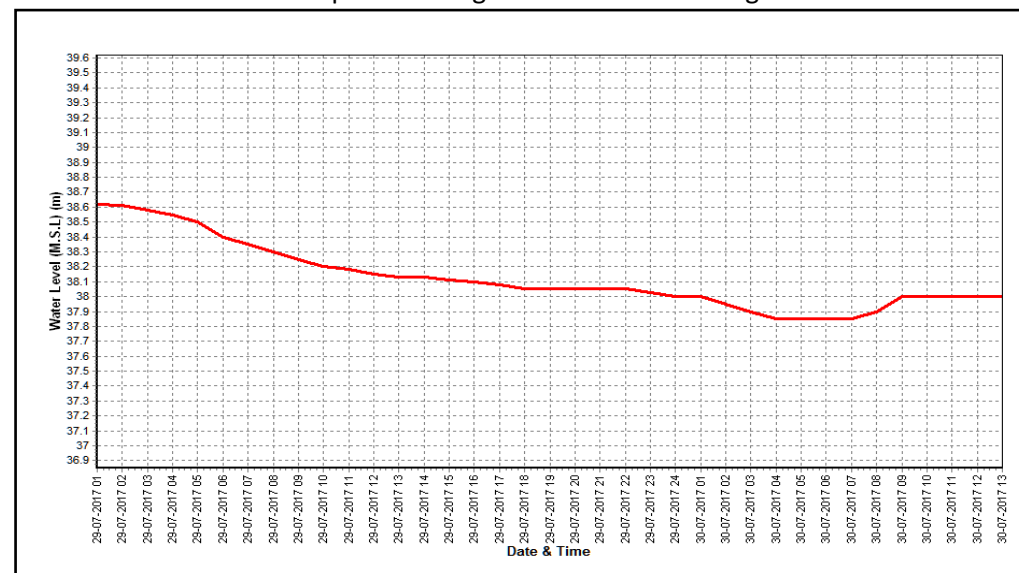
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

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.Sub Div.,
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)
87 (m.s.l)

19/08/1980 - 31/05/2005
01/06/2005 -

Opening Date

Closing Date

Gauge : 19/08/1980

Discharge : 01/06/1991

Sediment : 25/09/1992

Water

Quality : 15/07/1992

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

	Maximum			Minimum		
Year	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1992-1993	1964	94.130	08/09/1992	1.894	89.840	21/08/1992
1993-1994	1611	93.634	18/07/1993	5.400	89.980	10/11/1993
1994-1995	3050	94.730	20/08/1994	6.360	89.880	24/12/1994
1995-1996	55.8	90.550	22/07/1995	1.891	89.680	08/08/1995
1996-1997	34	91.000	30/08/1996	0.301	89.500	29/09/1996
1997-1998	1290	93.230	26/06/1997	0.840	89.600	10/06/1997
1998-1999	25.4	91.300	18/09/1998	0.041	89.780	06/10/1998
1999-2000	29	91.205	22/06/1999	0.000	River Dry	26/01/2000
2000-2001	River Dry					

2001-2002	19.1	90.890	12/07/2001	0.000	River Dry	17/01/2002
2002-2003	20.4	90.950	29/06/2002	0.000	River Dry	25/01/2003
2003-2004	73.85	91.070	28/08/2003	0.000	River Dry	26/01/2004
2004-2005	55.5	90.750	06/08/2004	0.000	River Dry	09/05/2005
2005-2006	224.7	92.300	03/10/2005	0.000	River Dry	01/06/2005
2006-2007	3079*	94.700	16/08/2006	0.000	River Dry	01/06/2006
2007-2008	842.2	92.075	09/08/2007	0.000	River Dry	01/06/2007
2008-2009	66.49	89.575	27/08/2008	0.000	River Dry	01/06/2008
2009-2010	72.99	89.650	30/08/2009	0.000	River Dry	01/06/2009
2010-2011	205.5	90.200	25/07/2010	0.000	River Dry	01/06/2010
2011-2012	386.5	90.400	12/09/2011	5.085	87.700	13/10/2011
2012-2013	67.8	88.800	12/09/2012	0.000	87.450	15/07/2012
2013-2014	169.3	89.6	02/08/2013	0.000	River Dry	01/06/2013
2014-2015	205.2	89.575	09/09/2014	0.000	87.07	01/06/2014
2015-2016	3129	92.3	30/07/2015	0.000	87.160	28/01/2016
2016-2017	830.3	89.85	24/08/2016	0.000	River Dry	01/06/2016
2017-2018	3853	92.8	25/07/2017	0.000	87.115	01/06/2017

Stage-Discharge Data for the period 2017 - 2018

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		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	87.115	0.000	87.220	0.000	88.920	547.5	88.400	181.0 *	87.690	29.63 *	87.570	13.74
2	87.115	0.000	87.340	2.020 *	88.550	184.7	88.150	113.4 *	87.690	29.63 *	87.570	13.45
3	87.115	0.000	87.360	5.591	88.700	200.8	88.210	128.2 *	87.580	15.15	87.560	14.10
4	87.115	0.000	87.430	6.606	88.600	163.7	88.155	125.0	87.500	13.73	87.560	15.68 *
5	87.110	0.000	87.370	5.601	88.680	203.5	88.110	101.0	87.480	12.96	87.560	15.68 *
6	87.110	0.000	87.310	4.601	88.100	101.7 *	88.020	93.86	87.405	5.887	87.560	14.01
7	87.110	0.000	87.290	3.172	88.000	110.4	87.980	95.08	87.410	5.943	87.560	12.87
8	87.110	0.000	87.260	3.268	88.000	106.6	87.970	93.71	87.450	7.270 *	87.560	14.47
9	87.110	0.000	87.220	0.000 *	88.750	219.3	87.800	43.14	87.610	19.03	87.560	14.26
10	87.110	0.000	87.190	1.923	87.940	105.3	87.800	44.81 *	87.515	10.18	87.560	14.14
11	87.110	0.000	87.170	1.291	88.450	140.7	87.780	34.84	87.425	6.106	87.560	14.08
12	87.110	0.000	87.150	0.000	87.900	92.92	87.770	34.15	87.365	3.200	87.550	14.79 *
13	87.110	0.000	87.130	0.000	88.430	190.2 *	87.770	33.25	87.330	3.083	87.530	13.89
14	87.110	0.000	87.130	0.000	88.250	119.0	87.860	42.08	87.350	3.775	87.530	13.67
15	87.110	0.000	87.200	2.081	88.220	130.8 *	87.830	33.19	87.550	14.79 *	87.530	13.44
16	87.110	0.000	87.290	0.700 *	88.005	91.95	87.690	27.12	87.500	14.36	87.530	13.34
17	87.100	0.000	87.270	2.255	87.980	117.3	87.610	20.53 *	87.490	13.98	87.520	12.75
18	87.100	0.000	87.340	2.618	87.945	95.54	88.325	152.6	87.790	32.94	87.510	12.71
19	87.080	0.000	87.340	2.118	87.880	57.76 #	87.950	50.65	87.750	37.53 *	87.510	11.47 *
20	87.080	0.000	87.310	1.842	87.950	70.43 *	87.670	22.66	87.750	31.50	87.500	12.64
21	87.070	0.000	87.400	7.096	88.800	547.3	88.000	105.9	87.735	30.16	87.500	10.70 *
22	87.070	0.000	87.370	3.680	88.700	469.8	87.890	43.43	87.570	16.60 *	87.500	12.50
23	87.060	0.000	87.330	1.710 *	87.935	116.3	87.805	42.04	87.550	14.67	87.500	12.50
24	87.060	0.000	89.080	282.5	87.942	45.45	87.800	44.81 *	87.600	16.65	87.500	12.49
25	87.060	0.000	92.800	3853	87.730	34.80 *	87.800	41.40	87.595	16.39	87.490	9.970 *
26	87.060	0.000	90.350	1450	88.235	114.5	87.735	30.42	87.570	10.98	87.480	9.250 *
27	87.060	0.000	89.850	1065	87.830	49.48 *	87.700	30.43	87.370	3.667	87.300	2.979
28	87.130	0.000	90.950	1960	87.700	19.76	87.690	30.21	87.340	3.448	87.480	9.250 *
29	87.130	0.000	89.900	908.1 #	88.400	139.7	87.690	30.08	87.380	3.560 *	87.490	11.96
30	87.130	0.000	89.450	435.5	89.650	679.2	87.690	29.63 *	87.520	11.09	87.400	9.132
31			89.600	653.8	88.470	176.7			87.520	12.26 *		
Ten-Daily Mean												
I Ten-Daily	87.112	0.000	87.299	3.278	88.424	194.3	88.059	101.9	87.533	14.94	87.562	14.24
II Ten-Daily	87.102	0.000	87.233	1.290	88.101	110.7	87.826	45.11	87.530	16.13	87.527	13.28
III Ten-Daily	87.083	0.000	89.462	965.5	88.308	217.5	87.780	42.83	87.523	12.68	87.464	10.07
Monthly												
Min.	87.060	0.000	87.130	0.000	87.700	19.76	87.610	20.53	87.330	3.083	87.300	2.979
Max.	87.130	0.000	92.800	3853	89.650	679.2	88.400	181.0	87.790	37.53	87.570	15.68
Mean	87.099	0	88.045	344.1	88.279	175.6	87.888	63.29	87.528	14.52	87.518	12.53

Annual Runoff in MCM = 1678 Annual Runoff in mm = 250

Peak Observed Discharge = 3853 cumecs on 25-07-2017 Corres. Water Level :92.8 m

Lowest Observed Discharge = 0.000 cumecs on 01-06-2017 Corres. Water Level :87.115 m

River in Pooling condition/ Negligible flow from 01/06/17 to 01/7/17

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	87.400	4.490 *	87.360	3.696	87.110	0.000	87.280	0.520 *	87.310	1.150 *	87.320	4.740
2	87.400	4.490 *	87.460	7.910 *	87.110	0.000	87.270	0.360 *	87.320	4.895	87.300	4.857
3	87.425	5.800 *	87.460	12.40	87.110	0.000	87.260	2.942	87.320	1.410 *	87.250	3.579
4	87.450	11.11	87.510	12.53	87.110	0.000	87.300	0.910 *	87.320	4.783	87.290	3.776
5	87.450	7.270 *	87.510	11.47 *	87.110	0.000	87.330	5.242	87.280	4.867	87.290	5.185
6	87.450	11.63	87.510	12.60	87.110	0.000	87.330	1.710 *	87.270	4.893	87.270	0.360 *
7	87.450	10.40	87.510	11.47 *	87.110	0.000	87.320	5.136	87.270	4.552	87.250	3.640
8	87.425	9.353	87.510	12.59	87.110	0.000	87.320	1.410 *	87.270	0.360 *	87.230	3.004
9	87.380	8.750	87.350	2.370 *	87.110	0.000	87.320	5.116	87.270	4.704	87.220	2.809
10	87.340	2.020 *	87.340	3.529	87.110	0.000	87.320	1.410 *	87.270	4.544	87.220	0.000
11	87.320	3.057	87.330	3.493	87.110	0.000	87.310	1.150 *	87.270	4.284	87.200	0.000
12	87.320	1.410 *	87.300	3.044	87.125	0.000	87.290	4.818	87.270	4.223	87.200	0.000
13	87.426	15.80	87.300	0.910 *	87.185	0.000	87.290	0.700 *	87.270	4.239	87.190	0.000
14	87.450	7.270 *	87.300	0.910 *	87.200	0.000	87.280	4.490	87.270	0.360 *	87.190	0.000
15	87.320	3.088	87.460	12.45	87.200	0.000	87.280	3.868	87.270	0.360 *	87.180	0.000
16	87.320	3.120	87.450	7.270 *	87.200	0.000	87.280	4.334	87.270	4.172	87.180	0.000
17	87.320	1.410 *	87.420	9.250	87.200	0.000	87.280	0.520 *	87.270	4.018	87.180	0.000
18	87.310	3.065	87.420	11.77	87.210	0.000	87.280	0.520 *	87.270	4.040	87.180	0.000
19	87.310	1.150 *	87.410	9.169	87.210	0.000	87.290	0.700 *	87.270	4.014	87.180	0.000
20	87.310	2.994	87.290	3.283	87.240	0.060 *	87.290	0.700 *	87.270	5.129	87.180	0.000
21	87.310	2.943	87.230	1.144	87.250	2.916	87.280	4.381	87.270	4.016	87.180	0.000
22	87.470	8.570 *	87.170	0.736	87.250	2.917	87.280	4.311	87.260	0.230 *	87.180	0.000
23	87.510	11.47 *	87.170	0.000	87.230	1.130	87.280	4.303	87.260	3.946	87.180	0.000
24	87.510	11.47 *	87.140	0.000	87.190	0.000	87.280	4.355	87.260	4.010	87.180	0.000
25	87.510	11.47 *	87.140	0.000	87.190	0.000	87.280	0.520 *	87.300	5.133	87.180	0.000
26	87.500	10.70 *	87.140	0.000	87.290	3.256	87.290	4.752	87.300	4.666	87.180	0.000
27	87.460	7.910 *	87.130	0.000	87.290	0.700 *	87.280	0.520 *	87.330	4.974	87.180	0.000
28	87.450	7.270 *	87.130	0.000	87.290	3.261	87.280	0.520 *	87.320	4.848	87.180	0.000
29	87.400	6.283	87.120	0.000			87.280	0.520 *	87.320	1.410 *	87.180	0.000
30	87.390	4.010 *	87.110	0.000			87.280	0.520 *	87.320	1.410 *	87.180	0.000
31	87.380	3.560 *	87.110	0.000			87.280	4.706			87.180	0.000
Ten-Daily Mean												
I Ten-Daily	87.417	7.531	87.452	9.057	87.110	0.000	87.305	2.476	87.290	3.616	87.264	3.195
II Ten-Daily	87.341	4.237	87.368	6.155	87.188	0.006	87.287	2.180	87.270	3.484	87.186	0.000
III Ten-Daily	87.445	7.787	87.145	0.171	87.247	1.773	87.281	2.673	87.294	3.464	87.180	0.000
Monthly												
Min.	87.310	1.150	87.110	0.000	87.110	0.000	87.260	0.360	87.260	0.230	87.180	0.000
Max.	87.510	15.80	87.510	12.60	87.290	3.261	87.330	5.242	87.330	5.133	87.320	5.185
Mean	87.402	6.559	87.316	4.968	87.177	0.509	87.291	2.45	87.285	3.521	87.209	1.031

Peak Computed Discharge = 190.2 cumecs on 13-08-2017

Corres. Water Level :88.43 m

Lowest Computed Discharge = 0.000 cumecs on 01-07-2017

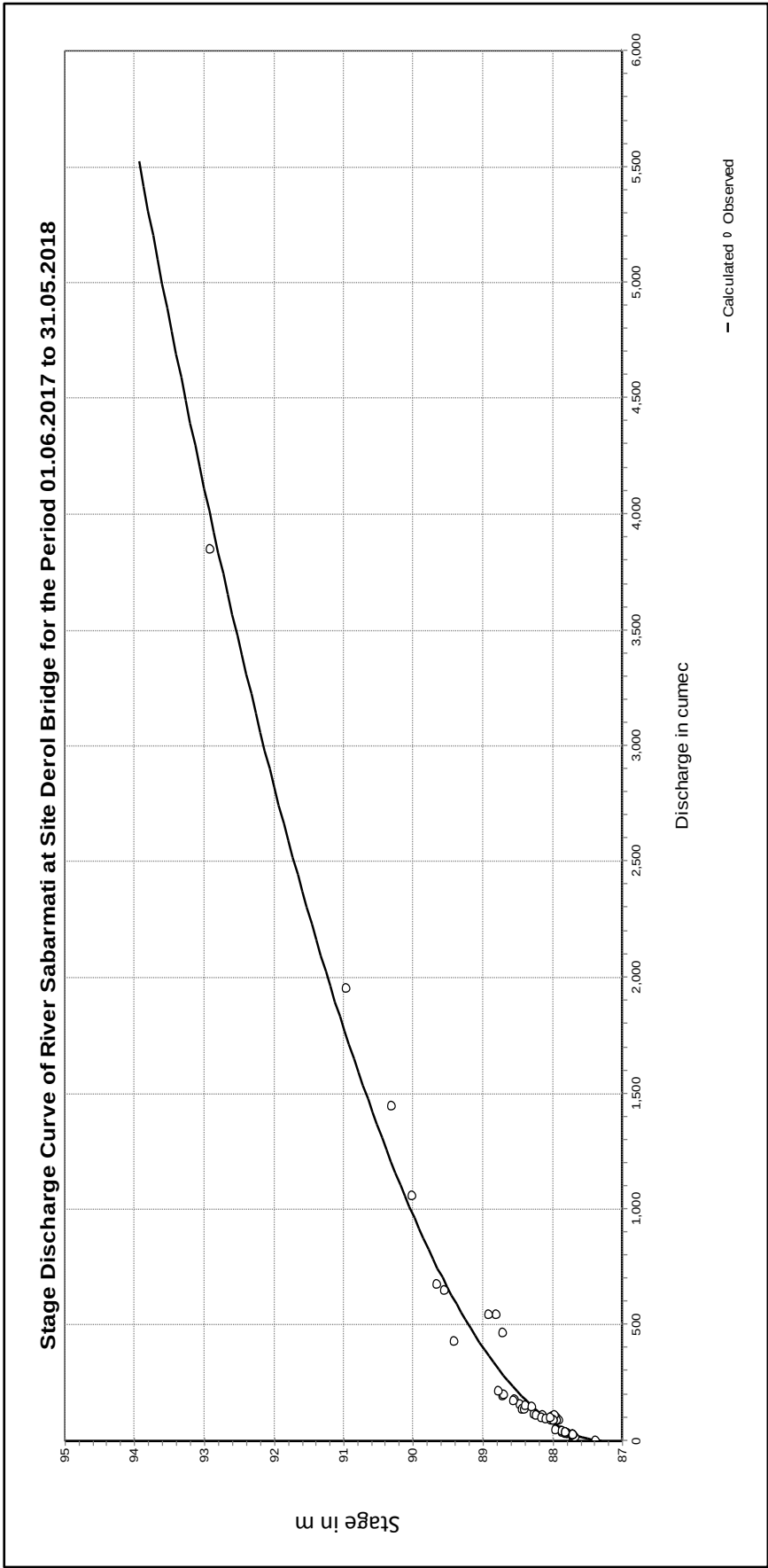
Corres. Water Level :87.22 m

River in Pooling condition/ Negligible flow from 23/01/18 to 19/2/18, 10/05/18 to 31/5/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
87.300	94.000	-87.22	1.966	130.749

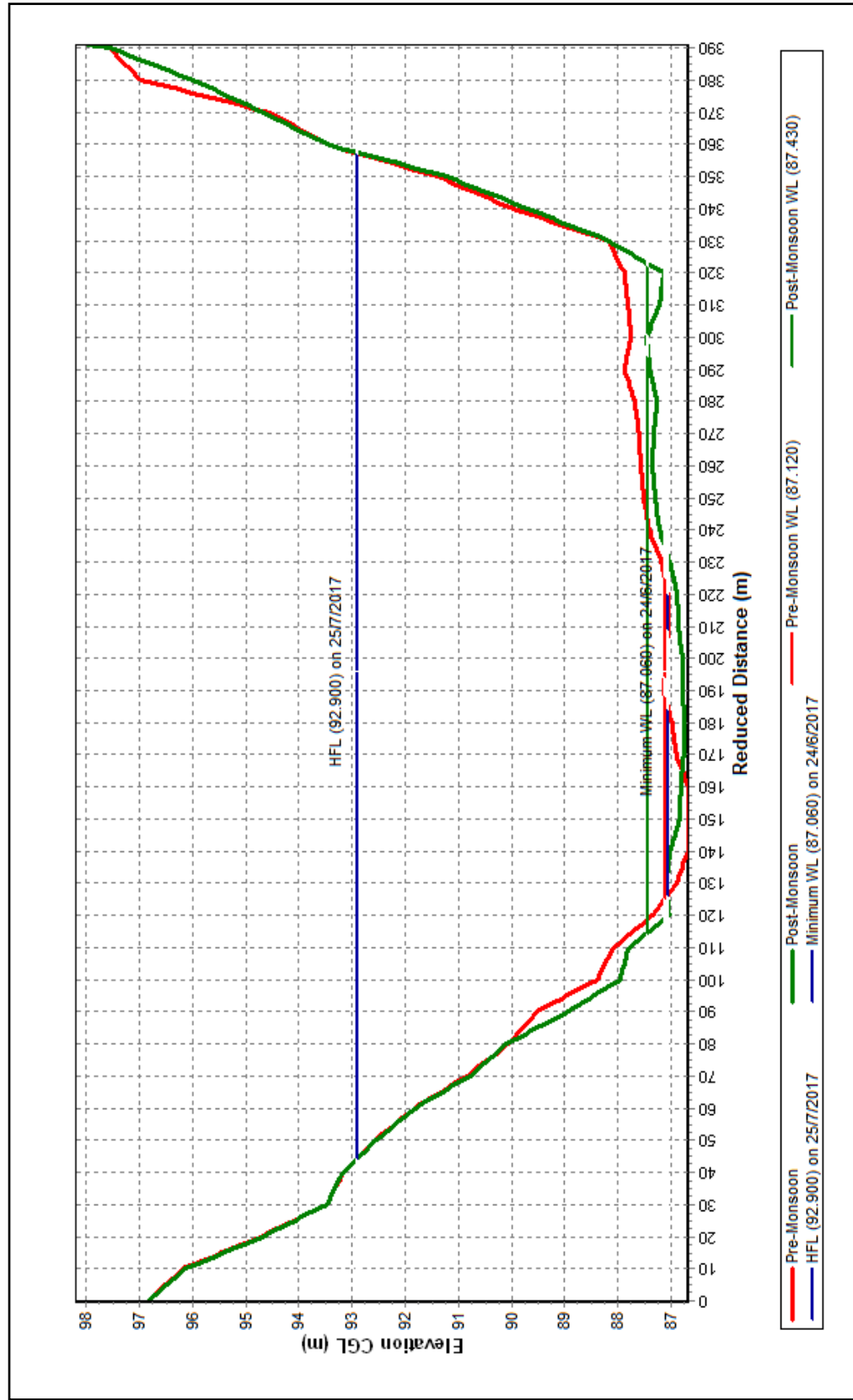
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Sabarmati at Derol Bridge (01 02 12 006)

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

Sub-Division : N.W.R.Sub Div., Himatnagar



Historic Flood Level - 95.83 m on 17.07.1993 at 1800 hrs

Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

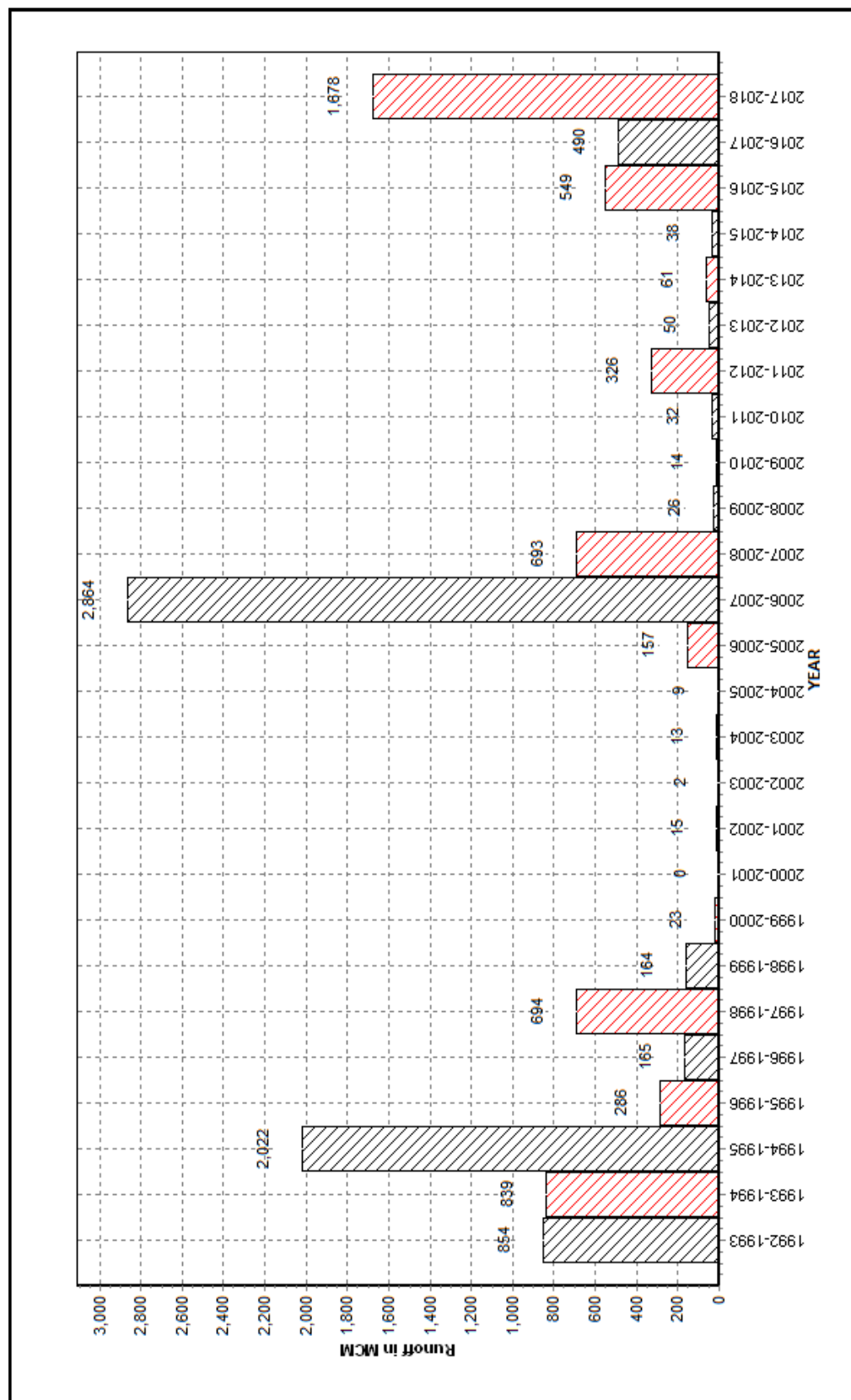
Annual Runoff Values for the period: 1992 - 2018

Station Name : Sabarmati at Derol Bridge (01 02 12 006)

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

Sub-Division : N.W.R.Sub Div., Himatnagar

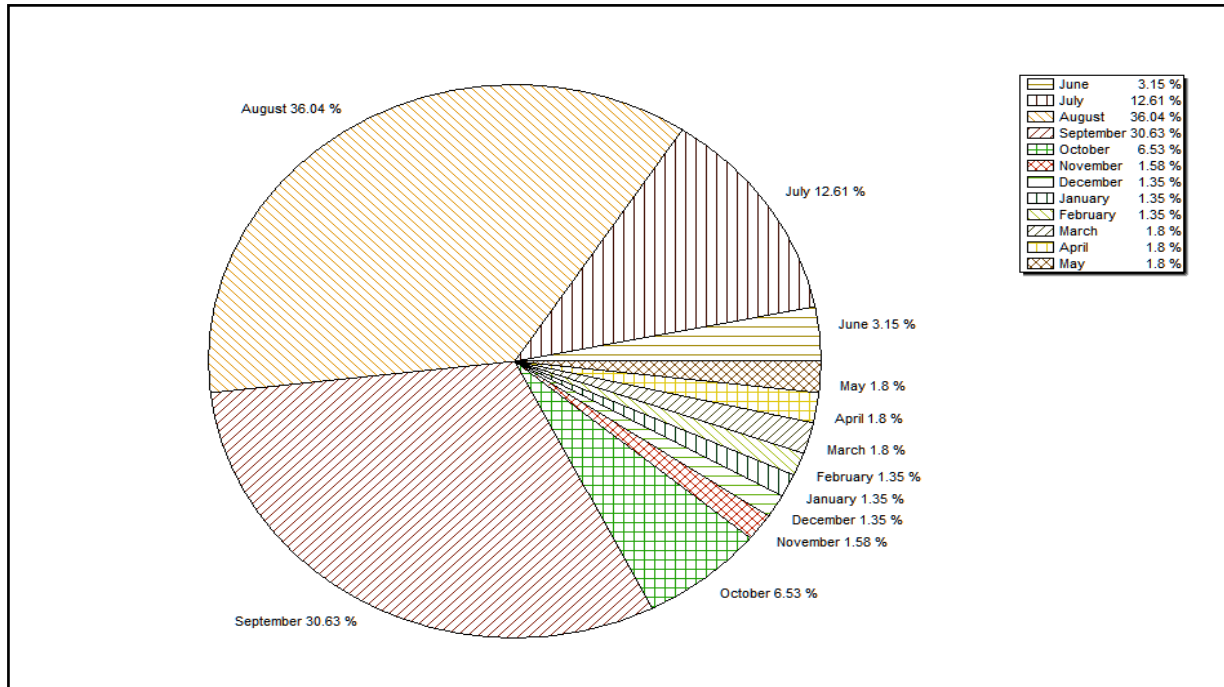


Note: Missing values have not been considered while arriving at Annual Runoff

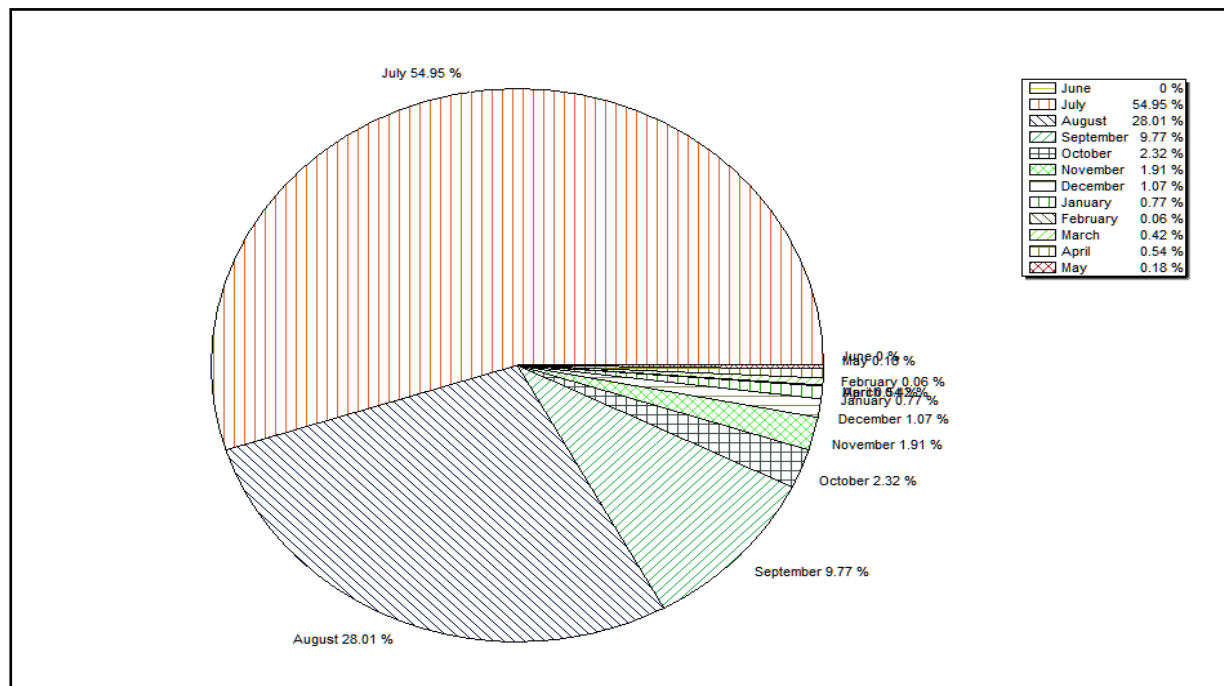
Station Name : Sabarmati at Derol Bridge (01 02 12 006)
Local River : Sabarmati

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

Monthly Average Runoff based on period : 1992-2017



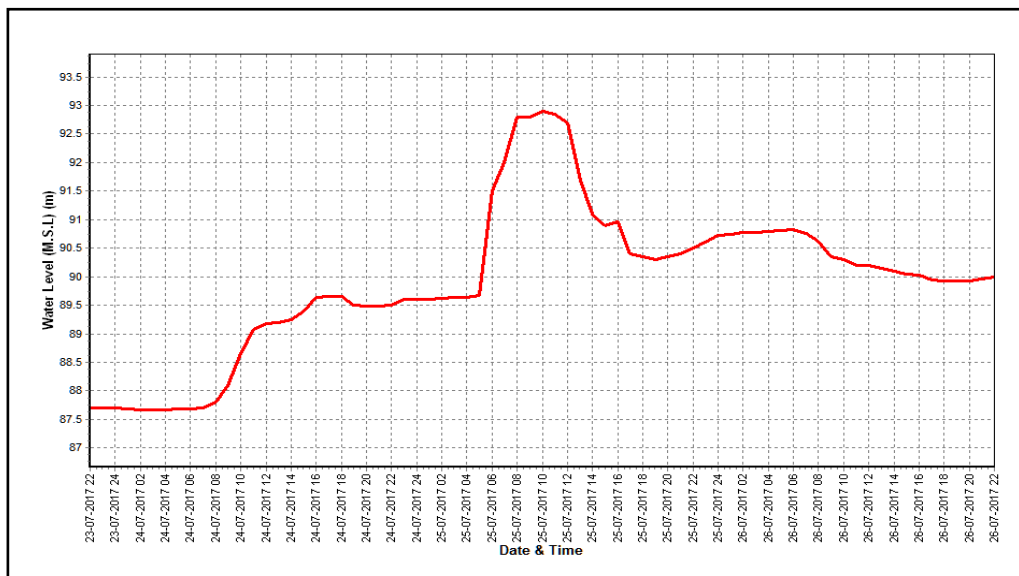
Monthly Runoff for the Year : 2017-2018



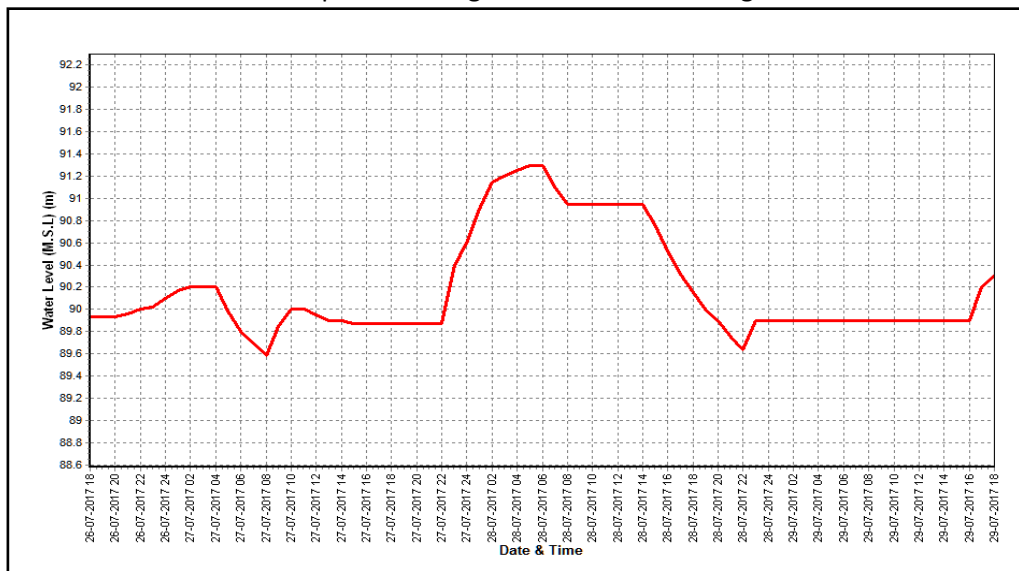
Station Name : Sabarmati at Derol Bridge (01 02 12 006)
Local River : Sabarmati

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

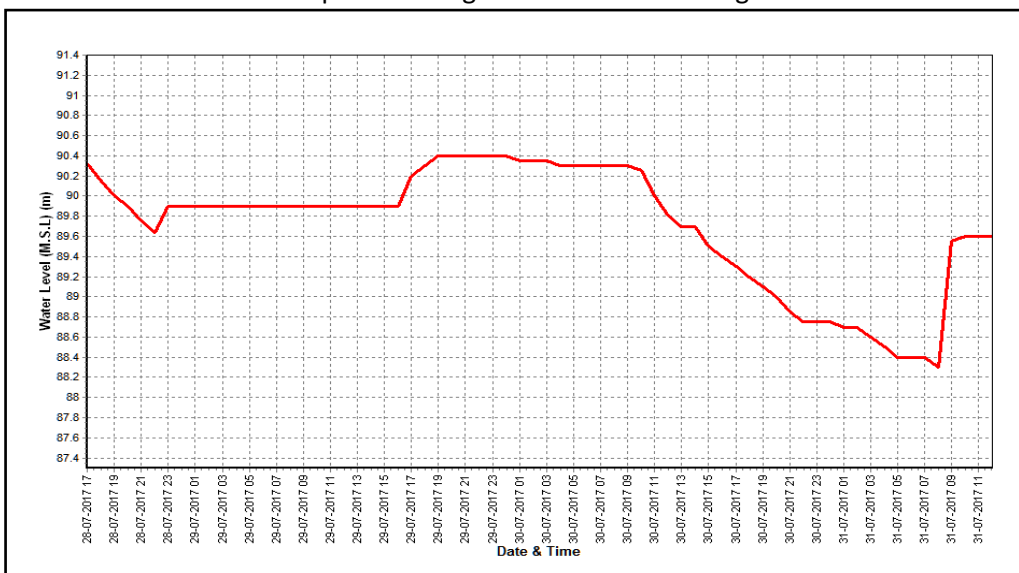
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Sabarmati at Kheroj Code : 01 02 12 003

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.Sub Div., Himatnagar

Drainage Area : 3650 Sq. Km. Bank : Left

Latitude : 24°13'45"N Longitude : 73°00'26"E

Zero of

Gauge (m) : 0 (A)	01/01/1981 - 31/12/1987
211.68 (m.s.l)	01/01/1988 - 30/06/1993
210.5 (m.s.l)	01/07/1993 - 16/07/2003
208 (m.s.l)	17/07/2003 -

	Opening Date	Closing Date
Gauge : 01/06/1981		
Discharge : 22/06/1992		
Sediment : --		
Water		
Quality : --		

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1992-1993	325.0	213.880	08/09/1992	0.000	River Dry	19/03/1993
1993-1994	653.4	215.180	17/07/1993	0.000	River Dry	26/01/1994
1994-1995	790.2	215.000	20/08/1994	0.000	211.830	03/04/1995
1995-1996	164.5	213.170	31/07/1995	0.000	211.600	31/01/1996
1996-1997	470.7	214.060	11/09/1996	0.000	River Dry	20/12/1996
1997-1998	401.0	213.475	25/06/1997	0.000	211.760	26/01/1998
1998-1999	229.3	211.680	27/08/1998	0.000	River Dry	23/05/1999
1999-2000	23.7	212.455	21/07/1999	0.000	River Dry	20/11/1999
2000-2001	30.6	212.500	02/07/2000	0.000	River Dry	29/01/2001
2001-2002	118.5	213.440	14/06/2001	0.000	River Dry	28/01/2002
2002-2003	148.5	212.800	02/09/2002	0.000	River Dry	24/11/2002
2003-2004	265.8	210.950	29/07/2003	0.000	River Dry	14/01/2004

2004-2005	87.2	210.650	08/08/2004	0.000	River Dry	09/05/2005
2005-2006	955.1	213.250	02/08/2005	0.000	River Dry	01/06/2005
2006-2007	1402.0	215.450	19/08/2006	0.000	River Dry	01/06/2006
2007-2008	619.4	212.850	09/07/2007	0.000	208.600	01/06/2007
2008-2009	205.3	210.875	12/08/2008	0.000	River Dry	01/06/2008
2009-2010	270.9	211.335	23/07/2009	0.000	River Dry	01/06/2009
2010-2011	224.0	211.115	31/08/2010	0.000	River Dry	01/06/2010
2011-2012	441.8	212.090	12/09/2011	0.000	River Dry	22/04/2012
2012-2013	451.3	212.260	08/09/2012	0.000	River Dry	01/06/2012
2013-2014	166.2	210.770	28/07/2013	0.000	River Dry	01/06/2013
2014-2015	240.3	210.840	10/09/2014	0.000	River Dry	01/06/2014
2015-2016	8351	215.050	29/07/2015	0.000	209.500	21/11/2015
2016-2017	1175	211.940	10/08/2016	0.000	River Dry	01/06/2016
2017-2018	717.1	212.272	29/07/2017	0.000	209.410	27/06/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Sabarmati at Kheroj (01 02 12 003)

Division : Mahi Division, Gandhinagar

Local River : Sabarmati

Sub-Division : N.W.R.Sub Div., Himatnagar

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	209.650	0.000	211.000	290.1	210.340	149.9	209.940	33.83 *	209.660	0.000
2	R.Dry	0.000	210.000	0.000	210.830	231.8	210.330	112.3 *	209.920	30.17 *	209.650	0.000
3	R.Dry	0.000	209.790	0.000	210.705	255.3	210.290	103.8 *	209.900	22.15	209.640	0.000
4	R.Dry	0.000	209.980	41.29 #	210.605	210.4	210.240	100.5	209.890	20.11	209.630	0.000
5	R.Dry	0.000	209.720	0.000 #	210.510	168.5	210.210	88.00	209.880	15.06	209.630	0.000
6	R.Dry	0.000	209.650	0.000	210.450	138.3 *	210.180	69.15	209.870	16.75	209.620	0.000
7	R.Dry	0.000	209.590	0.000	210.395	142.3	210.150	69.06	209.860	19.55 *	209.610	0.000
8	R.Dry	0.000	209.560	0.000	210.395	139.3	210.140	66.59	209.850	17.84 *	209.610	0.000
9	R.Dry	0.000	209.540	0.000	210.395	139.6	210.120	60.74	209.830	13.93	209.610	0.000
10	R.Dry	0.000	209.520	0.000	210.310	144.5	210.140	67.66	209.820	13.02	209.600	0.000
11	R.Dry	0.000	209.510	0.000	210.280	127.9	210.143	68.41	209.810	11.74	209.600	0.000
12	R.Dry	0.000	209.490	0.000	210.260	120.4	210.140	65.87	209.810	10.31	209.600	0.000
13	R.Dry	0.000	209.480	0.000	210.250	95.36 *	210.133	65.48	209.800	10.52	209.590	0.000
14	R.Dry	0.000	211.905	489.4 #	210.240	109.2	210.140	65.70	209.820	10.84	209.590	0.000
15	R.Dry	0.000	210.310	108.0 #	210.230	91.18 *	210.125	56.62	209.810	11.23 *	209.590	0.000
16	R.Dry	0.000	210.340	114.5 *	210.180	96.52	210.335	117.0	209.790	8.135	209.590	0.000
17	R.Dry	0.000	209.980	41.29 #	210.153	70.59	210.310	108.0 *	209.780	7.173	209.590	0.000
18	R.Dry	0.000	209.880	10.45	210.125	64.20	210.193	82.71	209.770	7.253	209.590	0.000
19	R.Dry	0.000	209.845	11.76	210.103	68.05	210.140	72.43	209.770	5.080 *	209.580	0.000
20	R.Dry	0.000	209.960	18.10	210.170	78.79 *	210.120	60.83	209.760	6.098	209.580	0.000
21	R.Dry	0.000	210.415	130.7 #	210.375	153.8	210.095	56.82	209.750	4.803	209.580	0.000
22	R.Dry	0.000	210.200	84.96 #	210.280	136.7	210.080	56.24	209.740	1.040 *	209.580	0.000
23	R.Dry	0.000	210.670	187.6 *	210.275	138.5	210.050	47.11	209.730	0.000 #	209.580	0.000
24	R.Dry	0.000	212.330	541.1	210.540	176.9	210.030	50.86 *	209.720	0.000	209.580	0.000
25	R.Dry	0.000	211.980	384.0	210.300	105.9 *	210.020	41.97	209.710	0.000	209.580	0.000
26	R.Dry	0.000	211.890	485.6 #	210.195	79.89	210.003	45.42	209.710	0.000	209.580	0.000
27	209.410	0.000	211.875	481.7 #	210.200	84.96 *	210.000	36.20	209.700	0.000	209.580	0.000
28	209.420	0.000	211.600	338.8	210.150	72.36	209.990	32.56	209.690	0.000	209.580	0.000
29	209.430	0.000	212.272	717.1	210.310	150.9	209.970	27.61	209.690	0.000	209.570	0.000
30	209.500	0.000	211.500	386.7 *	210.280	142.9	209.960	37.54 *	209.680	0.000	209.570	0.000
31			211.175	306.7 #	210.342	151.3						
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	209.700	4.129	210.559	186.0	210.214	88.77	209.876	20.24	209.626	0.000
II Ten-Daily	R.Dry	0.000	210.070	79.35	210.199	92.21	210.178	76.31	209.792	8.839	209.590	0.000
III Ten-Daily	209.440	0.000	211.446	367.7	210.295	126.7	210.020	43.23	209.712	0.584	209.578	0.000
Monthly												
Min.	209.410	0.000	209.480	0.000	210.103	64.20	209.960	27.61	209.680	0.000	209.570	0.000
Max.	209.500	0.000	212.330	717.1	211.000	290.1	210.340	149.9	209.940	33.83	209.660	0.000
Mean	209.440	0.000	210.439	157.4	210.349	134.7	210.137	69.44	209.793	9.888	209.598	0.000

Annual Runoff in MCM = 988 Annual Runoff in mm = 271

Peak Observed Discharge = 717.1 cumecs on 29-07-2017 Corres. Water Level :212.272 m

Lowest Observed Discharge = 0.000 cumecs on 27-06-2017 Corres. Water Level :209.41 m

River was in Pooling condition from 27/6/17 to 13/7/17, 24/10/17 to 3/5/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Sabarmati at Kheroj (01 02 12 003)

Division : Mahi Division, Gandhinagar

Local River : Sabarmati

Sub-Division : N.W.R.Sub Div., Himatnagar

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	209.570	0.000	209.530	0.000	209.450	0.000	209.320	0.000	208.970	0.000	208.320	0.000
2	209.560	0.000	209.530	0.000	209.440	0.000	209.320	0.000	208.950	0.000	208.310	0.000
3	209.560	0.000	209.530	0.000	209.440	0.000	209.310	0.000	208.920	0.000	208.270	0.000
4	209.560	0.000	209.530	0.000	209.440	0.000	209.300	0.000	208.890	0.000	R.Dry	0.000
5	209.560	0.000	209.520	0.000	209.430	0.000	209.290	0.000	208.870	0.000	R.Dry	0.000
6	209.560	0.000	209.520	0.000	209.430	0.000	209.290	0.000	208.830	0.000	R.Dry	0.000
7	209.590	0.000	209.520	0.000	209.420	0.000	209.280	0.000	208.800	0.000	R.Dry	0.000
8	209.600	0.000	209.520	0.000	209.420	0.000	209.270	0.000	208.790	0.000	R.Dry	0.000
9	209.760	0.000	209.520	0.000	209.410	0.000	209.270	0.000	208.790	0.000	R.Dry	0.000
10	209.730	0.000	209.520	0.000	209.410	0.000	209.260	0.000	208.780	0.000	R.Dry	0.000
11	209.720	0.000	209.510	0.000	209.410	0.000	209.250	0.000	208.770	0.000	R.Dry	0.000
12	209.710	0.000	209.510	0.000	209.410	0.000	209.230	0.000	208.770	0.000	R.Dry	0.000
13	209.700	0.000	209.510	0.000	209.410	0.000	209.210	0.000	208.770	0.000	R.Dry	0.000
14	209.700	0.000	209.510	0.000	209.400	0.000	209.200	0.000	208.750	0.000	R.Dry	0.000
15	209.680	0.000	209.510	0.000	209.400	0.000	209.180	0.000	208.720	0.000	R.Dry	0.000
16	209.660	0.000	209.500	0.000	209.400	0.000	209.170	0.000	208.690	0.000	R.Dry	0.000
17	209.650	0.000	209.500	0.000	209.390	0.000	209.160	0.000	208.660	0.000	R.Dry	0.000
18	209.640	0.000	209.490	0.000	209.390	0.000	209.150	0.000	208.610	0.000	R.Dry	0.000
19	209.620	0.000	209.490	0.000	209.390	0.000	209.140	0.000	208.600	0.000	R.Dry	0.000
20	209.610	0.000	209.480	0.000	209.390	0.000	209.140	0.000	208.590	0.000	R.Dry	0.000
21	209.600	0.000	209.480	0.000	209.380	0.000	209.130	0.000	208.570	0.000	R.Dry	0.000
22	209.600	0.000	209.480	0.000	209.380	0.000	209.120	0.000	208.560	0.000	R.Dry	0.000
23	209.590	0.000	209.470	0.000	209.370	0.000	209.110	0.000	208.540	0.000	R.Dry	0.000
24	209.580	0.000	209.470	0.000	209.360	0.000	209.090	0.000	208.500	0.000	R.Dry	0.000
25	209.570	0.000	209.470	0.000	209.360	0.000	209.080	0.000	208.480	0.000	R.Dry	0.000
26	209.570	0.000	209.460	0.000	209.350	0.000	209.060	0.000	208.440	0.000	R.Dry	0.000
27	209.560	0.000	209.450	0.000	209.340	0.000	209.040	0.000	208.400	0.000	R.Dry	0.000
28	209.560	0.000	209.450	0.000	209.330	0.000	209.030	0.000	208.360	0.000	R.Dry	0.000
29	209.560	0.000	209.450	0.000			209.010	0.000	208.340	0.000	R.Dry	0.000
30	209.560	0.000	209.450	0.000			209.000	0.000	208.330	0.000	R.Dry	0.000
31	209.540	0.000	209.450	0.000			208.980	0.000			R.Dry	0.000
Ten-Daily Mean												
I Ten-Daily	209.605	0.000	209.524	0.000	209.429	0.000	209.291	0.000	208.859	0.000	208.300	0.000
II Ten-Daily	209.669	0.000	209.501	0.000	209.399	0.000	209.183	0.000	208.693	0.000	R.Dry	0.000
III Ten-Daily	209.572	0.000	209.462	0.000	209.359	0.000	209.059	0.000	208.452	0.000	R.Dry	0.000
Monthly												
Min.	209.540	0.000	209.450	0.000	209.330	0.000	208.980	0.000	208.330	0.000	208.270	0.000
Max.	209.760	0.000	209.530	0.000	209.450	0.000	209.320	0.000	208.970	0.000	208.320	0.000
Mean	209.614	0.000	209.495	0.000	209.398	0.000	209.174	0.000	208.668	0.000	208.300	0.000

Peak Computed Discharge = 386.7 cumecs on 30-07-2017

Corres. Water Level :211.5 m

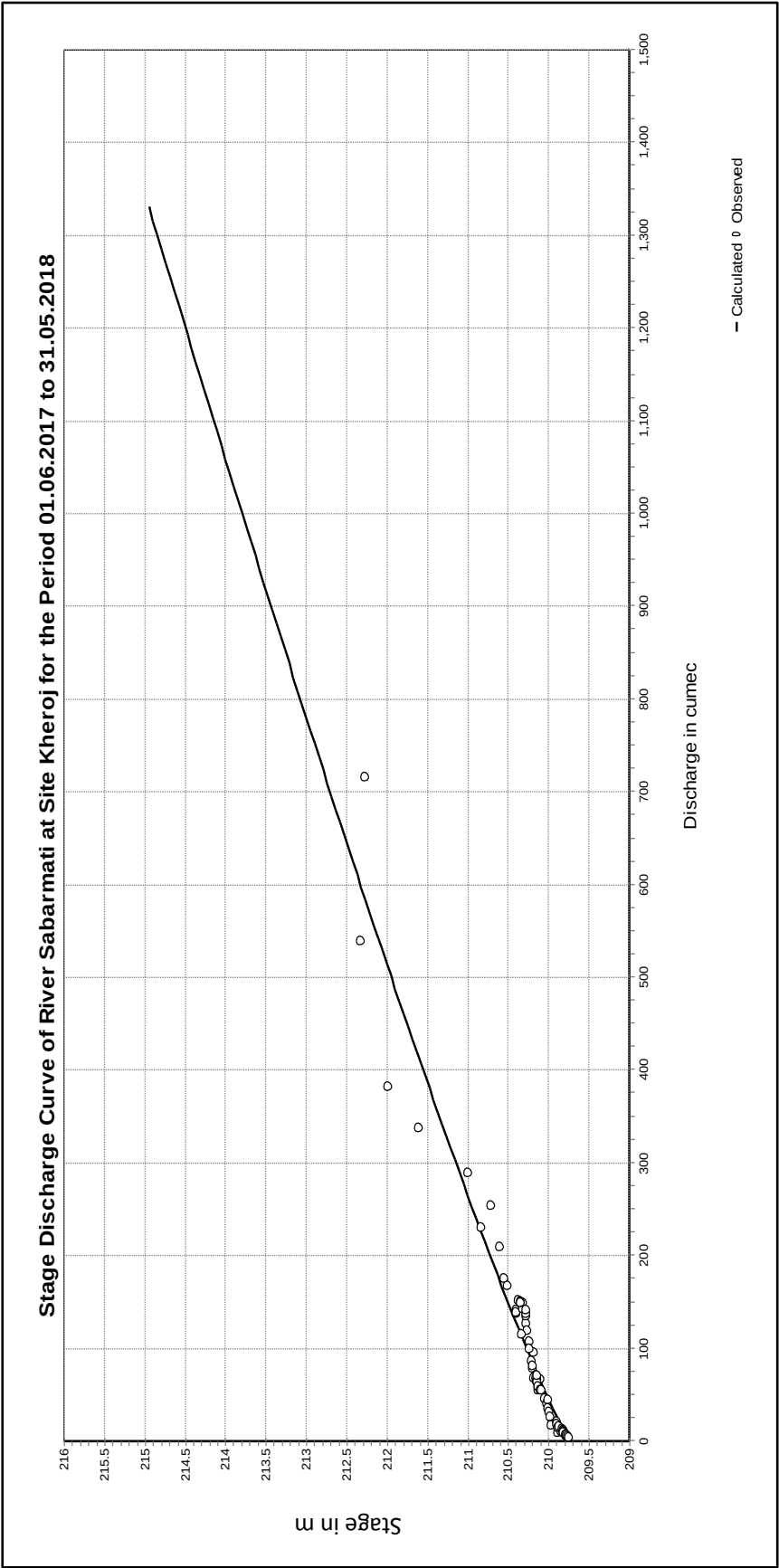
Lowest Computed Discharge = 0.000 cumecs on 01-05-2018

Corres. Water Level :208.32 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

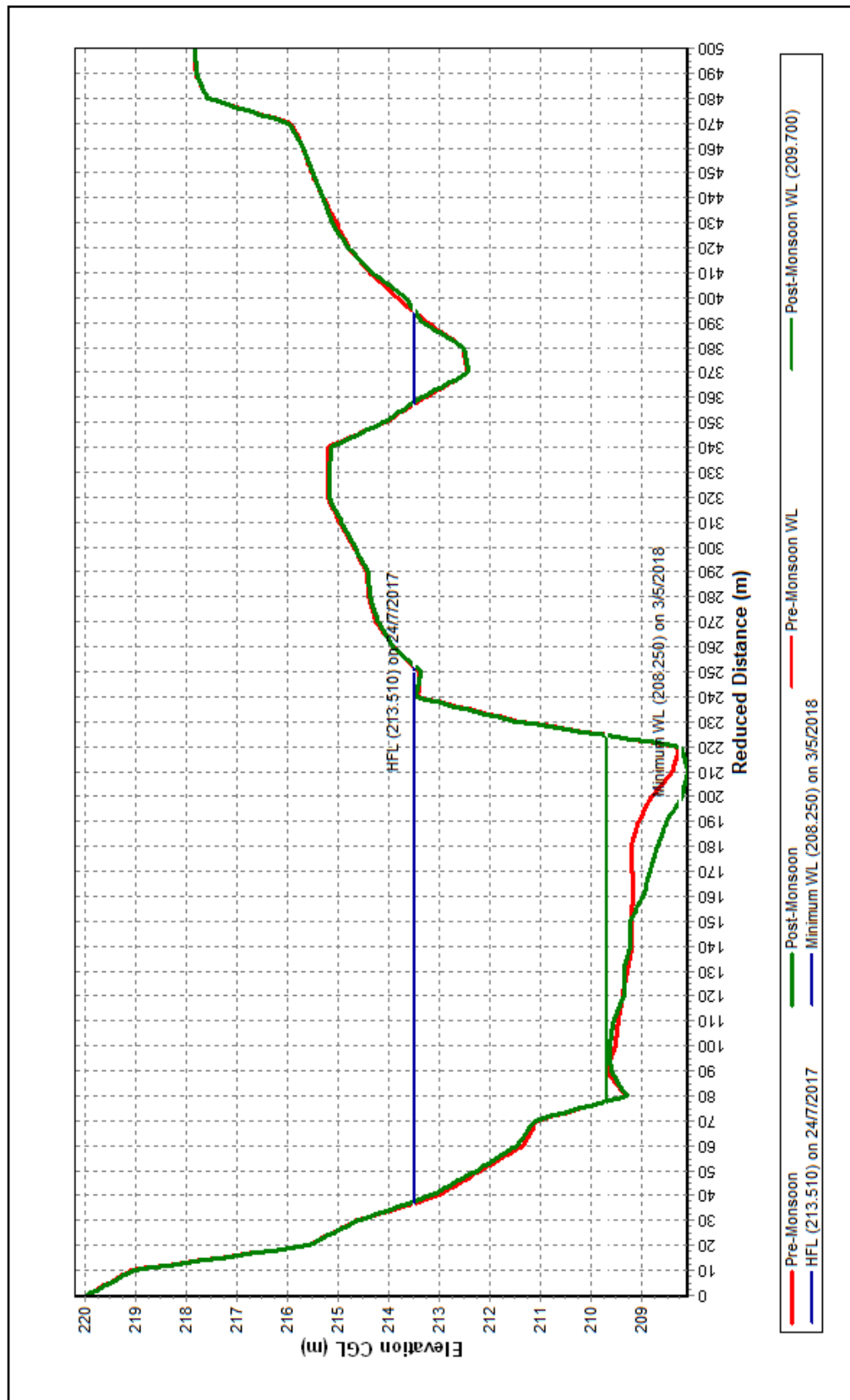
Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
209.740	215.000	-209.73	1.143	201.366

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Sabarmati at Kheroj (01 02 12 003)

Local River : Sabarmati

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himmatnagar



HFL observed - 218.000m on 19.08.2006 at 1600 hrs

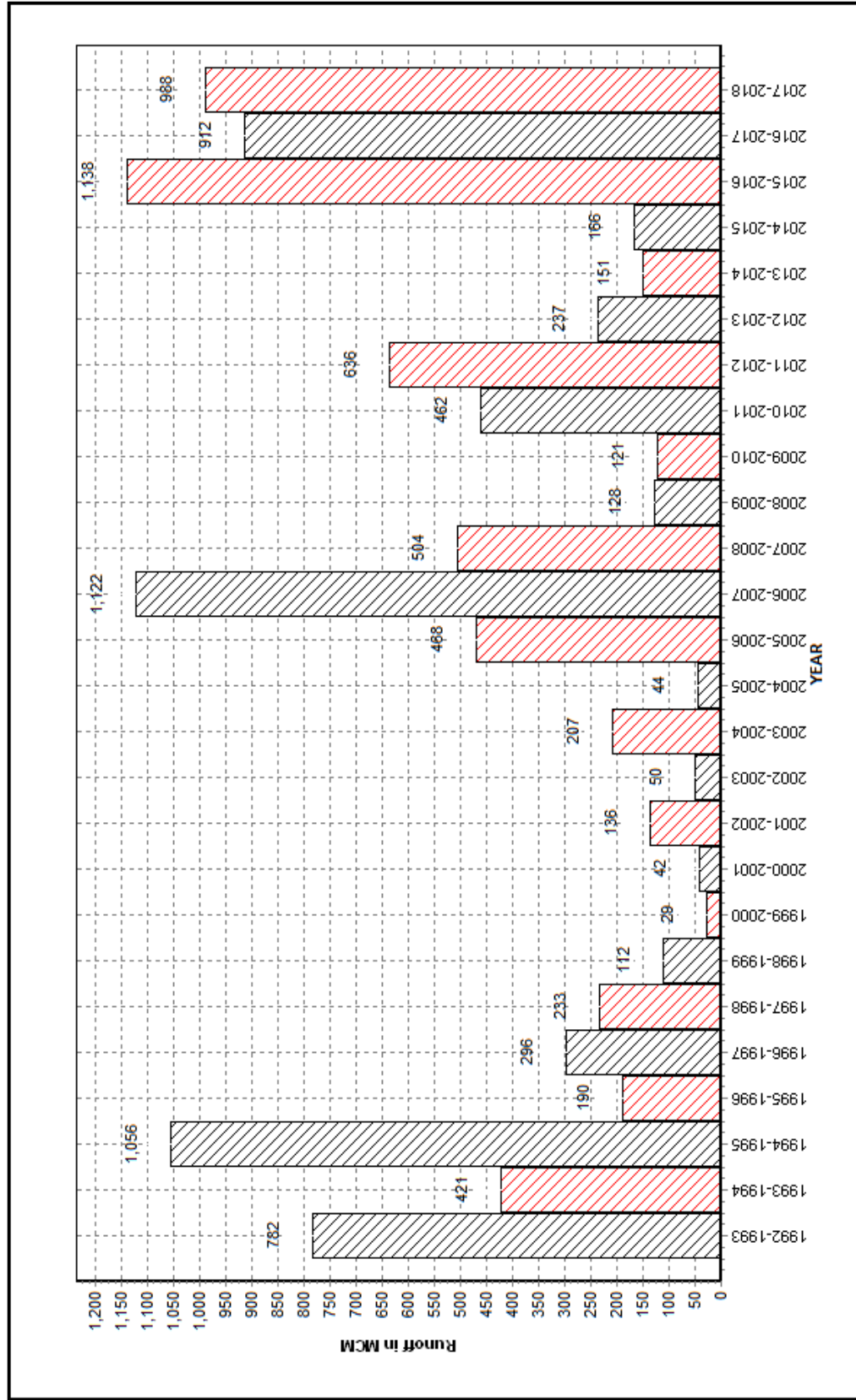
HFL on graphs shows Max Water Level during 2017-18

Annual Runoff Values for the period: 1992 - 2018

Station Name : Sabarmati at Kheroj (01 02 12 003)

Local River : Sabarmati

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himmatnagar

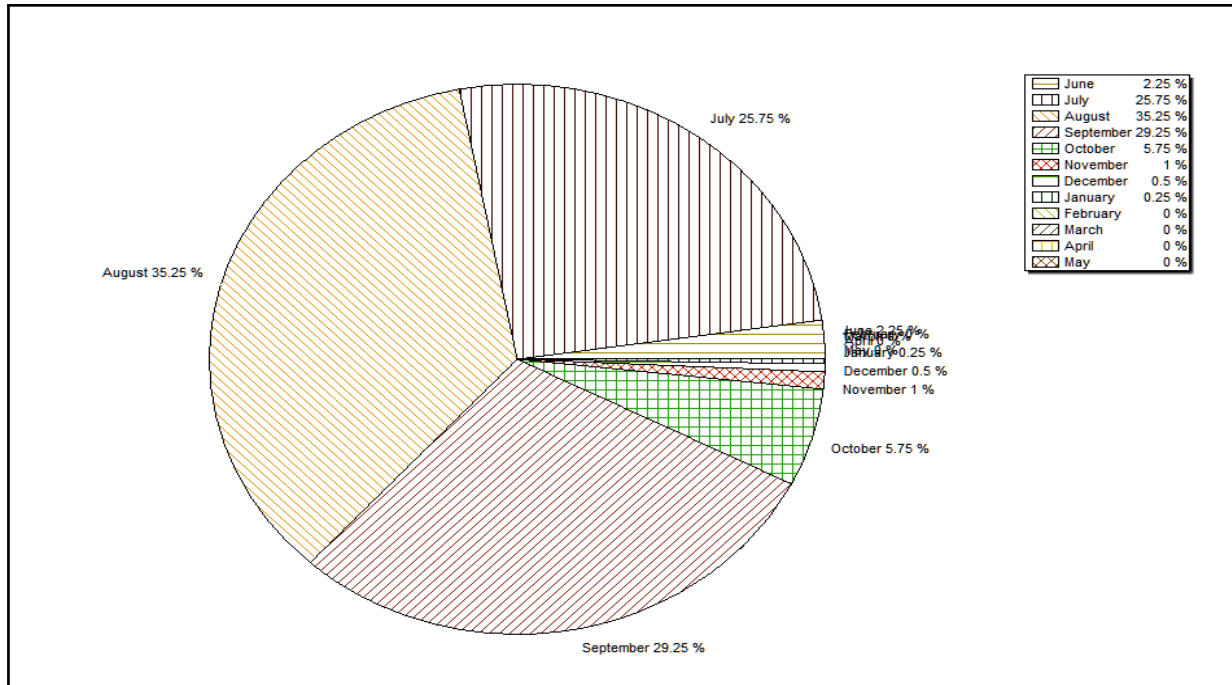


Note: Missing values have not been considered while arriving at Annual Runoff

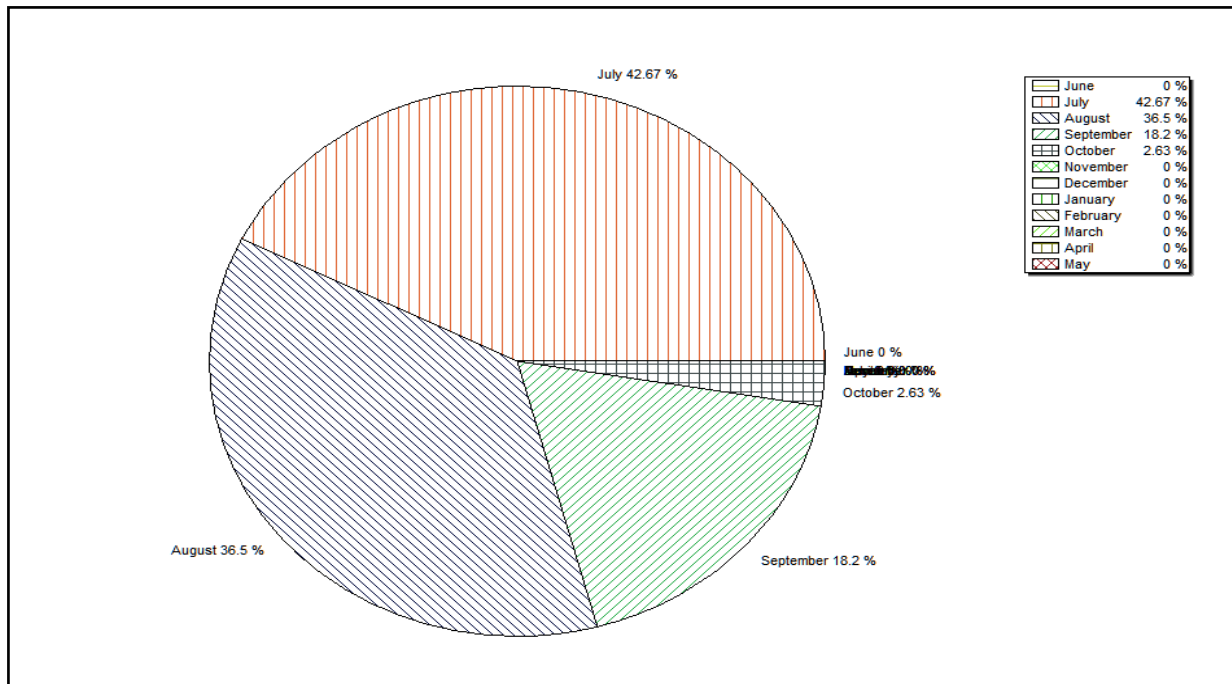
Station Name : Sabarmati at Kheroj (01 02 12 003)
Local River : Sabarmati

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

Monthly Average Runoff based on period : 1992-2017



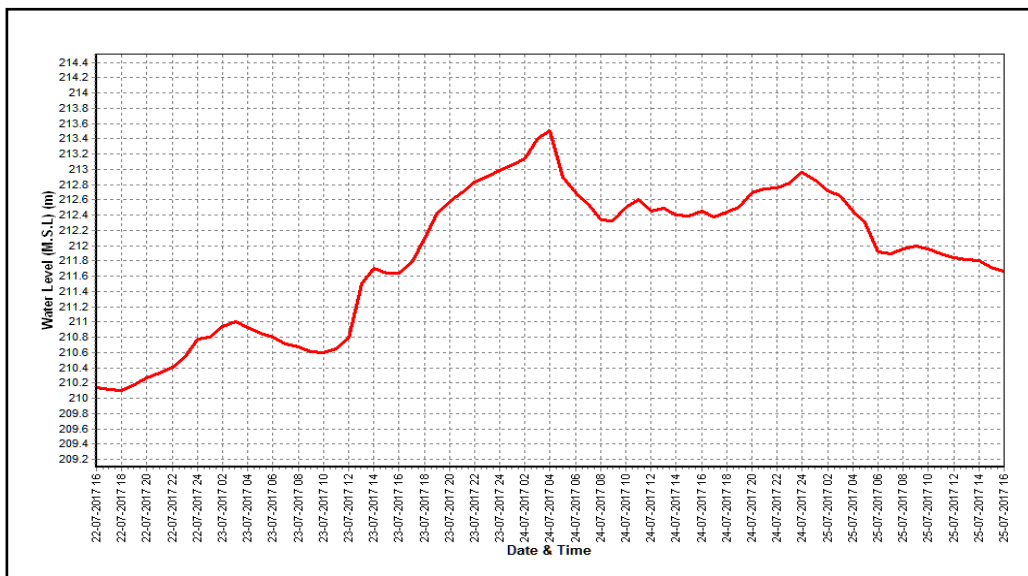
Monthly Runoff for the Year : 2017-2018



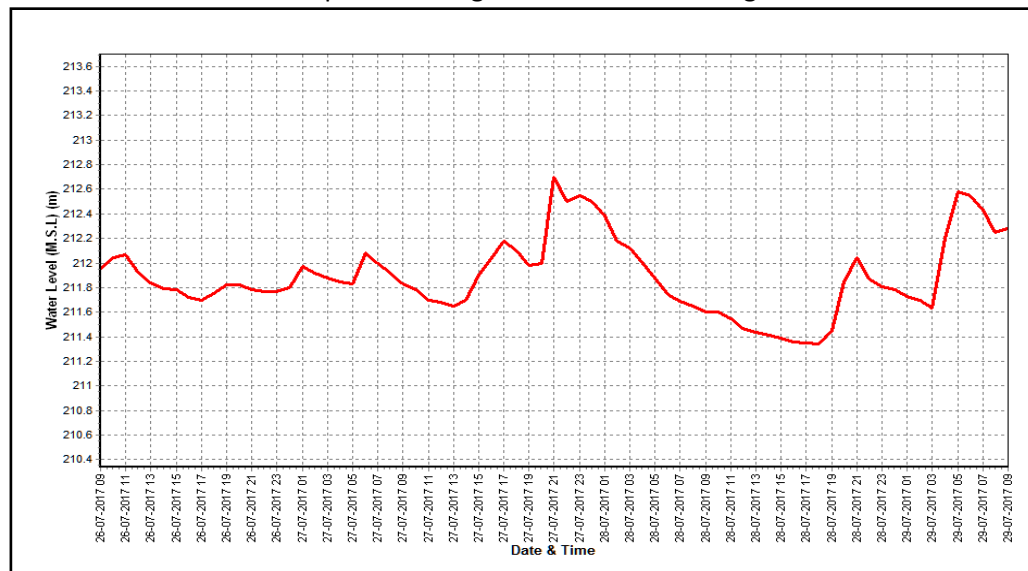
Station Name : Sabarmati at Kheroj (01 02 12 003)
Local River : Sabarmati

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

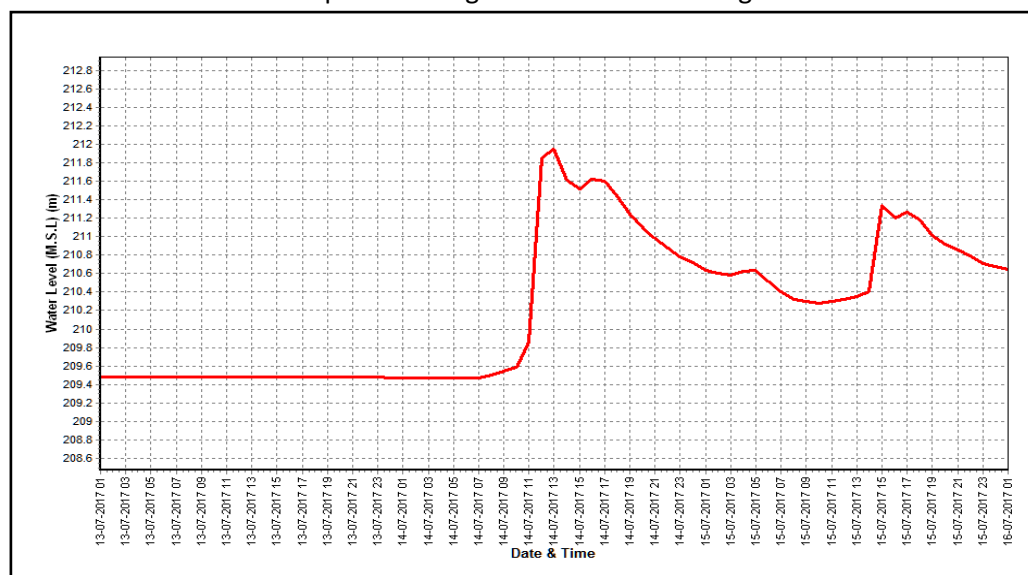
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Wakal at Kotra(Jotasan)

Code : 01 02 12 001

State : Gujarat

District Sabarkantha

Basin : Sabarmati

Independent

River : Sabarmati

Tributary : Wakal

Sub Tributary :

Sub-Sub

Tributary :

Local River : Wakal

Division : Mahi Division, Gandhinagar

Sub-Division : N.W.R.Sub Div.,
Himatnagar

Drainage Area : 1421 Sq. Km.

Bank : Left

Latitude : 24°21'20"N

Longitude : 73°10'05" E

Zero of Gauge

(m) : 0 (A)(Kotra)
200 (m.s.l)(Kotra)
199 (m.s.l)(Jotasan)
285 (m.s.l)(Jotasan)

01/06/1979 - 31/05/1987
01/06/1987 - 03/08/1995
04/08/1995 - 31/05/2002
01/06/2002 -

Opening Date

Closing Date

Gauge : 03/07/1979(Kotra)
14/06/95(Jotasan)

Discharge : 14/06/1995(Jotasan)

Sediment : --

Water Quality : --

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1995-1996	45.0	200.380	03/09/1995	0.000	River Dry	26/01/1996
1996-1997	49.6	200.820	11/09/1996	0.000	199.040	26/01/1997
1997-1998	49.2	200.850	02/08/1997	0.000	River Dry	01/06/1997
1998-1999	19.6	200.500	19/09/1998	0.000	199.090	29/10/1998
1999-2000	24.3	200.380	20/07/1999	0.000	River Dry	02/01/2000
2000-2001	14.7	200.830	14/07/2000	0.000	River Dry	04/12/2000
2001-2002	29.4	200.340	12/08/2001	0.000	River Dry	20/01/2002
2002-2003	49.0	287.590	02/09/2002	0.000	River Dry	10/05/2003
2003-2004	62.0	287.500	29/07/2003	0.000	River Dry	03/04/2004
2004-2005	82.5	287.360	08/08/2004	0.000	River Dry	06/02/2005
2005-2006	93.1	287.590	26/09/2005	0.000	River Dry	01/06/2005
2006-2007	1340.0	291.550	20/08/2006	0.000	River Dry	01/06/2006
2007-2008	267.1	288.325	09/07/2007	0.000	River Dry	01/06/2007
2008-2009	80.0	287.435	05/08/2008	0.000	River Dry	01/06/2008
2009-2010	113.7	287.835	23/07/2009	0.000	River Dry	01/06/2009
2010-2011	210.1	288.325	25/07/2010	0.000	River Dry	01/06/2010
2011-2012	291.7	288.700	12/09/2011	0.000	River Dry	01/06/2011
2012-2013	181.0	288.380	08/09/2012	0.000	River Dry	01/06/2012
2013-2014	80.41	287.650	29/09/2013	0.000	River Dry	01/06/2013
2014-2015	424.6	288.050	09/09/2014	0.000	River Dry	01/06/2014
2015-2016	1059	290.870	29/07/2015	0.000	River Dry	01/06/2015
2016-2017	924.2	289.220	09/08/2016	0.000	River Dry	01/06/2016
2017-2018	374.9	288.300	24/07/2017	0.070	286.800	13/07/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)

Division : Mahi Division, Gandhinagar

Local River : Wakal

Sub-Division : N.W.R.Sub Div., Himatnagar

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	285.000	0.000	286.970	4.803	287.490	76.59	287.330	56.31	287.100	17.04 *	286.940	4.380 *
2	285.000	0.000	286.990	7.460 *	287.400	73.45	287.340	50.99 *	287.090	16.01 *	286.940	4.380 *
3	286.760	0.000	287.140	22.54	287.390	71.36	287.310	45.77 *	287.080	15.24	286.930	3.860 *
4	286.750	0.000	287.040	6.762	287.360	65.56	287.270	43.09	287.070	14.37	286.930	3.860 *
5	286.750	0.000	286.970	4.637	287.320	53.78	287.240	38.79	287.070	14.34	286.930	3.860 *
6	286.730	0.000	286.940	2.976	287.290	42.45 *	287.230	36.16	287.060	12.52	286.930	3.860 *
7	286.730	0.000	286.890	2.223	287.270	47.12	287.220	35.42	287.050	11.96	286.920	3.370 *
8	286.720	0.000	286.860	1.374	287.250	43.78	287.210	33.24	287.050	12.21 *	286.920	3.370 *
9	286.710	0.000	286.860	1.130 *	287.240	39.73	287.210	33.44	287.040	11.37	286.920	3.370 *
10	286.760	0.000	286.850	1.115	287.230	36.43	287.200	29.02 *	287.030	10.63	286.920	3.370 *
11	286.760	0.000	286.830	0.927	287.220	34.71	287.240	35.86	287.030	10.53	286.920	3.370 *
12	286.750	0.000	286.820	0.723	287.210	32.80	287.220	40.57	287.020	9.823	286.920	3.370 *
13	286.750	0.000	286.800	0.070 #	287.200	29.02 *	287.220	34.74	287.020	11.36	286.910	2.920 *
14	286.750	0.000	287.190	22.05	287.190	31.89	287.200	35.94	287.040	11.08	286.910	2.920 *
15	286.740	0.000	287.210	21.87	287.210	30.39 *	287.220	34.32	287.040	11.34 *	286.910	2.920 *
16	286.740	0.000	287.280	40.84 *	287.200	30.05	287.580	102.5 *	287.030	9.837	286.910	2.920 *
17	286.740	0.000	287.160	23.85 #	287.180	27.39	287.260	37.70 *	287.030	9.107	286.910	2.920 *
18	286.740	0.000	287.050	7.516	287.130	22.20	287.240	39.35	287.020	8.347	286.910	2.920 *
19	286.730	0.000	287.100	10.21	287.120	21.01	287.220	36.31	287.010	8.920 *	286.910	2.920 *
20	286.730	0.000	287.060	7.584	287.150	22.64 *	287.210	34.00	287.000	7.019	286.900	2.490 *
21	286.730	0.000	287.190	19.67	287.240	43.91	287.200	32.11	286.990	6.113	286.900	2.490 *
22	286.720	0.000	287.190	20.08	287.270	43.52	287.200	29.66	286.990	7.460 *	286.900	2.490 *
23	286.720	0.000	287.400	62.24 *	287.260	41.83	287.180	27.61	286.980	5.511	286.900	2.490 *
24	286.720	0.000	288.300	374.9	287.380	64.41	287.170	25.10 *	286.970	5.098	286.900	2.490 *
25	286.720	0.000	288.140	256.0	287.260	41.57	287.160	24.60	286.970	4.876	286.900	2.490 *
26	286.720	0.000	288.160	298.4 #	287.230	33.26	287.150	22.50	286.960	4.645	286.900	2.490 *
27	286.770	0.000	288.070	229.9	287.240	34.68 *	287.140	21.12	286.960	4.596	286.900	2.490 *
28	286.942	4.005	287.810	152.0	287.210	34.38	287.130	20.72	286.960	4.202	286.900	2.490 *
29	286.920	2.396	288.200	340.1	287.230	37.61	287.120	19.37	286.950	4.930 *	286.900	2.490 *
30	286.910	2.049	287.860	184.6 *	287.240	42.35	287.110	18.09 *	286.950	4.009	286.900	2.490 *
31			287.600	97.37	287.340	55.28			286.940	3.753		
Ten-Daily Mean												
I Ten-Daily	286.391	0.000	286.951	5.502	287.324	55.03	287.256	40.22	287.064	13.57	286.928	3.768
II Ten-Daily	286.743	0.000	287.050	13.56	287.181	28.21	287.261	43.13	287.024	9.736	286.911	2.967
III Ten-Daily	286.787	2.817	287.811	185.0	287.264	42.98	287.156	24.09	286.965	5.018	286.900	2.490
Monthly												
Min.	285.000	2.049	286.800	0.070	287.120	21.01	287.110	18.09	286.940	3.753	286.900	2.490
Max.	286.942	4.005	288.300	374.9	287.490	76.59	287.580	102.5	287.100	17.04	286.940	4.380
Mean	286.640	2.817	287.288	71.8	287.256	42.1	287.224	35.81	287.016	9.298	286.913	3.075

Annual Runoff in MCM = 448 Annual Runoff in mm = 315

Peak Observed Discharge = 374.9 cumecs on 24-07-2017 Corres. Water Level :288.3 m

Lowest Observed Discharge = 0.070 cumecs on 13-07-2017 Corres. Water Level :286.8 m

Negligible flow existed in river from 1/6/17 to 27/6/17

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)

Division : Mahi Division, Gandhinagar

Local River : Wakal

Sub-Division : N.W.R.Sub Div., Himatnagar

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	286.900	2.490 *	286.900	2.490 *	286.870	1.420 *	286.830	0.450 *	286.820	0.000	286.790	0.000
2	286.900	2.490 *	286.900	2.490 *	286.870	1.420 *	286.820	0.290 *	286.820	0.000	286.780	0.000
3	286.900	2.490 *	286.900	2.490 *	286.870	1.420 *	286.820	0.290 *	286.820	0.000	286.780	0.000
4	286.900	2.490 *	286.900	2.490 *	286.870	1.420 *	286.820	0.290 *	286.820	0.000	286.780	0.000
5	286.900	2.490 *	286.900	2.490 *	286.860	1.130 *	286.820	0.290 *	286.820	0.000	286.780	0.000
6	286.920	3.370 *	286.900	2.490 *	286.860	1.130 *	286.820	0.290 *	286.820	0.000	286.770	0.000
7	286.920	3.370 *	286.900	2.490 *	286.860	1.130 *	286.810	0.160 *	286.820	0.000	286.770	0.000
8	286.920	3.370 *	286.900	2.490 *	286.860	1.130 *	286.810	0.160 *	286.820	0.000	286.770	0.000
9	286.920	3.370 *	286.890	2.100 *	286.860	1.130 *	286.810	0.160 *	286.820	0.000	286.770	0.000
10	286.920	3.370 *	286.890	2.100 *	286.860	1.130 *	286.810	0.160 *	286.820	0.000	286.760	0.000
11	286.920	3.370 *	286.890	2.100 *	286.860	1.130 *	286.810	0.160 *	286.820	0.000	286.760	0.000
12	286.920	3.370 *	286.890	2.100 *	286.860	1.130 *	286.810	0.160 *	286.820	0.000	286.760	0.000
13	286.920	3.370 *	286.890	2.100 *	286.850	0.870 *	286.810	0.160 *	286.820	0.000	286.760	0.000
14	286.920	3.370 *	286.890	2.100 *	286.850	0.870 *	286.800	0.000	286.810	0.000	286.760	0.000
15	286.920	3.370 *	286.890	2.100 *	286.850	0.870 *	286.800	0.000	286.810	0.000	286.760	0.000
16	286.920	3.370 *	286.890	2.100 *	286.850	0.870 *	286.800	0.000	286.810	0.000	286.750	0.000
17	286.920	3.370 *	286.880	1.740 *	286.850	0.870 *	286.800	0.000	286.810	0.000	286.750	0.000
18	286.920	3.370 *	286.880	1.740 *	286.850	0.870 *	286.800	0.000	286.810	0.000	286.750	0.000
19	286.920	3.370 *	286.880	1.740 *	286.850	0.870 *	286.790	0.000	286.810	0.000	286.750	0.000
20	286.920	3.370 *	286.880	1.740 *	286.840	0.640 *	286.790	0.000	286.800	0.000	286.750	0.000
21	286.920	3.370 *	286.880	1.740 *	286.840	0.640 *	286.790	0.000	286.800	0.000	286.750	0.000
22	286.920	3.370 *	286.880	1.740 *	286.840	0.640 *	286.790	0.000	286.800	0.000	286.750	0.000
23	286.920	3.370 *	286.880	1.740 *	286.840	0.640 *	286.790	0.000	286.800	0.000	286.750	0.000
24	286.910	2.920 *	286.880	1.740 *	286.840	0.640 *	286.790	0.000	286.800	0.000	286.750	0.000
25	286.910	2.920 *	286.880	1.740 *	286.830	0.450 *	286.790	0.000	286.790	0.000	286.750	0.000
26	286.910	2.920 *	286.880	1.740 *	286.830	0.450 *	286.790	0.000	286.790	0.000	286.750	0.000
27	286.910	2.920 *	286.880	1.740 *	286.830	0.450 *	286.800	0.000	286.790	0.000	286.750	0.000
28	286.910	2.920 *	286.870	1.420 *	286.830	0.450 *	286.800	0.000	286.790	0.000	286.740	0.000
29	286.900	2.490 *	286.870	1.420 *			286.820	0.000	286.790	0.000	286.740	0.000
30	286.900	2.490 *	286.870	1.420 *			286.820	0.000	286.790	0.000	286.740	0.000
31	286.900	2.490 *	286.870	1.420 *			286.820	0.000			286.730	0.000
Ten-Daily Mean												
I Ten-Daily	286.910	2.930	286.898	2.412	286.864	1.246	286.817	0.254	286.820	0.000	286.775	0.000
II Ten-Daily	286.920	3.370	286.886	1.956	286.851	0.899	286.801	0.048	286.812	0.000	286.755	0.000
III Ten-Daily	286.910	2.925	286.876	1.624	286.835	0.545	286.800	0.000	286.794	0.000	286.745	0.000
Monthly												
Min.	286.900	2.490	286.870	1.420	286.830	0.450	286.790	0.000	286.790	0.000	286.730	0.000
Max.	286.920	3.370	286.900	2.490	286.870	1.420	286.830	0.450	286.820	0.000	286.790	0.000
Mean	286.913	3.07	286.886	1.985	286.851	0.922	286.806	0.097	286.809	0.000	286.758	0.000

Peak Computed Discharge = 184.6 cumecs on 30-07-2017

Corres. Water Level :287.86 m

Lowest Computed Discharge = 0.000 cumecs on 14-03-2018

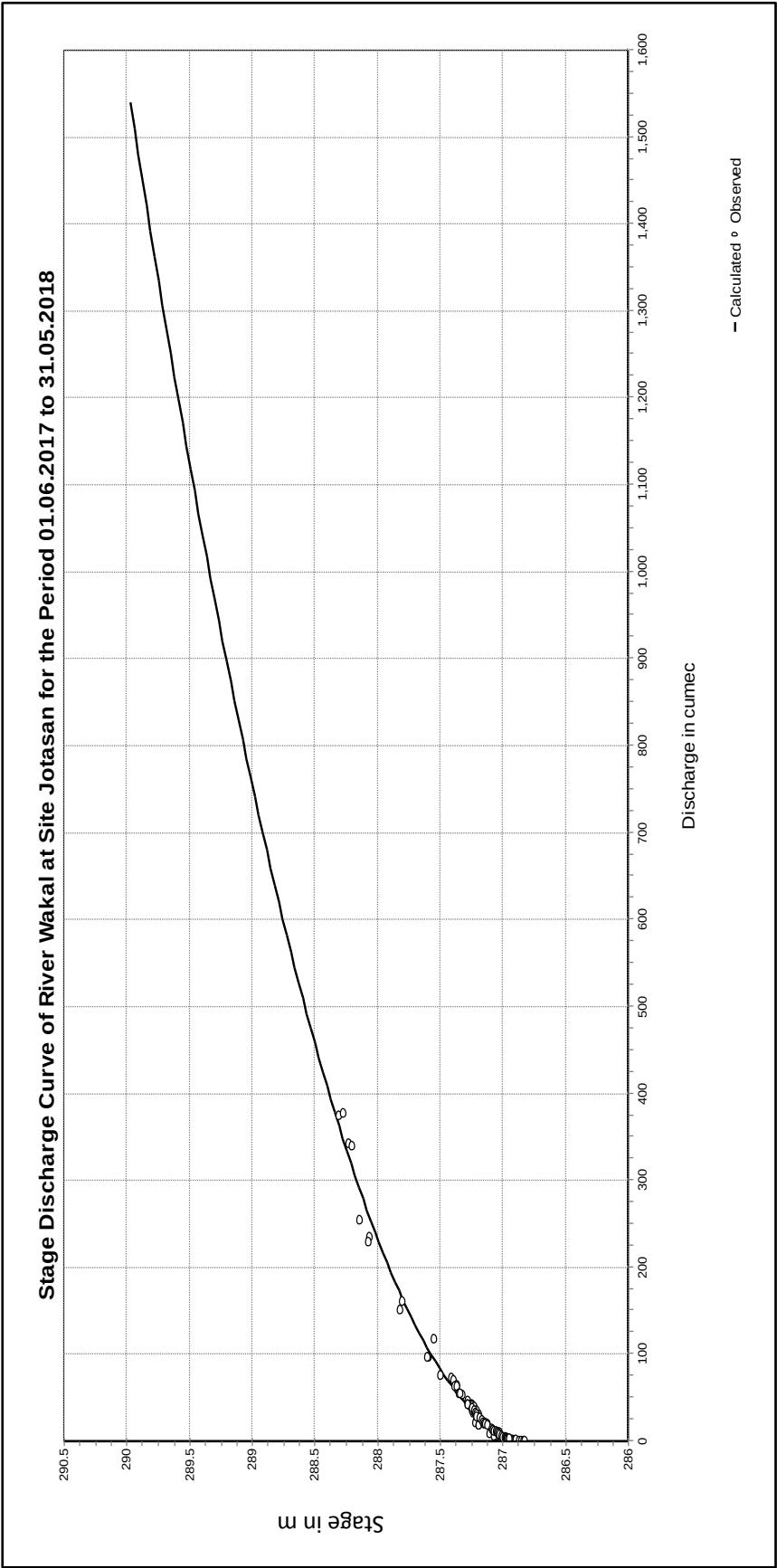
Corres. Water Level :286.8 m

Negligible flow existed in river from 14/3/18 to 31/5/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
286.800	290.000	-286.78	1.959	158.765

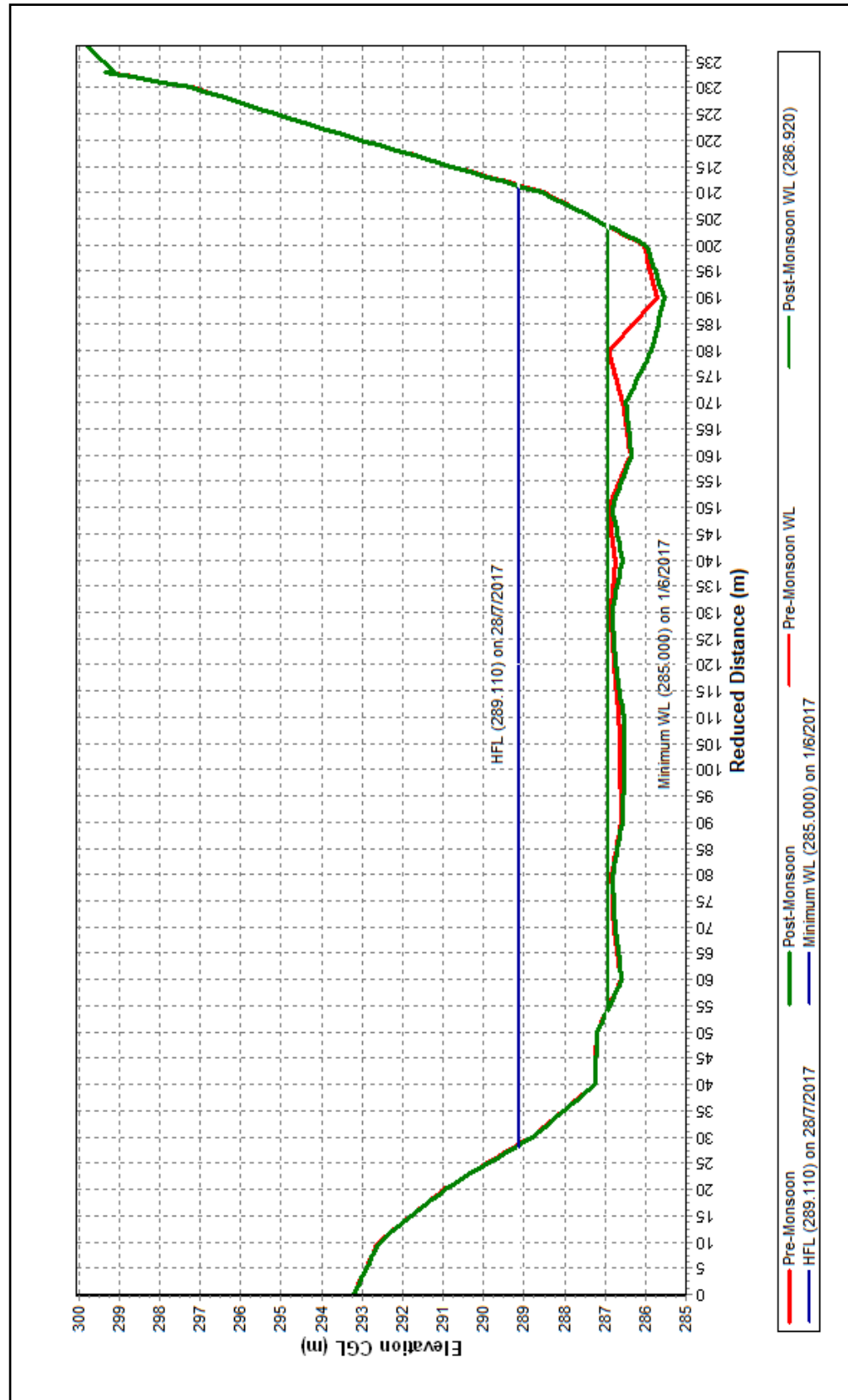
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)

Local River : Wakal

Division : Mahi Division, Gandhinagar

Sub-Division : N.W.R.Sub Div., Himatnagar



Historic Flood Level-291.600m on 20.08.2006 at 0700hrs

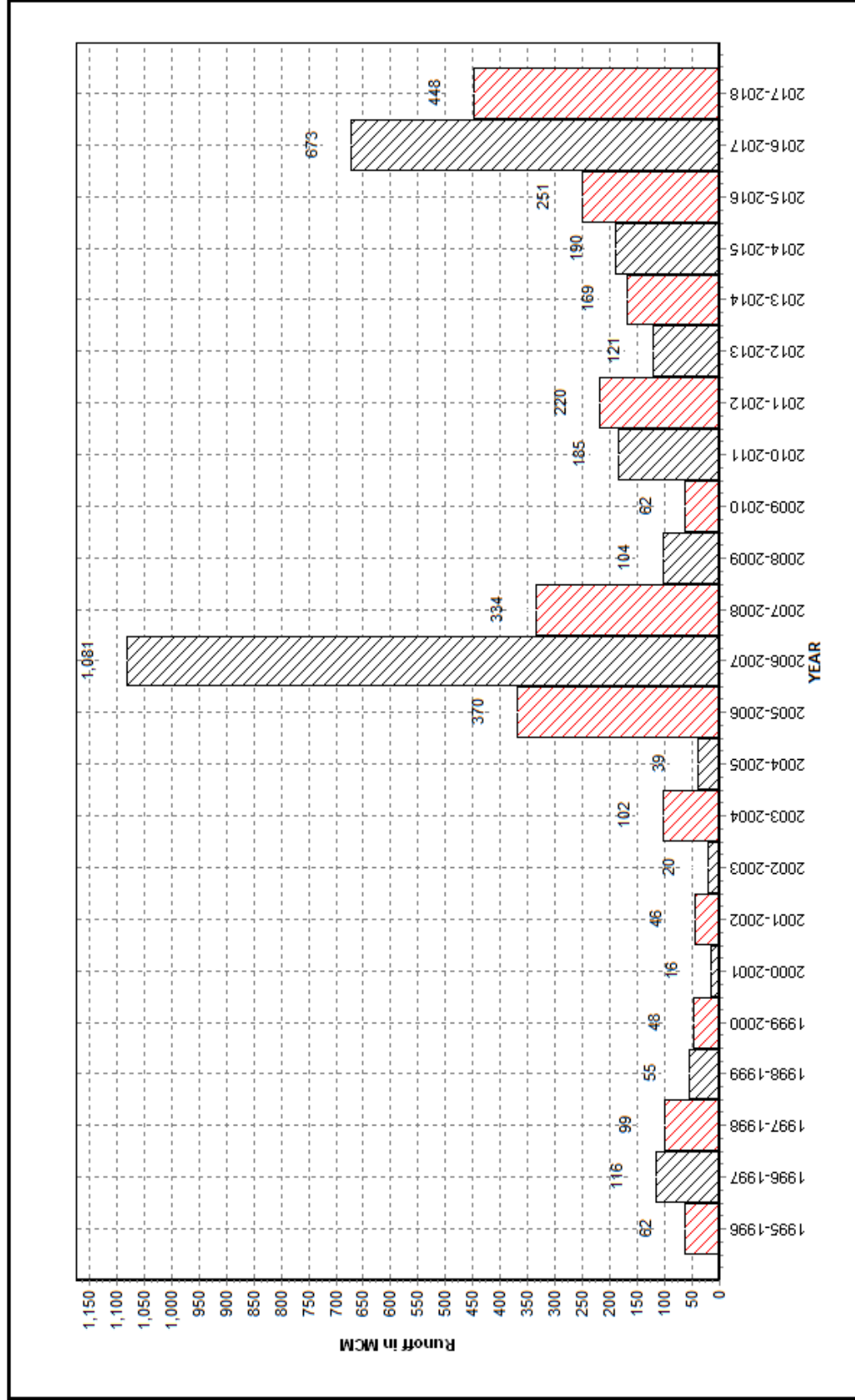
Note: HFL marked on graph denotes Maximum WaterLevel observed during the Water Year 2017-18

Annual Runoff Values for the period: 1995 - 2018

Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)

Local River : Wakal

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

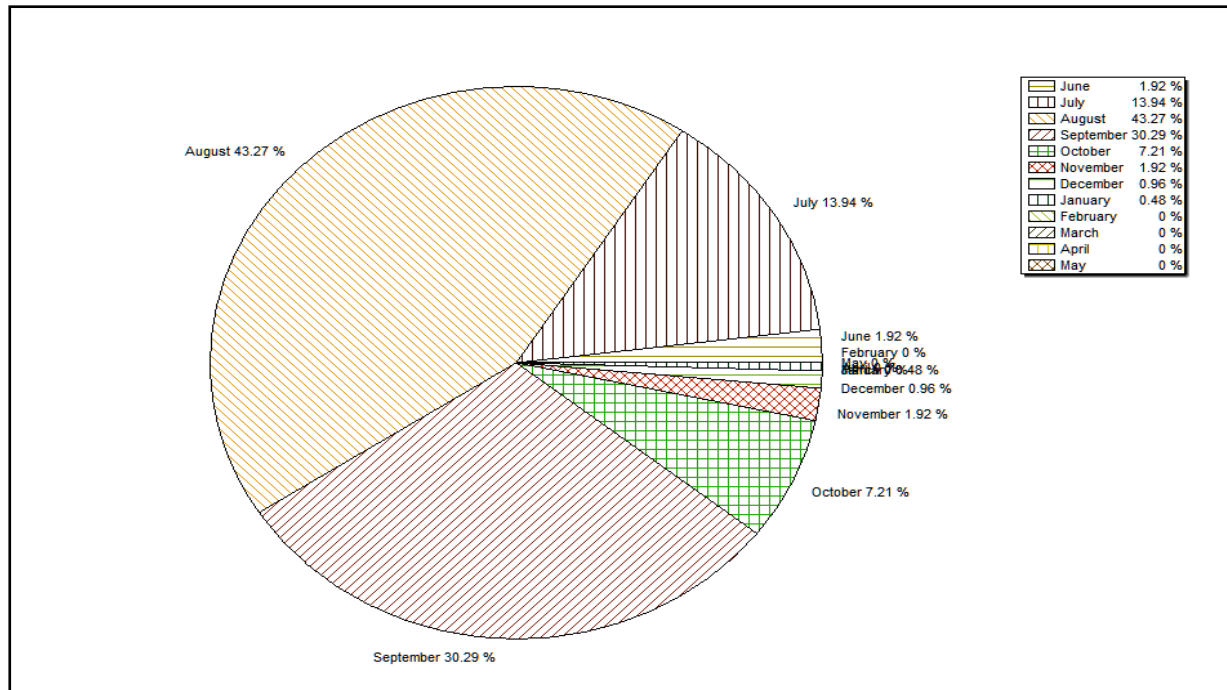


Note: Missing values have not been considered while arriving at Annual Runoff

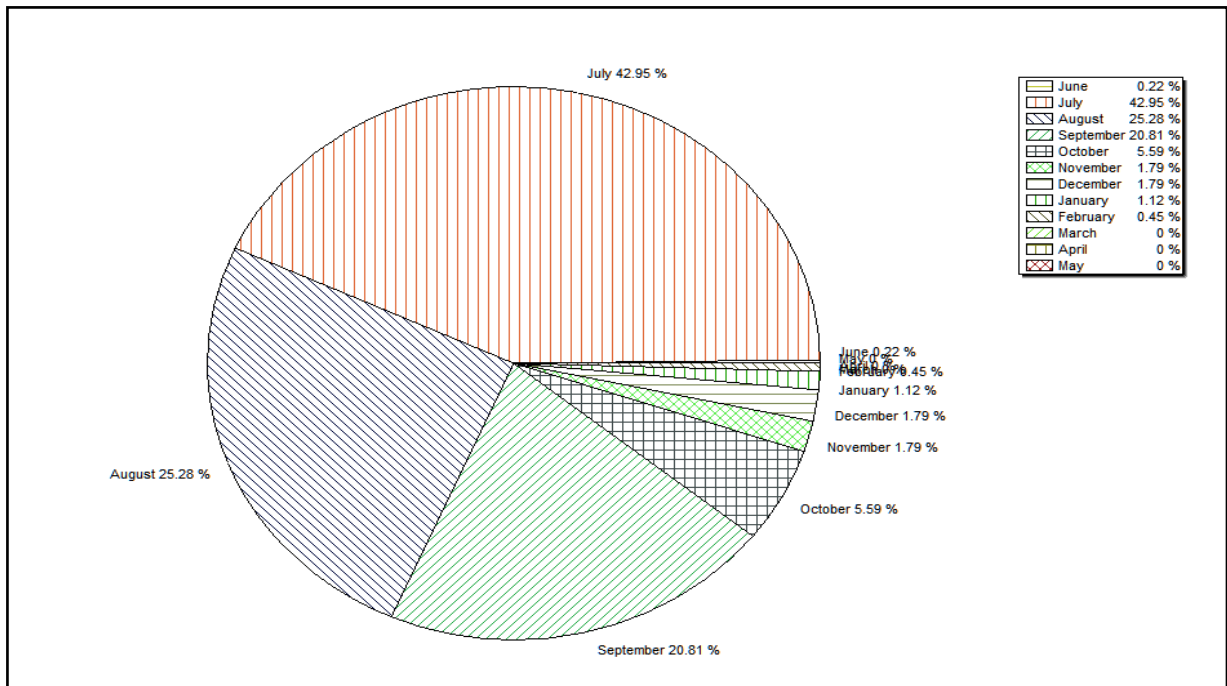
Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)
Local River : Wakal

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

Monthly Average Runoff based on period : 1995-2017



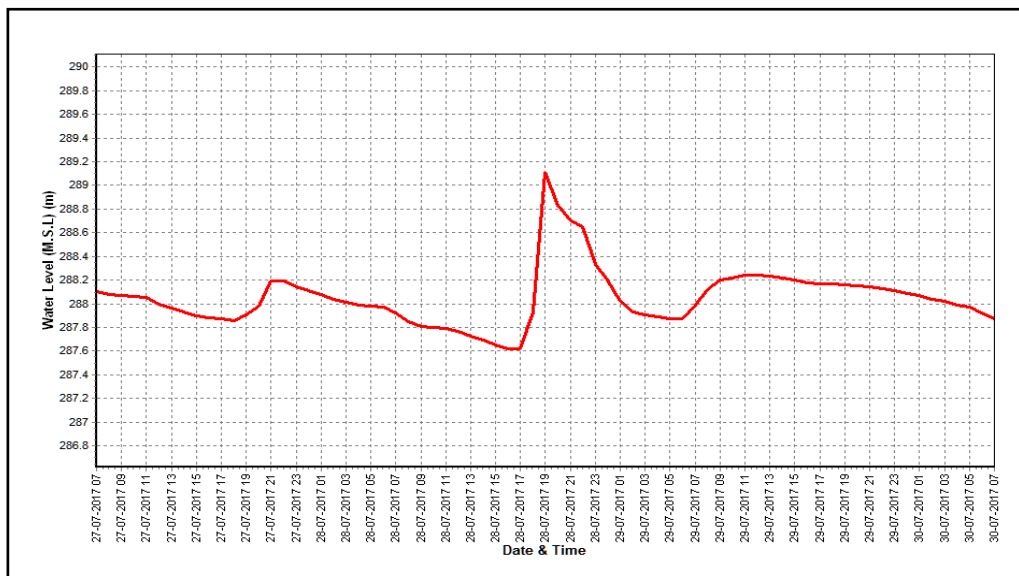
Monthly Runoff for the Year : 2017-2018



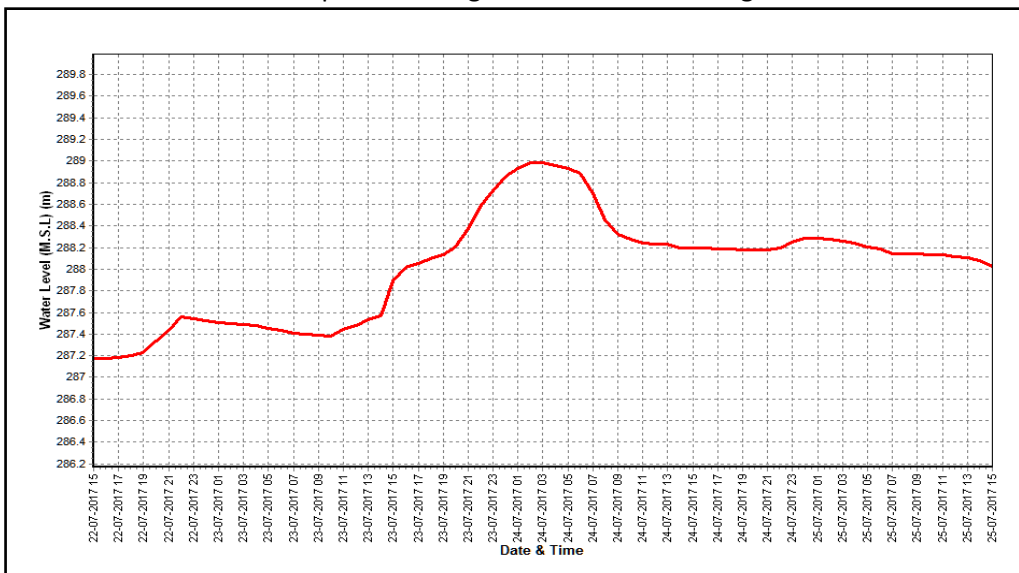
Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)
Local River : Wakal

Division : Mahi Division, Gandhinagar
Sub-Division : N.W.R.Sub Div., Himatnagar

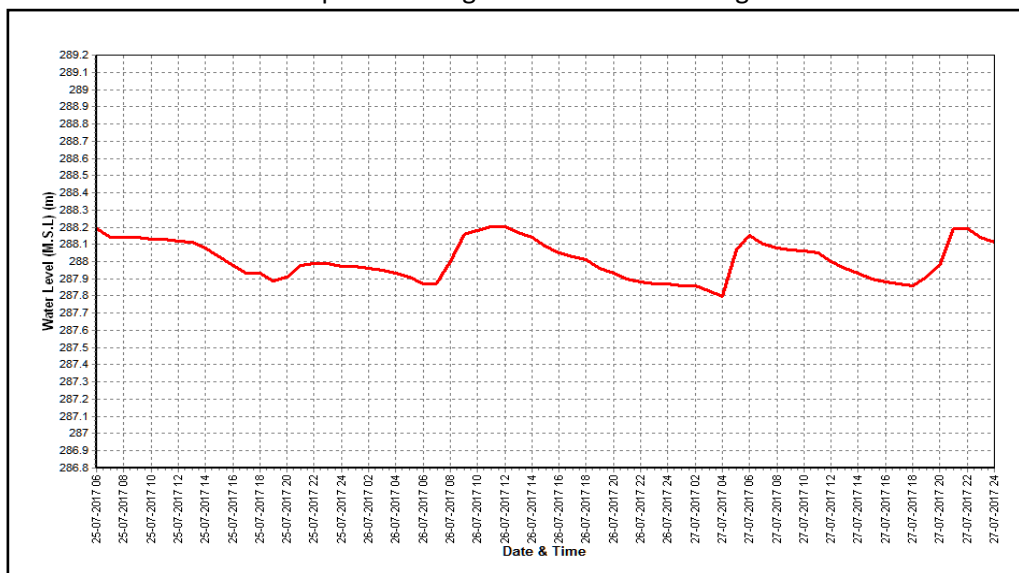
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18
Site : Luni at Gandhav
Code : 01 02 01 002
State : Rajasthan
District : Badmer
Independent
Basin : WFR of Kach.-Saur. & Luni
River : Luni
Tributary : -
Sub Tributary :
Sub-Sub
Tributary :
Local River : Luni
Division : Mahi Division Gandhinagar
Sub Division : Banas-Luni Sub Div
Drainage : 32010 Sq. Km.
Bank :
Area
Latitude : 24°59'22"
Longitude : 71°40'47"
Zero of : 31.000
24/06/1974 -
Gauge (m)
Opening Date
Closing Date
Gauge : 24/06/1974
Discharge : 24/06/1974
Sediment :
Water
Quality :

Annual Maximum / Minimum discharge with mean WL during observation

	Maximum			Minimum		
Year	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1974-1975	River Dry					
1975-1976	813.8	35.532	18/09/1975	0.000	River Dry	16/02/1976
1976-1977	1116	35.720	17/08/1976	0.000	River Dry	02/03/1977
1977-1978	562.1	35.540	04/08/1977	0.000	River Dry	27/01/1978
1978-1979	207.0	35.000	02/09/1978	0.000	River Dry	25/01/1979
1979-1980	4300	38.880	19/07/1979	0.000	River Dry	26/01/1980
1980-1981	95.00	34.840	04/08/1980	0.000	River Dry	26/01/1981
1981-1982	6.000	31.905	28/07/1981	0.000	River Dry	25/01/1982
1982-1983	138.0	33.150	22/08/1982	0.000	River Dry	25/01/1983
1983-1984	1655	34.855	29/07/1983	0.000	River Dry	27/02/1984
1986-1987	1.100	32.455	28/07/1986	0.000	River Dry	25/01/1987
1987-1988	River Dry					
1988-1989	River Dry					
1989-1990	River Dry					
1990-1991	4191	37.475	07/07/1990	0.000	River Dry	18/05/1991
1991-1992	3.102	31.650	03/08/1991	0.000	31.345	22/01/1992
1992-1993	1761	35.200	09/09/1992	0.000	River Dry	02/04/1993
1993-1994	310.2	33.450	19/07/1993	0.000	River Dry	09/05/1994
1994-1995	407.1	33.140	23/08/1994	0.000	River Dry	07/04/1995
1995-1996	1505	34.200	28/07/1995	0.000	River Dry	30/01/1996
1996-1997	51.80	32.740	23/08/1996	0.000	River Dry	25/01/1997
1997-1998	531.2	32.645	29/08/1997	0.000	River Dry	12/01/1998
1998-1999	43.75	32.550	11/06/1998	0.000	River Dry	25/01/1999
1999-2000	130.6	34.300	04/08/1999	0.000	River Dry	26/01/2000
2000-2001	7.580	32.140	15/07/2000	0.000	River Dry	25/01/2001
2001-2002	545.5	34.410	13/07/2001	0.000	River Dry	01/05/2002
2002-2003	River Dry					

2003-2004	9.697	32.690	26/07/2003	0.000	River Dry	26/01/2004
2004-2005	2.338	32.320	17/07/2004	0.000	River Dry	25/05/2005
2005-2006	River Dry					
2006-2007	River Dry					
2007-2008	1236*	35.400	09/07/2007	0.000	River Dry	01/06/2007
2008-2009	River Dry					
2009-2010	0	32.0	10/09/2009	0.000	River Dry	01/06/2009
2010-2011	0	32.56	22/10/2010	0.000	River Dry	01/06/2010
2011-2012	River Dry					
2012-2013	0	33.99	15/08/2012	0.000	River Dry	01/06/2012
2013-2014	0	32.7	01/06/2013	0.000	River Dry	14/06/2013
2014-2015	0	32.68	05/09/2014	0.000	River Dry	01/06/2014
2015-2016	416*	34.255	28/07/2015	0.000	32.5	10/08/2015
2016-2017	160.7	33.855	08/09/2016	0.000	River Dry	01/06/2016
2017-2018	698.9	35.2	31/07/2017	18.370	32.55	09/08/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Luni at Gandhav (01 02 01 002)

Division : Mahi Division, Gandhinagar

Local River : Luni

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

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R. Dry	0.000	R. Dry	0.000	35.050	581.8	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	34.800	473.4	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	35.700	668.5	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	R. Dry	0.000	R. Dry	0.000	35.250	598.3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	R. Dry	0.000	R. Dry	0.000	34.700	300.2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	R. Dry	0.000	R. Dry	0.000	34.088	187.0	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	R. Dry	0.000	R. Dry	0.000	33.650	75.02	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	R. Dry	0.000	R. Dry	0.000	32.950	42.21	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	R. Dry	0.000	R. Dry	0.000	32.550	18.37	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	R. Dry	0.000	R. Dry	0.000	32.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	R. Dry	0.000	R. Dry	0.000	32.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	R. Dry	0.000	R. Dry	0.000	32.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	R. Dry	0.000	R. Dry	0.000	32.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
14	R. Dry	0.000	R. Dry	0.000	32.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
15	R. Dry	0.000	R. Dry	0.000	31.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
16	R. Dry	0.000	R. Dry	0.000	31.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
17	R. Dry	0.000	R. Dry	0.000	31.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
18	R. Dry	0.000	R. Dry	0.000	31.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
19	R. Dry	0.000	R. Dry	0.000	31.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
20	R. Dry	0.000	R. Dry	0.000	31.100	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
21	R. Dry	0.000	R. Dry	0.000	31.000	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
22	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
23	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
24	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
25	R. Dry	0.000	33.800	227.7	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
26	R. Dry	0.000	34.200	266.9	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
27	R. Dry	0.000	34.400	261.6	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
28	R. Dry	0.000	34.650	318.8	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
29	R. Dry	0.000	34.200	237.4	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
30	R. Dry	0.000	34.500	334.9	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
31			35.200	698.9	R. Dry	0.000			R. Dry	0.000		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	R. Dry	0.000	34.084	327.2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
II Ten-Daily	R. Dry	0.000	R. Dry	0.000	31.500	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	R. Dry	0.000	34.421	335.2	31.000	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	R. Dry	0.000	33.800	227.7	31.000	18.37	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	R. Dry	0.000	35.200	698.9	35.700	668.5	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	R. Dry	0.000	34.421	335.2	32.707	327.2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000

Annual Runoff in MCM = 457 Annual Runoff in mm = 14

Peak Observed Discharge = 698.9 cumecs on 31-07-2017 Corres. Water Level :35.2 m

Lowest Observed Discharge = 18.37 cumecs on 09-08-2017 Corres. Water Level :32.55 m

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

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Luni at Gandhav (01 02 01 002)

Division : Mahi Division, Gandhinagar

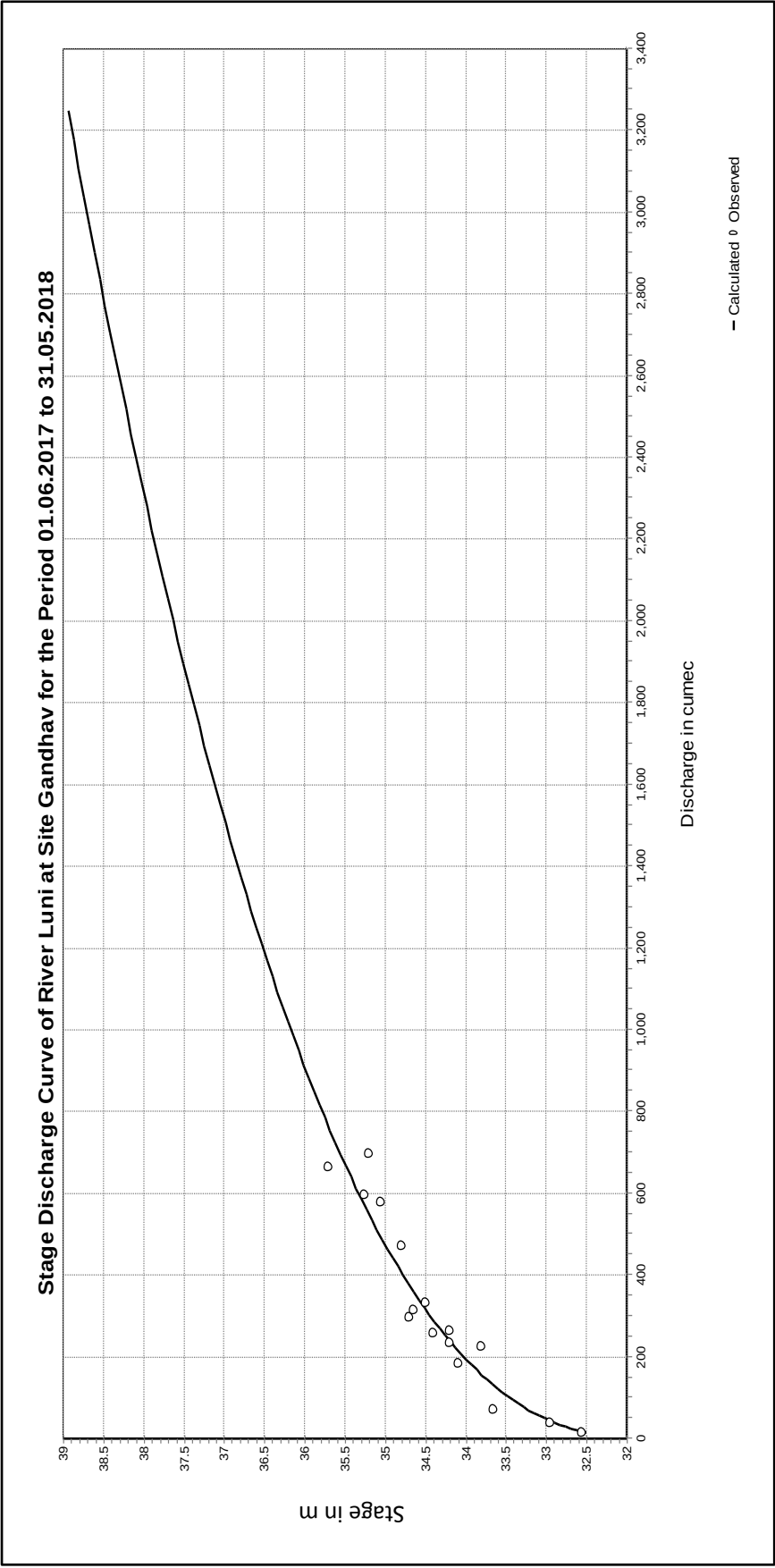
Local River : Luni

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

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
14	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
15	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
16	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
17	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
18	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
19	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
20	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
21	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
22	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
23	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
24	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
25	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
26	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
27	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
28	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
29	R. Dry	0.000	R. Dry	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
30	R. Dry	0.000	R. Dry	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
31	R. Dry	0.000	R. Dry	0.000			R. Dry	0.000			R. Dry	0.000
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
II Ten-Daily	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000

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

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

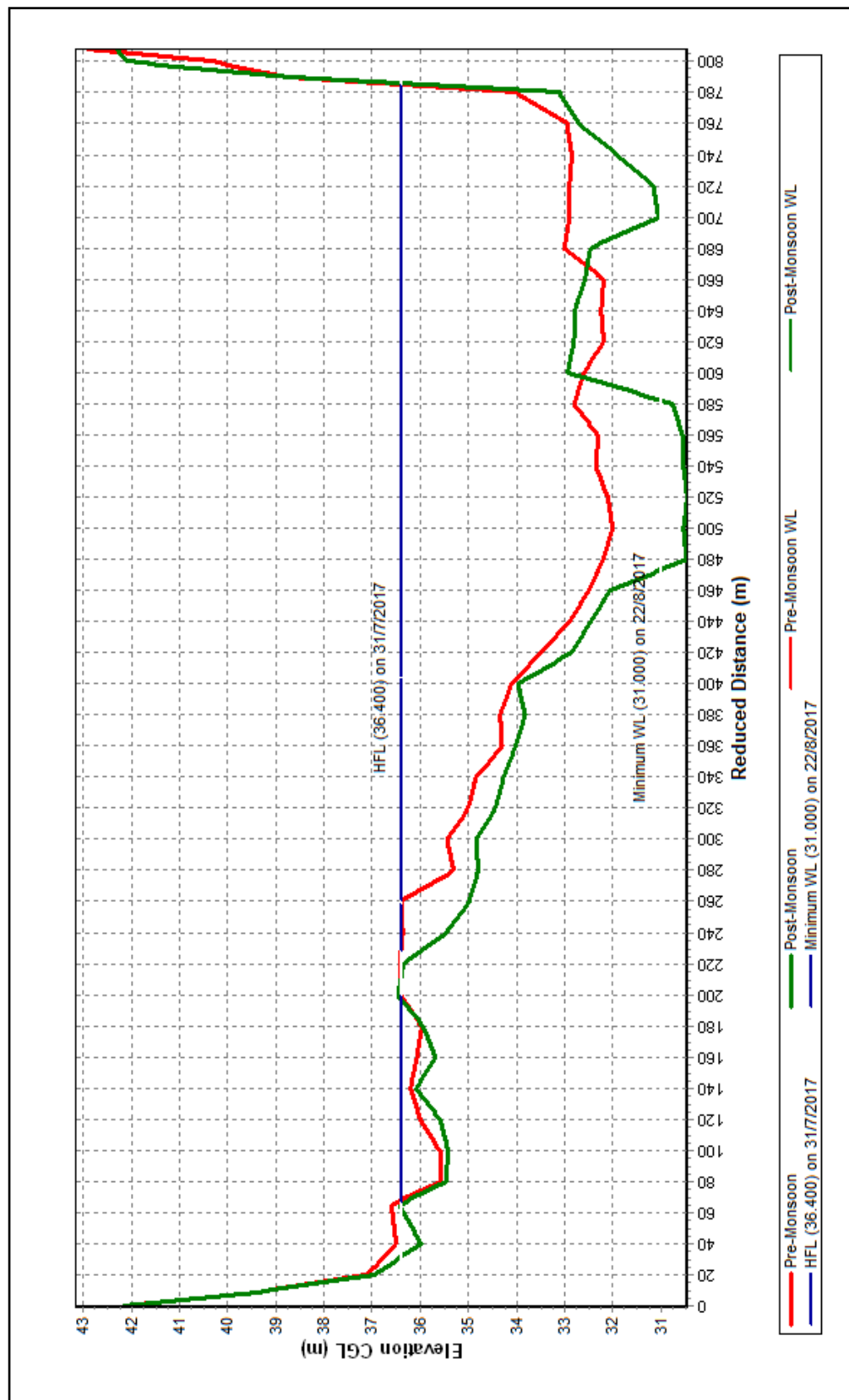
Equation Type - Power		Q=c*(h+a) ^b		
LB	UB	a	b	c
32.500	39.000	-31.74	2.429	26.923

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Luni at Gandhav (01 02 01 002)

Local River : Luni

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



Historic Flood Level - 37.625 m on 07.07.1990 at 2100 hrs

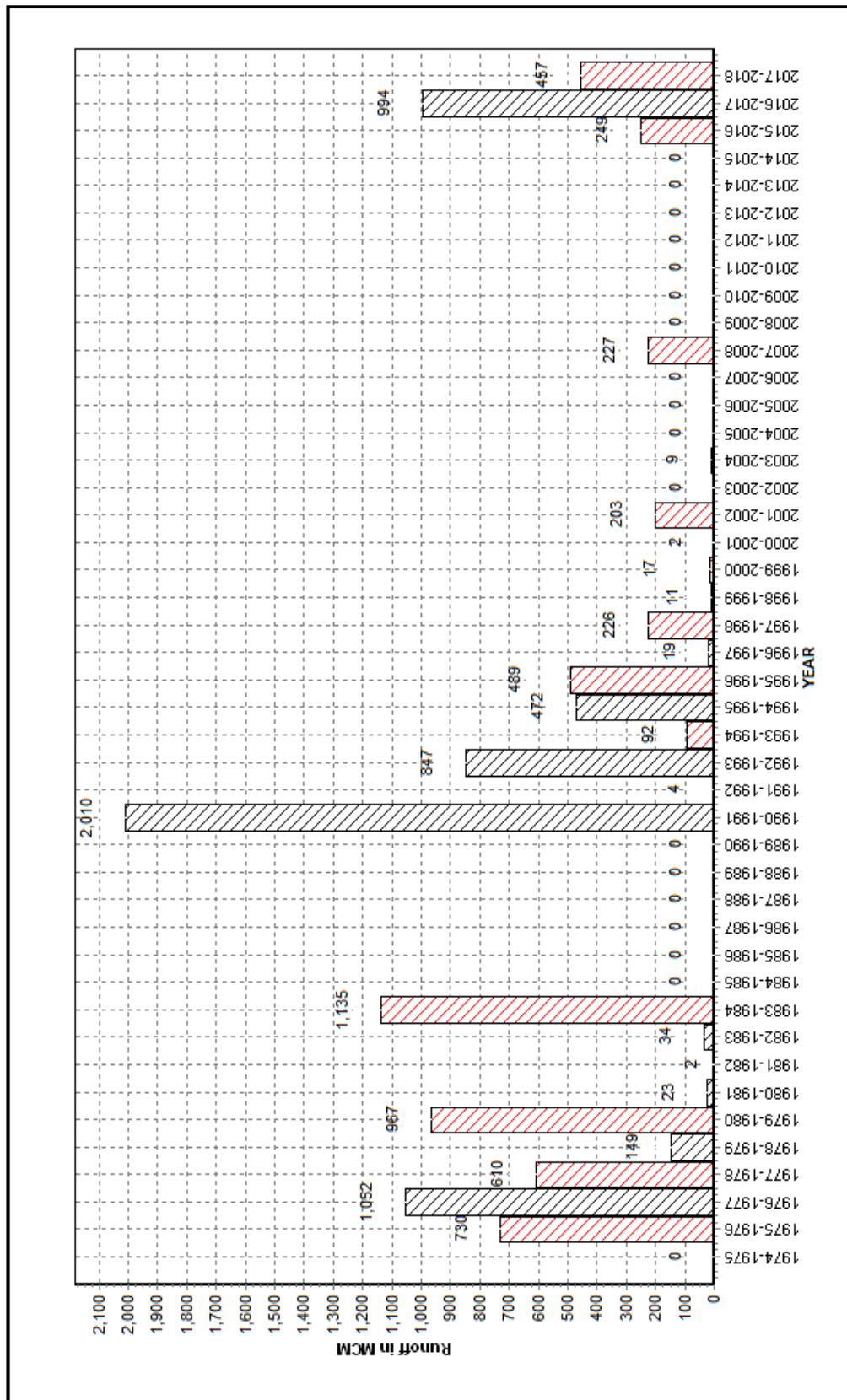
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 1974 - 2018

Station Name : Luni at Gandhav (01 02 01 002)

Local River : Luni

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

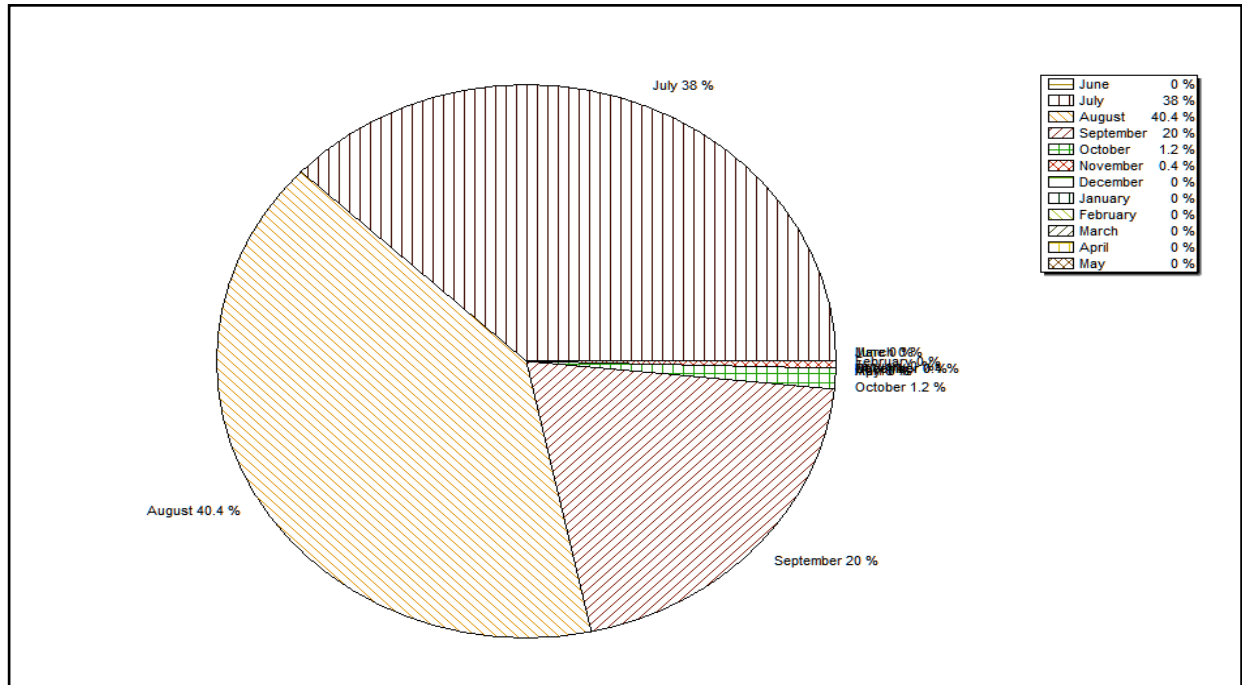


Note: Missing values have not been considered while arriving at Annual Runoff

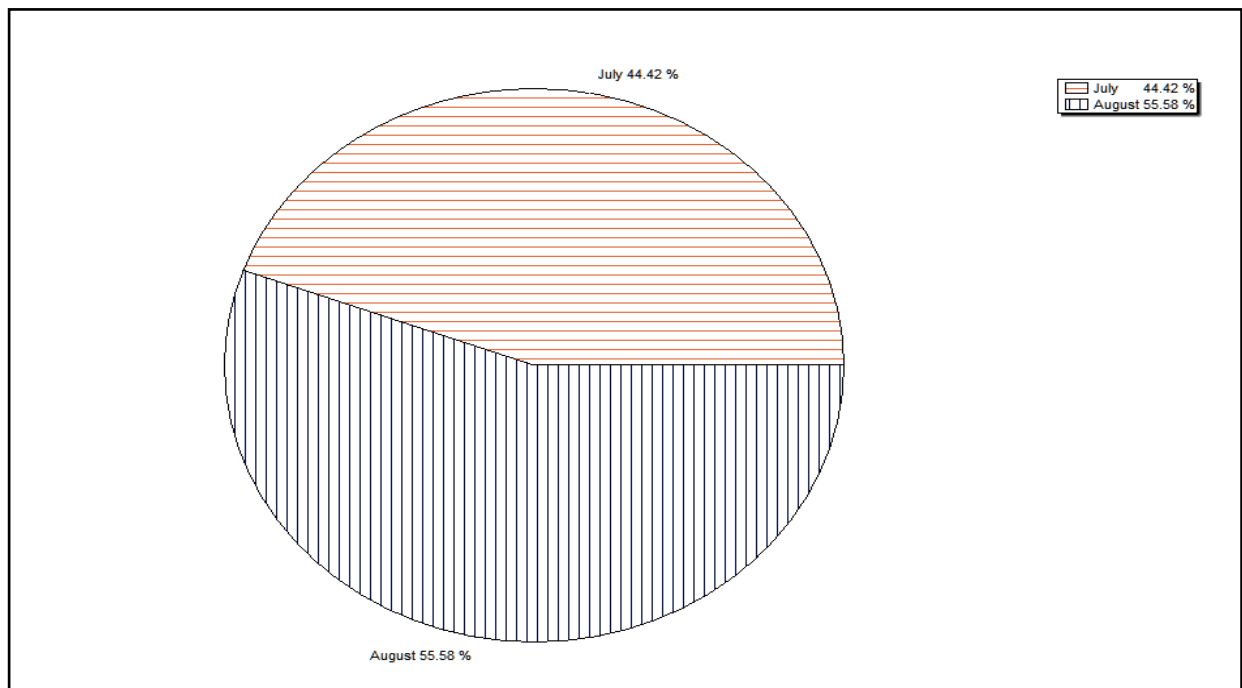
Station Name : Luni at Gandhav (01 02 01 002)
Local River : Luni

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

Monthly Average Runoff based on period : 1974-2017



Monthly Runoff for the Year : 2017-2018



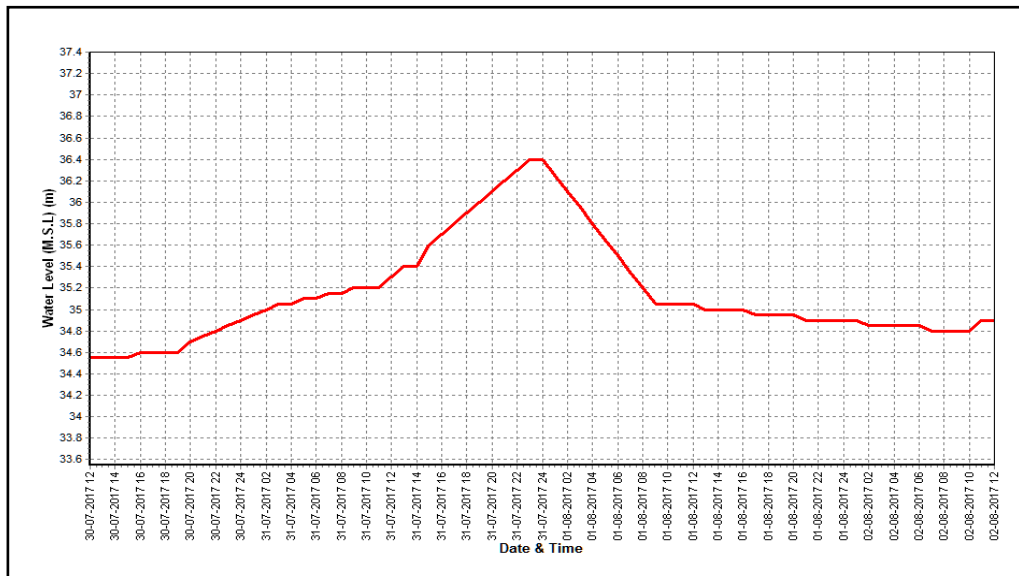
Station Name : Luni at Gandhav (01 02 01 002)

Local River : Luni

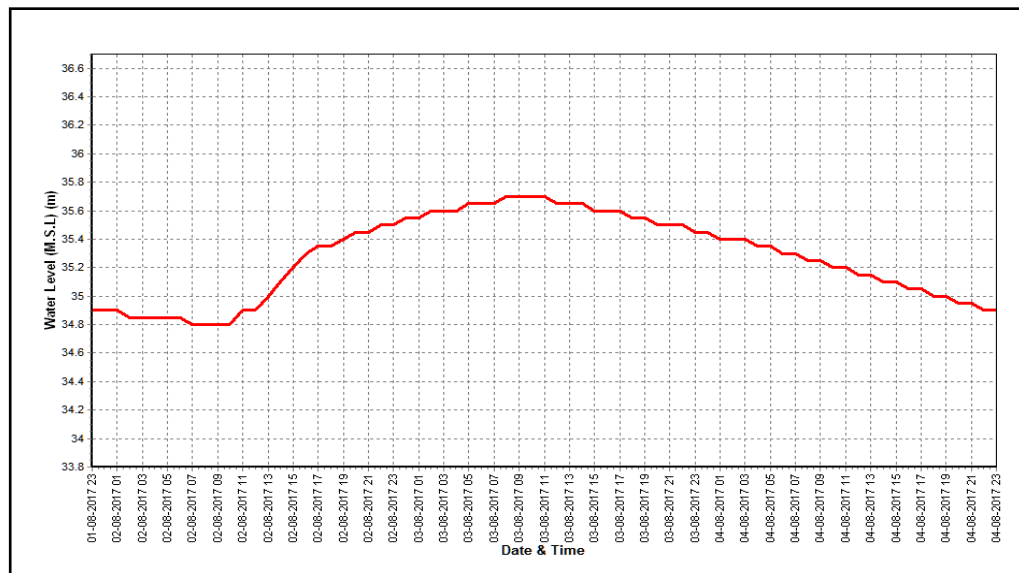
Division : Mahi Division, Gandhinagar

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

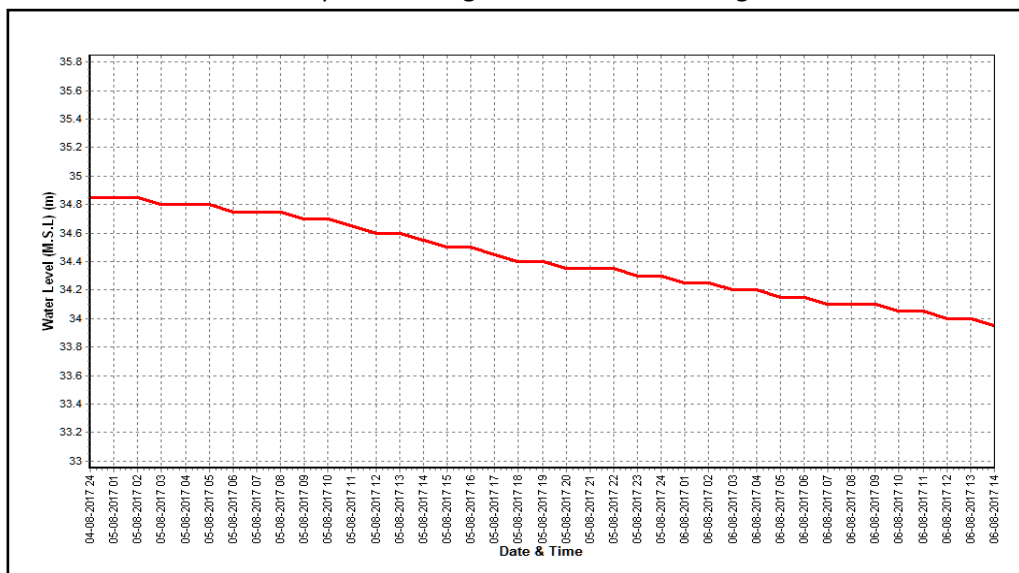
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Luni at Balotra State : Rajasthan Basin : WFR of Kach.-Saur. & Luni Tributary : Sub-Sub Tributary : Division : Mahi Division, Gandhinagar Drainage Area : 19000 Sq. Km. Latitude : 25°49'19" N	Code : 01 02 01 001 District : Badmer Independent River : Luni Sub Tributary : Local River : Luni Sub-Division : B.L.Sub Divn, Palanpur Bank : Left Longitude : 72°13'23" E Zero of Gauge (m) : 102 (m.s.l) 05/07/1990 -
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Opening Date Gauge : 05/07/1990 Discharge : 05/07/1990 Sediment : -- Water Quality : --	Closing Date
--	--------------

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1990-1991	1875	107.150	06/07/1990	0.000	Dry	25/01/1991
1991-1992	River Dry					
1992-1993	2907	106.040	09/09/1992	0.000	Dry	25/01/1993
1993-1994	30.36	102.890	20/07/1993	0.000	Dry	25/01/1994
1994-1995	364.3	103.797	16/08/1994	0.000	Dry	25/01/1995
1995-1996	2691	105.450	28/07/1995	0.000	Dry	26/01/1996
1996-1997	130.0	103.200	21/08/1996	0.000	Dry	25/01/1997
1997-1998	785.0	104.420	28/08/1997	0.000	Dry	25/01/1998
1998-1999	River Dry					
1999-2000	468.1	103.915	02/08/1999	0.000	Dry	27/01/2000
2000-2001	River Dry					
2001-2002	River Dry					
2002-2003	River Dry					
2003-2004	River Dry					

2004-2005	River Dry					
2005-2006	River Dry					
2006-2007	617.8	104.075	02/08/2006	0.000	Dry	01/06/2006
2007-2008	918.5	104.180	08/07/2007	0.000	Dry	01/06/2008
2008-2009	River Dry					
2009-2010	River Dry					
2010-2011	River Dry					
2011-2012	River Dry					
2012-2013	River Dry					
2013-2014	River Dry					
2014-2015	River Dry					
2015-2016	155.7	103.637	01/08/2015	0.000	102.13	07/08/2015
2016-2017	611.2	104.530	12/08/2016	0.000	Dry	01/06/2016
2017-2018	245.7	104.655	28/07/2017	41.73	102.33	15/08/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Luni at Balotra (01 02 01 001)

Division : Mahi Division, Gandhinagar

Local River : Luni

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

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R.Dry	0.000	104.577	232.7	102.000	0.000	R.Dry	0.000	R.Dry	0.000
2	R.Dry	0.000	R.Dry	0.000	103.790	153.2	102.000	0.000	R.Dry	0.000	R.Dry	0.000
3	R.Dry	0.000	R.Dry	0.000	103.263	108.6	102.000	0.000	R.Dry	0.000	R.Dry	0.000
4	R.Dry	0.000	R.Dry	0.000	103.003	84.95	102.000	0.000	R.Dry	0.000	R.Dry	0.000
5	R.Dry	0.000	R.Dry	0.000	102.830	81.07 #	102.000	0.000	R.Dry	0.000	R.Dry	0.000
6	R.Dry	0.000	R.Dry	0.000	102.658	70.80 #	102.000	0.000	R.Dry	0.000	R.Dry	0.000
7	R.Dry	0.000	R.Dry	0.000	102.516	62.99 #	102.000	0.000	R.Dry	0.000	R.Dry	0.000
8	R.Dry	0.000	R.Dry	0.000	102.375	57.61	102.000	0.000	R.Dry	0.000	R.Dry	0.000
9	R.Dry	0.000	R.Dry	0.000	102.240	58.30	102.000	0.000	R.Dry	0.000	R.Dry	0.000
10	R.Dry	0.000	R.Dry	0.000	102.220	48.53 *	102.000	0.000	R.Dry	0.000	R.Dry	0.000
11	R.Dry	0.000	R.Dry	0.000	102.190	47.20 *	102.000	0.000	R.Dry	0.000	R.Dry	0.000
12	R.Dry	0.000	R.Dry	0.000	102.420	58.03 *	102.000	0.000	R.Dry	0.000	R.Dry	0.000
13	R.Dry	0.000	R.Dry	0.000	102.300	49.60	102.000	0.000	R.Dry	0.000	R.Dry	0.000
14	R.Dry	0.000	R.Dry	0.000	102.280	45.76	102.000	0.000	R.Dry	0.000	R.Dry	0.000
15	R.Dry	0.000	R.Dry	0.000	102.230	41.73	102.000	0.000	R.Dry	0.000	R.Dry	0.000
16	R.Dry	0.000	R.Dry	0.000	102.080	42.52 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
17	R.Dry	0.000	R.Dry	0.000	102.050	41.29 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
18	R.Dry	0.000	R.Dry	0.000	102.040	40.89 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
19	R.Dry	0.000	R.Dry	0.000	102.040	40.89 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
20	R.Dry	0.000	R.Dry	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
21	R.Dry	0.000	R.Dry	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
22	R.Dry	0.000	R.Dry	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
23	R.Dry	0.000	R.Dry	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
24	R.Dry	0.000	R.Dry	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
25	R.Dry	0.000	R.Dry	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
26	R.Dry	0.000	103.140	101.9 #	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
27	R.Dry	0.000	104.180	196.0 #	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
28	R.Dry	0.000	104.655	245.7	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
29	R.Dry	0.000	104.325	222.9	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
30	R.Dry	0.000	104.408	241.4	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
31			105.330	0.000	102.000	0.000			R.Dry	0.000		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	R.Dry	0.000	102.947	95.87	102.000	0.000	R.Dry	0.000	R.Dry	0.000
II Ten-Daily	R.Dry	0.000	R.Dry	0.000	102.163	40.79	102.000	0.000	R.Dry	0.000	R.Dry	0.000
III Ten-Daily	R.Dry	0.000	104.340	168.0	102.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Monthly												
Min.	R.Dry	0.000	103.140	0.000	102.000	0.000	102.000	0.000	R.Dry	0.000	R.Dry	0.000
Max.	R.Dry	0.000	105.330	245.7	104.577	232.7	102.000	0.000	R.Dry	0.000	R.Dry	0.000
Mean	R.Dry	0.000	104.340	168	102.358	44.08	102.000	0.000	R.Dry	0.000	R.Dry	0.000

Annual Runoff in MCM = 205 Annual Runoff in mm = 11

Peak Observed Discharge = 245.7 cumecs on 28-07-2017 Corres. Water Level :104.655 m

Lowest Observed Discharge = 41.73 cumecs on 15-08-2017 Corres. Water Level :102.23 m

River in Pooling condition from 20/8/17 to 15/09/17

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Luni at Balotra (01 02 01 001)

Division : Mahi Division, Gandhinagar

Local River : Luni

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

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
2	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
3	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
4	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
5	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
6	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
7	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
8	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
9	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
10	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
11	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
12	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
13	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
14	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
15	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
16	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
17	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
18	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
19	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
20	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
21	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
22	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
23	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
24	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
25	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
26	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
27	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
28	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
29	R.Dry	0.000	R.Dry	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
30	R.Dry	0.000	R.Dry	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
31	R.Dry	0.000	R.Dry	0.000			R.Dry	0.000			R.Dry	0.000
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
II Ten-Daily	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
III Ten-Daily	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Monthly												
Min.	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Max.	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Mean	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000

Peak Computed Discharge = 58.03 cumecs on 12-08-2017

Corres. Water Level :102.42 m

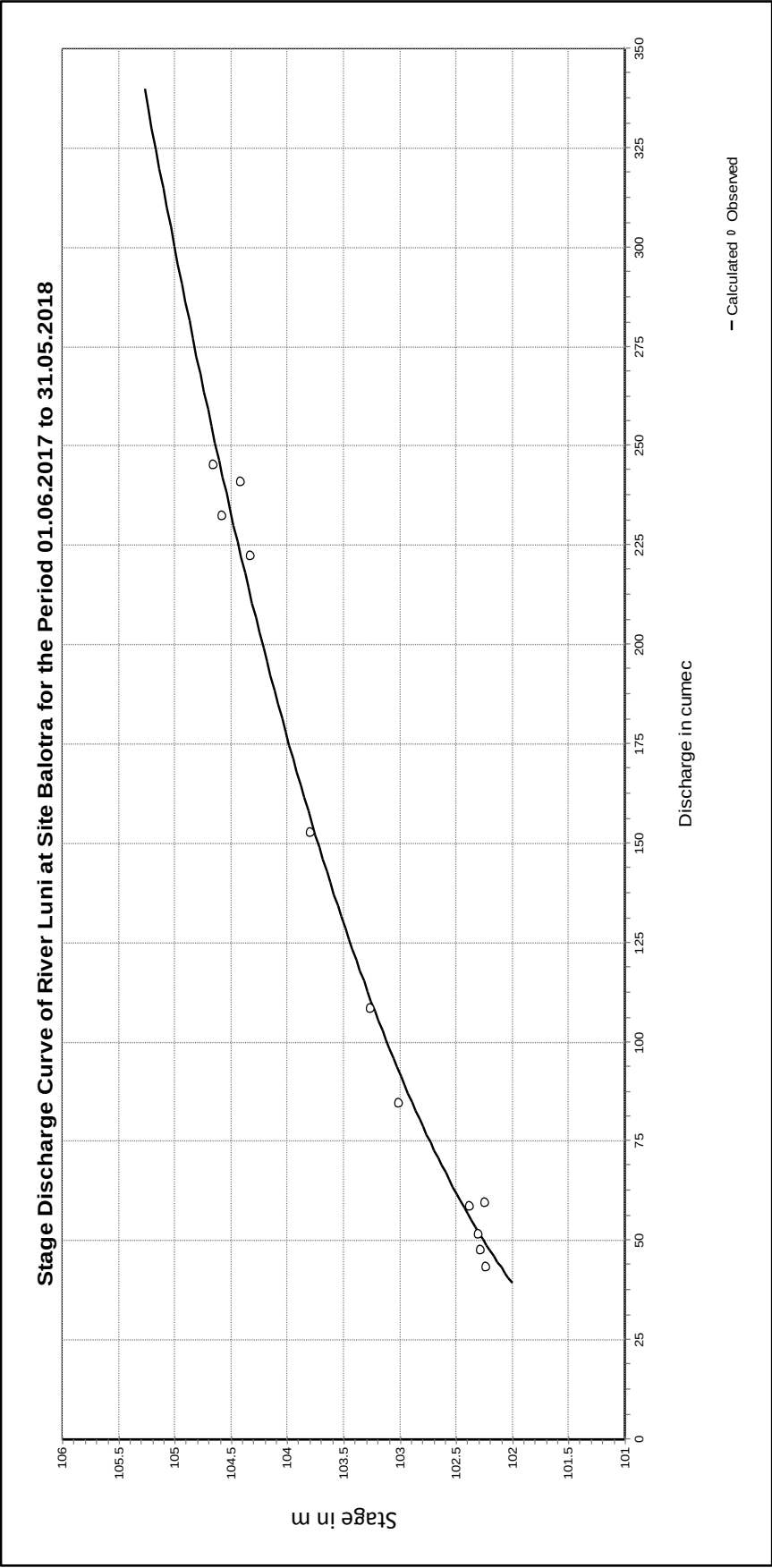
Lowest Computed Discharge = 0.000 cumecs on 31-07-2017

Corres. Water Level :105.33 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

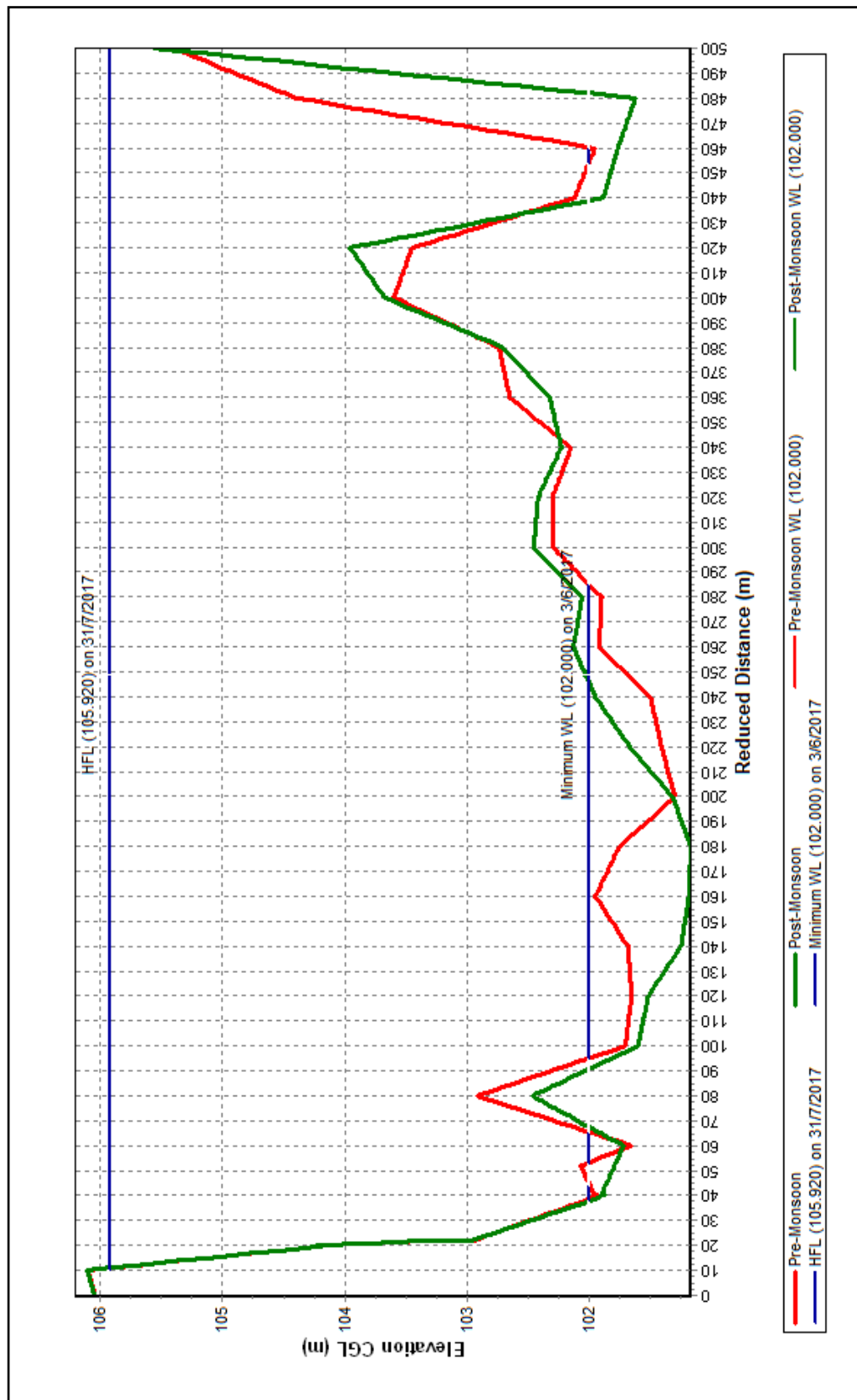
Equation Type - Power		Q=c*(h+a) ^b		
LB	UB	a	b	c
102.000	105.300	-99.182	2.804	2.152

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Luni at Balotra (01 02 01 001)

Local River : Luni

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



Historic Flood Level - 108.755 m on 18.07.1979

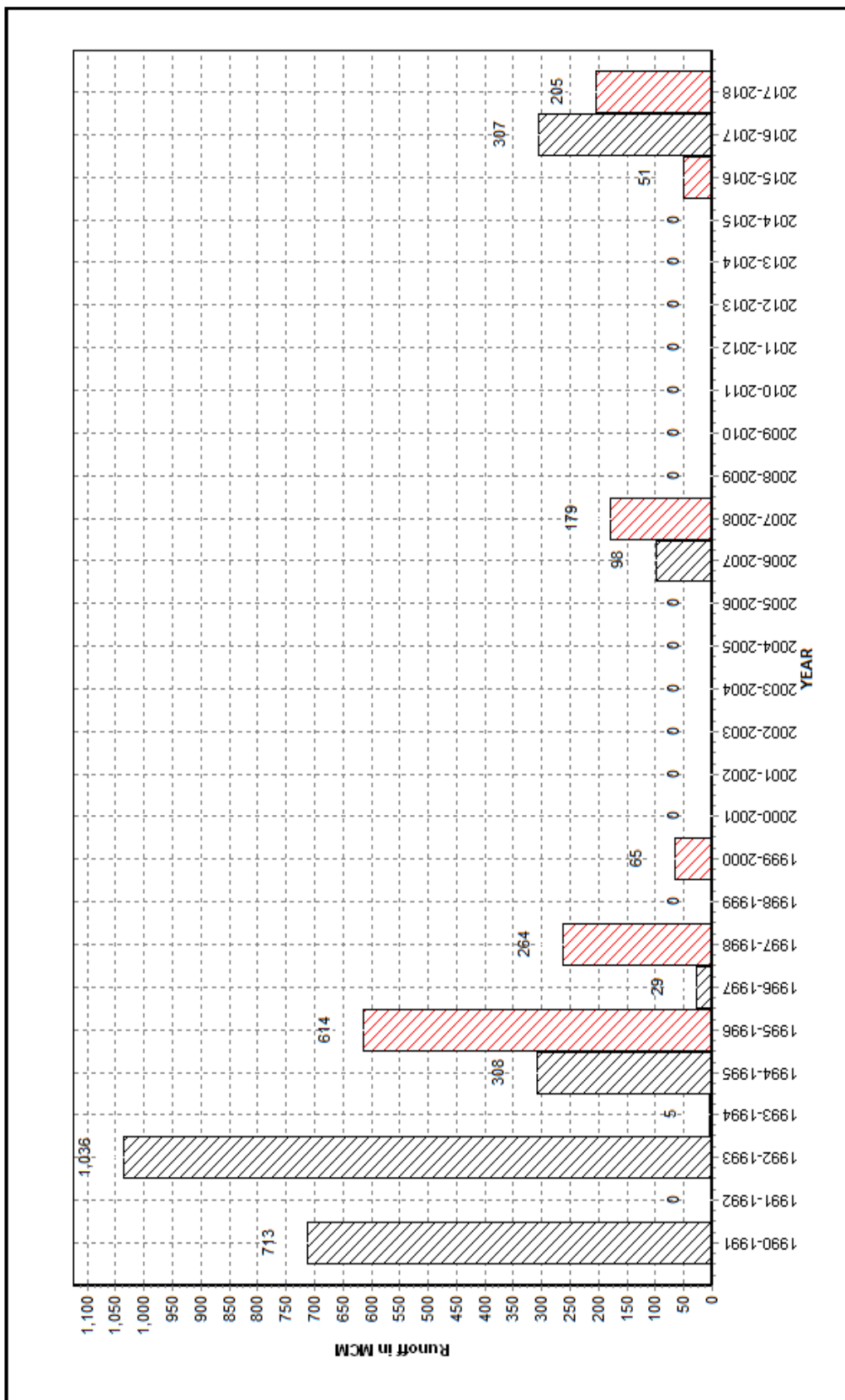
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 1990 - 2018

Station Name : Luni at Balotra (01 02 01 001)

Local River : Luni

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

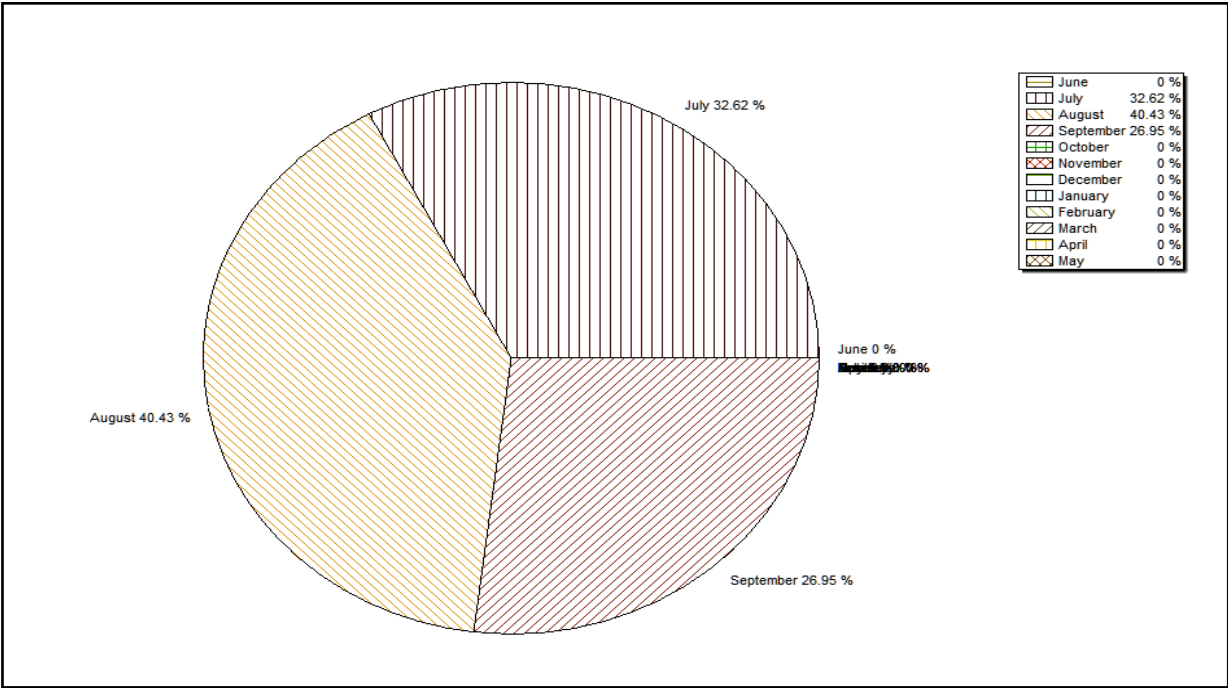


Note: Missing values have not been considered while arriving at Annual Runoff

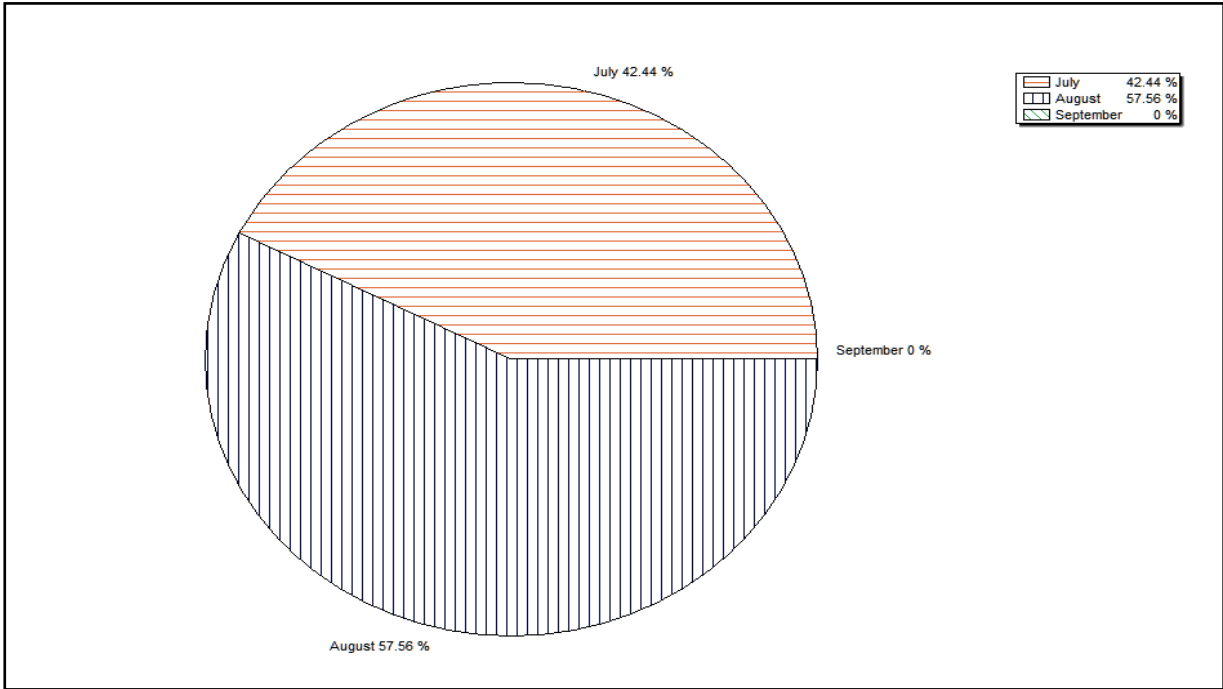
Station Name : Luni at Balotra (01 02 01 001)
Local River : Luni

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

Monthly Average Runoff based on period : 1990-2017



Monthly Runoff for the Year : 2017-2018



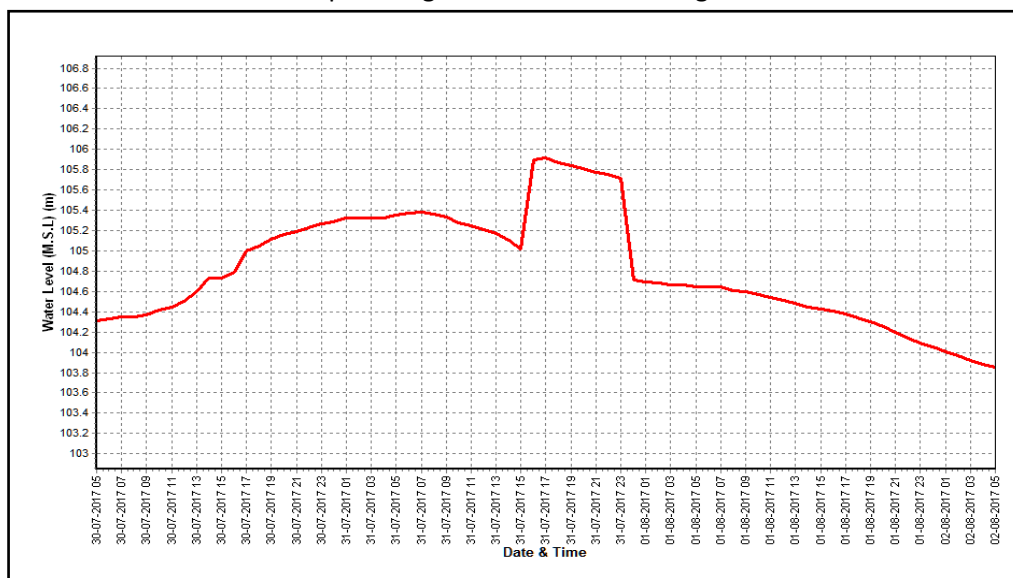
Station Name : Luni at Balotra (01 02 01 001)

Local River : Luni

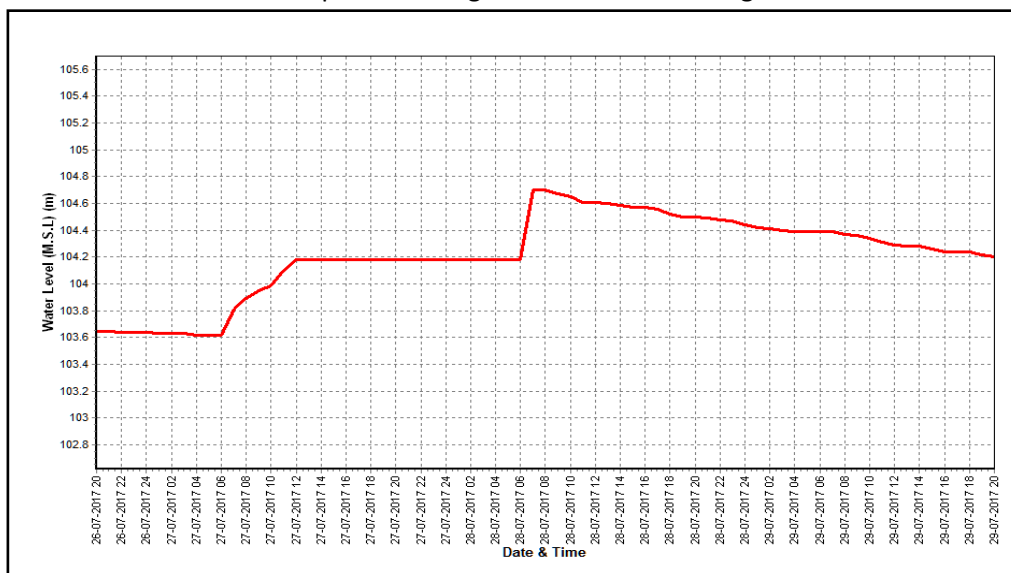
Division : Mahi Division, Gandhinagar

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

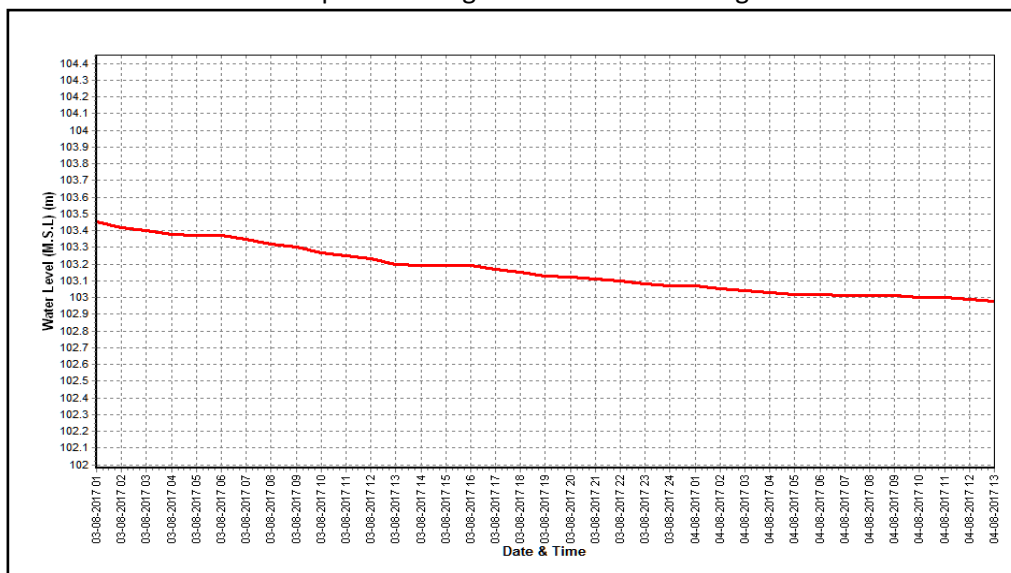
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Banas at Kamalpur

Code : 01 02 02 007

State : Gujarat

District : Banaskantha

Basin : WFR of Kach.-Saur. & Luni

Independent

River : Banas

Sub

Tributary : -

Tributary :

Sub-Sub

Tributary :

Local River : Banas

Division : Mahi Division, Gandhinagar
Drainage

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

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

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1971-1972	0.000	34.460	05/10/1971	0.000	River Dry	26/01/1972
1972-1973	River Dry					
1973-1974	371.0	36.515	05/09/1973	0.000	River Dry	28/06/1973
1974-1975	13.50	35.115	23/08/1974	0.000	River Dry	27/01/1975
1975-1976	380.7	36.175	13/08/1975	0.000	River Dry	16/06/1975
1976-1977	906.7	36.710	17/08/1976	0.000	River Dry	22/05/1977
1977-1978	3678	37.375	27/07/1977	0.100	34.775	09/06/1977
1978-1979	591.4	36.365	31/08/1978	0.600	35.085	27/05/1979
1979-1980	100.0	35.930	13/08/1979	0.000	River Dry	21/05/1980
1980-1981	262.7	36.032	24/06/1980	0.000	River Dry	12/05/1981
1981-1982	175.1	36.095	18/08/1981	0.000	River Dry	30/03/1982
1982-1983	1515	37.305	25/07/1982	0.000	River Dry	13/03/1983
1983-1984	342.7	36.375	03/08/1983	0.000	River Dry	06/03/1984
1984-1985	330.0	37.100	05/08/1984	0.000	River Dry	07/02/1985
1985-1986	38.51	35.395	07/08/1985	0.000	River Dry	25/01/1986
1986-1987	River Dry					
1987-1988	River Dry					
1988-1989	190.0	36.200	06/08/1988	0.000	River Dry	29/01/1989
1989-1990	70.00	35.235	26/08/1989	0.000	River Dry	25/01/1990
1990-1991	776.0	36.525	24/08/1990	0.000	River Dry	25/01/1991

1991-1992	6.233	35.303	24/07/1991	0.000	River Dry	26/01/1992
1992-1993	4221	38.010	08/09/1992	0.000	River Dry	26/01/1993
1993-1994	3120	36.771	18/07/1993	0.000	River Dry	17/12/1993
1994-1995	3691	37.270	09/09/1994	0.000	River Dry	13/07/1994
1995-1996	456.7	36.075	19/07/1995	0.000	River Dry	09/11/1995
1996-1997	River Dry					
1997-1998	789.4	37.165	26/06/1997	0.000	River Dry	12/01/1998
1998-1999	63.00	35.850	17/10/1998	0.000	River Dry	12/01/1999
1999-2000	River Dry					
2000-2001	20.04	35.570	16/07/2000	0.000	River Dry	25/01/2001
2001-2002	11.40	35.400	18/06/2001	0.000	River Dry	26/01/2002
2002-2003	River Dry					
2003-2004	395.3	36.245	29/07/2003	0.000	River Dry	26/01/2004
2004-2005	73.00	35.950	06/08/2004	0.000	River Dry	12/02/2005
2005-2006	43.74	35.700	02/08/2005	0.000	River Dry	01/06/2005
2006-2007	1480	37.545	20/08/2006	0.000	River Dry	01/06/2006
2007-2008	51.81	35.140	08/08/2007	0.000	River Dry	01/06/2007
2008-2009	117.6	35.465	02/08/2008	0.000	River Dry	01/06/2008
2009-2010	11.25	34.890	30/09/2009	0.000	River Dry	01/06/2009
2010-2011	320.2	36.080	25/07/2010	0.000	River Dry	01/06/2010
2011-2012	82.4	35.455	13/09/2011	0.000	River Dry	24/11/2011
2012-2013	38.6	35.220	14/09/2012	0.000	River Dry	01/06/2012
2013-2014	71.53	35.610	29/09/2013	0.000	River Dry	01/06/2013
2014-2015	172.8	36.000	10/09/2014	0.000	River Dry	01/06/2014
2015-2016	1071	37.075	29/07/2015	0.000	35.100	01/06/2015
2016-2017	74.42	35.770	24/08/2016	0.000	River Dry	01/06/2016
2017-2018	1994	36.600	24/07/2017	0.272	34.45	05/09/2017

Stage-Discharge Data for the period 2017 - 2018

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		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R. Dry	0.000	R. Dry	0.000	35.835	702.4	34.675	8.603	34.380	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	35.590	250.6 #	34.870	16.54 *	34.380	0.000	R. Dry	0.000
3	R. Dry	0.000	34.820	2.911	35.520	206.2 #	34.650	3.920 *	34.380	0.000	R. Dry	0.000
4	R. Dry	0.000	34.400	0.250 *	35.250	73.46	34.480	0.526	34.380	0.000	R. Dry	0.000
5	R. Dry	0.000	R. Dry	0.000	35.040	55.41	34.450	0.272	34.380	0.000	R. Dry	0.000
6	R. Dry	0.000	R. Dry	0.000	35.090	47.16 *	34.440	0.000	34.360	0.000	R. Dry	0.000
7	R. Dry	0.000	R. Dry	0.000	34.835	8.503	34.430	0.000	34.360	0.000	R. Dry	0.000
8	R. Dry	0.000	R. Dry	0.000	34.580	3.059	34.430	0.000	34.360	0.000	R. Dry	0.000
9	R. Dry	0.000	R. Dry	0.000	34.560	2.026	34.430	0.000	34.360	0.000	R. Dry	0.000
10	R. Dry	0.000	R. Dry	0.000	34.550	1.851	34.420	0.000	R. Dry	0.000	R. Dry	0.000
11	R. Dry	0.000	R. Dry	0.000	34.540	1.324	34.420	0.000	R. Dry	0.000	R. Dry	0.000
12	R. Dry	0.000	R. Dry	0.000	34.540	1.581	34.420	0.000	R. Dry	0.000	R. Dry	0.000
13	R. Dry	0.000	R. Dry	0.000	34.530	1.320 *	34.420	0.000	R. Dry	0.000	R. Dry	0.000
14	R. Dry	0.000	R. Dry	0.000	34.610	4.221	34.420	0.000	R. Dry	0.000	R. Dry	0.000
15	R. Dry	0.000	R. Dry	0.000	34.530	1.320 *	34.420	0.000	R. Dry	0.000	R. Dry	0.000
16	R. Dry	0.000	R. Dry	0.000	34.500	1.581	34.420	0.000	R. Dry	0.000	R. Dry	0.000
17	R. Dry	0.000	R. Dry	0.000	34.500	1.236	34.420	0.000	R. Dry	0.000	R. Dry	0.000
18	R. Dry	0.000	R. Dry	0.000	34.490	0.903	34.420	0.000	R. Dry	0.000	R. Dry	0.000
19	R. Dry	0.000	R. Dry	0.000	34.470	0.575	34.420	0.000	R. Dry	0.000	R. Dry	0.000
20	R. Dry	0.000	R. Dry	0.000	34.440	0.450 *	34.410	0.000	R. Dry	0.000	R. Dry	0.000
21	R. Dry	0.000	R. Dry	0.000	34.440	0.558	34.410	0.000	R. Dry	0.000	R. Dry	0.000
22	R. Dry	0.000	R. Dry	0.000	34.450	0.626	34.410	0.000	R. Dry	0.000	R. Dry	0.000
23	R. Dry	0.000	R. Dry	0.000	34.455	0.550 #	34.410	0.000	R. Dry	0.000	R. Dry	0.000
24	R. Dry	0.000	36.600	1994 #	34.450	0.510 #	34.400	0.000	R. Dry	0.000	R. Dry	0.000
25	R. Dry	0.000	38.900		34.640	3.620 *	34.380	0.000	R. Dry	0.000	R. Dry	0.000
26	R. Dry	0.000	37.500		34.480	1.160	34.380	0.000	R. Dry	0.000	R. Dry	0.000
27	R. Dry	0.000	35.760	387.5 *	34.460	0.580 *	34.380	0.000	R. Dry	0.000	R. Dry	0.000
28	R. Dry	0.000	36.000	666.7 *	34.450	0.406	34.380	0.000	R. Dry	0.000	R. Dry	0.000
29	R. Dry	0.000	36.120	852.0 *	34.450	0.581	34.380	0.000	R. Dry	0.000	R. Dry	0.000
30	R. Dry	0.000	36.435	1645	34.450	0.408	34.380	0.000	R. Dry	0.000	R. Dry	0.000
31			36.330	1066	34.450	0.324			R. Dry	0.000		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	34.122	1.581	35.085	135.1	34.527	2.986	34.334	0.000	R. Dry	0.000
II Ten-Daily	R. Dry	0.000	R. Dry	0.000	34.515	1.451	34.419	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	R. Dry	0.000	35.968	1102	34.470	0.848	34.391	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	R. Dry	0.000	34.000	0.250	34.440	0.324	34.380	0.000	R. Dry	0.000	R. Dry	0.000
Max.	R. Dry	0.000	38.900	1994	35.835	702.4	34.870	16.54	34.380	0.000	R. Dry	0.000
Mean	R. Dry	0.000	34.738	826.9	34.683	44.34	34.446	0.995	34.108	0.000	R. Dry	0.000

Annual Runoff in MCM = 693 Annual Runoff in mm = 100

Peak Observed Discharge = 1994 cumecs on 24-07-2017 Corres. Water Level :36.6 m

Lowest Observed Discharge = 0.272 cumecs on 05-09-2017 Corres. Water Level :34.45 m

River discharge estimation for 25/7/17 & 26/7/17 not done as there existed total submergence of the area during the period. River was in Pooling condition from 6/9/17 to 10/10/17.

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
14	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
15	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
16	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
17	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
18	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
19	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
20	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
21	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
22	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
23	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
24	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
25	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
26	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
27	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
28	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
29	R. Dry	0.000	R. Dry	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
30	R. Dry	0.000	R. Dry	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
31	R. Dry	0.000	R. Dry	0.000			R. Dry	0.000			R. Dry	0.000
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
II Ten-Daily	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000

Peak Computed Discharge = 852.0 cumecs on 29-07-2017

Corres. Water Level :36.12 m

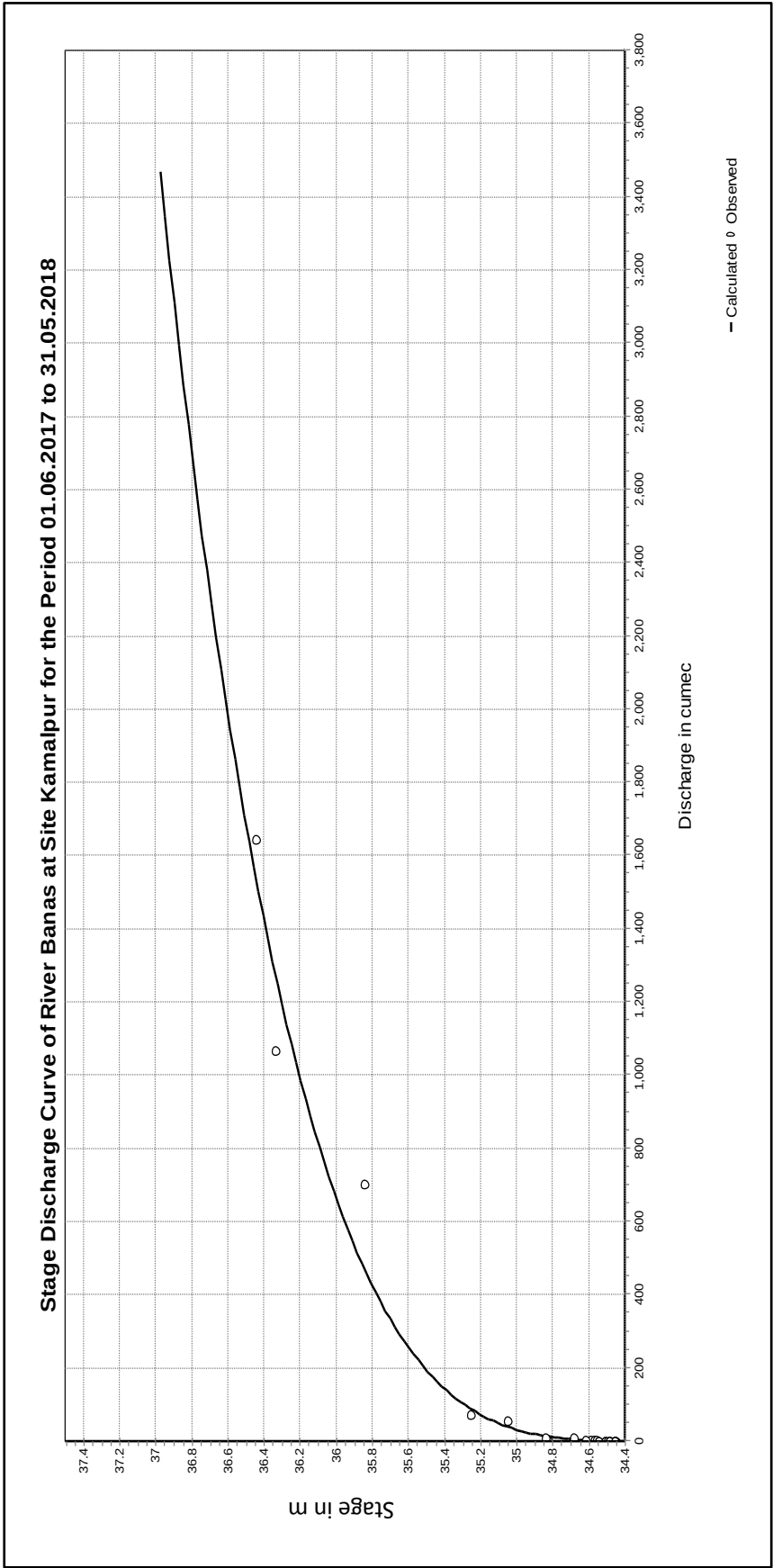
Lowest Computed Discharge = 0.000 cumecs on 06-09-2017

Corres. Water Level :34.44 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

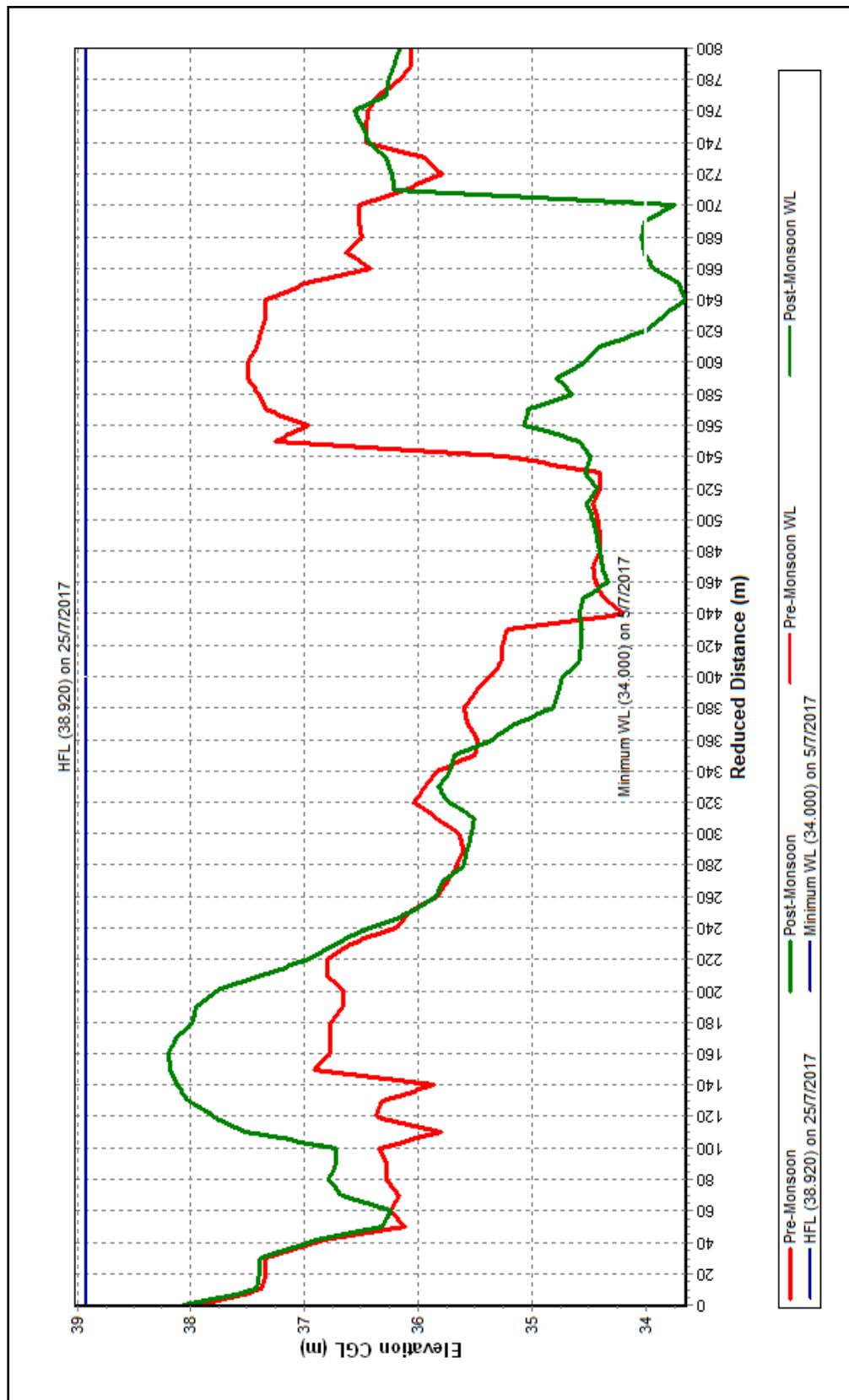
Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
34.400	37.000	-34.16	3.882	62.506

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

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

Local River : Banas

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



Historical Flood Level-38.980m on 8.09.1992 at 1700 hrs

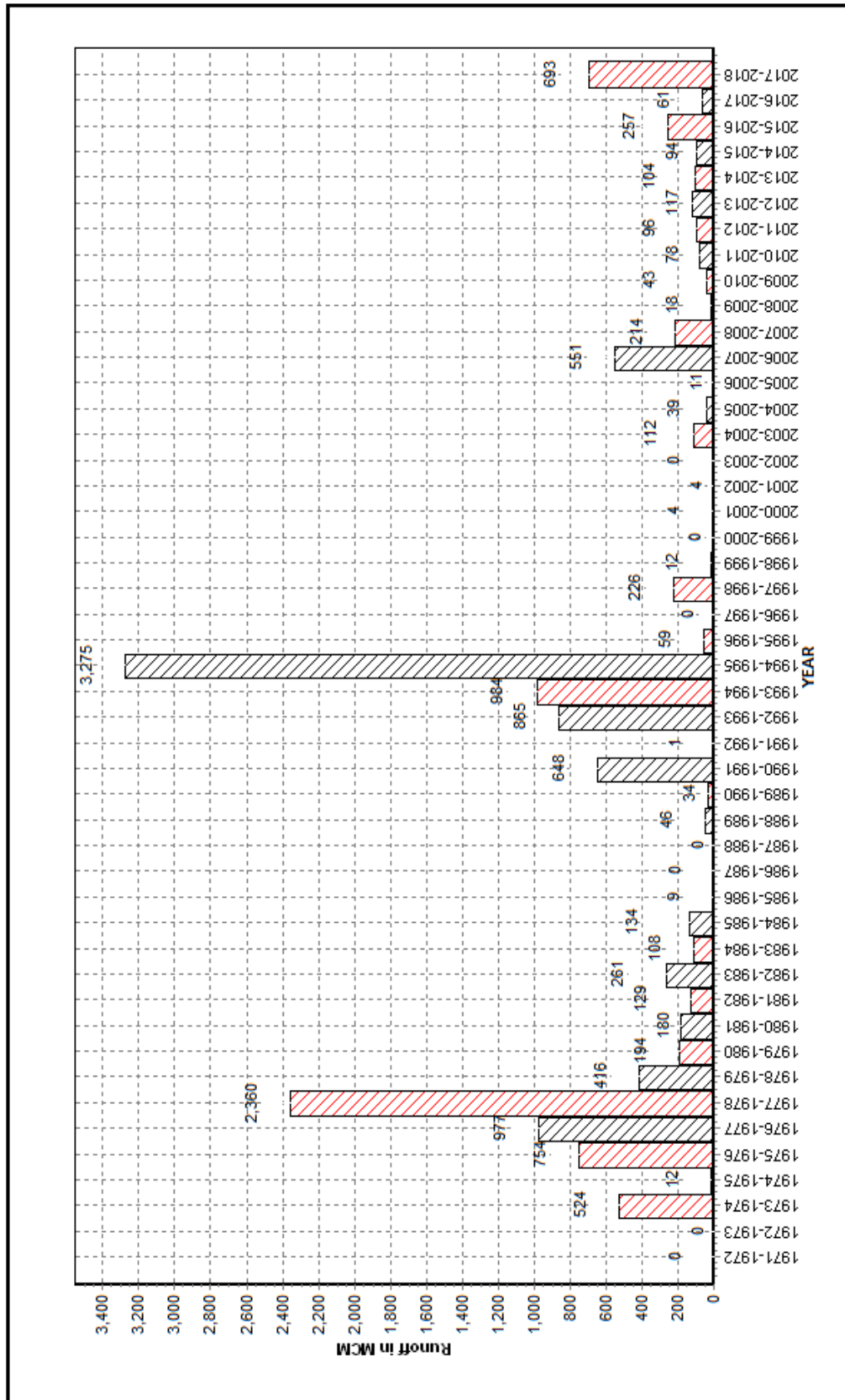
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 1971 - 2018

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

Local River : Banas

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

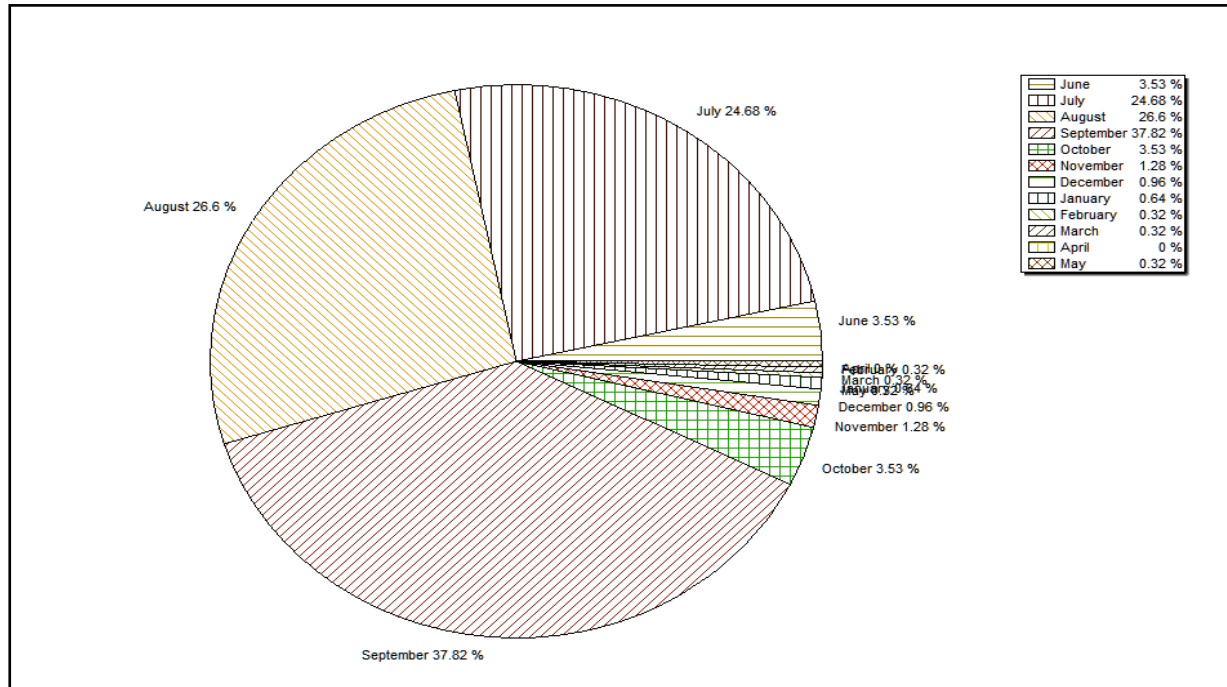


Note: Missing values have not been considered while arriving at Annual Runoff

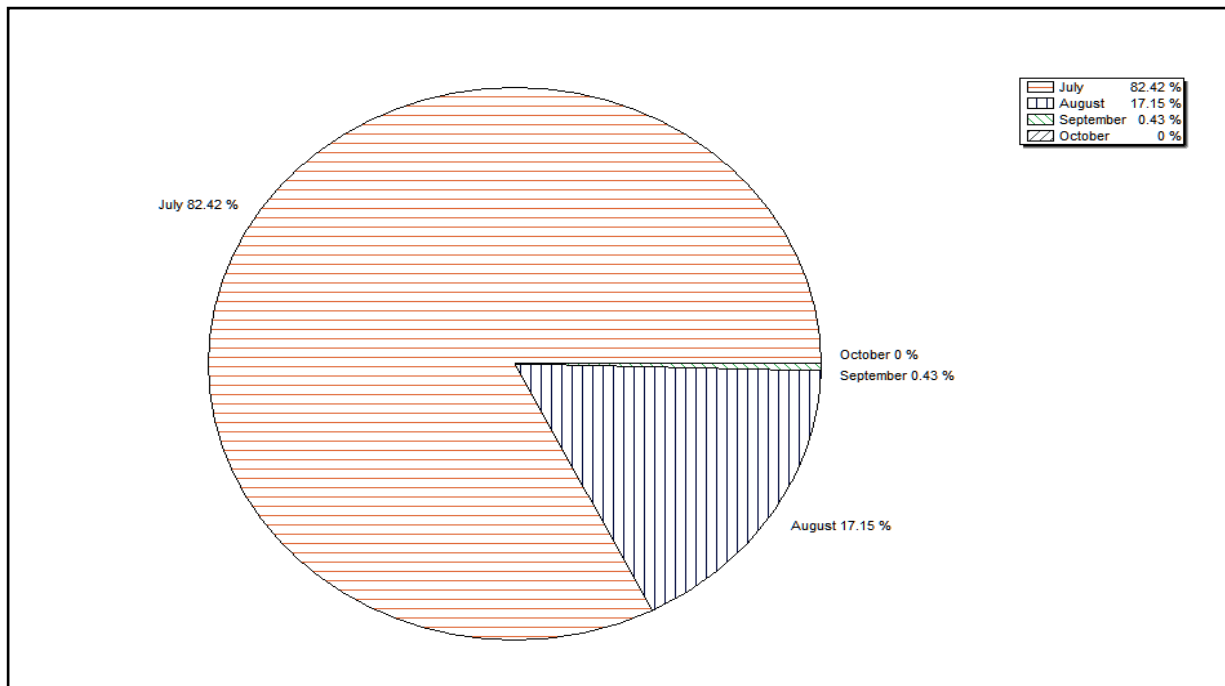
Station Name : Banas at Kamalpur (01 02 02 007)
Local River : Banas

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

Monthly Average Runoff based on period : 1971-2017



Monthly Runoff for the Year : 2017-2018

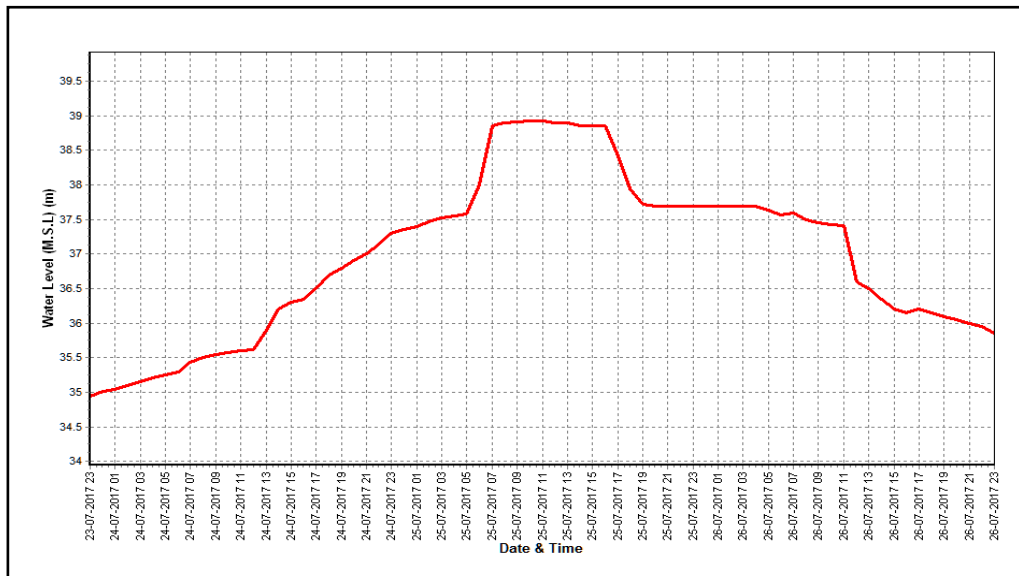


Local River : Banas

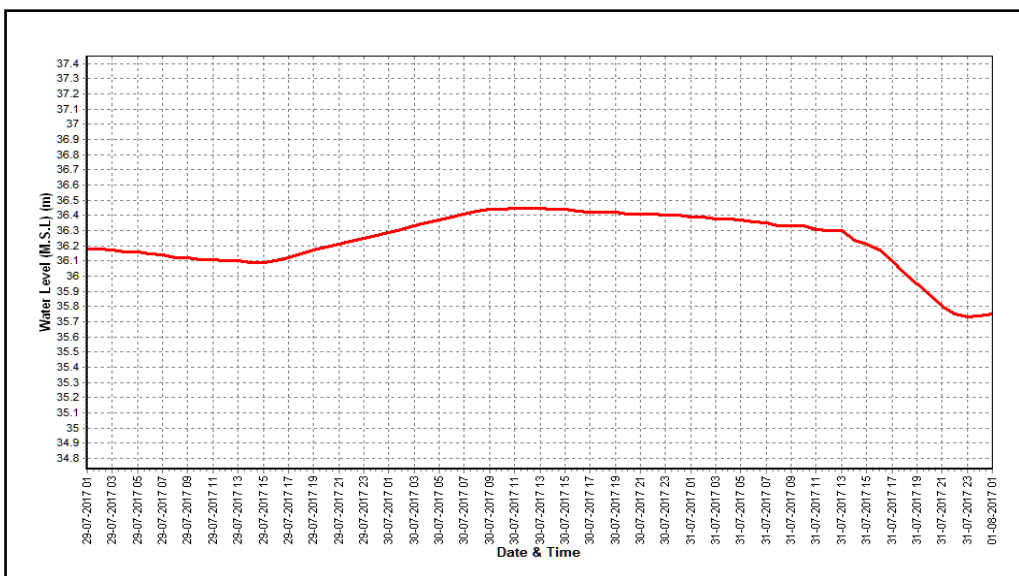
Division : Mahi Division, Gandhinagar

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

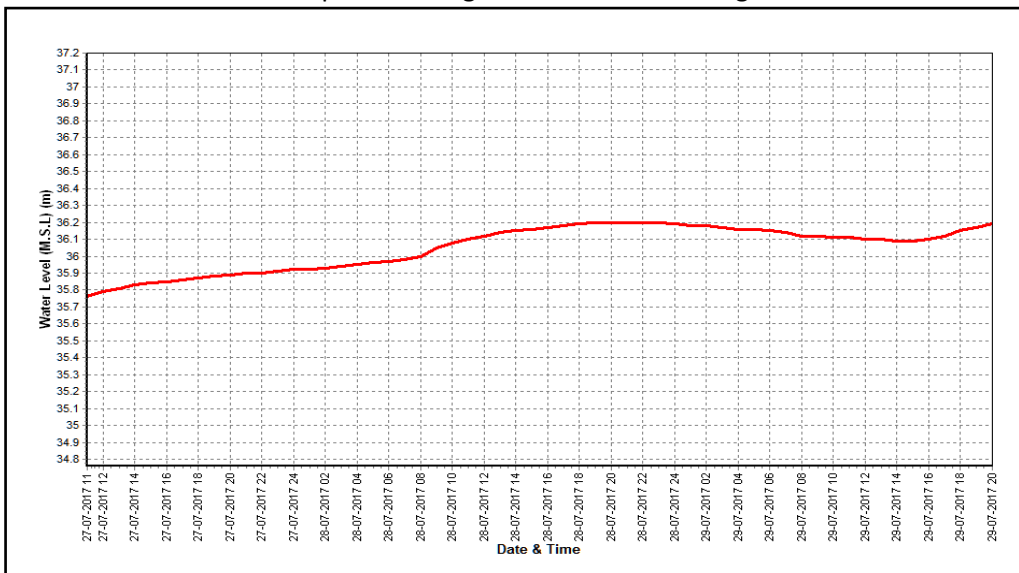
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Balaram at Chitrasani **Code : 01 02 02 004**

State : Gujarat District : Banaskantha

Basin : WFR of Kach.-Saur. & Luni Independent River : Banas

Tributary : Balaram Sub Tributary :

Sub-Sub Tributary : Local River : Balaram

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

Drainage Area : 345 Sq. Km. Bank : Left

Latitude : 24°17'20" N Longitude : 72°29'54" E

Zero of Gauge (m) : 184 (m.s.l) 01/01/1985 -

Opening Date Closing Date

Gauge : 08/05/1978

Discharge : 01/06/1990

Sediment : --

Water Quali : 15/07/1988

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1990-1991	129.500	185.700	04/07/1990	0.000	River Dry	12/01/1991
1991-1992	17.130	185.150	31/07/1991	0.000	River Dry	13/02/1992
1992-1993	274.800	186.750	08/09/1992	0.000	River Dry	15/01/1993
1993-1994	99.910	185.264	10/07/1993	0.000	River Dry	30/12/1993
1994-1995	119.300	185.725	20/08/1994	0.000	184.070	16/05/1995
1995-1996	156.700	185.510	27/08/1995	0.000	184.430	26/01/1996
1996-1997	10.010	185.000	29/07/1996	0.000	184.050	25/01/1997
1997-1998	17.220	185.300	11/09/1997	0.000	184.180	25/01/1998
1998-1999	9.500	185.325	29/08/1998	0.000	184.350	05/12/1998
1999-2000	2.508	184.940	03/10/1999	0.000	River Dry	05/12/1999
2000-2001	1.100	184.500	16/07/2000	0.000	River Dry	08/11/2000
2001-2002	20.900	185.230	24/07/2001	0.000	184.350	10/11/2001
2002-2003	2.103	184.690	29/06/2002	0.000	River Dry	25/05/2003
2003-2004	10.500	185.000	10/07/2003	0.000	River Dry	04/02/2004
2004-2005	1.581	185.580	12/08/2004	0.000	River Dry	14/02/2005
2005-2006	8.668	185.720	16/09/2005	0.000	River Dry	01/06/2005
2006-2007	81.560	186.450	16/08/2006	0.000	River Dry	01/06/2006
2007-2008	40.710	186.285	05/08/2007	0.000	River Dry	01/06/2007
2008-2009	6.999	185.980	15/08/2008	0.000	River Dry	01/06/2008
2009-2010	30.400	186.335	23/07/2009	0.000	River Dry	01/06/2009
2010-2011	23.480	186.460	25/07/2010	0.000	River Dry	01/06/2010

2011-2012	268.557	187.120	12/09/2011	0.000	185.690	28/12/2011
2012-2013	7.515	186.100	11/07/2012	0.000	River Dry	01/06/2012
2013-2014	39.620	186.365	29/09/2013	0.000	River Dry	01/06/2013
2014-2015	9.330	186.100	12/09/2014	0.000	River Dry	01/06/2014
2015-2016	625.500	188.100	29/07/2015	0.000	185.55	18/10/2015
2016-2017	28.280	185.850	24/08/2016	0.000	River Dry	01/06/2016
2017-2018	507.700	187.900	25/07/2017	0.000	185.620	06/11/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Balaram at Chitrasani (01 02 02 004)

Division : Mahi Division, Gandhinagar

Local River : Balaram

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

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	185.590	2.199	186.080	45.11	185.800	7.029	185.710	1.408	185.650	0.235
2	R.Dry	0.000	186.755	132.8	186.010	33.93	185.800	7.013	185.700	1.344	185.640	0.050 #
3	R.Dry	0.000	185.895	27.95	185.970	32.21	185.830	7.748	185.700	1.300	185.640	0.050 #
4	R.Dry	0.000	185.570	2.077	185.940	28.03	185.810	7.436	185.690	1.255	185.630	0.000
5	R.Dry	0.000	185.570	2.004	185.910	18.29	185.800	7.120	185.690	1.287	185.630	0.000
6	R.Dry	0.000	185.570	1.340	185.890	16.21	185.790	5.201	185.690	1.281	185.620	0.000 #
7	R.Dry	0.000	185.570	1.294	185.880	15.01	185.790	4.748	185.680	0.768	185.620	0.000 #
8	R.Dry	0.000	185.570	1.269	185.870	14.55	185.790	4.558	185.680	0.751	185.620	0.000 #
9	R.Dry	0.000	185.570	1.340 *	185.890	15.97	185.790	4.496	185.680	0.765	185.620	0.000 #
10	R.Dry	0.000	185.570	1.226	185.850	13.78	185.790	4.350	185.680	0.762	185.610	0.000
11	R.Dry	0.000	185.570	1.134	185.840	12.84	185.780	4.248	185.680	0.757	185.610	0.000
12	R.Dry	0.000	185.570	1.082	185.840	11.34	185.780	4.082	185.680	0.756	185.610	0.000
13	R.Dry	0.000	185.570	1.083	185.840	10.97	185.770	3.806	185.680	0.766	185.610	0.000
14	R.Dry	0.000	185.590	1.940 #	185.830	9.949	185.770	3.805	185.680	0.759	185.600	0.000
15	R.Dry	0.000	186.330	67.35 #	185.820	8.172	185.760	3.655	185.680	0.758	185.600	0.000
16	R.Dry	0.000	185.715	5.701	185.800	7.760	185.760	3.546	185.670	0.656	185.600	0.000
17	R.Dry	0.000	185.660	3.887	185.800	7.052	185.760	3.276	185.670	0.623	185.600	0.000
18	R.Dry	0.000	185.650	3.635	185.790	6.419	185.750	3.160	185.670	0.621	185.600	0.000
19	R.Dry	0.000	185.630	3.372	185.780	5.736	185.760	3.021	185.670	0.625	185.600	0.000
20	R.Dry	0.000	185.610	3.093	185.780	4.996	185.750	2.897	185.670	0.624	185.600	0.000
21	R.Dry	0.000	185.590	2.176	185.800	7.002	185.740	2.808	185.670	0.624	185.600	0.000
22	R.Dry	0.000	185.640	3.414	185.790	6.821	185.740	1.876	185.670	0.624	185.600	0.000
23	R.Dry	0.000	185.750	6.408	185.770	4.661	185.730	1.623	185.660	0.346	185.600	0.000
24	R.Dry	0.000	187.130	295.7	185.850	12.64	185.730	1.645	185.660	0.336	185.600	0.000
25	R.Dry	0.000	187.900	507.7	185.780	4.924	185.720	1.642	185.660	0.345	185.600	0.000
26	R.Dry	0.000	187.180	292.6	185.770	4.424	185.720	1.699	185.660	0.320 *	185.600	0.000
27	R.Dry	0.000	186.410	99.00	185.790	5.534	185.720	1.572	185.660	0.336	185.600	0.000
28	R.Dry	0.000	186.280	91.85	185.770	4.547	185.710	1.498	185.660	0.335	185.600	0.000
29	186.150	52.27	186.300	102.5	185.800	7.050	185.710	1.458	185.660	0.315	185.600	0.000
30	185.655	5.143	186.220	83.99	185.800	7.016	185.710	1.431	185.650	0.235	185.600	0.000
31			186.170	48.71	185.820	6.990			185.650	0.237		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	185.723	17.35	185.929	23.31	185.799	5.970	185.690	1.092	185.628	0.034
II Ten-Daily	R.Dry	0.000	185.690	9.228	185.812	8.522	185.764	3.550	185.675	0.694	185.603	0.000
III Ten-Daily	184.381	28.71	186.415	139.5	185.795	6.510	185.723	1.725	185.660	0.368	185.600	0.000
Monthly												
Min.	184.000	5.143	185.570	1.082	185.770	4.424	185.710	1.431	185.650	0.235	185.600	0.000
Max.	186.150	52.27	187.900	507.7	186.080	45.11	185.830	7.748	185.710	1.408	185.650	0.235
Mean	184.127	28.71	185.958	58.06	185.844	12.58	185.762	3.748	185.675	0.707	185.610	0.011

Annual Runoff in MCM = 206 Annual Runoff in mm = 597

Peak Observed Discharge = 507.7 cumecs on 25-07-2017 Corres. Water Level :187.9 m

Lowest Observed Discharge = 0.000 cumecs on 06-11-2017 Corres. Water Level :185.62 m

Negligible flow in the river existed from 2/11/17 to 31/5/2018

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Balaram at Chitrasani (01 02 02 004)

Division : Mahi Division, Gandhinagar

Local River : Balaram

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

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
2	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
3	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
4	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
5	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
6	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
7	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
8	185.600	0.000	185.570	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
9	185.600	0.000	185.570	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
10	185.600	0.000	185.570	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
11	185.600	0.000	185.570	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
12	185.600	0.000	185.570	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
13	185.600	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
14	185.600	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
15	185.600	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
16	185.600	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
17	185.600	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
18	185.600	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
19	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
20	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
21	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
22	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
23	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
24	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
25	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
26	185.590	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
27	185.580	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
28	185.580	0.000	185.570	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
29	185.580	0.000	185.570	0.000			185.550	0.000	185.540	0.000	185.540	0.000
30	185.580	0.000	185.560	0.000			185.550	0.000	185.540	0.000	185.540	0.000
31	185.580	0.000	185.560	0.000			185.550	0.000			185.540	0.000
Ten-Daily Mean												
I Ten-Daily	185.600	0.000	185.577	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
II Ten-Daily	185.598	0.000	185.570	0.000	185.552	0.000	185.550	0.000	185.542	0.000	185.540	0.000
III Ten-Daily	185.585	0.000	185.568	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
Monthly												
Min.	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000	185.540	0.000
Max.	185.600	0.000	185.580	0.000	185.560	0.000	185.550	0.000	185.550	0.000	185.540	0.000
Mean	185.594	0.000	185.572	0.000	185.554	0.000	185.550	0.000	185.544	0.000	185.540	0.000

Peak Computed Discharge = 1.340 cumecs on 09-07-2017

Corres. Water Level :185.57 m

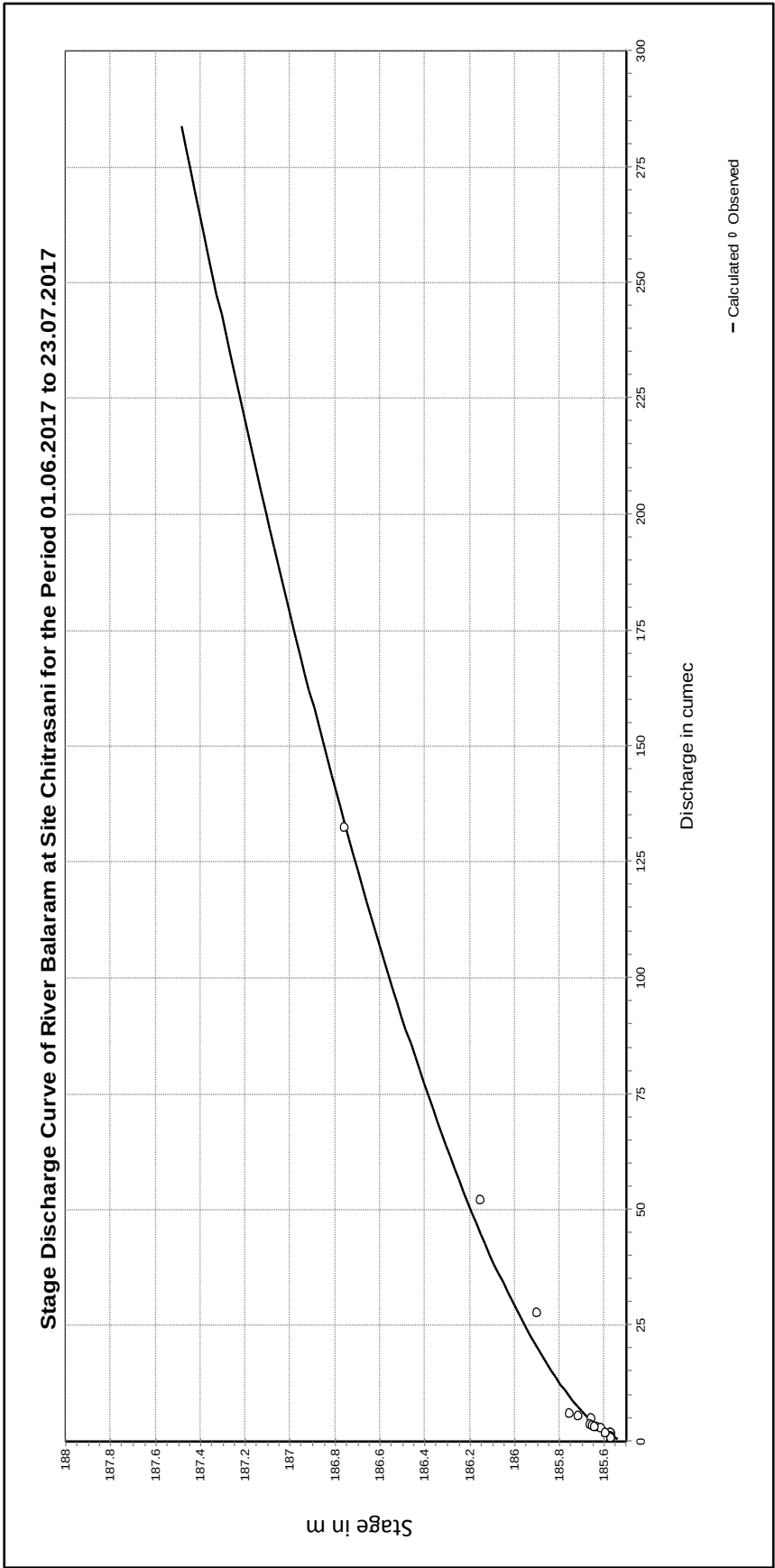
Lowest Computed Discharge = 0.000 cumecs on 04-11-2017

Corres. Water Level :185.63 m

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

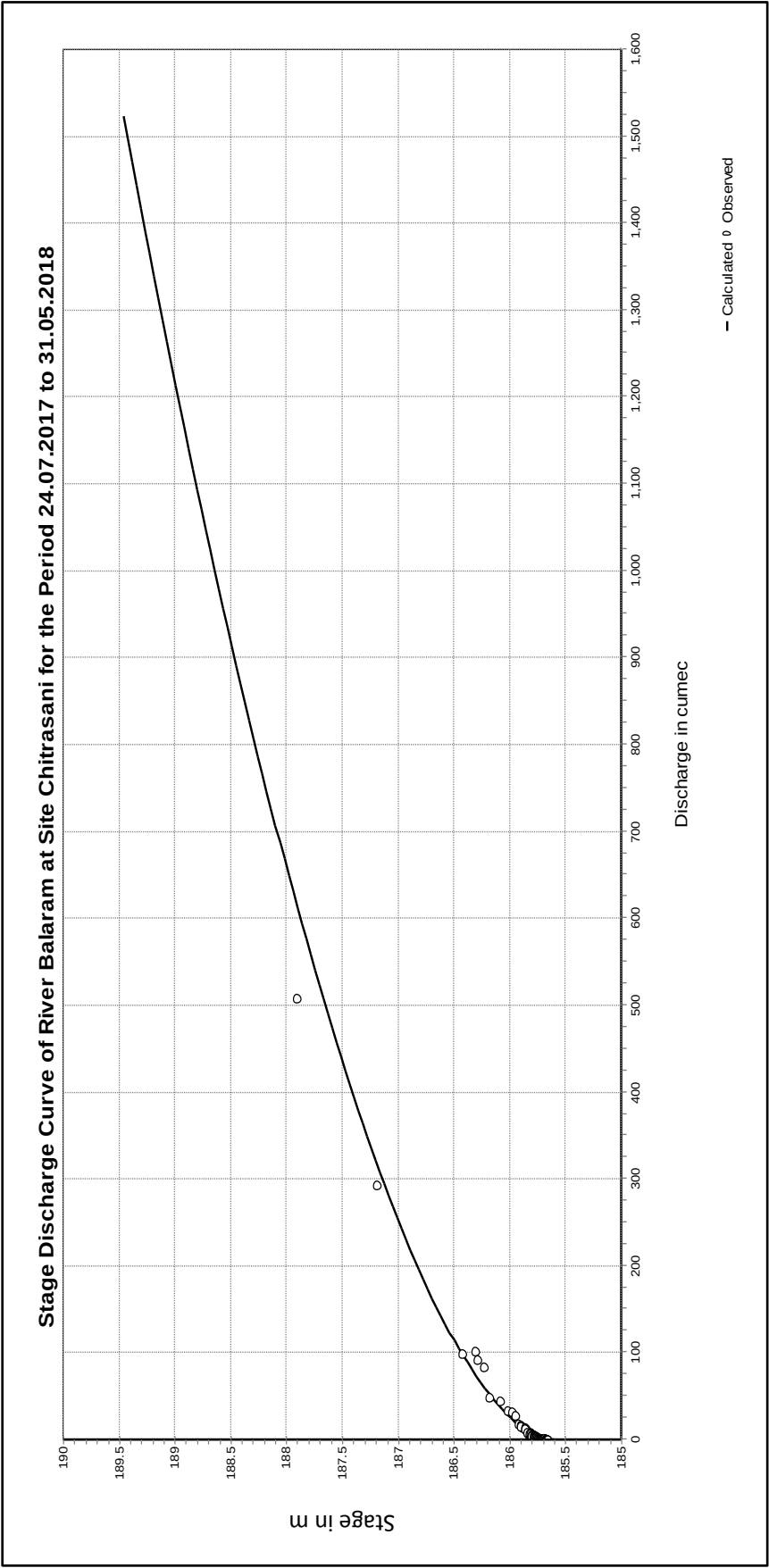
#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
185.540	187.500	-185.49	1.667	90.064



Procedure - Standard

Equation Type - Power $Q=c*(h+a)^b$

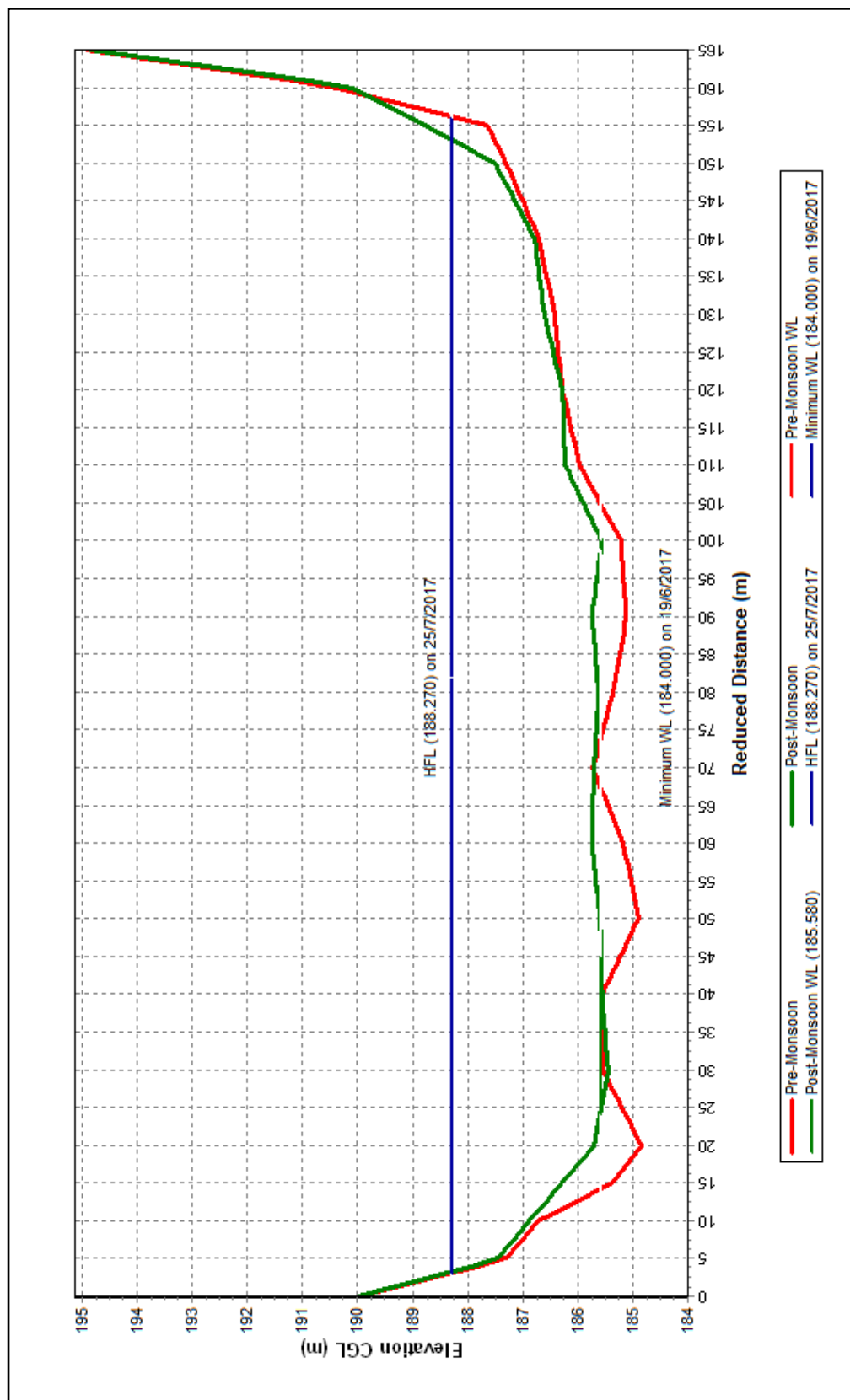
LB	UB	a	b	c
185.600	189.500	-185.63	1.744	146.452

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Balam at Chitrasani (01 02 02 004)

Local River : Balam

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



Historic Flood Level-190.77 m on 29.07.2015 at 0900 hrs

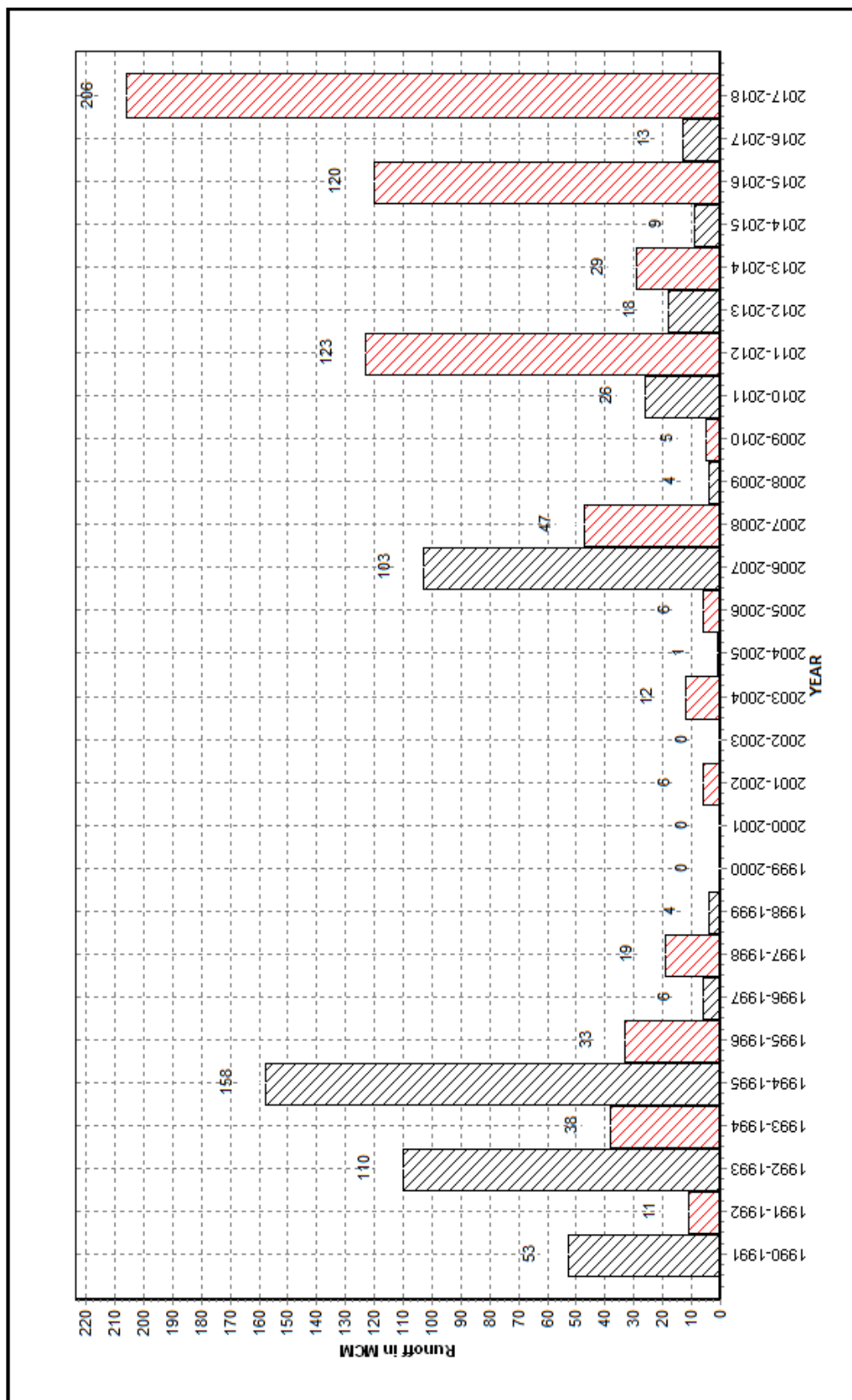
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 1990 - 2018

Station Name : Balam at Chitrasani (01 02 02 004)

Local River : Balam

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

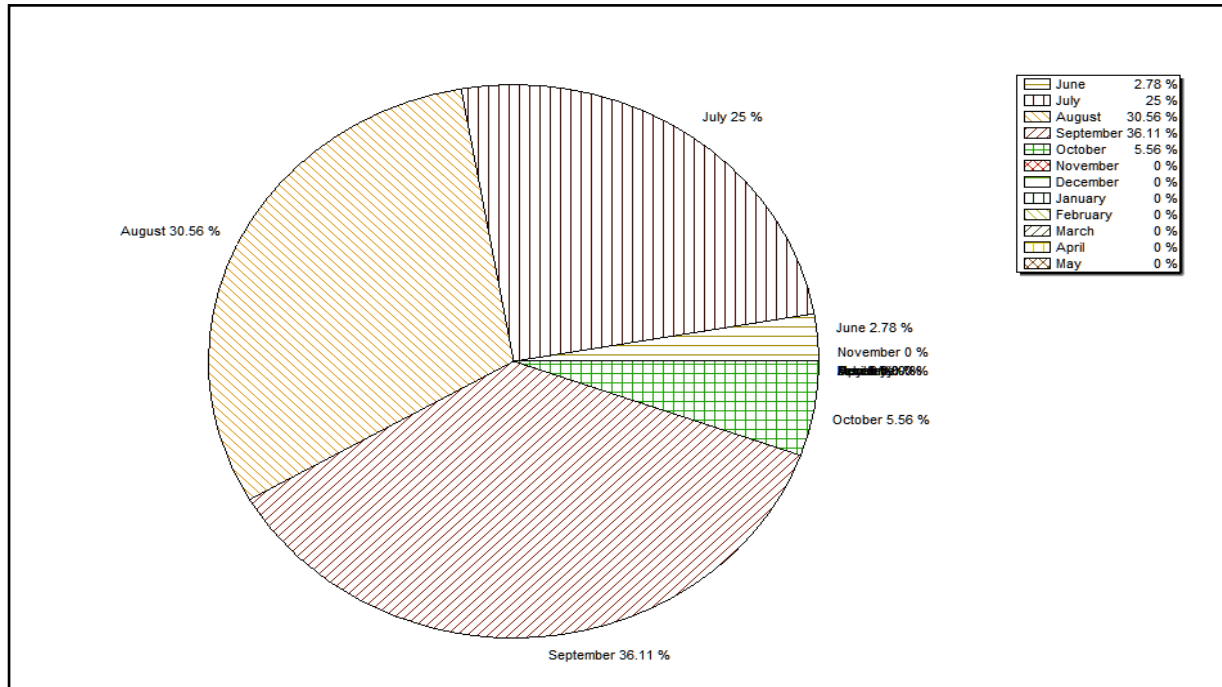


Note: Missing values have not been considered while arriving at Annual Runoff

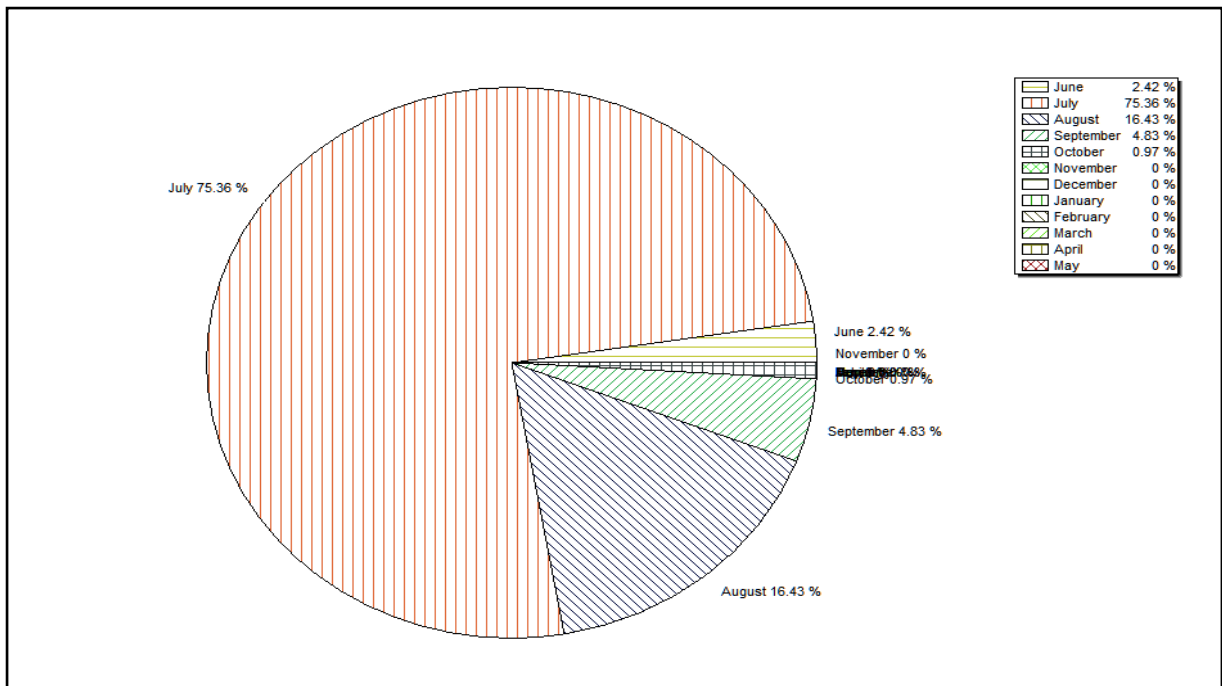
Station Name : Balaram at Chitrasani (01 02 02 004)
Local River : Balaram

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

Monthly Average Runoff based on period : 1990-2017



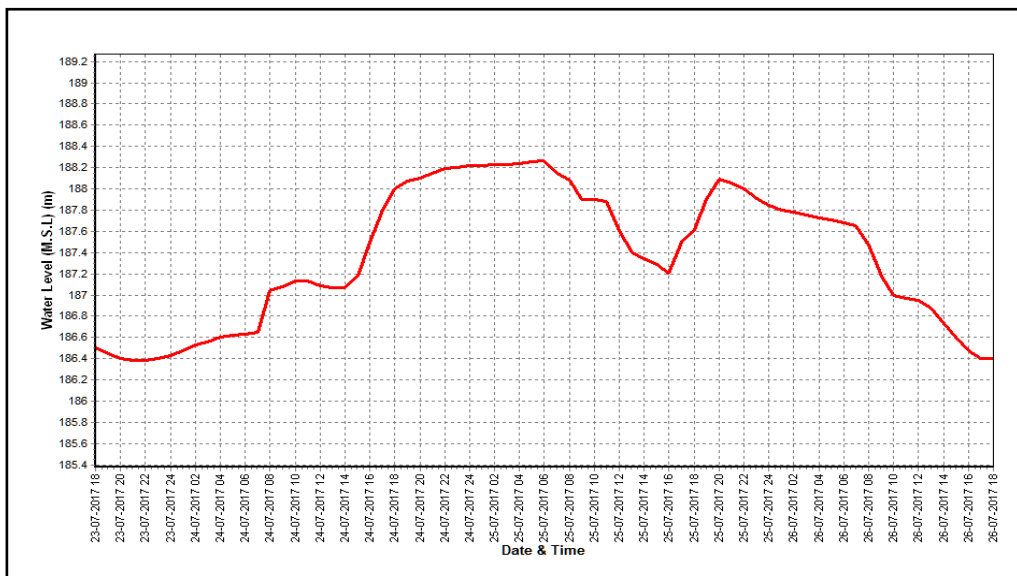
Monthly Runoff for the Year : 2017-2018



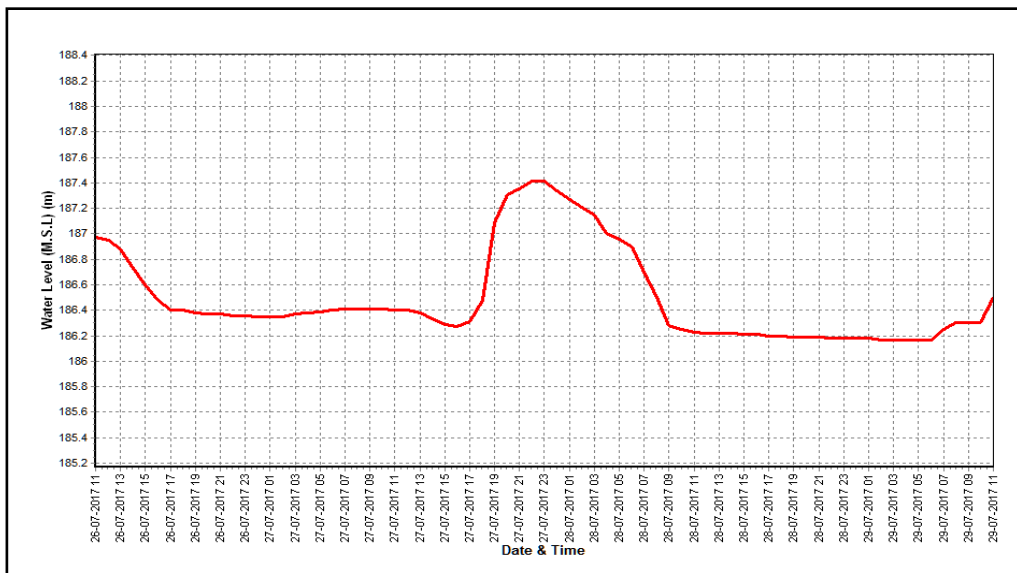
Station Name : Balaram at Chitrasani (01 02 02 004)
Local River : Balaram

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

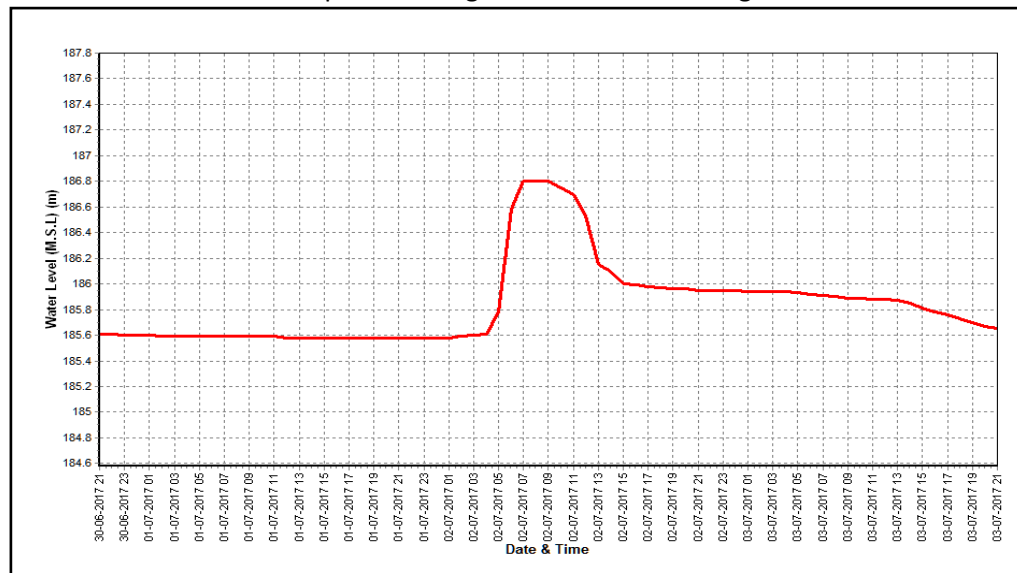
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Banas at Sarotry **Code** : 01 02 02 003
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 : 2200 Sq. Km. **Bank** : Left
Latitude : 24°22'04" N **Longitude** : 72°32'48" E
Zero of Gauge (m) : 184 (m.s.l) 01/06/1980 - 01/07/1989
: 186 (m.s.l) 01/08/1989 -
Opening Date **Closing Date**
Gauge : 12/06/1980
Discharge : 01/06/1990
Sediment : ---
Water Quality : --

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1989-1990	113.800	187.220	03/07/1989	0.000	River Dry	03/01/1990
1990-1991	1027.000	188.225	04/07/1990	0.000	River Dry	30/04/1991
1991-1992	194.400	187.305	23/07/1991	0.000	River Dry	17/06/1991
1992-1993	2672.000	190.780	08/09/1992	0.000	River Dry	02/07/1992
1993-1994	558.000	187.672	18/07/1993	0.000	River Dry	07/05/1994
1994-1995	1324.000	189.025	08/09/1994	0.000	River Dry	09/06/1994
1995-1996	339.300	188.220	25/07/1995	0.000	186.600	09/03/1996
1996-1997	44.340	187.565	29/07/1996	0.000	186.670	08/11/1996
1997-1998	360.000	188.325	14/09/1997	0.000	186.810	23/01/1998
1998-1999	111.000	187.700	18/10/1998	0.000	186.750	04/12/1998
1999-2000	154.000	187.910	22/06/1999	0.000	River Dry	08/11/1999
2000-2001	20.440	187.200	16/07/2000	0.000	River Dry	26/01/2001
2001-2002	26.270	187.200	15/06/2001	0.000	River Dry	23/11/2001
2002-2003	22.570	187.100	29/06/2002	0.000	River Dry	25/01/2003
2003-2004	244.000	187.950	19/06/2003	0.000	River Dry	31/12/2003

2004-2005	51.890	187.650	02/08/2004	0.000	River Dry	25/01/2005
2005-2006	213.000	188.050	19/09/2005	0.000	River Dry	01/06/2005
2006-2007	1008.000	188.750	07/09/2006	0.000	River Dry	01/06/2006
2007-2008	1158.000	186.010	04/07/2007	0.000	River Dry	01/06/2007
2008-2009	28.710	187.015	14/08/2008	0.000	River Dry	01/06/2008
2009-2010	14.030	186.860	24/07/2009	0.000	River Dry	01/06/2009
2010-2011	209.600	187.550	06/08/2010	0.000	River Dry	01/06/2010
2011-2012	1022.9	189.575	12/09/2011	0.000	River Dry	07/05/2012
2012-2013	882.0	188.900	11/07/2012	0.000	River Dry	01/06/2012
2013-2014	212.7	187.64	29/09/2013	0.000	River Dry	01/06/2013
2014-2015	61.16	187.25	30/07/2014	0.000	River Dry	01/06/2014
2015-2016	750.5	190.25	29/07/2015	0.000	186.150	27/10/2015
2016-2017	228	187.56	10/08/2016	0.000	River Dry	01/06/2016
2017-2018	1541	190.99	24/07/2017	0.000	186.005	16/01/2018

Stage-Discharge Data for the period 2017 - 2018

Station Name : Banas at Sarotry (01 02 02 003)

Division : Mahi Division, Gandhinagar

Local River : Banas

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

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R.Dry	0.000	187.410	125.7 #	186.710	31.12	186.430	12.22	186.200	1.567
2	R.Dry	0.000	186.370	7.557	187.215	95.52 #	186.790	33.01	186.420	11.67	186.190	1.508
3	R.Dry	0.000	186.335	4.966	186.980	61.00 #	186.800	34.06	186.410	11.47	186.190	1.436
4	R.Dry	0.000	186.160	1.126	186.960	58.55 #	186.740	28.85	186.410	11.11	186.170	1.810 *
5	R.Dry	0.000	186.140	0.231	186.910	52.64 #	186.700	28.56	186.400	10.63	186.170	1.810 *
6	R.Dry	0.000	R.Dry	0.000	186.910	52.64 #	186.670	26.23	186.390	10.21	186.160	1.327
7	R.Dry	0.000	R.Dry	0.000	186.950	57.34 #	186.640	24.49	186.380	9.839	186.160	1.316
8	R.Dry	0.000	R.Dry	0.000	186.950	57.34 #	186.630	25.30 *	186.370	9.594	186.150	1.288
9	R.Dry	0.000	R.Dry	0.000	187.000	63.50 #	186.610	21.89	186.360	9.095	186.150	1.182
10	R.Dry	0.000	R.Dry	0.000	186.950	57.34 #	186.600	18.51	186.350	8.741	186.150	1.449
11	R.Dry	0.000	R.Dry	0.000	186.850	45.96 #	186.590	18.45	186.340	7.250	186.150	1.418
12	R.Dry	0.000	R.Dry	0.000	186.830	43.83 #	186.570	16.76	186.330	6.887	186.150	1.400 *
13	R.Dry	0.000	R.Dry	0.000	186.810	41.75 #	186.570	20.72 *	186.330	6.596	186.140	1.369
14	R.Dry	0.000	190.200	1048	186.810	76.42	186.560	15.20	186.330	6.341	186.140	1.333
15	R.Dry	0.000	187.275	124.3	186.780	67.13	186.570	16.14	186.330	6.505	186.140	1.308
16	R.Dry	0.000	186.740	34.87 *	186.770	53.78	186.640	23.22	186.330	6.114	186.130	1.398
17	R.Dry	0.000	186.330	8.943	186.700	48.15	186.610	20.08	186.330	5.832	186.130	1.250
18	R.Dry	0.000	186.340	6.028	186.690	41.03	186.610	21.57	186.320	5.351	186.130	1.209
19	R.Dry	0.000	186.420	12.96	186.650	37.85	186.580	17.53	186.320	4.887	186.130	1.050 *
20	R.Dry	0.000	186.350	6.043	186.660	38.98	186.560	17.59	186.310	4.689	186.120	1.156
21	R.Dry	0.000	186.620	27.87	186.670	39.40	186.550	17.02	186.310	4.464	186.120	1.131
22	R.Dry	0.000	186.480	13.77	186.670	38.70	186.530	15.99	186.300	4.033	186.120	1.058
23	R.Dry	0.000	188.750	622.2	186.800	49.72	186.510	15.58	186.290	2.833	186.110	1.040
24	R.Dry	0.000	190.990	1541 #	186.790	46.19	186.500	15.01	186.280	2.662	186.110	1.019
25	R.Dry	0.000	190.200	953.3	186.740	36.34	186.490	14.17	186.260	2.400	186.110	0.972
26	R.Dry	0.000	188.065	325.5	186.710	28.51	186.470	14.12	186.260	2.343	186.110	0.740 *
27	R.Dry	0.000	188.120	380.9	186.720	33.02 *	186.460	13.78	186.240	2.019	186.110	0.931
28	R.Dry	0.000	188.000	326.4	186.720	32.56	186.450	13.06	186.210	1.949	186.105	0.908
29	R.Dry	0.000	188.930	602.2	186.710	31.72	186.450	12.65	186.210	1.538	186.100	0.872
30	R.Dry	0.000	188.100	384.0	186.700	31.78	186.440	12.52	186.200	1.760	186.100	0.855
31			187.420	208.2	186.710	30.47			186.200	1.539		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	186.251	3.470	187.023	68.16	186.689	27.20	186.392	10.46	186.169	1.469
II Ten-Daily	R.Dry	0.000	187.094	177.3	186.755	49.49	186.586	18.73	186.327	6.045	186.136	1.289
III Ten-Daily	R.Dry	0.000	188.334	489.6	186.722	36.22	186.485	14.39	186.251	2.504	186.109	0.953
Monthly												
Min.	R.Dry	0.000	186.140	0.231	186.650	28.51	186.440	12.52	186.200	1.538	186.100	0.740
Max.	R.Dry	0.000	190.990	1541	187.410	125.7	186.800	34.06	186.430	12.22	186.200	1.810
Mean	R.Dry	0.000	187.561	301.8	186.830	50.8	186.587	20.11	186.321	6.212	186.138	1.237

Annual Runoff in MCM = 783 Annual Runoff in mm = 356

Peak Observed Discharge = 1541 cumecs on 24-07-2017 Corres. Water Level :190.99 m

Lowest Observed Discharge = 0.000 cumecs on 16-01-2018 Corres. Water Level :186.005 m

On 24/7/17 the river was over flowing its banks.

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Banas at Sarotry (01 02 02 003)

Division : Mahi Division, Gandhinagar

Local River : Banas

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

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	186.100	0.835	186.050	0.140 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
2	186.100	0.610 *	186.050	0.140 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
3	186.100	0.610 *	186.045	0.110 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
4	186.100	0.716	186.045	0.110 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
5	186.100	0.738	186.040	0.080 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
6	186.100	0.726	186.040	0.080 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
7	186.100	0.709	186.040	0.080 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
8	186.100	0.686	186.040	0.080 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
9	186.095	0.679	186.030	0.040 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
10	186.095	0.550 *	186.030	0.040 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
11	186.095	0.670	186.025	0.030 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
12	186.090	0.647	186.020	0.020 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
13	186.090	0.638	186.020	0.020 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
14	186.090	0.490 *	186.020	0.020 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
15	186.090	0.599	186.020	0.020 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
16	186.090	0.586	186.005	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
17	186.090	0.490 *	186.005	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
18	186.090	0.570	186.005	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
19	186.090	0.562	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
20	186.090	0.548	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
21	186.090	0.556	186.000	0.000 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
22	186.080	0.520	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
23	186.080	0.488	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
24	186.080	0.380 *	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
25	186.080	0.380 *	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
26	186.075	0.446	186.000	0.000 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
27	186.075	0.330 *	186.000	0.000 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
28	186.060	0.210 #	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
29	186.060	0.210 #	R.Dry	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
30	186.050	0.210 #	R.Dry	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
31	186.055	0.170 *	R.Dry	0.000			R.Dry	0.000			R.Dry	0.000
Ten-Daily Mean												
I Ten-Daily	186.099	0.686	186.041	0.090	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
II Ten-Daily	186.090	0.580	186.012	0.011	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
III Ten-Daily	186.071	0.355	186.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Monthly												
Min.	186.050	0.170	186.000	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Max.	186.100	0.835	186.050	0.140	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Mean	186.086	0.534	186.020	0.037	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000

Peak Computed Discharge = 34.87 cumecs on 16-07-2017

Corres. Water Level :186.74 m

Lowest Computed Discharge = 0.000 cumecs on 21-01-2018

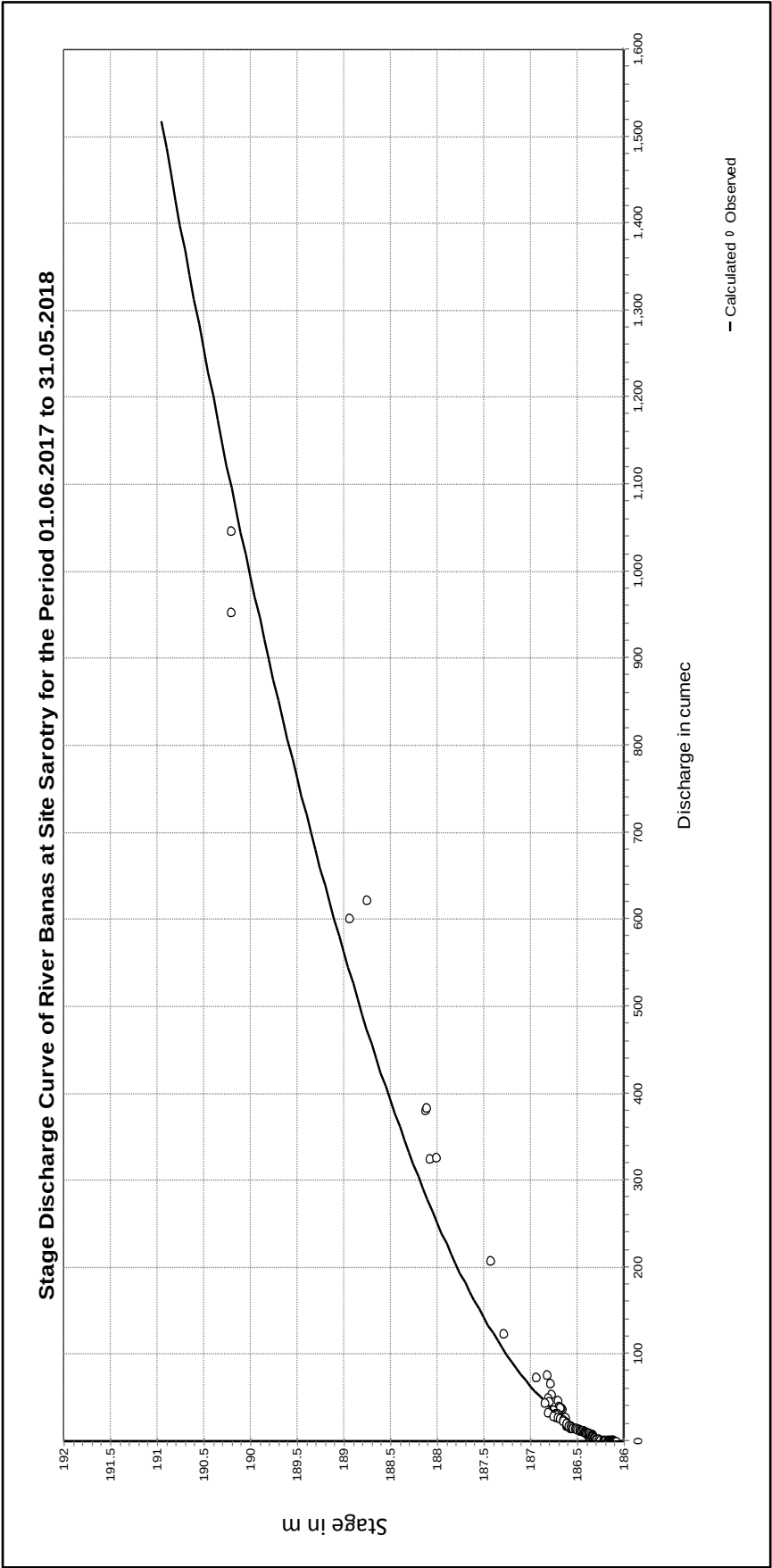
Corres. Water Level :186 m

Negligible flow existed in the river from 5/1/18 to 27/1/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

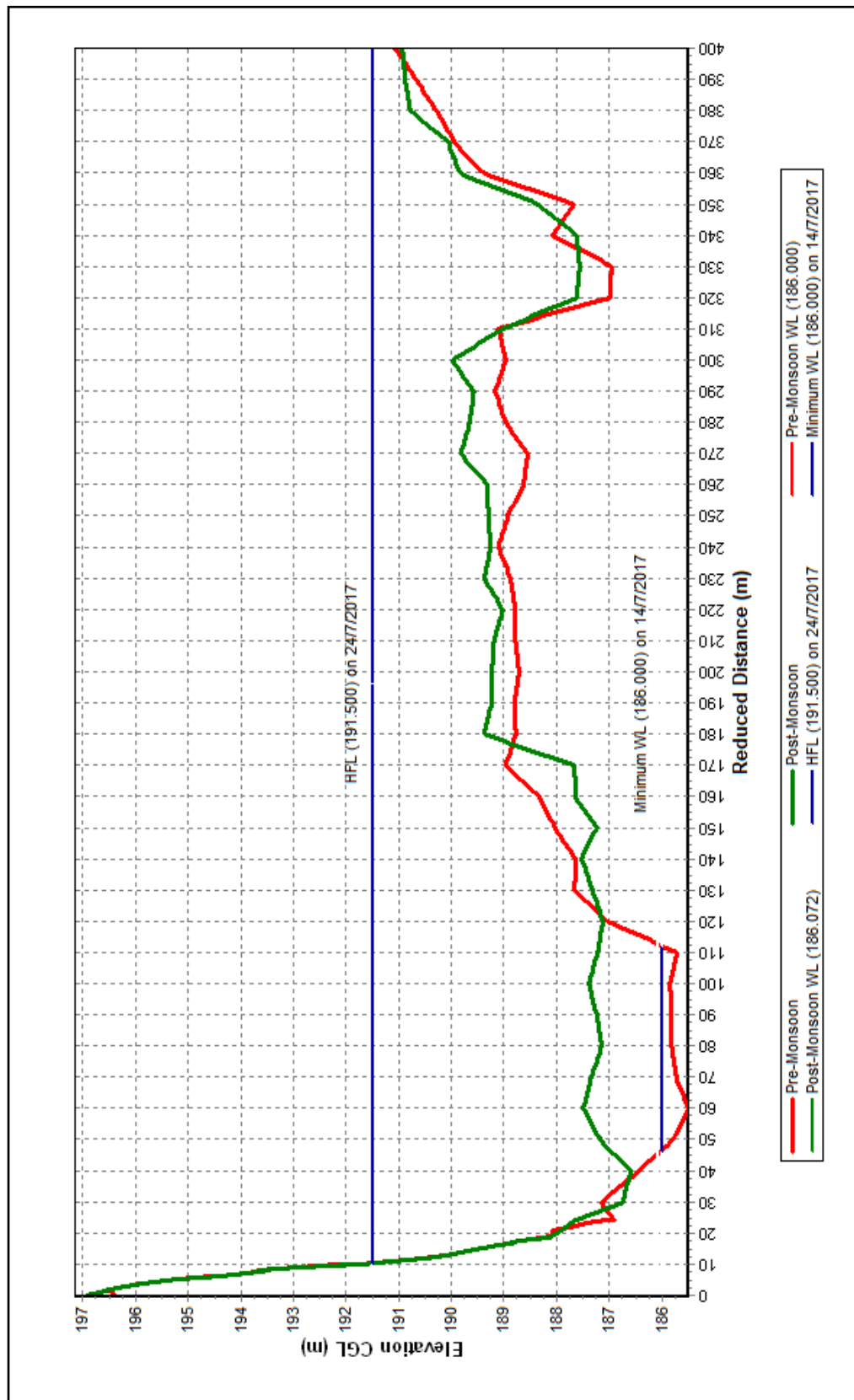
Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
186.000	191.000	-186.005	1.979	64.135

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Banas at Sarotry (01 02 02 003)

Local River : Banas

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



Historical Flood Level-194.31 m on 01.09.1973

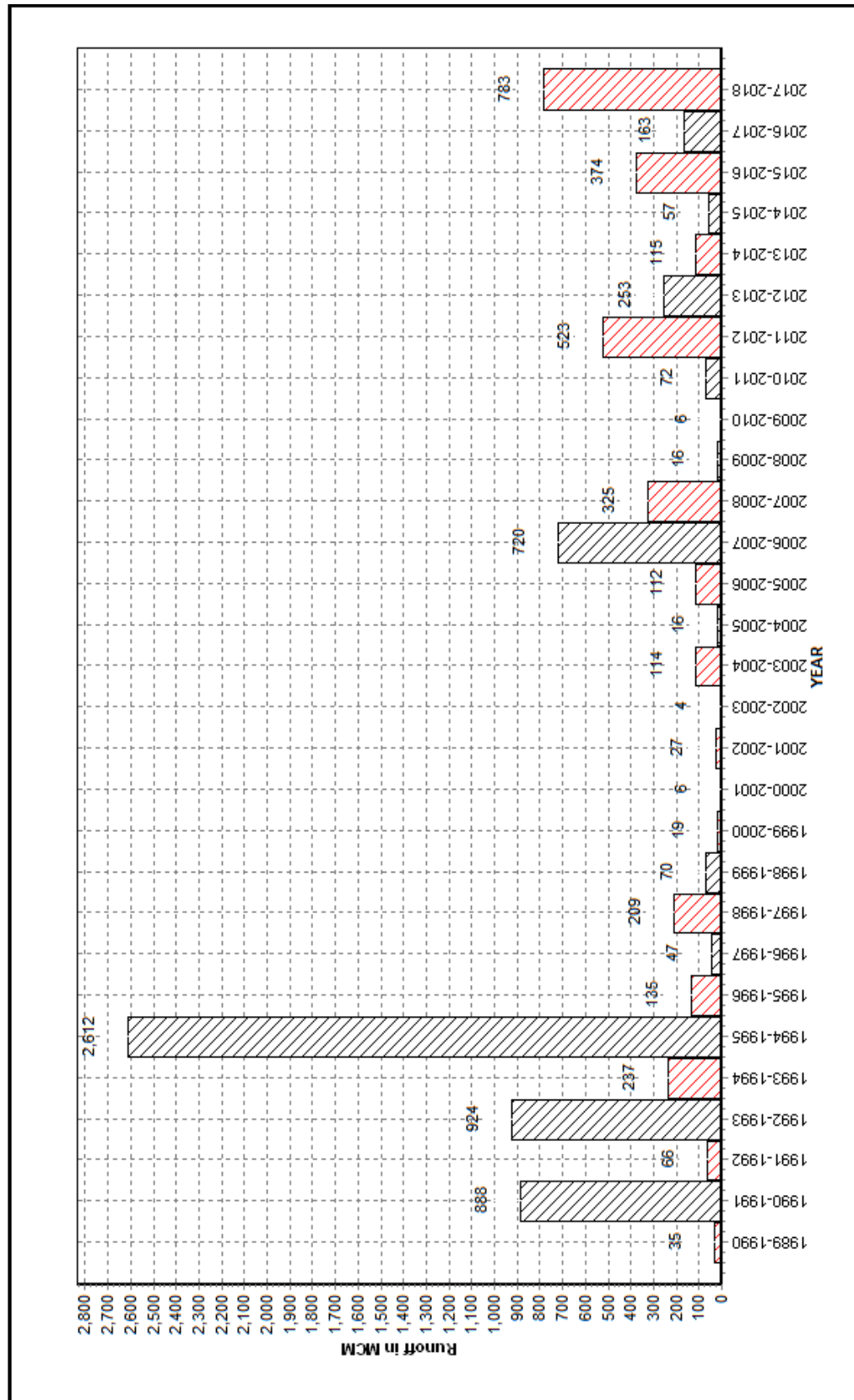
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 1989 - 2018

Station Name : Banas at Sarotry (01 02 02 003)

Local River : Banas

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

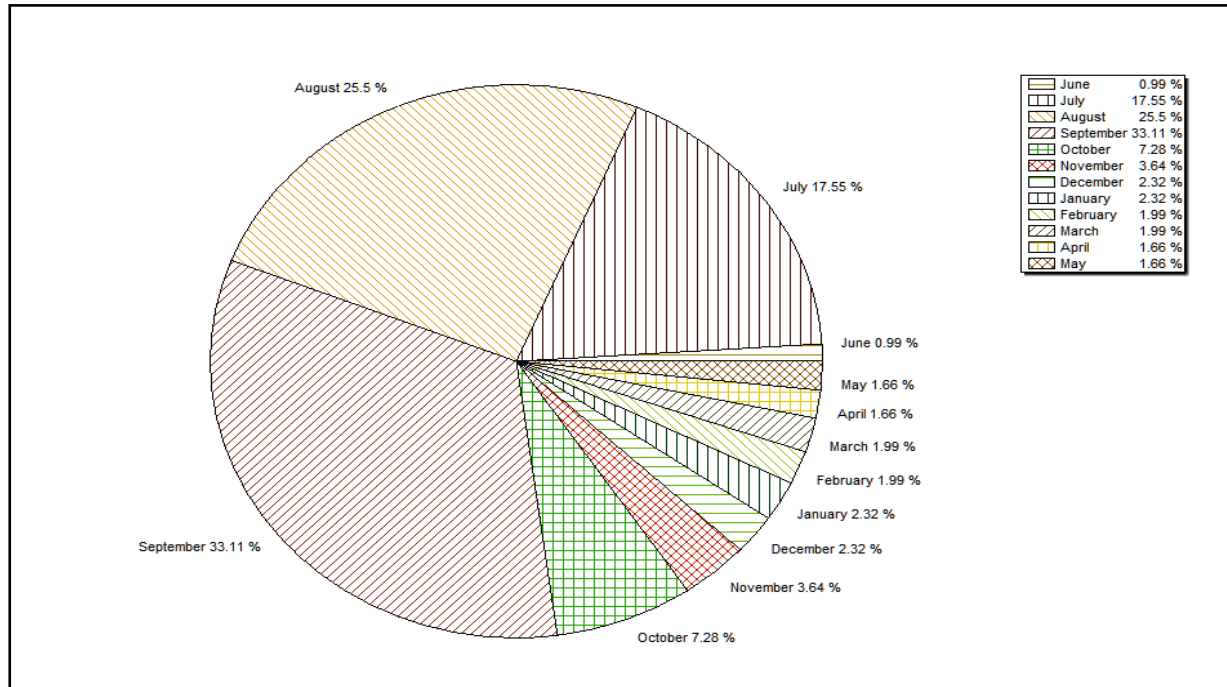


Note: Missing values have not been considered while arriving at Annual Runoff

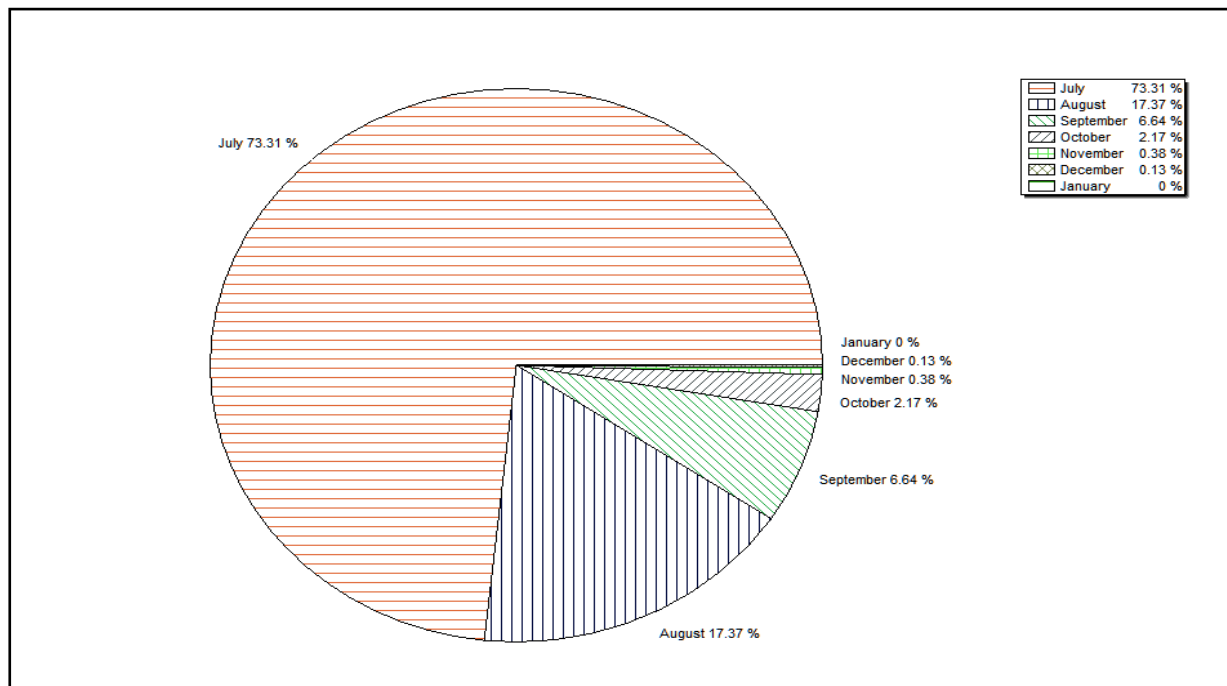
Station Name : Banas at Sarotry (01 02 02 003)
Local River : Banas

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

Monthly Average Runoff based on period : 1989-2017



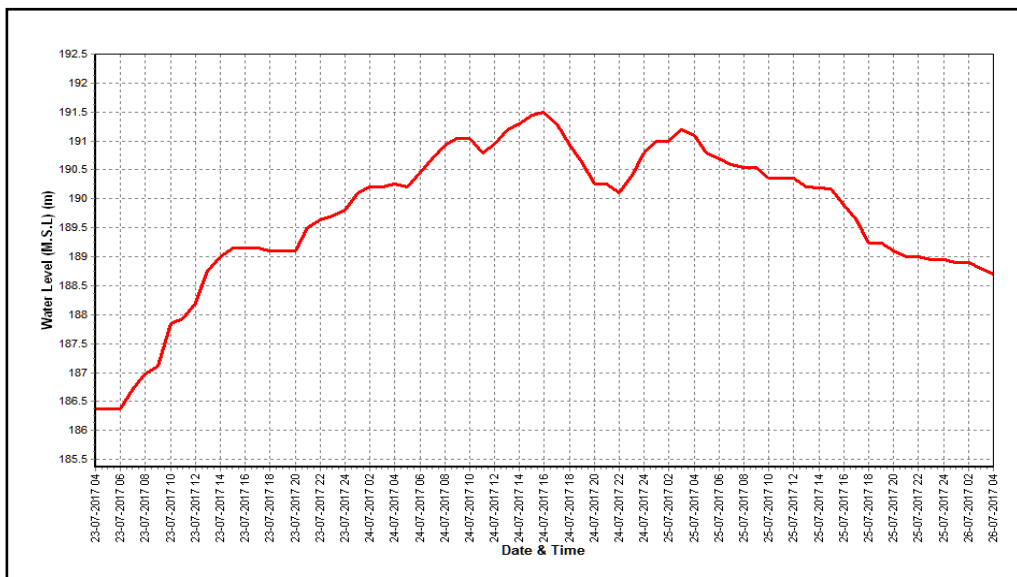
Monthly Runoff for the Year : 2017-2018



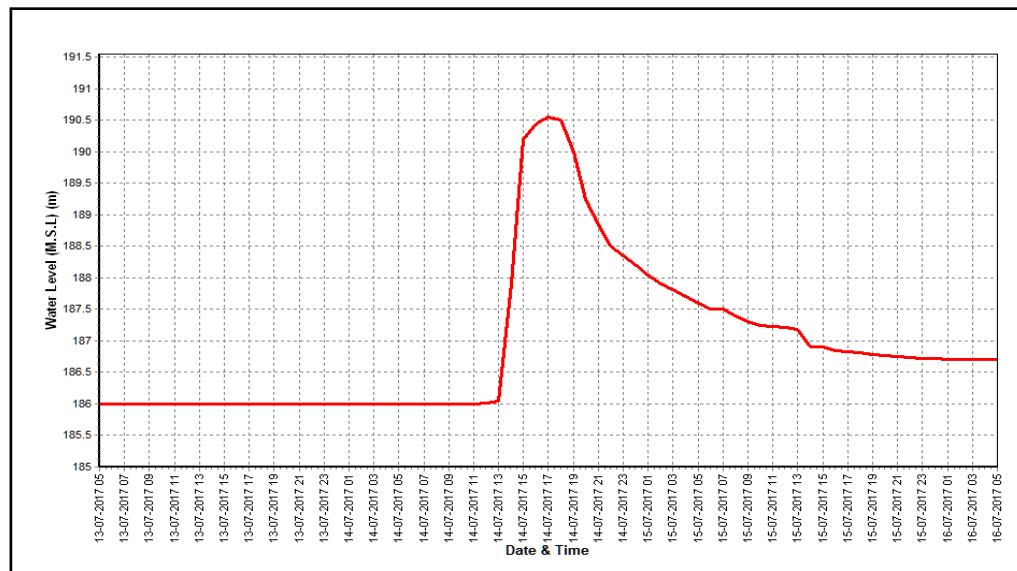
Station Name : Banas at Sarotry (01 02 02 003)
Local River : Banas

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

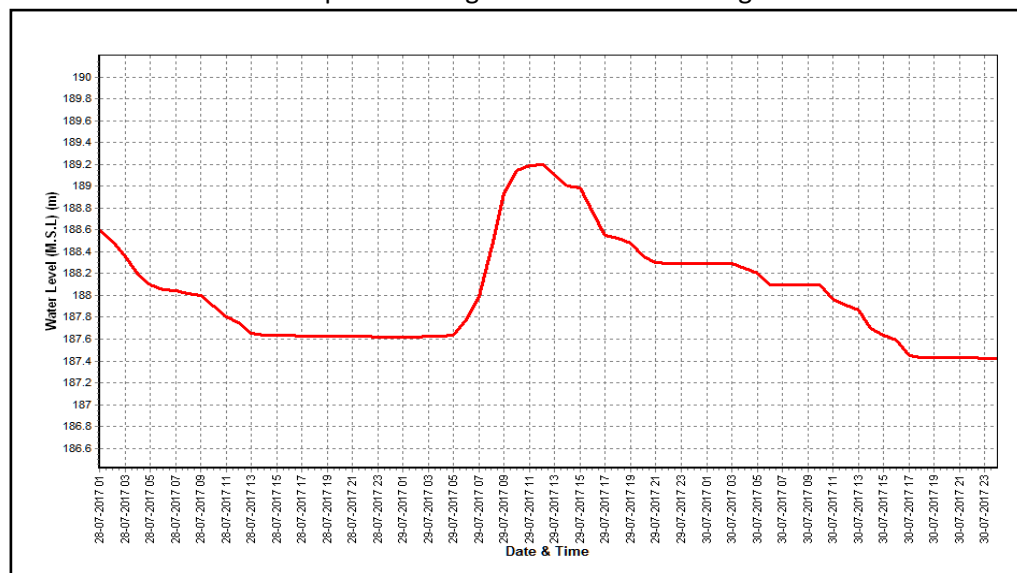
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Site : Banas at Abu Road State : Rajasthan Basin : WFR of Kach.-Saur. & Luni Tributary : - Sub-Sub Tributary : Division : Mahi Division, Gandhinagar Drainage Area : 1600 Sq. Km. Latitude : 24°29'38" N Zero of Gauge (m) : 254.85 (m.s.l) Opening Date Gauge : 10/05/1978 Discharge : 01/06/1990 Sediment : -- Water Quality : 01/07/1988	Water Year : 2017-18 Code : 01 02 02 002 District : Sirohi Independent River : Banas Sub Tributary : Local River : Banas Sub-Division : B.L.Sub Divn, Palanpur Bank : Right Longitude : 72°47'30" E Closing Date
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Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1989-1990	53.420	255.918	26/08/1989	0.000	River Dry	25/01/1990
1990-1991	526.900	257.712	05/08/1990	0.000	River Dry	05/06/1990
1991-1992	38.710	256.890	26/07/1991	0.000	River Dry	26/01/1992
1992-1993	1164.000	258.397	08/09/1992	0.000	River Dry	25/06/1992
1993-1994	170.400	256.519	18/07/1993	0.000	River Dry	07/05/1994
1994-1995	1030.000	257.490	20/08/1994	0.000	River Dry	12/06/1994
1995-1996	327.000	256.450	25/07/1995	0.000	River Dry	26/01/1996
1996-1997	56.520	255.870	29/07/1996	0.000	River Dry	04/12/1996
1997-1998	96.000	256.150	02/08/1997	0.000	River Dry	27/01/1998
1998-1999	93.000	255.900	17/10/1998	0.000	River Dry	25/01/1999
1999-2000	34.550	255.265	22/06/1999	0.000	River Dry	03/02/2000
2000-2001	32.290	255.725	16/07/2000	0.000	River Dry	25/01/2001
2001-2002	46.770	255.675	04/07/2001	0.000	River Dry	05/12/2001
2002-2003	4.243	254.785	09/08/2002	0.000	River Dry	25/01/2003
2003-2004	72.550	255.590	29/07/2003	0.000	254.360	27/10/2003
2004-2005	20.380	255.000	02/08/2004	0.000	River Dry	30/05/2005
2005-2006	149.500	255.670	19/09/2005	0.000	River Dry	01/06/2005
2006-2007	585.800	256.985	20/08/2006	0.000	River Dry	01/06/2006
2007-2008	471.300	256.650	04/07/2007	0.000	253.780	01/06/2007

2008-2009	13.920	254.640	14/08/2008	0.000	River Dry	01/06/2008
2009-2010	11.570	254.640	14/08/2008	0.000	River Dry	01/06/2009
2010-2011	40.870	254.600	13/09/2010	0.000	River Dry	01/06/2010
2011-2012	338.2	258.200	09/08/2011	0.000	253.500	26/05/2012
2012-2013	347.5	257.750	08/09/2012	0.000	253.500	31/05/2013
2013-2014	118.1	255.35	29/09/2013	0.000	River Dry	01/06/2013
2014-2015	7.346	254.150	16/07/2014	0.000	River Dry	01/06/2014
2015-2016	29.38	254.560	25/06/2015	0.000	253.650	01/11/2015
2016-2017	59.27	255.475	10/08/2016	0.000	253.58	27/06/2016
2017-2018	531.0	259.000	24/07/2017	0.319	253.56	19/10/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Banas at Abu Road (01 02 02 002)

Division : Mahi Division, Gandhinagar

Local River : Banas

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

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R.Dry	0.000	255.300	65.88 #	254.540	22.66 #	254.000	4.194	253.530	0.140 *
2	R.Dry	0.000	R.Dry	0.000	255.150	71.26	254.540	19.24	253.900	3.859	253.530	0.140 *
3	R.Dry	0.000	R.Dry	0.000	255.050	49.13 #	254.500	17.84	253.890	3.678	253.530	0.140 *
4	R.Dry	0.000	R.Dry	0.000	254.800	47.01	254.450	15.91	253.870	3.455	253.530	0.140 *
5	R.Dry	0.000	R.Dry	0.000	254.700	33.59	254.400	15.04	253.830	2.863	253.530	0.140 *
6	R.Dry	0.000	R.Dry	0.000	254.600	23.27	254.300	13.30	253.800	1.881	253.530	0.140 *
7	R.Dry	0.000	R.Dry	0.000	254.500	19.15	254.290	13.04	253.780	1.724	253.530	0.140 *
8	R.Dry	0.000	R.Dry	0.000	254.400	17.78	254.290	12.40	253.750	1.383	253.530	0.140 *
9	R.Dry	0.000	R.Dry	0.000	254.400	16.45	254.290	14.98	253.720	2.035	253.530	0.140 *
10	R.Dry	0.000	R.Dry	0.000	254.300	12.40	254.180	10.81	253.700	1.904	253.530	0.140 *
11	R.Dry	0.000	R.Dry	0.000	254.300	12.90	254.170	9.333	253.680	1.618	253.530	0.140 *
12	R.Dry	0.000	R.Dry	0.000	254.200	9.562	254.160	8.973	253.660	1.115	253.530	0.140 *
13	R.Dry	0.000	R.Dry	0.000	254.200	9.461	254.150	8.710	253.640	0.881	253.530	0.140 *
14	R.Dry	0.000	254.175	10.67	254.150	9.324	254.200	9.916	253.620	0.787	253.530	0.140 *
15	R.Dry	0.000	254.700	39.68	254.150	9.196	254.190	9.641	253.600	0.654	253.500	0.000
16	R.Dry	0.000	254.100	8.020 #	254.150	9.122	254.200	9.425	253.590	0.615	253.500	0.000
17	R.Dry	0.000	253.880	1.666	254.150	9.041	254.230	10.15	253.580	0.563	253.500	0.000
18	R.Dry	0.000	253.860	1.623	254.140	8.005	254.210	9.384	253.570	0.457	253.500	0.000
19	R.Dry	0.000	253.840	1.514	254.130	7.957	254.190	9.022	253.560	0.319	253.500	0.000
20	R.Dry	0.000	254.140	9.040 #	254.135	7.814	254.170	8.886	253.560	0.250 *	253.500	0.000
21	R.Dry	0.000	254.205	7.384	254.250	10.21	254.140	8.513	253.550	0.210 *	253.500	0.000
22	R.Dry	0.000	254.170	6.858	254.250	9.499	254.100	7.776	253.550	0.210 *	253.500	0.000
23	R.Dry	0.000	257.000	246.4 #	254.300	12.93	254.080	8.301	253.540	0.170 *	253.500	0.000
24	R.Dry	0.000	259.000	531.0	254.300	12.87	254.060	6.883	253.540	0.170 *	253.500	0.000
25	R.Dry	0.000	258.475	467.8	254.300	12.38	254.050	6.510	253.540	0.170 *	253.500	0.000
26	R.Dry	0.000	256.500	247.4	254.300	12.05	254.040	6.379	253.540	0.170 *	253.500	0.000
27	R.Dry	0.000	256.100	214.1	254.325	16.69	254.030	6.197	253.540	0.170 *	253.500	0.000
28	R.Dry	0.000	256.200	231.7	254.430	17.33	254.020	5.676	253.540	0.170 *	253.500	0.000
29	R.Dry	0.000	257.200	275.4 #	254.430	15.84	254.010	5.119	253.540	0.170 *	253.500	0.000
30	R.Dry	0.000	256.200	227.6	254.460	18.77	254.010	4.942	253.540	0.170 *	253.500	0.000
31			255.400	85.17	254.540	17.56			253.540	0.170 *		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	R.Dry	0.000	254.720	35.59	254.378	15.52	253.824	2.698	253.530	0.140
II Ten-Daily	R.Dry	0.000	254.099	10.32	254.171	9.239	254.187	9.344	253.606	0.726	253.512	0.056
III Ten-Daily	R.Dry	0.000	256.405	231.0	254.353	14.19	254.054	6.630	253.542	0.177	253.500	0.000
Monthly												
Min.	R.Dry	0.000	253.840	1.514	254.130	7.814	254.010	4.942	253.540	0.170	253.500	0.000
Max.	R.Dry	0.000	259.000	531.0	255.300	71.26	254.540	22.66	254.000	4.194	253.530	0.140
Mean	R.Dry	0.000	255.508	145.2	254.413	19.5	254.206	10.5	253.654	1.167	253.514	0.065

Annual Runoff in MCM = 308 Annual Runoff in mm = 193

Peak Observed Discharge = 531.0 cumecs on 24-07-2017 Corres. Water Level :259 m

Lowest Observed Discharge = 0.319 cumecs on 19-10-2017 Corres. Water Level :253.56 m

Negligible flow existed in river from 15/11/17 to 30/11/17

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Banas at Abu Road (01 02 02 002)

Division : Mahi Division, Gandhinagar

Local River : Banas

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

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
2	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
3	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
4	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
5	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
6	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
7	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
8	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
9	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
10	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
11	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
12	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
13	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
14	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
15	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
16	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
17	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
18	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
19	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
20	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
21	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
22	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
23	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
24	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
25	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
26	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
27	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
28	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
29	R.Dry	0.000	R.Dry	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
30	R.Dry	0.000	R.Dry	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
31	R.Dry	0.000	R.Dry	0.000			R.Dry	0.000			R.Dry	0.000
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
II Ten-Daily	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
III Ten-Daily	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Monthly												
Min.	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Max.	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Mean	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000

Peak Computed Discharge = 0.250 cumecs on 20-10-2017

Corres. Water Level :253.56 m

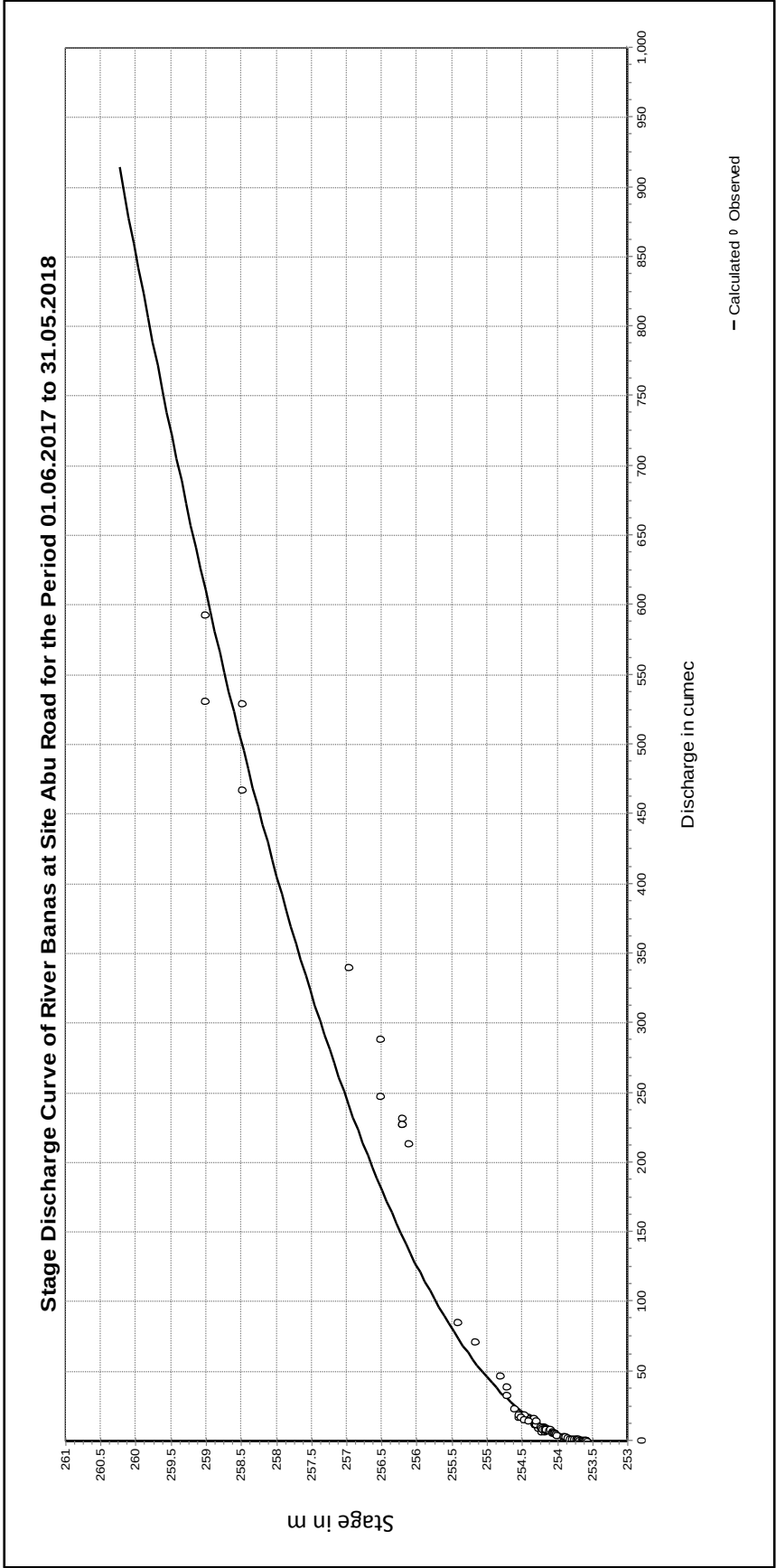
Lowest Computed Discharge = 0.000 cumecs on 15-11-2017

Corres. Water Level :253.5 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

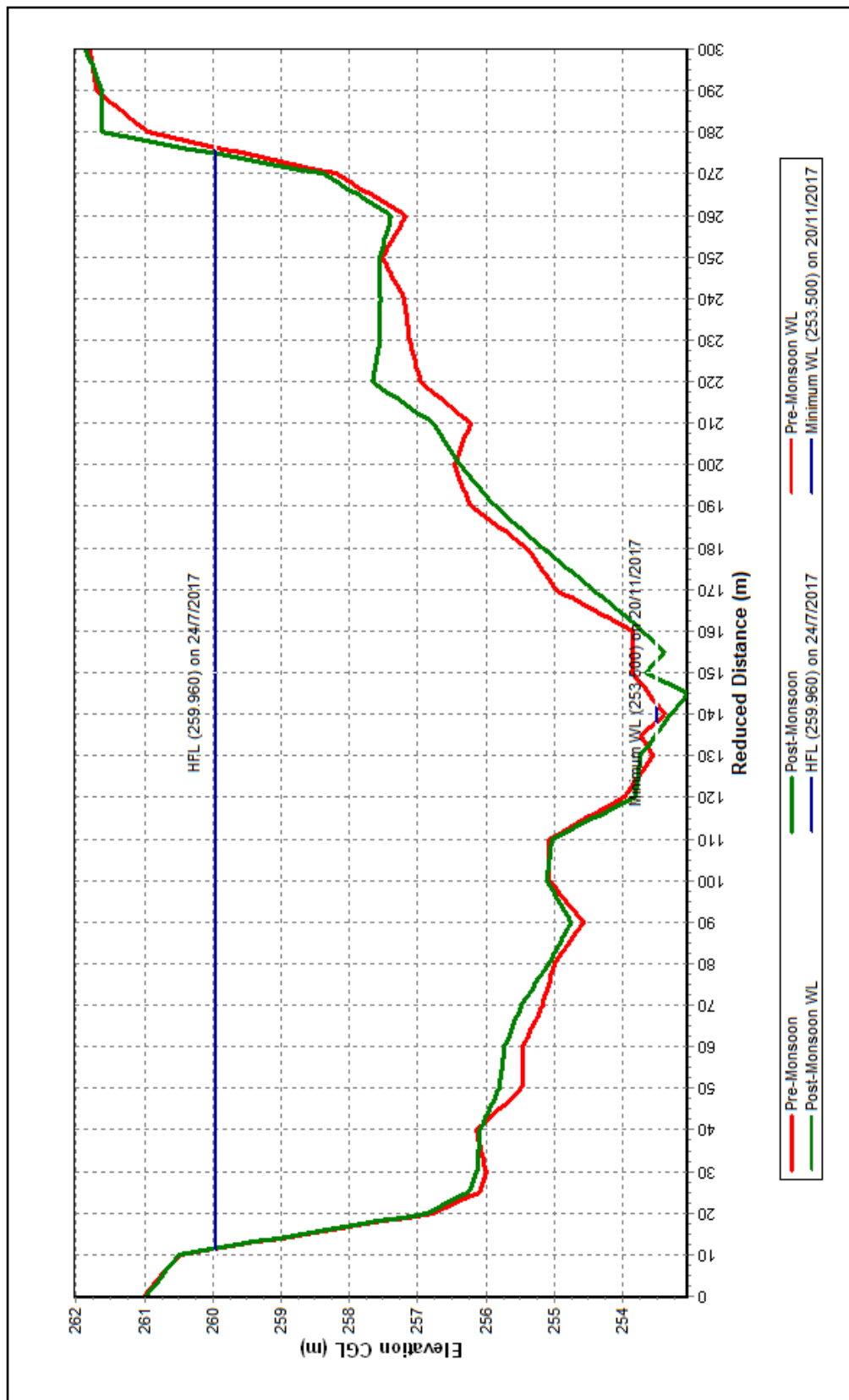
Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
253.500	260.300	-253.44	2.032	18.668

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Banas at Abu Road (01 02 02 002)

Local River : Banas

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



Historic Flood Level -265.400m on 31.08.1973

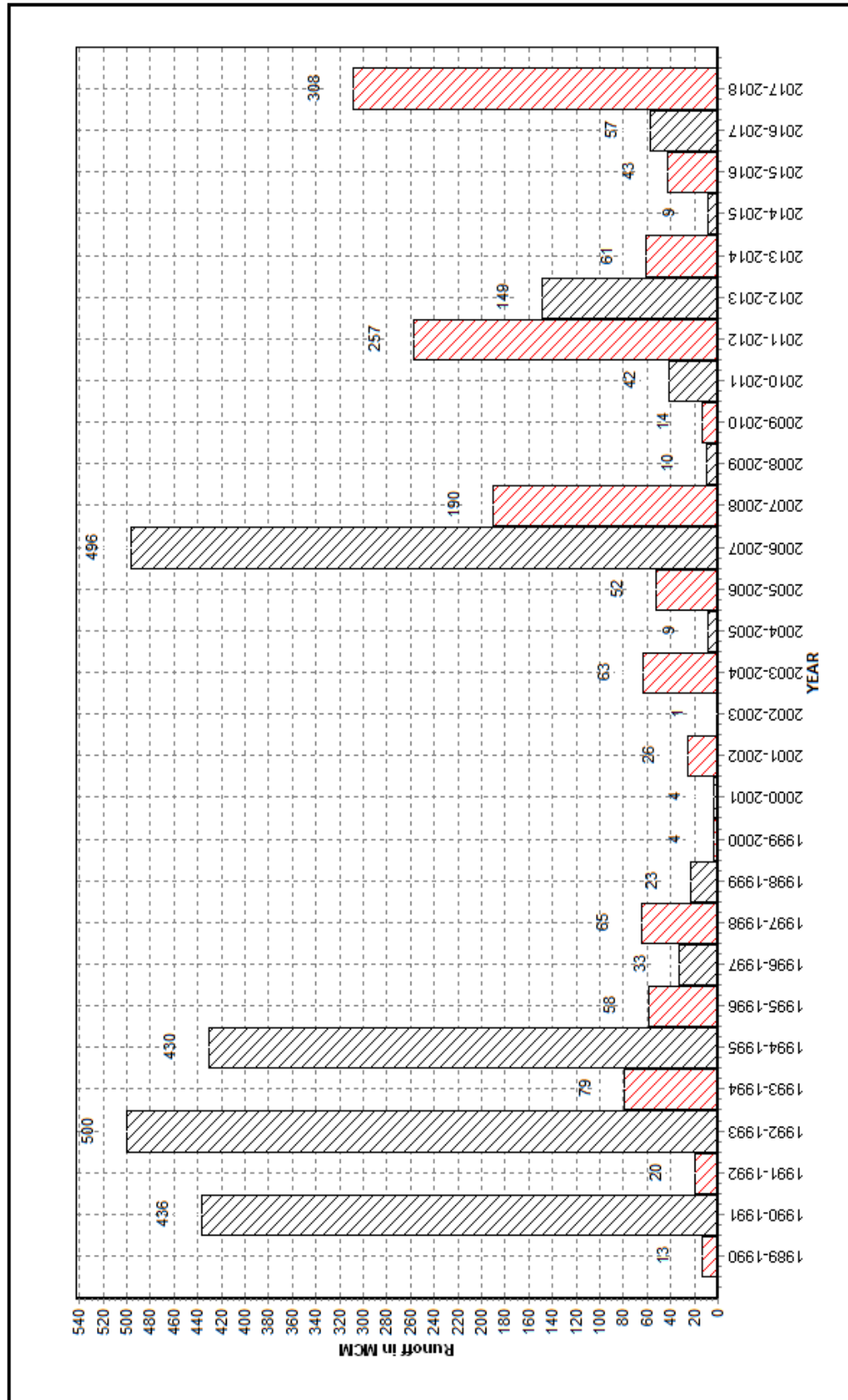
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2017-18

Station Name : Banas at Abu Road (01 02 02 002)

Local River : Banas

Annual Runoff Values for the period: 1989 - 2018

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

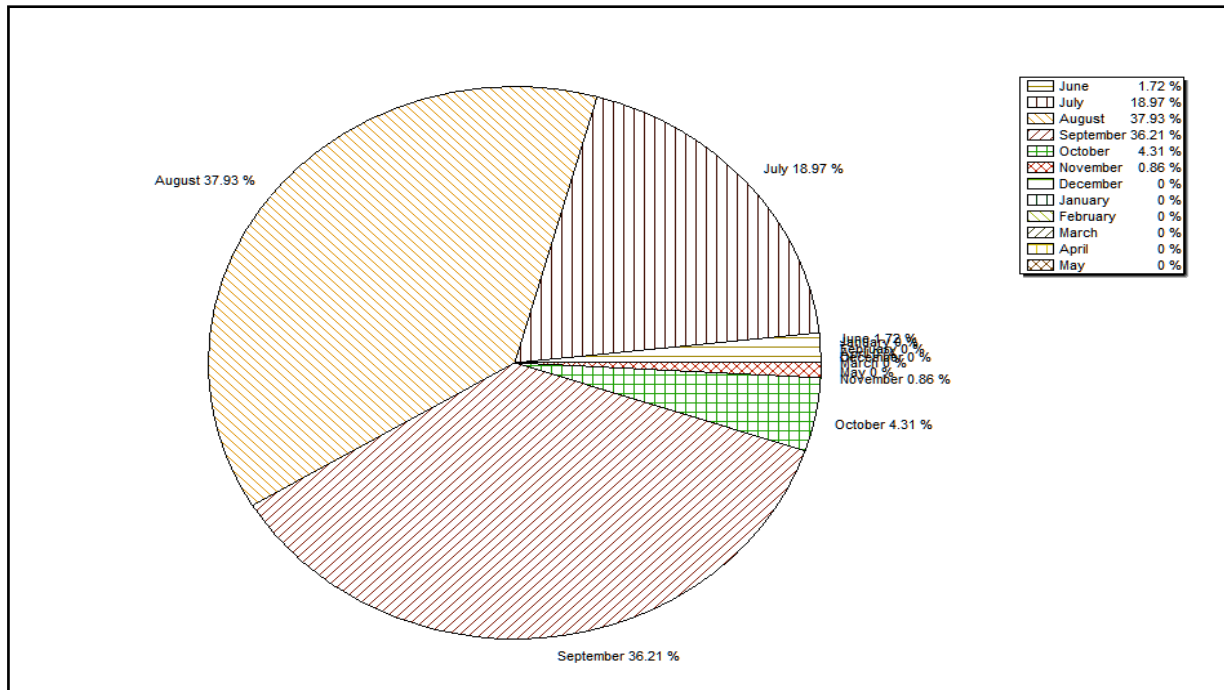


Note: Missing values have not been considered while arriving at Annual Runoff

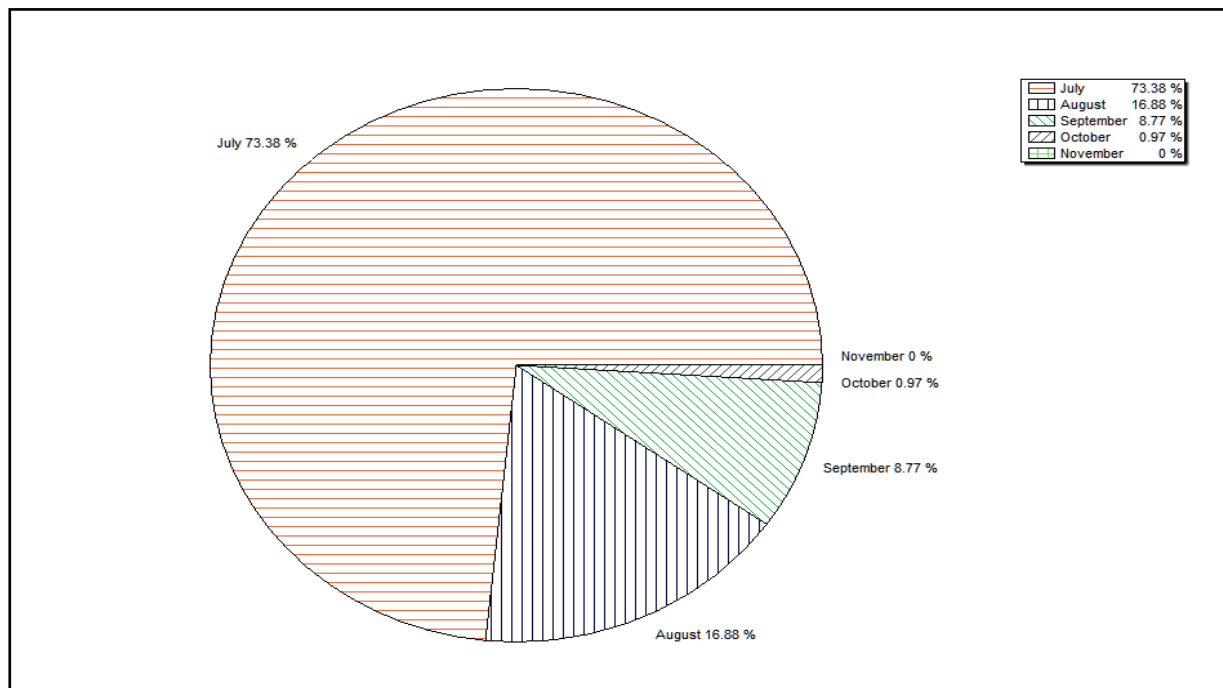
Station Name : Banas at Abu Road (01 02 02 002)
Local River : Banas

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

Monthly Average Runoff based on period : 1989-2017



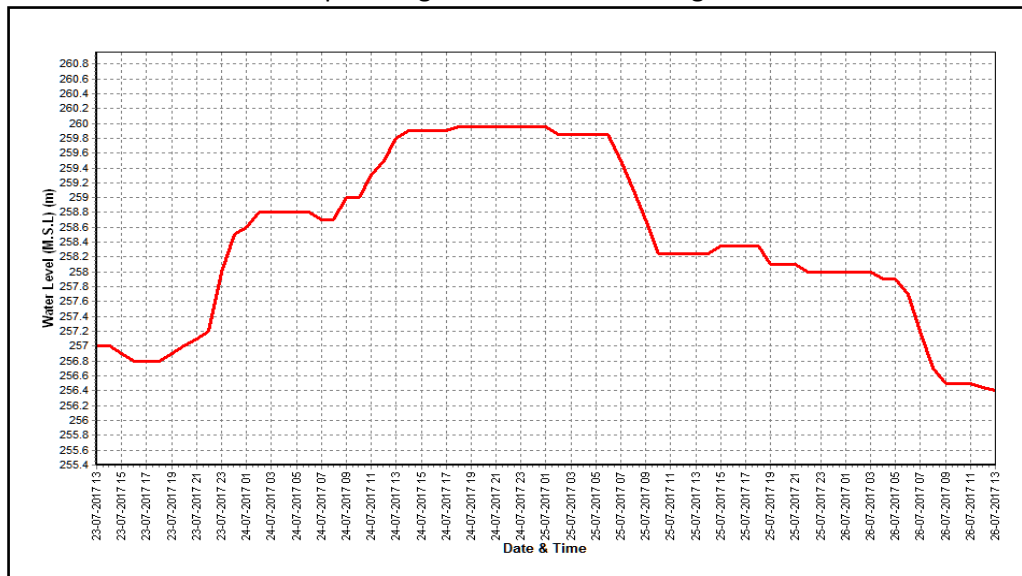
Monthly Runoff for the Year : 2017-2018



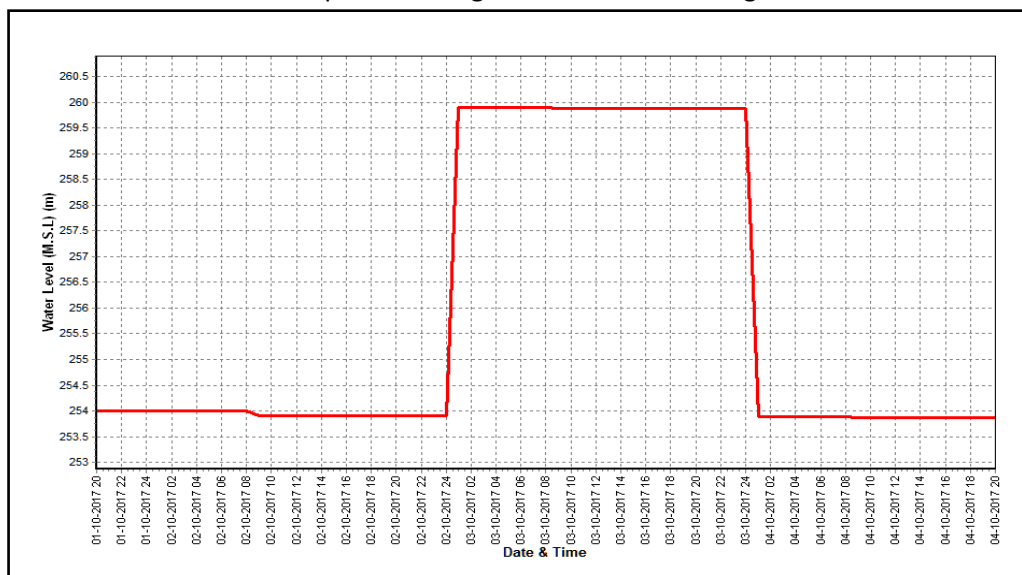
Station Name : Banas at Abu Road (01 02 02 002)
Local River : Banas

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

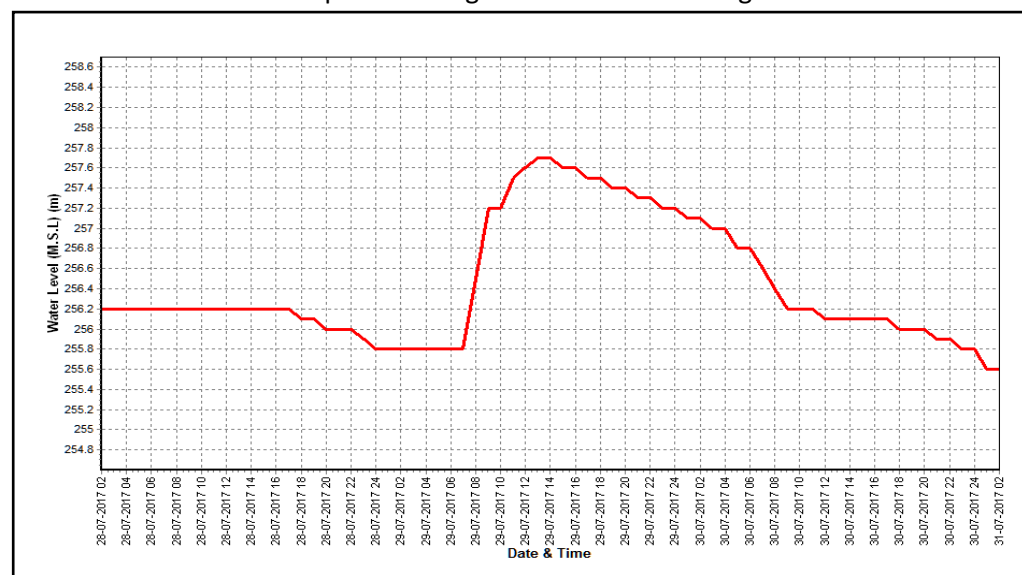
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Shetrunji at Lowara State : Gujarat Basin : WFR of Kach.-Saur. & Luni Tributary : Shetrunji Sub-Sub Tributary : Division : Mahi Division, Gandhinagar Drainage Area : 3953 Sq. Km. Latitude : 21°26'36" N Zero of Gauge (m) : 56 (m.s.l) Opening Date	Code : 01 02 09 001 District : Bhavnagar Independent : Shetrunji River Sub Tributary : Local River : Shetrunji Sub-Division : Sabarmati Sub Divn., Ahmedabad Bank : Left Longitude : 71°33'42" E 01/02/1991 - - Closing Date
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Gauge : 29/11/1970
 Discharge : 29/11/1970
 Sediment : 25/07/1973
 Water
 Quality : 01/07/1977

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1971-1972	660.0	61.740	01/09/1971	0.000	57.240	15/06/1971
1972-1973	0.0	57.325	24/06/1972	0.000	River Dry	20/01/1973
1973-1974	620.0	62.980	27/09/1973	0.000	River Dry	10/05/1974
1974-1975	587.4	62.150	06/07/1974	0.000	River Dry	25/01/1975
1975-1976	169.7	60.350	02/08/1975	0.000	River Dry	29/01/1976
1976-1977	151.9	60.410	18/07/1976	0.000	River Dry	21/06/1976
1977-1978	352.1	61.400	03/09/1977	0.000	River Dry	09/04/1978
1978-1979	76.4	58.553	30/08/1978	0.000	River Dry	12/06/1978
1979-1980	710.0	65.225	11/08/1979	0.000	57.040	10/02/1980
1980-1981	610.0	64.150	03/07/1980	0.000	River Dry	23/01/1981
1981-1982	472.0	62.800	24/07/1981	0.000	River Dry	22/05/1982
1982-1983	880.0	66.930	09/11/1982	0.000	River Dry	07/04/1983
1983-1984	932.0	66.630	20/07/1983	0.000	River Dry	19/06/1983
1984-1985	76.5	58.455	15/09/1984	0.000	River Dry	21/03/1985
1985-1986	82.4	58.635	19/07/1985	0.000	River Dry	12/01/1986

1986-1987	615.0	62.110	25/06/1986	0.000	River Dry	30/12/1986
1987-1988	167.9	59.450	21/08/1987	0.000	River Dry	31/12/1987
1988-1989	870.0	64.020	28/07/1988	0.000	River Dry	05/12/1988
1989-1990	900.0	62.930	24/07/1989	0.000	River Dry	11/03/1990
1990-1991	407.1	61.630	17/08/1990	0.000	River Dry	25/04/1991
1991-1992	446.2	59.660	28/07/1991	0.000	River Dry	16/12/1991
1992-1993	268.4	59.550	04/09/1992	0.000	River Dry	04/02/1993
1993-1994	476.2	61.360	25/09/1993	0.000	River Dry	01/12/1993
1994-1995	722.7	62.298	31/08/1994	0.000	56.690	12/02/1995
1995-1996	185.9	59.110	02/09/1995	0.000	River Dry	08/04/1996
1996-1997	442.0	62.600	20/06/1996	0.000	River Dry	05/03/1997
1997-1998	77.0	58.440	04/07/1997	0.000	River Dry	24/11/1997
1998-1999	546.0	63.000	28/08/1998	0.000	River Dry	25/01/1999
1999-2000	84.0	58.100	03/10/1999	0.000	River Dry	13/01/2000
2000-2001	5.5	57.025	24/08/2000	0.000	River Dry	25/01/2001
2001-2002	602.0	60.425	17/06/2001	0.000	River Dry	25/01/2002
2002-2003	2075.0	64.080	29/06/2002	0.000	River Dry	25/01/2003
2003-2004	554.9	60.240	07/08/2003	0.000	River Dry	02/02/2004
2004-2005	1010.0	61.440	06/08/2004	0.000	River Dry	11/02/2005
2005-2006	2441.0	64.350	29/06/2005	0.000	River Dry	01/06/2005
2006-2007	880.9	60.800	30/07/2006	0.000	River Dry	01/06/2006
2007-2008	809.4	60.900	26/09/2007	0.000	River Dry	01/06/2007
2008-2009	1027.0	61.120	29/07/2008	0.000	River Dry	01/06/2008
2009-2010	417.0	60.150	18/07/2009	0.000	River Dry	01/06/2009
2010-2011	713.5	60.300	01/09/2010	0.000	River Dry	01/06/2010
2011-2012	854.8	61.380	18/07/2011	0.000	River Dry	08/07/2011
2012-2013	220.0	58.690	03/09/2012	0.000	River Dry	25/06/2012
2013-2014	1759	63.1	03/08/2013	0.000	River Dry	01/06/2013
2014-2015	340.9	59.18	02/09/2014	0.000	River Dry	01/06/2014
2015-2016	407.4	59.475	24/06/2015	0.000	River Dry	01/06/2015
2016-2017	850.9	61.25	19/09/2016	0.000	56.410	23/06/2016
2017-2018	14.17	56.925	19/09/2017	0.000	56.060	01/06/2017

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Shetrunji

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	56.060	0.000	56.230	0.000	56.540	1.534	56.780	6.650	56.460	0.780 *	56.330	0.160 *
2	56.060	0.000	56.230	0.000	56.500	1.191	56.630	2.954	56.450	0.710 *	56.330	0.160 *
3	56.050	0.000	56.230	0.000	56.480	1.114	56.600	2.350 *	56.450	0.572	56.330	0.160 *
4	56.050	0.000	56.220	0.000	56.460	1.070	56.600	2.195	56.430	0.560	56.330	0.160 *
5	56.050	0.000	56.220	0.000	56.450	1.013	56.530	1.432	56.430	0.537	56.330	0.160 *
6	56.050	0.000	56.220	0.000	56.450	0.710 *	56.500	1.184	56.420	0.530	56.330	0.160 *
7	56.030	0.000	56.210	0.000	56.440	0.764	56.490	1.026	56.410	0.500	56.330	0.160 *
8	56.020	0.000	56.210	0.000	56.440	0.766	56.480	0.960	56.400	0.420 *	56.325	0.150 *
9	56.020	0.000	56.210	0.000	56.430	0.522	56.475	0.860	56.400	0.465	56.320	0.130 *
10	56.540	1.465	56.210	0.000	56.430	0.511	56.470	0.860 *	56.390	0.257	56.320	0.130 *
11	56.460	0.780 *	56.450	0.805	56.430	0.494	56.470	0.785	56.380	0.247	56.320	0.130 *
12	56.410	0.368	56.380	0.325	56.445	0.717	57.180	27.01 *	56.370	0.221	56.320	0.130 *
13	56.515	1.233	56.340	0.292	56.450	0.170 *	56.725	4.681	56.410	0.571	56.315	0.120 *
14	56.420	0.361	56.320	0.130 *	56.450	0.682	56.740	5.376	56.435	0.745	56.315	0.120 *
15	56.360	0.250 *	56.290	0.080 *	56.440	0.640 *	56.620	3.171	56.430	0.580 *	56.315	0.120 *
16	56.340	0.190 *	56.280	0.060 *	56.440	0.651	56.540	1.511	56.425	0.708	56.310	0.110 *
17	56.320	0.130 *	56.280	0.060 *	56.430	0.546	56.795	6.996	56.410	0.673	56.310	0.110 *
18	56.310	0.110 *	56.905	9.145	56.430	0.526	56.645	3.052	56.410	0.488	56.310	0.110 *
19	56.290	0.000	56.550	1.423	56.420	0.478	56.925	14.17	56.400	0.420 *	56.310	0.110 *
20	56.270	0.000	56.450	0.798	56.415	0.490 *	56.640	2.952	56.400	0.433	56.310	0.110 *
21	56.260	0.000	56.400	0.749	56.430	0.501	56.540	1.508	56.390	0.253	56.310	0.110 *
22	56.250	0.030	64.750	14052 *	56.515	1.316	56.530	1.331	56.380	0.330 *	56.310	0.110 *
23	56.250	0.000	58.990	536.7 *	57.350	42.38 *	56.500	1.264	56.370	0.209	56.310	0.110 *
24	56.240	0.000	56.940	10.27	56.685	3.973	56.490	1.030 *	56.370	0.202	56.310	0.110 *
25	56.230	0.000	56.845	8.933	56.535	1.497	56.480	1.008	56.370	0.290 *	56.300	0.000
26	56.230	0.000	56.660	2.859	56.500	1.160	56.480	0.973	56.360	0.250 *	56.300	0.000
27	56.300	0.000	56.590	2.061	56.520	1.320 *	56.470	0.939	56.350	0.220 *	56.300	0.000
28	56.260	0.000	56.775	6.962	56.765	5.636	56.470	0.910	56.350	0.220 *	56.300	0.000
29	56.250	0.000	56.665	3.806	56.850	7.788	56.470	0.867	56.340	0.190 *	56.300	0.000
30	56.240	0.000	56.670	3.600 *	57.230	31.06 *	56.460	0.780 *	56.340	0.190 *	56.300	0.000
31			56.585	1.980	57.100	21.29 *			56.340	0.190 *		
Ten-Daily Mean												
I Ten-Daily	56.093	0.146	56.219	0.000	56.462	0.919	56.556	2.047	56.424	0.533	56.328	0.153
II Ten-Daily	56.369	0.342	56.424	1.312	56.435	0.539	56.728	6.971	56.407	0.509	56.313	0.117
III Ten-Daily	56.251	0.003	57.625	1330	56.771	10.72	56.489	1.061	56.360	0.231	56.304	0.044
Monthly												
Min.	56.020	0.000	56.210	0.000	56.415	0.170	56.460	0.780	56.340	0.190	56.300	0.000
Max.	56.540	1.465	64.750	14052	57.350	42.38	57.180	27.01	56.460	0.780	56.330	0.160
Mean	56.238	0.164	56.784	472.4	56.563	4.274	56.591	3.36	56.396	0.418	56.315	0.105

Annual Runoff in MCM = 1287 Annual Runoff in mm = 326

Peak Observed Discharge = 14.17 cumecs on 19-09-2017 Corres. Water Level :56.925 m

Lowest Observed Discharge = 0.000 cumecs on 01-06-2017 Corres. Water Level :56.06 m

Negligible flow existed in the river from 1/6/17 to 9/6/17, 25/11/17 to 31/03/18.

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

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Shetrunji

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	56.300	0.000	56.270	0.000	56.200	0.000	56.140	0.000	56.040	0.000	R. Dry	0.000
2	56.300	0.000	56.270	0.000	56.200	0.000	56.140	0.000	56.040	0.000	R. Dry	0.000
3	56.300	0.000	56.260	0.000	56.200	0.000	56.130	0.000	56.030	0.000	R. Dry	0.000
4	56.300	0.000	56.260	0.000	56.200	0.000	56.130	0.000	56.030	0.000	R. Dry	0.000
5	56.300	0.000	56.260	0.000	56.190	0.000	56.130	0.000	56.030	0.000	R. Dry	0.000
6	56.310	0.110 *	56.260	0.000	56.190	0.000	56.130	0.000	56.030	0.000	R. Dry	0.000
7	56.310	0.110 *	56.260	0.000	56.190	0.000	56.120	0.000	56.020	0.000	R. Dry	0.000
8	56.310	0.110 *	56.260	0.000	56.190	0.000	56.120	0.000	56.020	0.000	R. Dry	0.000
9	56.310	0.110 *	56.250	0.000	56.180	0.000	56.120	0.000	56.020	0.000	R. Dry	0.000
10	56.310	0.110 *	56.250	0.000	56.180	0.000	56.120	0.000	56.020	0.000	R. Dry	0.000
11	56.310	0.110 *	56.250	0.000	56.180	0.000	56.120	0.000	56.020	0.000	R. Dry	0.000
12	56.310	0.110 *	56.250	0.000	56.180	0.000	56.110	0.000	56.020	0.000	R. Dry	0.000
13	56.305	0.100 *	56.250	0.000	56.170	0.000	56.110	0.000	56.010	0.000	R. Dry	0.000
14	56.300	0.000	56.250	0.000	56.170	0.000	56.110	0.000	56.010	0.000	R. Dry	0.000
15	56.300	0.000	56.250	0.000	56.170	0.000	56.110	0.000	56.010	0.000	R. Dry	0.000
16	56.300	0.000	56.240	0.000	56.170	0.000	56.110	0.000	R. Dry	0.000	R. Dry	0.000
17	56.300	0.000	56.240	0.000	56.160	0.000	56.110	0.000	R. Dry	0.000	R. Dry	0.000
18	56.290	0.000	56.240	0.000	56.160	0.000	56.100	0.000	R. Dry	0.000	R. Dry	0.000
19	56.290	0.000	56.240	0.000	56.160	0.000	56.100	0.000	R. Dry	0.000	R. Dry	0.000
20	56.280	0.000	56.240	0.000	56.160	0.000	56.100	0.000	R. Dry	0.000	R. Dry	0.000
21	56.280	0.000	56.240	0.000	56.160	0.000	56.100	0.000	R. Dry	0.000	R. Dry	0.000
22	56.280	0.000	56.240	0.000	56.150	0.000	56.090	0.000	R. Dry	0.000	R. Dry	0.000
23	56.280	0.000	56.230	0.000	56.150	0.000	56.090	0.000	R. Dry	0.000	R. Dry	0.000
24	56.280	0.000	56.220	0.000	56.150	0.000	56.080	0.000	R. Dry	0.000	R. Dry	0.000
25	56.280	0.000	56.210	0.000	56.150	0.000	56.080	0.000	R. Dry	0.000	R. Dry	0.000
26	56.280	0.000	56.210	0.000	56.150	0.000	56.070	0.000	R. Dry	0.000	R. Dry	0.000
27	56.270	0.000	56.200	0.000	56.140	0.000	56.070	0.000	R. Dry	0.000	R. Dry	0.000
28	56.270	0.000	56.200	0.000	56.140	0.000	56.060	0.000	R. Dry	0.000	R. Dry	0.000
29	56.270	0.000	56.200	0.000			56.060	0.000	R. Dry	0.000	R. Dry	0.000
30	56.270	0.000	56.200	0.000			56.050	0.000	R. Dry	0.000	R. Dry	0.000
31	56.270	0.000	56.200	0.000			56.050	0.000	R. Dry	0.000	R. Dry	0.000
Ten-Daily Mean												
I Ten-Daily	56.305	0.055	56.260	0.000	56.192	0.000	56.128	0.000	56.028	0.000	R. Dry	0.000
II Ten-Daily	56.299	0.032	56.245	0.000	56.168	0.000	56.108	0.000	56.014	0.000	R. Dry	0.000
III Ten-Daily	56.275	0.000	56.214	0.000	56.149	0.000	56.073	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	56.270	0.000	56.200	0.000	56.140	0.000	56.050	0.000	56.010	0.000	R. Dry	0.000
Max.	56.310	0.110	56.270	0.000	56.200	0.000	56.140	0.000	56.040	0.000	R. Dry	0.000
Mean	56.292	0.028	56.239	0.000	56.171	0.000	56.102	0.000	56.023	0.000	R. Dry	0.000

Peak Computed Discharge = 14052 cumecs on 22-07-2017

Corres. Water Level :64.75 m

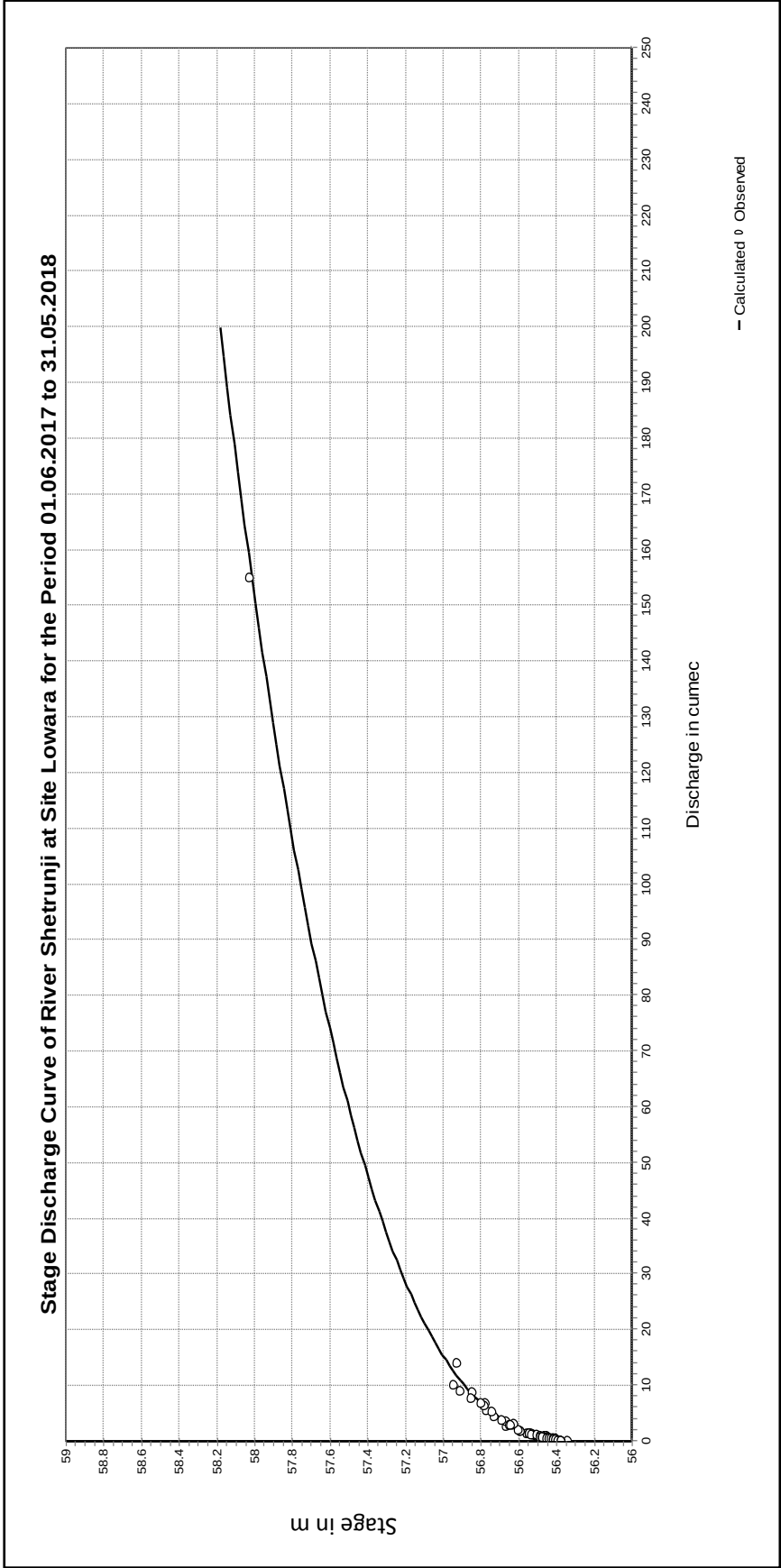
Lowest Computed Discharge = 0.000 cumecs on 19-06-2017

Corres. Water Level :56.29 m

River was in Pooling condition from 1/4/18 to 15/4/18

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

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		$Q=c*(h+a)^b$		
LB	UB	a	b	c
56.330	58.200	-56.15	2.947	24.761

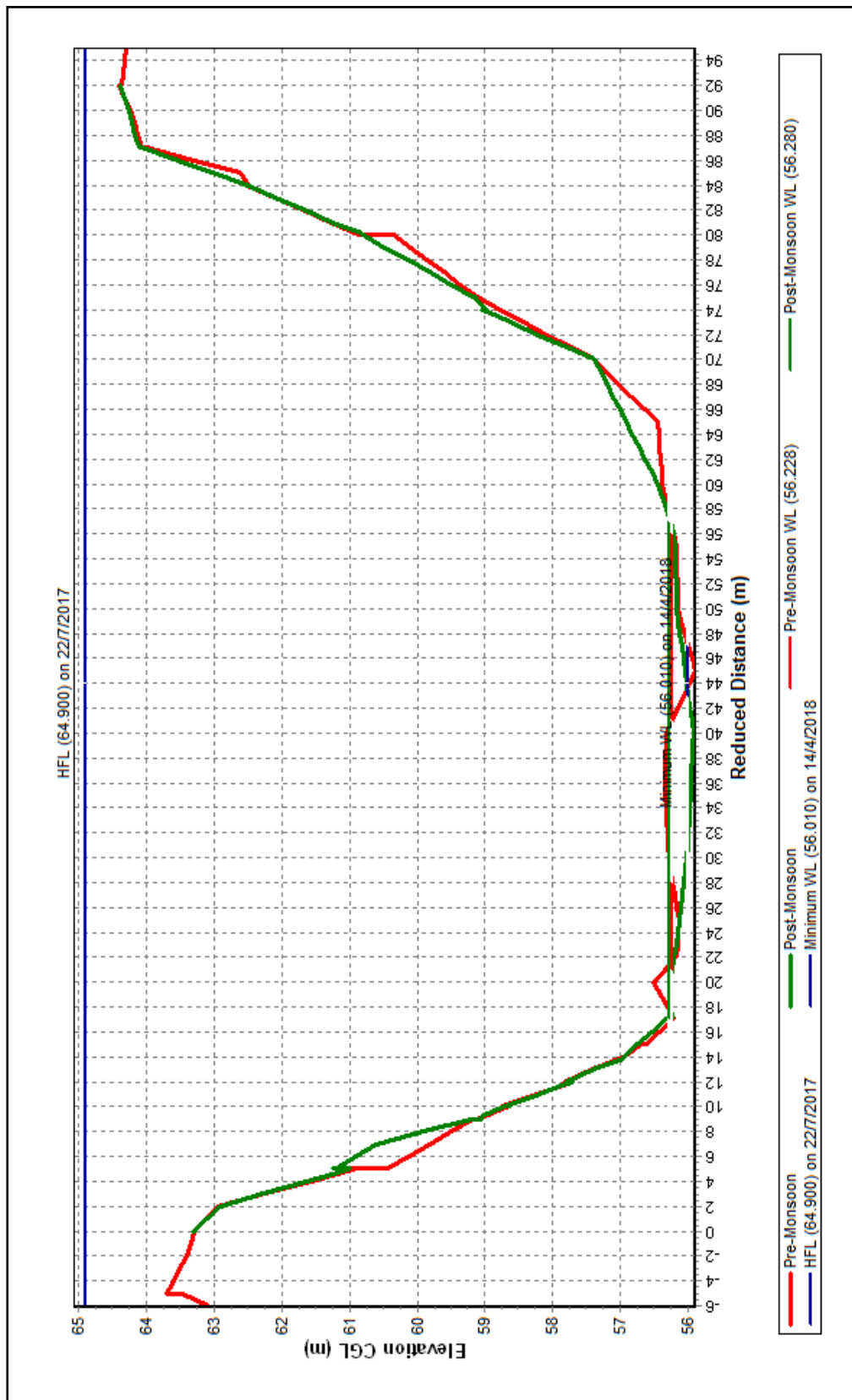
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

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

Local River : Shetrunji

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



Historic Flood Level-66.93 m on 09.11.1982 at 0800hrs

Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

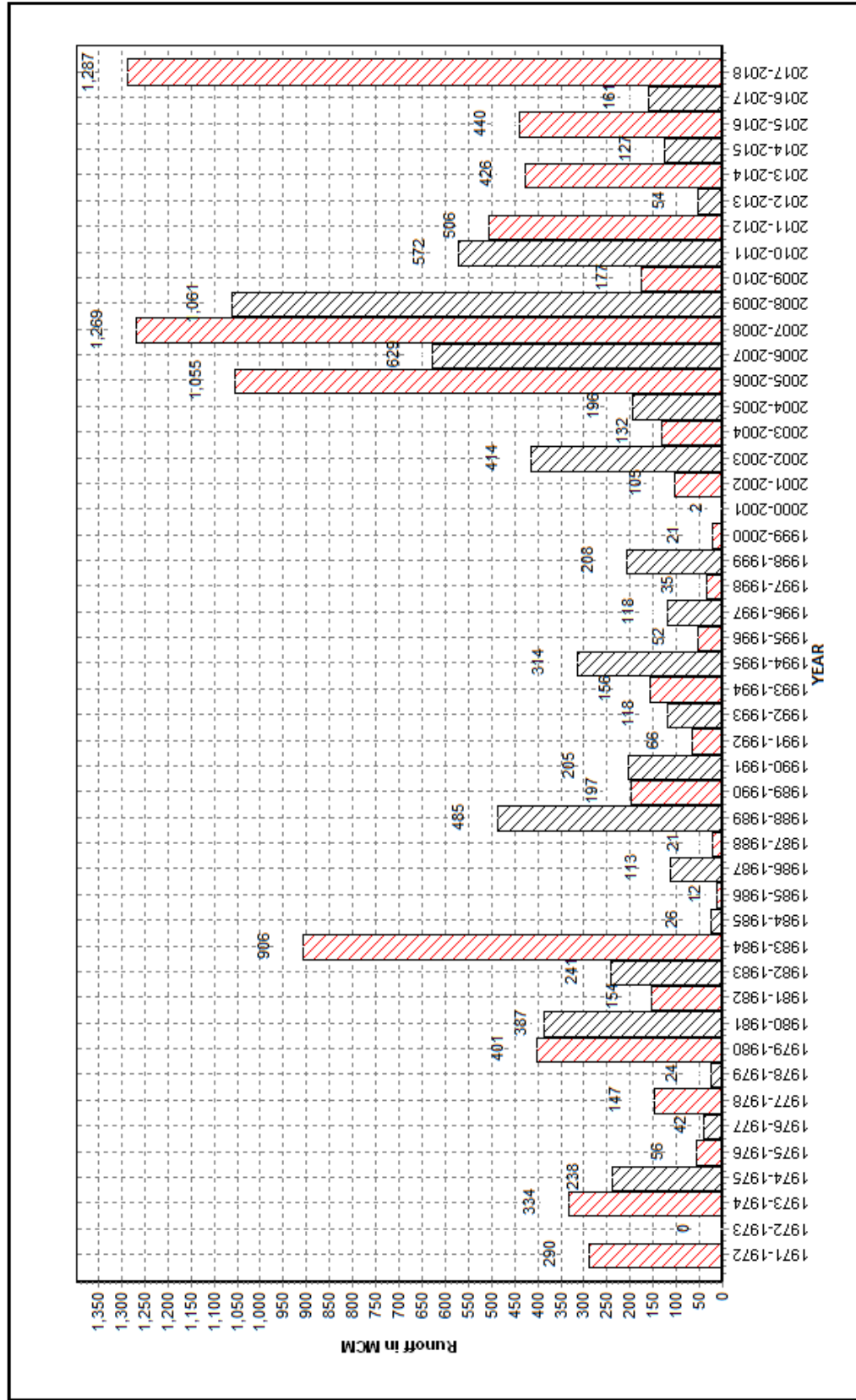
Annual Runoff Values for the period: 1971 - 2018

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

Local River : Shetrunji

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

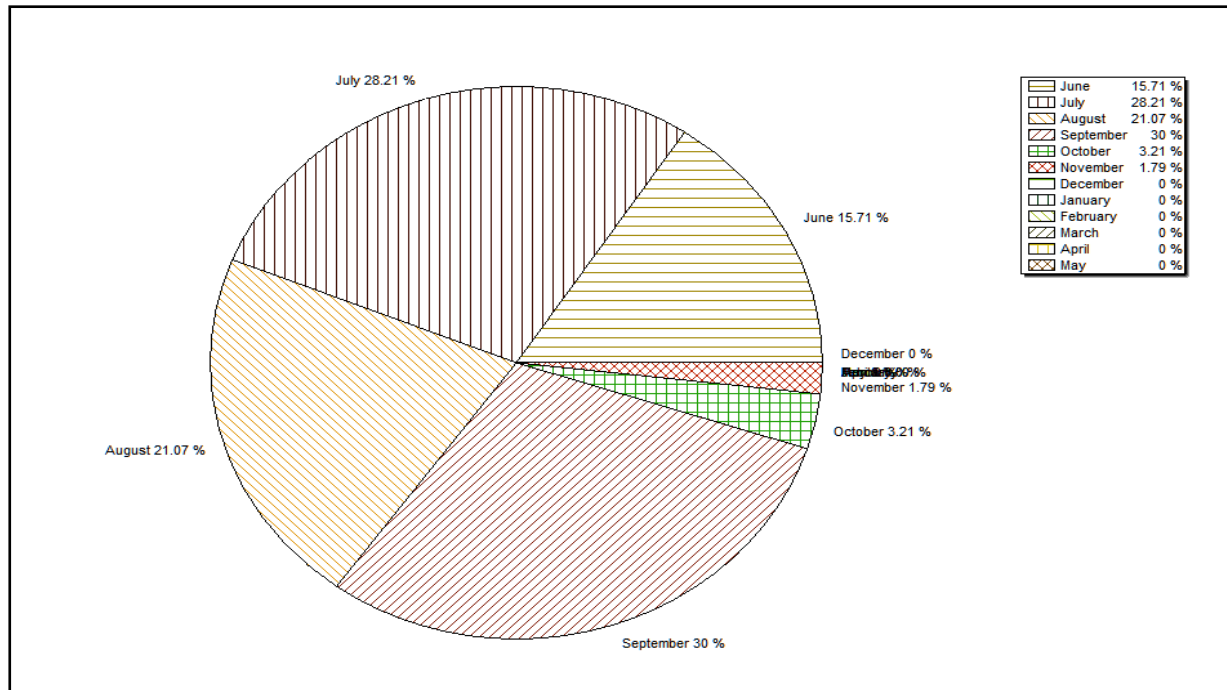


Note: Missing values have not been considered while arriving at Annual Runoff

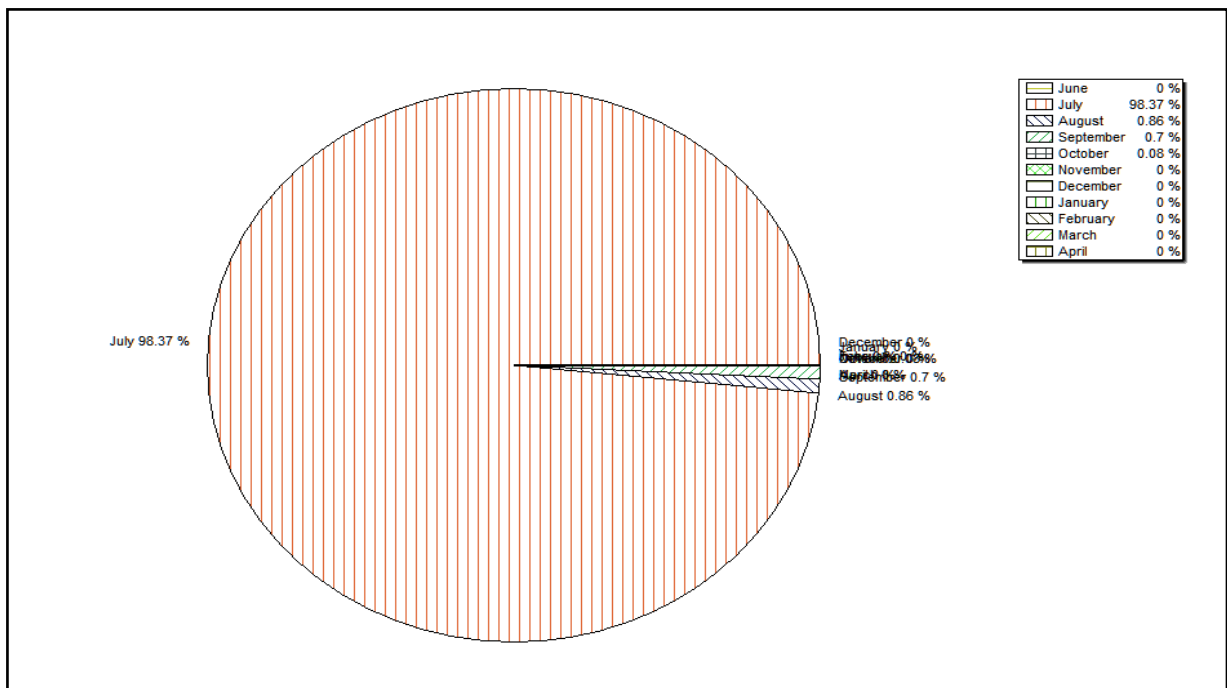
Station Name : Shetrunji at Lowara (01 02 09 001)
Local River : Shetrunji

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

Monthly Average Runoff based on period : 1971-2017



Monthly Runoff for the Year : 2017-2018



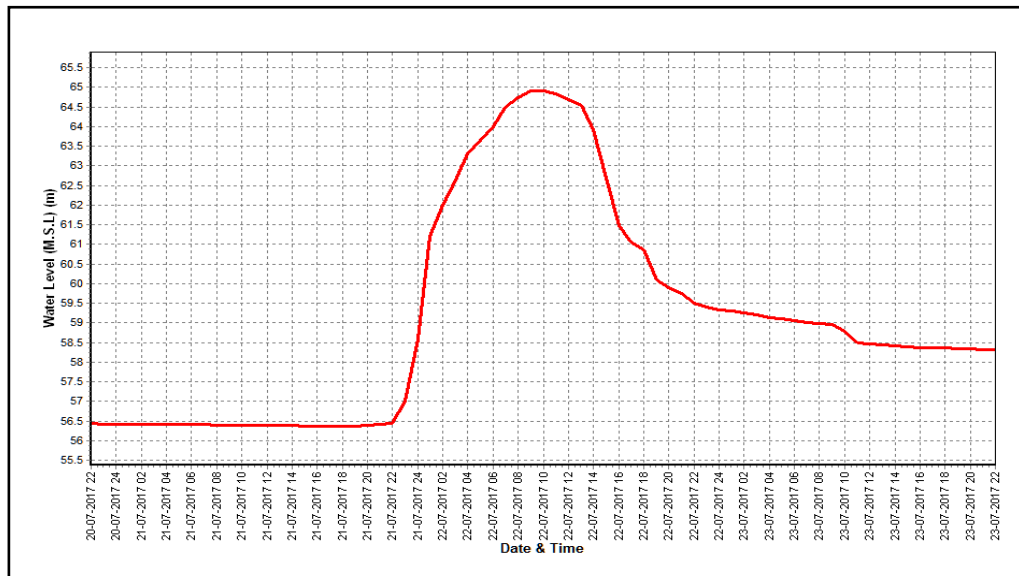
Station Name : Shetrunji at Lowara (01 02 09 001)

Division : Mahi Division, Gandhinagar

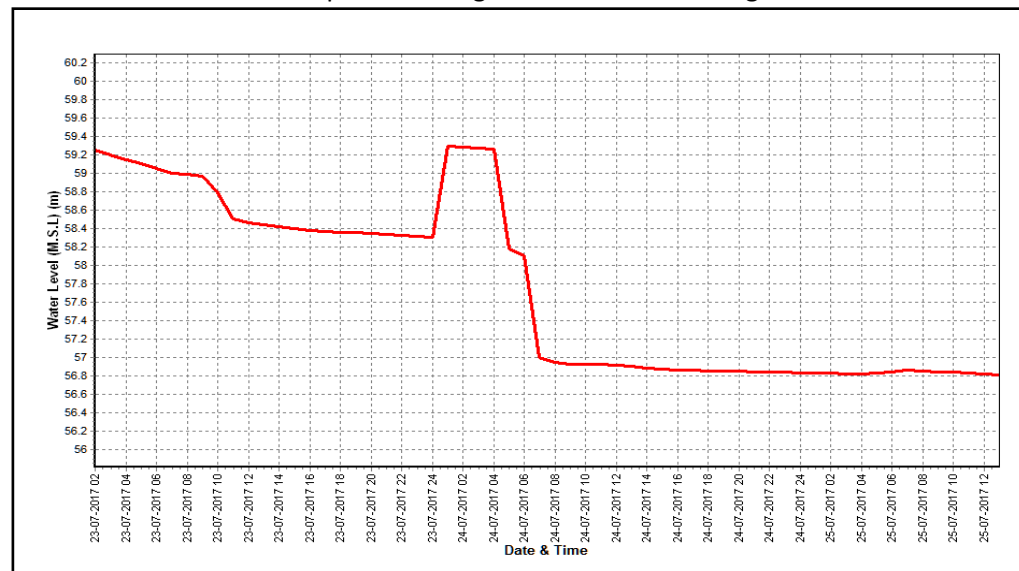
Local River : Shetrunji

Sub-Division : Sabarmati Sub Divn., Ahmedabad

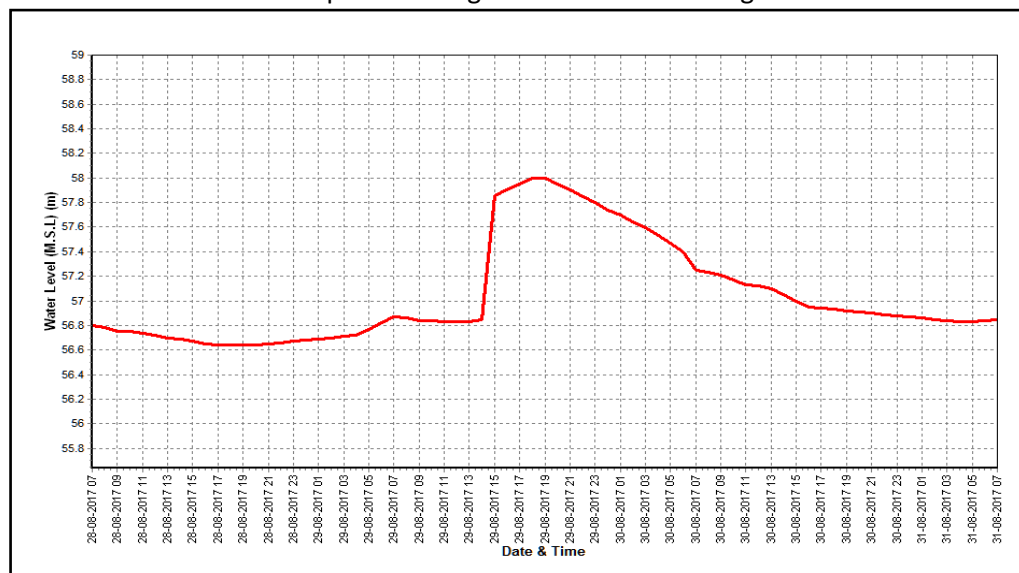
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

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 Sub Divn., 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 : 01/07/1973

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1971-1972	841.8	30.430	31/08/1971	0.000	26.820	24/05/1972
1972-1973	1230.0	31.600	30/06/1972	0.000	River Dry	21/11/1972
1973-1974	362.0	29.030	10/07/1973	0.000	River Dry	25/01/1974
1974-1975	229.3	28.300	30/09/1974	0.000	River Dry	25/01/1975
1975-1976	244.5	28.625	12/07/1975	0.000	River Dry	04/02/1976
1976-1977	1048.0	31.080	16/07/1976	0.000	River Dry	05/06/1976
1977-1978	526.0	30.400	04/09/1977	0.000	River Dry	06/06/1977
1978-1979	210.5	28.965	30/08/1978	0.000	River Dry	27/04/1979
1979-1980	4098.0	33.330	11/08/1979	0.000	River Dry	25/07/1979
1980-1981	2977.0	33.320	04/07/1980	0.000	26.405	19/04/1981
1981-1982	926.2	29.860	11/07/1981	0.000	River Dry	18/06/1981
1982-1983	380.0	29.400	09/11/1982	0.000	River Dry	28/06/1982
1983-1984	2750.0	34.100	22/06/1983	0.000	River Dry	14/05/1984
1984-1985	2315.0	32.110	14/09/1984	0.000	River Dry	28/04/1985
1985-1986	47.7	27.060	19/07/1985	0.000	River Dry	25/01/1986
1986-1987	192.3	27.630	08/08/1986	0.000	River Dry	25/01/1987

1987-1988	29.9	26.845	20/11/1987	0.000	River Dry	09/05/1988
1988-1989	4160.0	33.120	27/07/1988	0.000	River Dry	11/03/1989
1989-1990	751.5	29.125	25/07/1989	0.000	River Dry	05/02/1990
1990-1991	1016.0	30.190	18/08/1990	0.000	River Dry	25/01/1991
1991-1992	382.0	28.345	28/07/1991	0.000	River Dry	26/01/1992
1992-1993	699.3	31.500	30/07/1992	0.000	River Dry	04/12/1992
1993-1994	174.5	27.680	10/07/1993	0.000	River Dry	21/11/1993
1994-1995	2594.0	33.030	14/07/1994	0.000	River Dry	07/02/1995
1995-1996	70.5	27.190	31/07/1995	0.000	River Dry	26/01/1996
1996-1997	3526.0	33.000	20/06/1996	0.000	River Dry	25/01/1997
1997-1998	248.0	28.460	13/09/1997	0.000	River Dry	25/01/1998
1998-1999	75.4	27.410	29/06/1998	0.000	River Dry	14/01/1999
1999-2000	48.2	27.275	14/07/1999	0.000	River Dry	26/01/2000
2000-2001	36.8	26.960	26/08/2000	0.000	River Dry	25/01/2001
2001-2002	654.2	28.995	05/07/2001	0.000	River Dry	29/01/2002
2002-2003	734.0	30.095	29/06/2002	0.000	River Dry	16/06/2002
2003-2004	263.2	27.900	07/08/2003	0.000	River Dry	02/02/2004
2004-2005	75.4	27.007	11/08/2004	0.000	River Dry	30/03/2005
2005-2006	455.7	28.580	12/09/2005	0.000	River Dry	01/06/2005
2006-2007	2728.0	31.810	30/07/2006	0.000	River Dry	01/06/2006
2007-2008	3474.0	33.295	08/08/2007	0.000	River Dry	01/06/2007
2008-2009	1902.0	32.160	16/09/2008	0.000	River Dry	01/06/2008
2009-2010	1102.0	29.600	24/07/2009	0.000	River Dry	01/06/2009
2010-2011	1932.0	30.850	01/09/2010	0.000	River Dry	01/06/2010
2011-2012	97.6	26.010	13/09/2011	0.000	River Dry	22/06/2011
2012-2013	River Dry					
2013-2014	1477.0	30.050	27/09/2013	0.000	River Dry	01/06/2013
2014-2015	River Dry					
2015-2016	2030.0	29.950	25/06/2015	0.000	River Dry	01/06/2015
2016-2017	2164.0	29.800	05/08/2016	0.000	27.330	07/08/2016
2017-2018	341.6	27.855	23/07/2017	254.5	27.765	30/08/2017

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Bhadar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	24.500	0.000	23.860	0.000	27.130	0.000	27.340	0.000	27.100	0.000	26.560	0.000
2	24.460	0.000	23.890	0.000	27.120	0.000	27.310	0.000	27.070	0.000	26.530	0.000
3	24.440	0.000	23.900	0.000	27.120	0.000	27.300	0.000	27.050	0.000	26.500	0.000
4	24.400	0.000	23.890	0.000	27.120	0.000	27.310	0.000	27.020	0.000	26.470	0.000
5	24.390	0.000	23.880	0.000	27.110	0.000	27.200	0.000	26.990	0.000	26.440	0.000
6	24.340	0.000	23.860	0.000	27.110	0.000	27.250	0.000	26.960	0.000	26.420	0.000
7	24.290	0.000	23.850	0.000	27.110	0.000	27.190	0.000	26.930	0.000	26.400	0.000
8	24.240	0.000	23.830	0.000	27.100	0.000	27.170	0.000	26.930	0.000	26.370	0.000
9	24.190	0.000	23.830	0.000	27.090	0.000	27.260	0.000	26.910	0.000	26.340	0.000
10	24.160	0.000	23.820	0.000	27.090	0.000	27.190	0.000	26.890	0.000	26.320	0.000
11	24.160	0.000	23.800	0.000	27.120	0.000	27.290	0.000	26.870	0.000	26.290	0.000
12	24.150	0.000	23.800	0.000	27.160	0.000	27.170	0.000	26.850	0.000	26.270	0.000
13	24.120	0.000	23.780	0.000	27.200	0.000	27.160	0.000	26.830	0.000	26.240	0.000
14	24.090	0.000	23.770	0.000	27.130	0.000	27.180	0.000	26.820	0.000	26.210	0.000
15	24.070	0.000	23.760	0.000	27.110	0.000	27.160	0.000	26.790	0.000	26.180	0.000
16	24.020	0.000	23.820	0.000	27.100	0.000	27.380	0.000	26.770	0.000	26.150	0.000
17	23.980	0.000	27.600	260.3	27.090	0.000	27.480	0.000	26.770	0.000	26.110	0.000
18	23.940	0.000	23.810	0.000	27.050	0.000	27.280	0.000	26.770	0.000	26.080	0.000
19	23.900	0.000	23.820	0.000	27.030	0.000	27.220	0.000	26.760	0.000	26.060	0.000
20	23.860	0.000	23.840	0.000	26.945	0.000	27.190	0.000	26.740	0.000	27.150	0.000
21	23.830	0.000	23.870	0.000	26.935	0.000	27.280	0.000	26.730	0.000	27.100	0.000
22	23.810	0.000	27.320	0.000	27.010	0.000	27.200	0.000	26.720	0.000	27.080	0.000
23	23.770	0.000	27.855	341.6	27.120	0.000	27.210	0.000	26.700	0.000	27.350	131.4 *
24	23.750	0.000	27.150	0.000	27.120	0.000	27.180	0.000	26.680	0.000	27.240	0.000
25	23.720	0.000	27.120	0.000	27.100	0.000	27.170	0.000	26.660	0.000	27.210	0.000
26	23.690	0.000	27.190	0.000	27.090	0.000	27.170	0.000	26.640	0.000	27.300	0.000
27	23.680	0.000	27.170	0.000	27.080	0.000	27.180	0.000	26.630	0.000	27.120	0.000
28	23.710	0.000	27.160	0.000	27.080	0.000	27.160	0.000	26.620	0.000	27.100	0.000
29	23.710	0.000	27.220	0.000	27.130	0.000	27.140	0.000	26.600	0.000	27.080	0.000
30	23.760	0.000	27.150	0.000	27.765	254.5	27.120	0.000	27.700	288.0	27.060	0.000
31			27.130	0.000	27.350	131.4 *			26.580	0.000		
Ten-Daily Mean												
I Ten-Daily	24.341	0.000	23.861	0.000	27.110	0.000	27.252	0.000	26.985	0.000	26.435	0.000
II Ten-Daily	24.029	0.000	24.180	26.03	27.094	0.000	27.251	0.000	26.797	0.000	26.274	0.000
III Ten-Daily	23.743	0.000	26.940	31.05	27.162	35.08	27.181	0.000	26.751	26.18	27.164	13.14
Monthly												
Min.	23.680	0.000	23.760	0.000	26.935	0.000	27.120	0.000	26.580	0.000	26.060	0.000
Max.	24.500	0.000	27.855	341.6	27.765	254.5	27.480	0.000	27.700	288.0	27.350	131.4
Mean	24.038	0.000	25.056	19.41	27.123	12.45	27.228	0.000	26.841	9.289	26.624	4.379

Annual Runoff in MCM = 122 Annual Runoff in mm = 19

Peak Observed Discharge = 341.6 cumecs on 23-07-2017 Corres. Water Level :27.855 m

Lowest Observed Discharge = 254.5 cumecs on 30-08-2017 Corres. Water Level :27.765 m

River was in pooling condition on most of the days whenever Water Level was less than 27.29 m

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

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

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

Division : Mahi Division, Gandhinagar

Local River : Bhadar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	27.040	0.000	26.370	0.000	25.610	0.000	25.120	0.000	24.430	0.000	23.950	0.000
2	27.020	0.000	26.350	0.000	25.590	0.000	25.090	0.000	24.400	0.000	23.940	0.000
3	26.990	0.000	26.310	0.000	25.560	0.000	25.070	0.000	24.380	0.000	23.930	0.000
4	26.970	0.000	26.280	0.000	25.530	0.000	25.050	0.000	24.370	0.000	23.920	0.000
5	26.950	0.000	26.270	0.000	25.510	0.000	25.050	0.000	24.350	0.000	23.910	0.000
6	26.950	0.000	26.230	0.000	25.500	0.000	25.030	0.000	24.340	0.000	23.900	0.000
7	26.940	0.000	26.230	0.000	25.480	0.000	25.020	0.000	24.330	0.000	23.890	0.000
8	26.900	0.000	26.170	0.000	25.470	0.000	25.010	0.000	24.310	0.000	23.880	0.000
9	26.890	0.000	26.150	0.000	25.450	0.000	25.000	0.000	24.300	0.000	23.870	0.000
10	26.890	0.000	26.130	0.000	25.440	0.000	24.940	0.000	24.280	0.000	23.860	0.000
11	26.880	0.000	26.110	0.000	25.430	0.000	24.860	0.000	24.260	0.000	23.850	0.000
12	26.860	0.000	26.090	0.000	25.400	0.000	24.850	0.000	24.240	0.000	23.850	0.000
13	26.840	0.000	26.070	0.000	25.240	0.000	24.820	0.000	24.210	0.000	23.840	0.000
14	26.820	0.000	26.050	0.000	25.360	0.000	24.800	0.000	24.200	0.000	23.830	0.000
15	26.790	0.000	26.030	0.000	25.340	0.000	24.790	0.000	24.180	0.000	23.820	0.000
16	26.760	0.000	26.000	0.000	25.330	0.000	24.770	0.000	24.170	0.000	23.810	0.000
17	26.740	0.000	25.970	0.000	25.320	0.000	24.750	0.000	24.150	0.000	23.800	0.000
18	26.710	0.000	25.950	0.000	25.310	0.000	24.720	0.000	24.130	0.000	23.790	0.000
19	26.680	0.000	25.920	0.000	25.280	0.000	24.700	0.000	24.120	0.000	23.780	0.000
20	26.650	0.000	25.890	0.000	25.270	0.000	24.680	0.000	24.090	0.000	23.770	0.000
21	26.610	0.000	25.860	0.000	25.250	0.000	24.670	0.000	24.070	0.000	23.760	0.000
22	26.590	0.000	25.840	0.000	25.240	0.000	24.650	0.000	24.060	0.000	23.750	0.000
23	26.560	0.000	25.820	0.000	25.230	0.000	24.630	0.000	24.040	0.000	23.730	0.000
24	26.530	0.000	25.800	0.000	25.210	0.000	24.610	0.000	24.030	0.000	23.700	0.000
25	26.510	0.000	25.780	0.000	25.200	0.000	24.590	0.000	24.020	0.000	23.680	0.000
26	26.490	0.000	25.760	0.000	25.180	0.000	24.570	0.000	24.010	0.000	23.650	0.000
27	26.470	0.000	25.710	0.000	25.160	0.000	24.540	0.000	24.000	0.000	23.630	0.000
28	26.460	0.000	25.700	0.000	25.140	0.000	24.520	0.000	23.990	0.000	23.600	0.000
29	26.440	0.000	25.690	0.000			24.500	0.000	23.970	0.000	23.570	0.000
30	26.420	0.000	25.660	0.000			24.480	0.000	23.960	0.000	23.540	0.000
31	26.400	0.000	25.640	0.000			24.450	0.000			23.500	0.000
Ten-Daily Mean												
I Ten-Daily	26.954	0.000	26.249	0.000	25.514	0.000	25.038	0.000	24.349	0.000	23.905	0.000
II Ten-Daily	26.773	0.000	26.008	0.000	25.328	0.000	24.774	0.000	24.175	0.000	23.814	0.000
III Ten-Daily	26.498	0.000	25.751	0.000	25.201	0.000	24.565	0.000	24.015	0.000	23.646	0.000
Monthly												
Min.	26.400	0.000	25.640	0.000	25.140	0.000	24.450	0.000	23.960	0.000	23.500	0.000
Max.	27.040	0.000	26.370	0.000	25.610	0.000	25.120	0.000	24.430	0.000	23.950	0.000
Mean	26.734	0.000	25.995	0.000	25.358	0.000	24.785	0.000	24.180	0.000	23.784	0.000

Peak Computed Discharge = 131.4 cumecs on 31-08-2017

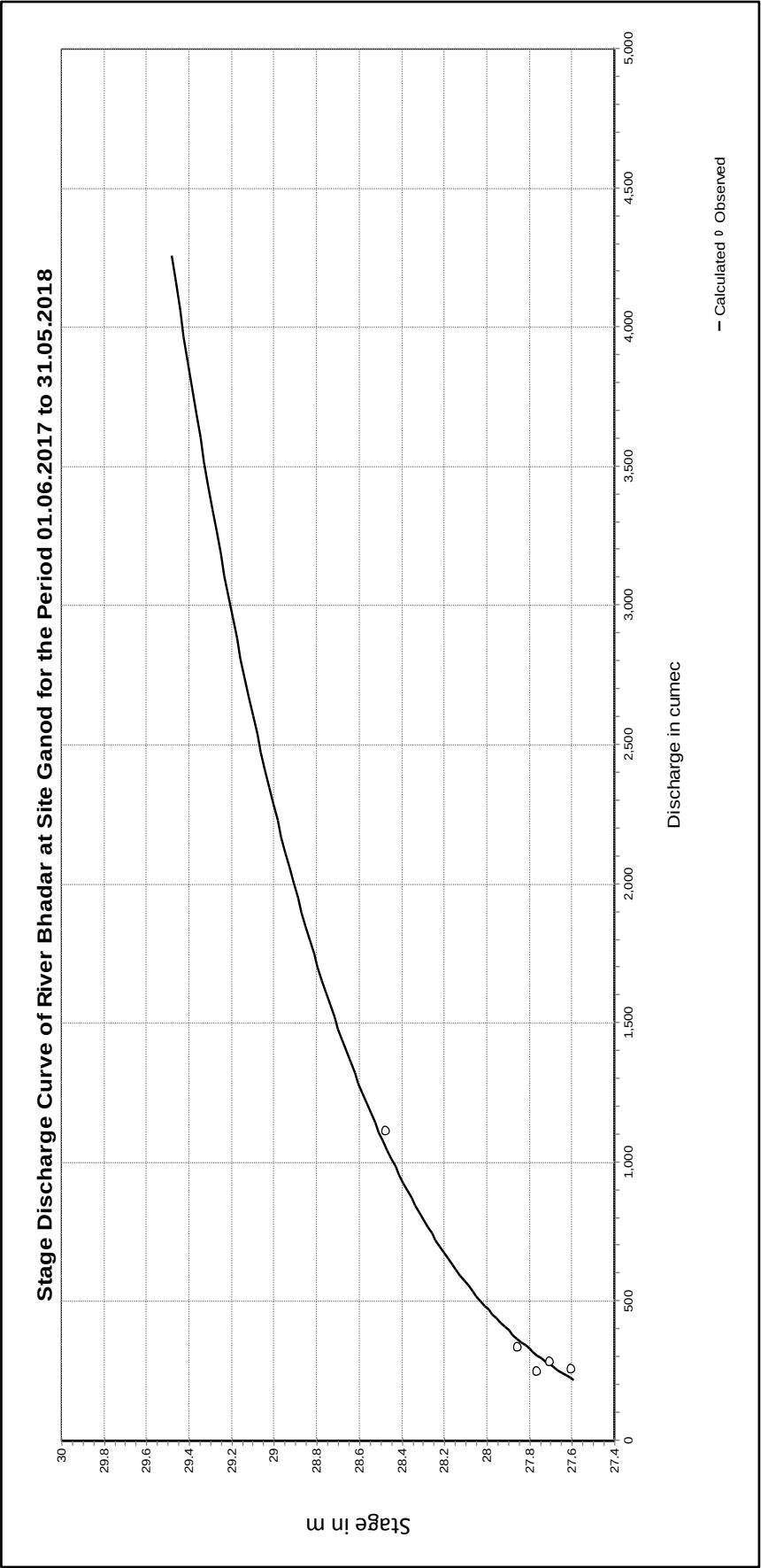
Corres. Water Level :27.35 m

Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

Corres. Water Level :24.5 m

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

Note:Missing values ignored while arriving at Annual Runoff



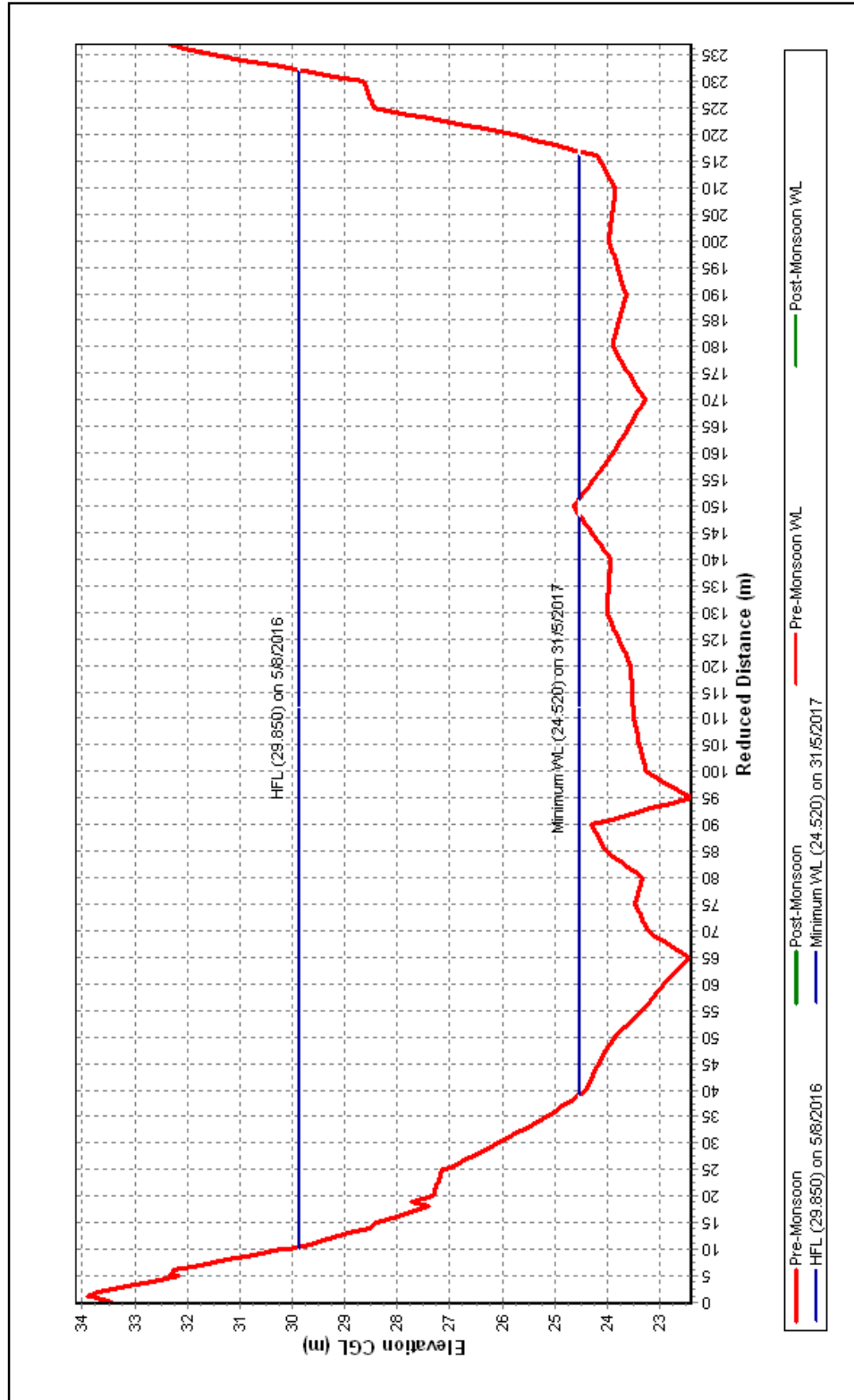
Procedure - Standard

Equation Type - Power		Q=c*(h+a) ^b		
LB	UB	a	b	c
27.590	29.500	-24.658	5.966	0.357

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

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

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



Historic Flood Level-34.100m on 22.06.1983 at 0800 hrs

Note: (1) HFL marked on graph denotes Maximum Water Level observed during the Water Year 2016-17

(2) There is no X-section data available for Hydrological Year 2017-18 as the river had huge volume of stagnated water at CGL throughout the year under the effect of nearby water storages, so X-section observed during 2016-17 is included.

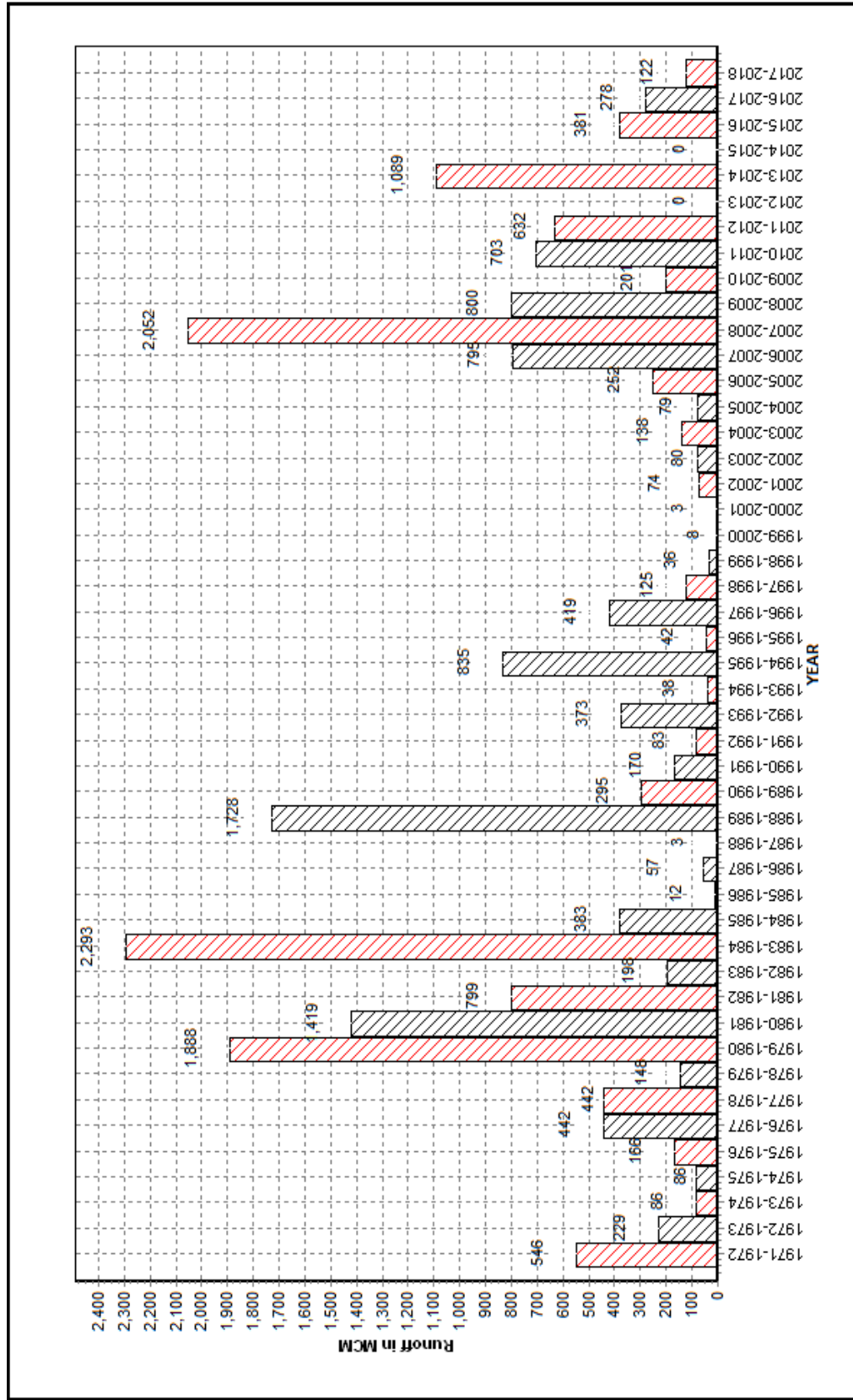
Annual Runoff Values for the period: 1971 - 2018

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

Local River : Bhadar

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

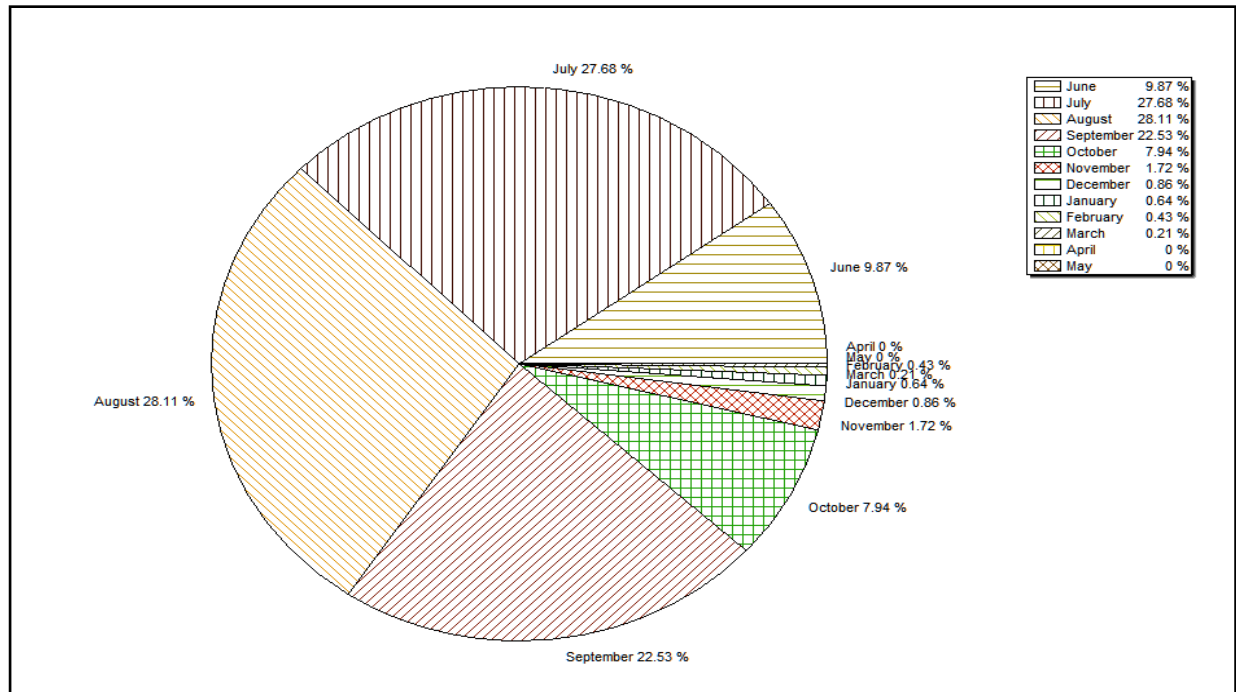


Note: Missing values have not been considered while arriving at Annual Runoff

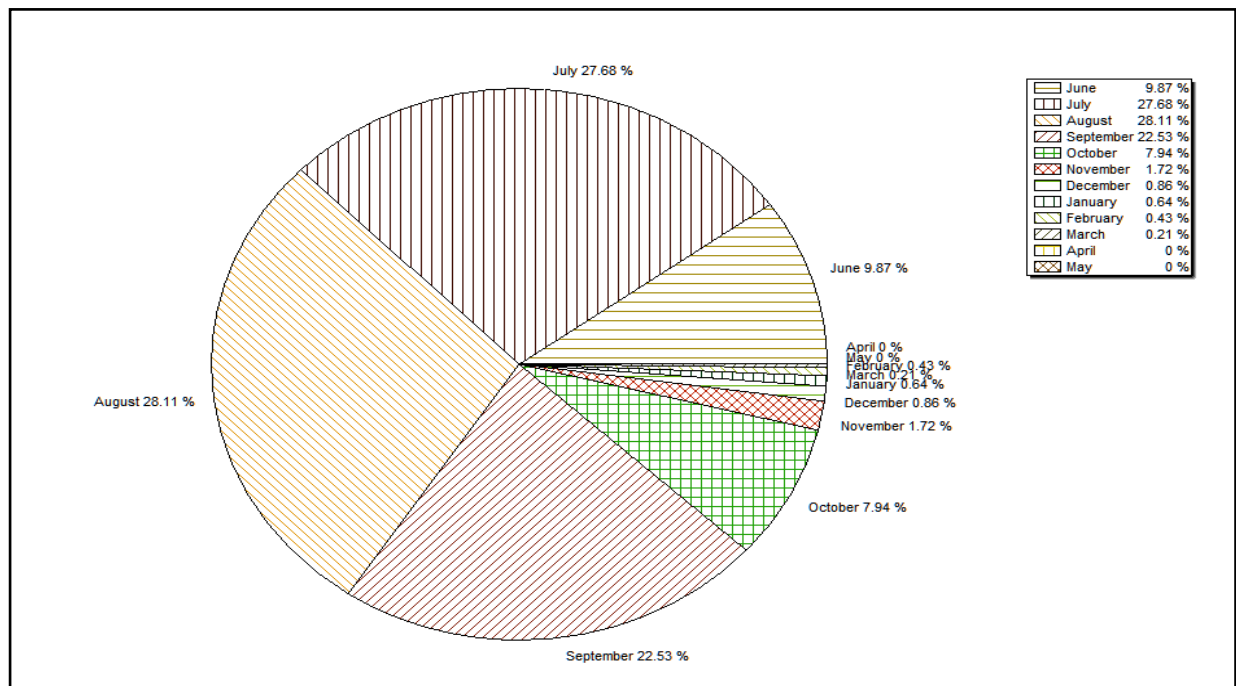
Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

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

Monthly Average Runoff based on period : 1970-2017



Monthly Runoff for the Year : 2017-2018



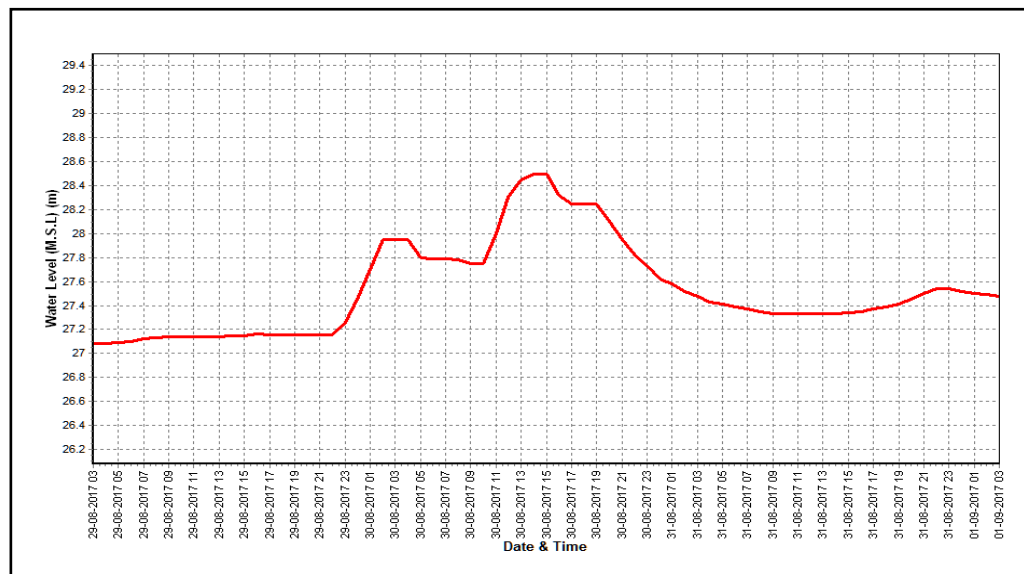
Station Name : Bhadar at Ganod (01 02 07 001)

Division : Mahi Division, Gandhinagar

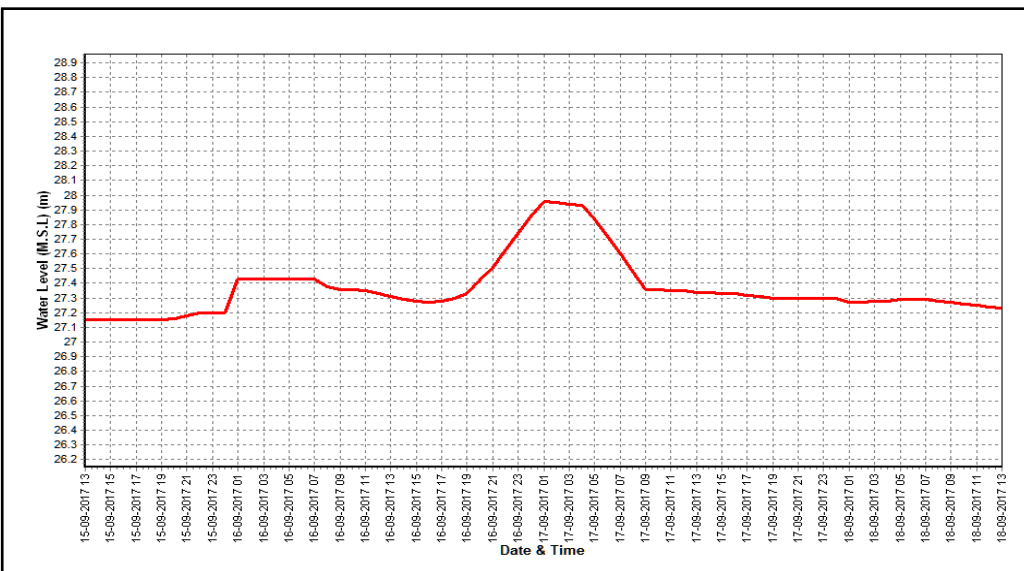
Local River : Bhadar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Machhu at Gungan State : Gujarat Basin : WFR of Kach.-Saur. & Luni Tributary : Machhu Sub-Sub Tributary : Division : Mahi Division, Gandhinagar Drainage Area : 2137 Sq. Km. Latitude : 22°57'42" N Zero of Gauge (m) : 8 (m.s.l) Opening Date	Code : 01 02 03 001 District : Rajkot Independent : Machhu Sub Tributary : Local River : Machhu Sub-Division : Sabarmati Sub Divn., Ahmedabad Bank : Right Longitude : 70°45'52" E 13/09/1970 - Closing Date
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Gauge : 13/09/1970
 Discharge : 09/12/1970
 Sediment : --
 Water Quality : --

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1971-1972	956.3	11.590	17/07/1971	0.000	River Dry	31/12/1971
1972-1973	47.02	9.585	08/07/1972	0.000	River Dry	25/01/1973
1973-1974	River Dry					
1974-1975	River Dry					
1975-1976	279.4	10.645	15/07/1975	0.000	8.425	17/12/1975
1976-1977	1805.0	14.075	30/08/1976	0.000	River Dry	03/06/1976
1977-1978	726.0	13.120	27/07/1977	0.000	9.335	19/05/1978
1978-1979	95.7	10.670	31/08/1978	0.000	9.485	13/06/1978
1979-1980	79.0	10.375	28/06/1979	0.000	River Dry	25/08/1979
1980-1981	1645.0	15.700	28/06/1980	0.000	River Dry	04/05/1981
1981-1982	628.1	12.180	11/08/1981	0.000	9.570	05/04/1982
1982-1983	750.8	12.410	24/07/1982	0.000	9.660	20/12/1982
1983-1984	1498.0	13.850	08/08/1983	0.000	River Dry	17/12/1983
1984-1985	475.3	11.645	14/09/1984	0.000	River Dry	17/12/1984
1985-1986	160.7	10.965	17/07/1985	0.000	River Dry	21/11/1985

1986-1987	407.7	11.760	09/08/1986	0.000	River Dry	07/01/1987
1987-1988	81.0	10.530	16/07/1987	0.000	River Dry	07/02/1988
1988-1989	2681.0	15.973	28/07/1988	0.000	River Dry	08/11/1988
1989-1990	1781.0	13.850	25/07/1989	0.000	River Dry	25/11/1989
1990-1991	195.4	10.765	25/08/1990	0.000	River Dry	01/08/1990
1991-1992	9.9	10.070	20/07/1991	0.000	River Dry	26/01/1992
1992-1993	131.6	10.950	31/07/1992	0.000	8.925	30/01/1993
1993-1994	5.4	10.250	10/07/1993	0.000	River Dry	25/01/1994
1994-1995	1657.0	13.880	15/07/1994	0.000	9.520	06/04/1995
1995-1996	97.0	10.790	26/07/1995	0.000	9.130	26/01/1996
1996-1997	179.0	11.180	21/06/1996	0.000	River Dry	25/01/1997
1997-1998	990.0	16.000	24/06/1997	0.000	9.590	10/11/1997
1998-1999	50.1	11.125	17/10/1998	0.000	9.160	17/12/1998
1999-2000	3.3	9.980	13/10/1999	0.000	8.710	26/01/2000
2000-2001	50.0	11.005	15/07/2000	0.000	8.260	25/01/2001
2001-2002	20.2	10.290	11/07/2001	0.000	River Dry	27/01/2002
2002-2003	70.8	10.625	28/06/2002	0.000	River Dry	22/05/2003
2003-2004	70.2	11.135	24/07/2003	0.000	8.575	23/12/2003
2004-2005	76.0	11.765	11/08/2004	0.000	8.545	25/01/2005
2005-2006	394.0	12.910	20/09/2005	0.000	River Dry	01/06/2005
2006-2007	531.2	12.810	31/07/2006	0.000	River Dry	01/06/2006
2007-2008	1524.0	12.875	09/08/2007	0.000	9.350	01/06/2008
2008-2009	1689.0	14.975	18/09/2008	0.000	9.800	02/09/2008
2009-2010	13.5	10.520	31/08/2009	0.000	9.275	01/12/2009
2010-2011	1699.0	14.720	30/08/2010	0.000	9.190	01/10/2010
2011-2012	58.8	11.750	13/08/2011	0.000	9.560	30/05/2012
2012-2013	0.0	10.030	08/09/2012	0.000	9.305	31/05/2013
2013-2014	289.6	12.175	28/09/2013	0.000	River Dry	01/03/2014
2014-2015	4.7	10.31	03/09/2014	0.000	9.76	01/06/2014
2015-2016	3.6	10.22	01/08/2015	0.000	9.92	22/08/2015
2016-2017	No Observed Discharge			0.000	9.290	21/06/2016
2017-2018	3020.0	16.75	22/07/2017	13.27	10.55	18/08/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Machhu at Gungan (01 02 03 001)

Division : Mahi Division, Gandhinagar

Local River : Machhu

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	9.470	0.000	9.450	0.000	11.025	84.43	11.800	233.3 *	10.240	4.950 *	9.990	0.000
2	9.470	0.000	9.470	0.000	10.700	37.76 #	11.800	233.3 *	10.240	4.950 *	9.990	0.000
3	9.470	0.000	9.470	0.000	11.025	86.89	11.800	233.3 *	10.240	4.950 *	9.990	0.000
4	9.470	0.000	9.470	0.000	10.750	58.04	11.350	133.8 *	10.230	4.580 *	9.990	0.000
5	9.460	0.000	9.470	0.000	10.750	43.11 *	11.350	133.8 *	10.220	4.210 *	9.980	0.000
6	9.460	0.000	9.470	0.000	10.750	43.11 *	11.190	104.9 *	10.210	3.860 *	9.980	0.000
7	9.460	0.000	9.470	0.000	10.750	43.11 *	11.100	90.10 *	10.200	3.530 *	9.980	0.000
8	9.460	0.000	9.470	0.000	10.680	22.02	11.100	90.10 *	10.180	2.900 *	9.980	0.000
9	9.460	0.000	9.470	0.000	10.680	35.72 *	11.100	90.10 *	10.180	2.900 *	9.980	0.000
10	9.460	0.000	9.470	0.000	10.680	35.72 *	10.970	70.70 *	10.160	3.340 *	9.980	0.000
11	9.450	0.000	9.470	0.000	10.660	43.41	10.770	45.35 *	10.140	1.830 *	9.970	0.000
12	9.450	0.000	9.470	0.000	10.650	42.75	10.770	45.35 *	10.130	1.600 *	9.970	0.000
13	9.450	0.000	9.470	0.000	10.650	32.76 *	10.760	44.22 *	10.120	1.390 *	9.970	0.000
14	9.450	0.000	9.470	0.000	10.650	32.76 *	10.760	44.22 *	10.120	1.390 *	9.970	0.000
15	9.450	0.000	9.470	0.000	10.650	32.76 *	10.760	44.22 *	10.110	1.190 *	9.970	0.000
16	9.450	0.000	13.450	823.3 *	10.650	32.76 *	10.760	44.22 *	10.090	0.830 *	9.970	0.000
17	9.440	0.000	11.650	163.5	10.650	32.76 *	10.750	43.11 *	10.090	0.830 *	9.970	0.000
18	9.440	0.000	11.440	154.3	10.550	13.27	10.740	42.01 *	10.080	0.680 *	9.970	0.000
19	9.440	0.000	12.060	271.5	10.480	21.31	10.740	42.01 *	10.070	0.540 *	9.960	0.000
20	9.440	0.000	11.300	201.2	10.450	16.23 *	10.720	39.86 *	10.070	0.540 *	9.960	0.000
21	9.440	0.000	11.515	149.2	10.450	17.02	10.710	38.81 *	10.050	0.310 *	9.960	0.000
22	9.440	0.000	16.750	3020	10.530	13.96	10.690	36.74 *	10.050	0.310 *	9.960	0.000
23	9.440	0.000	13.260	737.6 *	11.225	149.6	10.660	33.73 *	10.040	0.220 *	9.960	0.000
24	9.440	0.000	12.300	293.3	11.200	103.7	10.630	30.86 *	10.040	0.220 *	9.960	0.000
25	9.440	0.000	12.100	354.5	11.200	106.6 *	10.610	29.01 *	10.030	0.140 *	9.960	0.000
26	9.440	0.000	11.265	105.9	11.200	106.6 *	10.580	26.34 *	10.030	0.140 *	9.960	0.000
27	9.440	0.000	12.065	348.2	11.200	106.6 *	10.320	8.500 *	10.020	0.000	9.960	0.000
28	9.440	0.000	12.430	342.0	11.200	106.6 *	10.250	5.350 *	10.020	0.000	9.950	0.000
29	9.440	0.000	11.050	84.37	10.800	27.29	10.250	5.350 *	10.010	0.000	9.950	0.000
30	9.440	0.000	10.600	28.10 *	12.000	286.1 *	10.240	4.950 *	10.000	0.000	9.950	0.000
31			11.105	105.2	11.800	233.3 *			10.000	0.000		
Ten-Daily Mean												
I Ten-Daily	9.464	0.000	9.468	0.000	10.779	48.99	11.356	141.3	10.210	4.017	9.984	0.000
II Ten-Daily	9.446	0.000	10.725	161.4	10.604	30.08	10.753	43.46	10.102	1.082	9.968	0.000
III Ten-Daily	9.440	0.000	12.222	506.3	11.164	114.3	10.494	21.96	10.026	0.122	9.957	0.000
Monthly												
Min.	9.440	0.000	9.450	0.000	10.450	13.27	10.240	4.950	10.000	0.000	9.950	0.000
Max.	9.470	0.000	16.750	3020	12.000	286.1	11.800	233.3	10.240	4.950	9.990	0.000
Mean	9.450	0.000	10.851	231.7	10.859	66.06	10.868	68.92	10.110	1.688	9.970	0.000

Annual Runoff in MCM = 981 Annual Runoff in mm = 459

Peak Observed Discharge = 3020 cumecs on 22-07-2017 Corres. Water Level :16.75 m

Lowest Observed Discharge = 13.27 cumecs on 18-08-2017 Corres. Water Level :10.55 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Machhu at Gungan (01 02 03 001)

Division : Mahi Division, Gandhinagar

Local River : Machhu

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	9.950	0.000	10.010	0.000	9.950	0.000	9.890	0.000	9.820	0.000	9.770	0.000
2	9.950	0.000	10.000	0.000	9.950	0.000	9.880	0.000	9.820	0.000	9.770	0.000
3	9.950	0.000	10.000	0.000	9.950	0.000	9.880	0.000	9.820	0.000	9.770	0.000
4	9.950	0.000	10.000	0.000	9.940	0.000	9.880	0.000	9.820	0.000	9.770	0.000
5	9.950	0.000	10.000	0.000	9.940	0.000	9.880	0.000	9.810	0.000	9.770	0.000
6	9.950	0.000	9.990	0.000	9.940	0.000	9.880	0.000	9.810	0.000	9.770	0.000
7	9.950	0.000	9.990	0.000	9.940	0.000	9.870	0.000	9.810	0.000	9.770	0.000
8	9.950	0.000	9.990	0.000	9.940	0.000	9.870	0.000	9.810	0.000	9.770	0.000
9	9.980	0.000	9.990	0.000	9.940	0.000	9.870	0.000	9.810	0.000	9.760	0.000
10	10.050	0.310 *	9.990	0.000	9.930	0.000	9.870	0.000	9.800	0.000	9.760	0.000
11	10.050	0.310 *	9.990	0.000	9.930	0.000	9.870	0.000	9.800	0.000	9.760	0.000
12	10.050	0.310 *	9.980	0.000	9.930	0.000	9.870	0.000	9.800	0.000	9.760	0.000
13	10.050	0.310 *	9.980	0.000	9.930	0.000	9.860	0.000	9.800	0.000	9.760	0.000
14	10.040	0.220 *	9.980	0.000	9.930	0.000	9.860	0.000	9.800	0.000	9.760	0.000
15	10.040	0.220 *	9.980	0.000	9.930	0.000	9.860	0.000	9.800	0.000	9.760	0.000
16	10.040	0.220 *	9.980	0.000	9.930	0.000	9.860	0.000	9.800	0.000	9.760	0.000
17	10.040	0.220 *	9.980	0.000	9.930	0.000	9.850	0.000	9.790	0.000	9.760	0.000
18	10.040	0.220 *	9.970	0.000	9.920	0.000	9.850	0.000	9.790	0.000	9.760	0.000
19	10.030	0.140 *	9.970	0.000	9.920	0.000	9.850	0.000	9.790	0.000	9.760	0.000
20	10.030	0.140 *	9.970	0.000	9.920	0.000	9.850	0.000	9.790	0.000	9.760	0.000
21	10.030	0.140 *	9.970	0.000	9.920	0.000	9.850	0.000	9.790	0.000	9.760	0.000
22	10.030	0.140 *	9.970	0.000	9.920	0.000	9.840	0.000	9.790	0.000	9.760	0.000
23	10.020	0.000	9.960	0.000	9.910	0.000	9.840	0.000	9.790	0.000	9.750	0.000
24	10.020	0.000	9.960	0.000	9.910	0.000	9.840	0.000	9.780	0.000	9.750	0.000
25	10.020	0.000	9.960	0.000	9.890	0.000	9.840	0.000	9.780	0.000	9.750	0.000
26	10.020	0.000	9.960	0.000	9.890	0.000	9.840	0.000	9.780	0.000	9.750	0.000
27	10.020	0.000	9.960	0.000	9.890	0.000	9.830	0.000	9.780	0.000	9.750	0.000
28	10.010	0.000	9.960	0.000	9.890	0.000	9.830	0.000	9.780	0.000	9.750	0.000
29	10.010	0.000	9.960	0.000			9.830	0.000	9.770	0.000	9.750	0.000
30	10.010	0.000	9.950	0.000			9.830	0.000	9.770	0.000	9.750	0.000
31	10.010	0.000	9.950	0.000			9.830	0.000			9.750	0.000
Ten-Daily Mean												
I Ten-Daily	9.963	0.031	9.996	0.000	9.942	0.000	9.877	0.000	9.813	0.000	9.768	0.000
II Ten-Daily	10.041	0.231	9.978	0.000	9.927	0.000	9.858	0.000	9.796	0.000	9.760	0.000
III Ten-Daily	10.018	0.025	9.960	0.000	9.903	0.000	9.836	0.000	9.781	0.000	9.752	0.000
Monthly												
Min.	9.950	0.000	9.950	0.000	9.890	0.000	9.830	0.000	9.770	0.000	9.750	0.000
Max.	10.050	0.310	10.010	0.000	9.950	0.000	9.890	0.000	9.820	0.000	9.770	0.000
Mean	10.008	0.094	9.977	0.000	9.925	0.000	9.856	0.000	9.797	0.000	9.760	0.000

Peak Computed Discharge = 823.3 cumecs on 16-07-2017

Corres. Water Level :13.45 m

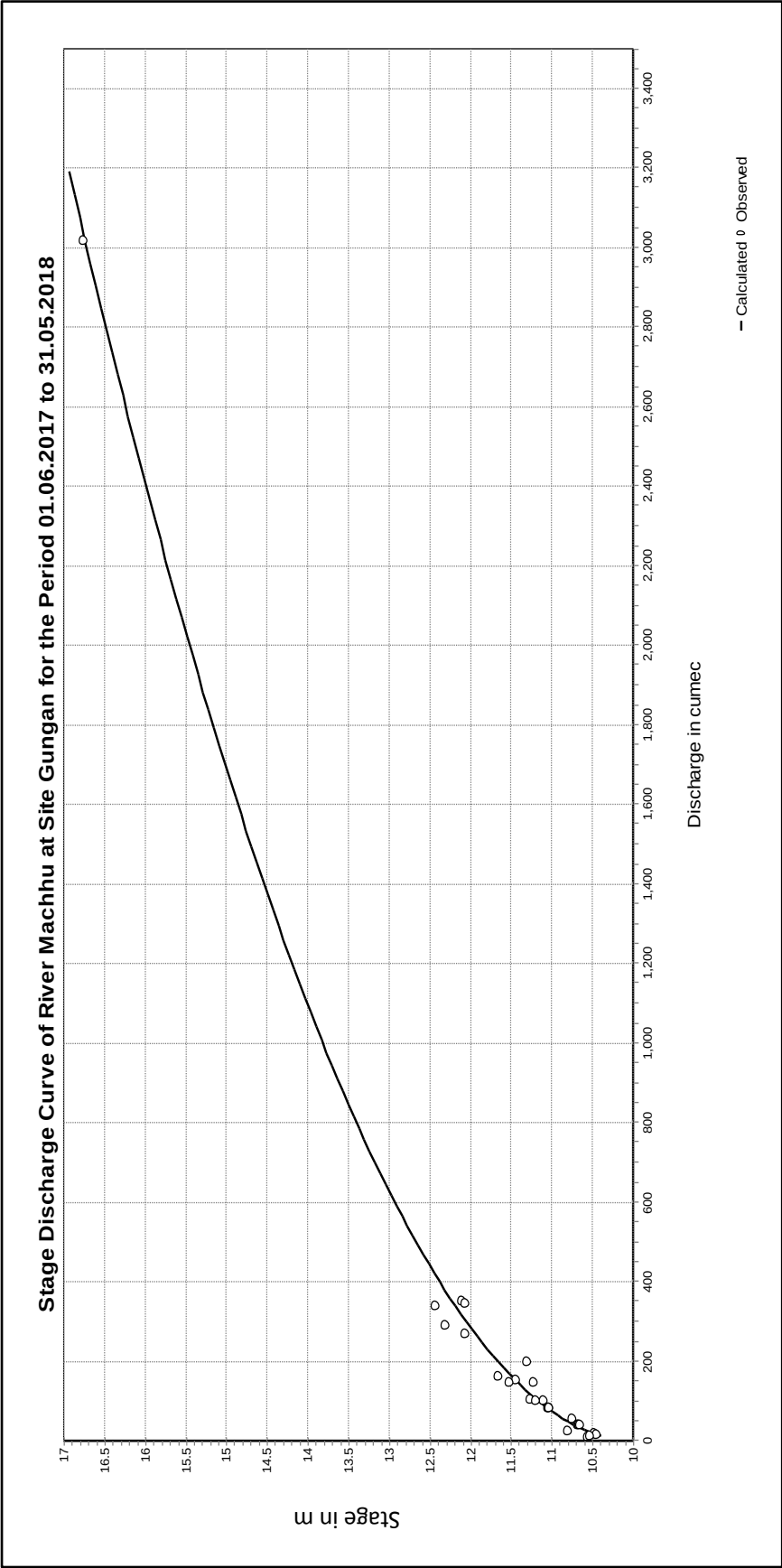
Lowest Computed Discharge = 0.000 cumecs on 01-06-2017

Corres. Water Level :9.47 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Power		Q=c*(h+a) ^b		
LB	UB	a	b	c
10.400	17.000	-9.99	1.946	73.540

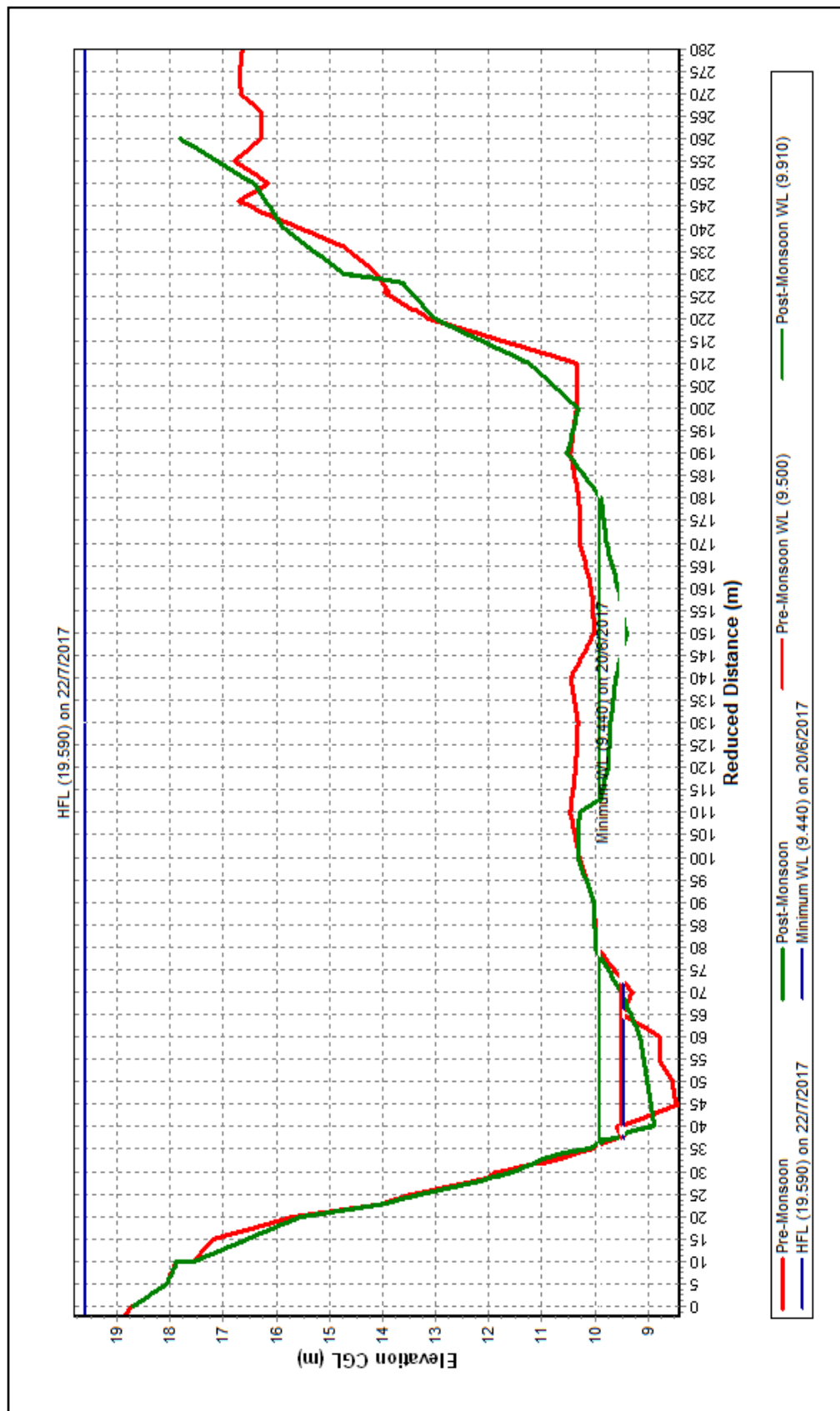
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Machhu at Gungan (01 02 03 001)

Local River : Machhu

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



Historic Flood Level-24.595m on 11.08.1979 at 1400 hrs

Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

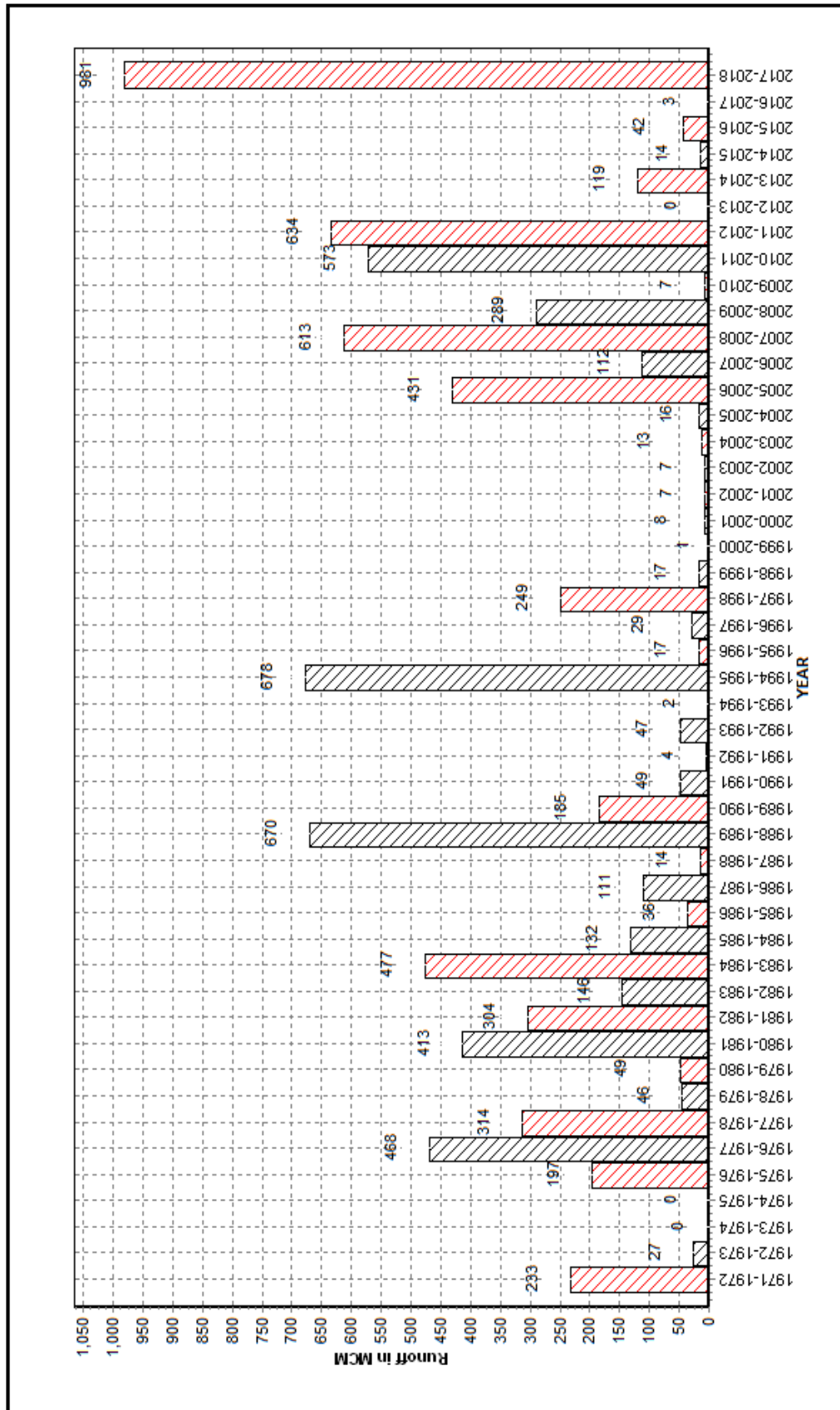
Annual Runoff Values for the period: 1971 - 2018

Station Name : Machhu at Gungan (01 02 03 001)

Local River : Machhu

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

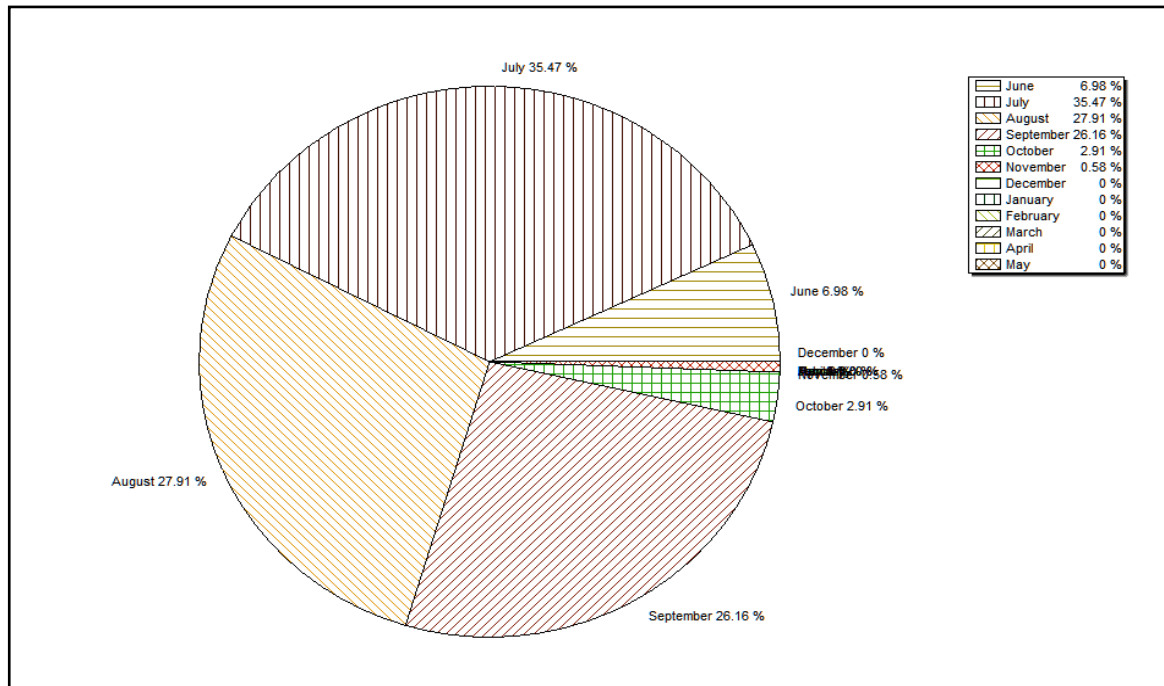


Note: Missing values have not been considered while arriving at Annual Runoff

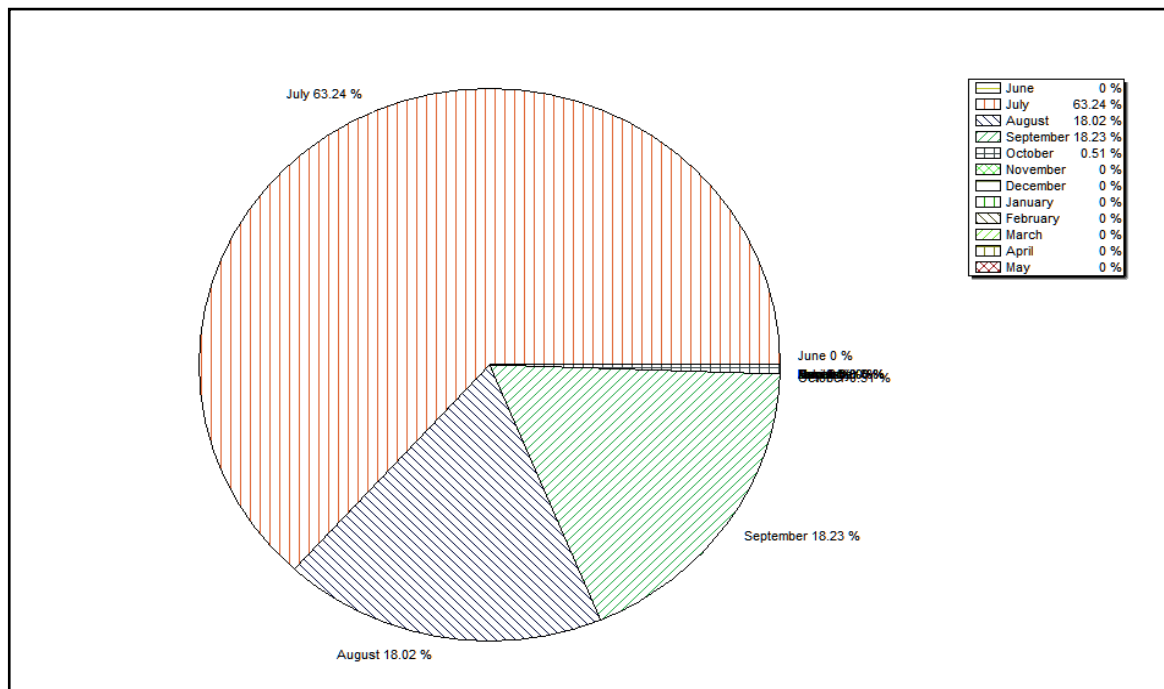
Station Name : Machhu at Gungan (01 02 03 001)
Local River : Machhu

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

Monthly Average Runoff based on period : 1971-2017



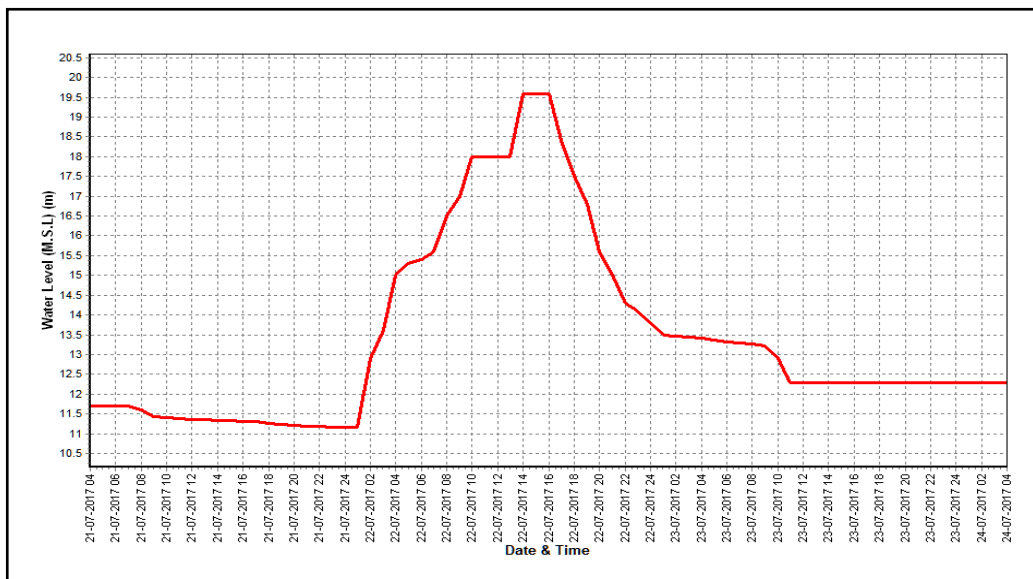
Monthly Runoff for the Year : 2017-2018



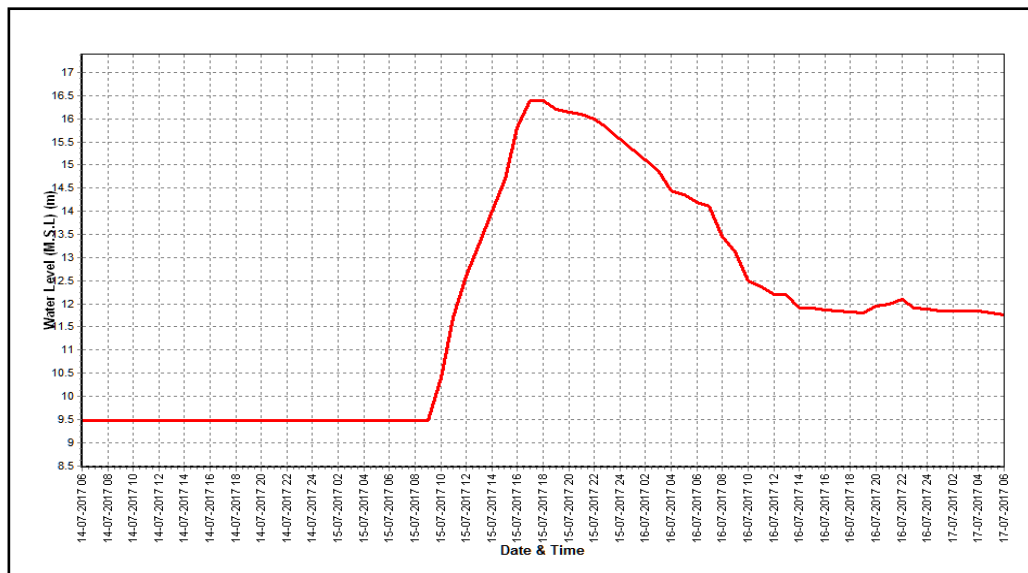
Station Name : Machhu at Gungan (01 02 03 001)
Local River : Machhu

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

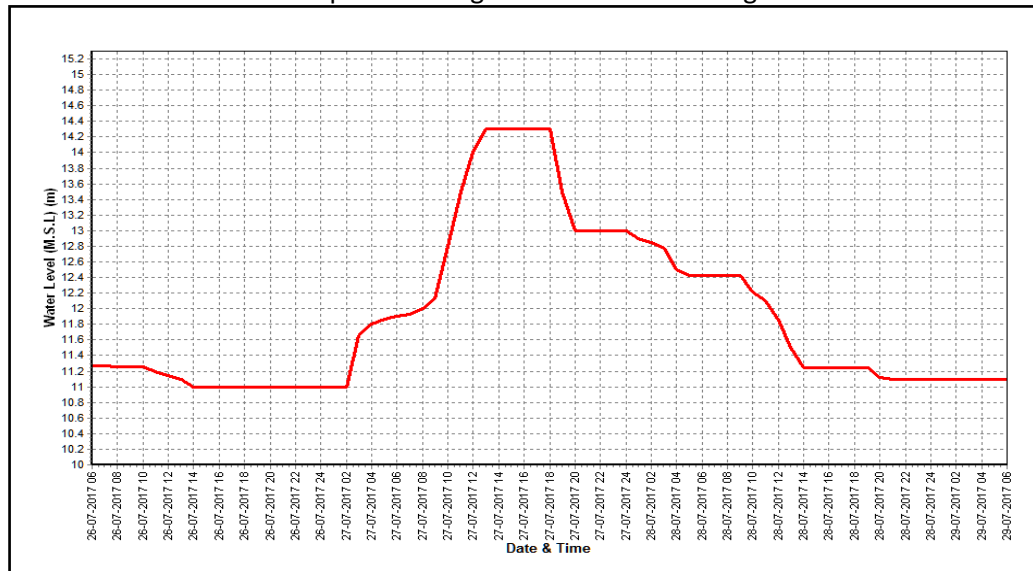
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Site : Rupen at Sapawada State : Gujarat Basin : WFR of Kach.-Saur. & Luni Tributary : - Sub-Sub : Tributary : Division : Mahi Division, Gandhinagar Drainage : 2125 Sq. Km. Area : Latitude : 23°32'54" Zero of Gauge (m) : 36.65 (m.s.l) 36 (m.s.l) Opening Date Gauge : 20/08/1989 Discharge : 31/08/1989 Sediment : Water : Quality :	Water Year : 2017-18 Code : 01 02 04 001 District : Mahesana Independent : Rupen River : Sub Tributary : Local River : Rupen Sub-Division : B.L.Sub Divn, Palanpur Bank : Right Longitude : 72°00'52" 01/08/1989 - 04/04/1997 05/04/1997 Closing Date
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Annual Maximum / Minimum discharge with corresponding Water Level (m.s.l)

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
1990-1991	490.60	40.000	25/08/1990	0.000	R Dry	25/01/1991
1991-1992	46.45	37.650	01/08/1991	0.000	R Dry	26/01/1992
1992-1993	221.20	38.315	09/09/1992	0.000	R Dry	30/12/1992
1993-1994	753.10	40.715	10/07/1993	0.000	R Dry	26/01/1994
1994-1995	964.30	40.900	03/08/1994	0.000	R Dry	26/01/1995
1995-1996	66.52	38.100	22/07/1995	0.000	R Dry	27/10/1995
1996-1997	R Dry					
1997-1998	325.00	43.000	27/06/1997	0.000	R Dry	04/02/1998
1998-1999	66.50	38.700	19/09/1998	0.000	R Dry	17/12/1998
1999-2000	7.73	37.600	23/06/1999	0.000	R Dry	09/11/1999
2000-2001	14.17	37.700	16/07/2000	0.000	R Dry	25/01/2001
2001-2002	19.58	37.800	17/06/2001	0.000	R Dry	25/01/2002

2002-2003	R Dry					
2003-2004	178.00	40.050	29/07/2003	0.000	R Dry	26/01/2004
2004-2005	129.00	39.800	09/08/2004	0.000	R Dry	09/05/2005
2005-2006	444.50	41.475	03/08/2005	0.000	R Dry	01/06/2005
2006-2007	474.00	40.250	16/08/2006	0.000	R Dry	01/06/2006
2007-2008	595.10	40.750	09/08/2007	0.000	36.5	01/06/2007
2008-2009	418.20	40.000	13/08/2008	0.000	36.3	18/08/2008
2009-2010	5.44	37.000	19/03/2010	0.000	36.06	01/06/2009
2010-2011	494.20	40.000	04/08/2010	0.000	R Dry	01/06/2010
2011-2012	58.80	37.760	14/09/2011	0.000	R Dry	01/06/2011
2012-2013	0.71	36.580	15/09/2012	0.000	R Dry	01/06/2012
2013-2014	77.83	37.900	14/07/2013	0.000	36.1	01/06/2013
2014-2015	8.95	37.300	03/08/2014	0.000	R Dry	01/06/2014
2015-2016	9.58	37.900	02/08/2015	0.000	36.1	01/06/2015
2016-2017	2.76	36.450	12/08/2016	0.000	R Dry	01/06/2016
2017-2018	302.40	39.500	28/07/2017	0.444	36.2	23/09/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Rupen at Sapawada (01 02 04 001)

Division : Mahi Division, Gandhinagar

Local River : Rupen

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

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R. Dry	0.000	36.050	0.230 *	36.450	2.384	36.200	0.680 *	36.170	0.560 *	36.170	0.560 *
2	R. Dry	0.000	36.300	1.190 *	36.400	2.079	36.200	0.680 *	36.180	0.600 *	36.170	0.560 *
3	R. Dry	0.000	38.000	100.9	36.700	4.565	36.200	0.680 *	36.210	0.540	36.170	0.560 *
4	R. Dry	0.000	38.000	68.28 *	36.700	4.265	36.200	0.680 *	36.220	0.700	36.170	0.560 *
5	R. Dry	0.000	36.100	0.340 *	36.500	3.269	36.200	0.680 *	36.220	0.740	36.170	0.560 *
6	R. Dry	0.000	36.350	1.510 #	36.450	2.346	36.200	0.680 *	36.220	0.740	36.170	0.560 *
7	R. Dry	0.000	36.700	4.831	36.400	1.732	36.200	0.680 *	36.220	0.779	36.160	0.530 *
8	R. Dry	0.000	36.700	5.186	36.400	1.790	36.200	0.680 *	36.215	0.631	36.160	0.530 *
9	R. Dry	0.000	36.700	4.801	36.400	1.790	36.200	0.680 *	36.210	0.614	36.150	0.490 *
10	R. Dry	0.000	36.700	4.521	36.350	1.804	36.200	0.694	36.210	0.606	36.150	0.490 *
11	R. Dry	0.000	36.690	4.522	36.250	0.910 *	36.240	0.860 *	36.210	0.602	36.350	3.559 #
12	R. Dry	0.000	36.670	3.830	36.150	0.490 *	36.240	0.806	36.190	0.640 *	36.150	0.490 *
13	R. Dry	0.000	36.240	0.860 *	36.150	0.490 *	36.220	0.682	36.180	0.600 *	36.150	0.490 *
14	R. Dry	0.000	36.100	0.340 *	36.150	0.490 *	36.210	0.626	36.180	0.600 *	36.150	0.490 *
15	R. Dry	0.000	36.100	0.340 *	36.150	0.490 *	36.220	0.667	36.190	0.640 *	36.150	0.490 *
16	R. Dry	0.000	36.100	0.340 *	36.200	0.680 *	36.220	0.560	36.190	0.640 *	36.160	0.530 *
17	R. Dry	0.000	36.150	0.490 *	36.200	0.680 *	36.220	0.737	36.190	0.640 *	36.180	0.600 *
18	R. Dry	0.000	36.150	0.490 *	36.200	0.680 *	36.220	0.795	36.180	0.600 *	36.190	0.640 *
19	R. Dry	0.000	36.450	2.415	36.200	0.680 *	36.220	0.638	36.180	0.600 *	36.220	0.613
20	R. Dry	0.000	36.450	2.347	36.200	0.680 *	36.220	0.723	36.180	0.600 *	36.350	1.510 #
21	R. Dry	0.000	36.450	2.445	36.200	0.680 *	36.210	0.547	36.180	0.600 *	36.400	1.890 #
22	R. Dry	0.000	36.450	2.418	36.200	0.680 *	36.210	0.453	36.170	0.560 *	36.350	1.510 *
23	R. Dry	0.000	36.450	2.488	36.200	0.680 *	36.200	0.444	36.170	0.560 *	36.300	1.800
24	R. Dry	0.000	36.900	5.813	36.200	0.680 *	36.200	0.680 *	36.170	0.560 *	36.300	1.190 #
25	R. Dry	0.000	38.000	98.92	36.200	0.680 *	36.190	0.640 *	36.170	0.560 *	36.300	1.190 #
26	R. Dry	0.000	38.000	98.59	36.200	0.680 *	36.180	0.600 *	36.170	0.560 *	36.300	1.190 *
27	36.050	0.230 *	37.100	7.880	36.200	0.680 *	36.180	0.600 *	36.170	0.560 *	36.350	2.541
28	36.050	0.230 *	39.500	302.4	36.200	0.680 *	36.180	0.600 *	36.170	0.560 *	36.350	2.594
29	36.050	0.230 *	39.300	265.4	36.200	0.680 *	36.180	0.600 *	36.170	0.560 *	36.350	1.510 *
30	36.050	0.230 *	37.100	7.877	36.200	0.680 *	36.180	0.600 *	36.170	0.560 *	36.350	2.086
31			36.800	5.871	36.200	0.680 *			36.170	0.560 *		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	36.760	19.18	36.475	2.602	36.200	0.681	36.207	0.651	36.164	0.540
II Ten-Daily	R. Dry	0.000	36.310	1.597	36.185	0.627	36.223	0.709	36.187	0.616	36.205	0.941
III Ten-Daily	36.050	0.230	37.459	72.74	36.200	0.680	36.191	0.576	36.171	0.564	36.335	1.750
Monthly												
Min.	36.050	0.230	36.050	0.230	36.150	0.490	36.180	0.444	36.170	0.540	36.150	0.490
Max.	36.050	0.230	39.500	302.4	36.700	4.565	36.240	0.860	36.220	0.779	36.400	3.559
Mean	36.050	0.23	36.863	32.51	36.284	1.283	36.205	0.656	36.188	0.609	36.235	1.077

Annual Runoff in MCM = 106 Annual Runoff in mm = 50

Peak Observed Discharge = 302.4 cumecs on 28-07-2017 Corres. Water Level :39.5 m

Lowest Observed Discharge = 0.444 cumecs on 23-09-2017 Corres. Water Level :36.2 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Rupen at Sapawada (01 02 04 001)

Division : Mahi Division, Gandhinagar

Local River : Rupen

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

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	36.350	1.976	36.200	0.680 *	36.240	0.860 *	36.150	0.490 *	36.080	0.290 *	36.020	0.170 *
2	36.350	2.210	36.200	0.680 *	36.240	0.860 *	36.150	0.490 *	36.080	0.290 *	36.020	0.170 *
3	36.350	1.912	36.200	0.680 *	36.240	0.860 *	36.150	0.490 *	36.080	0.029 *	36.020	0.170 *
4	36.350	1.855	36.200	0.680 *	36.240	0.860 *	36.150	0.490 *	36.050	0.230 *	36.020	0.170 *
5	36.350	1.926	36.240	0.860 *	36.230	0.810 *	36.150	0.490 *	36.050	0.230 *	R. Dry	0.000
6	36.350	1.898	36.240	0.860 *	36.220	0.770 *	36.150	0.490 *	36.050	0.230 *	R. Dry	0.000
7	36.380	1.740 #	36.240	0.860 *	36.220	0.770 *	36.150	0.490 *	36.050	0.230 *	R. Dry	0.000
8	36.400	1.890 #	36.240	0.860 *	36.220	0.770 *	36.150	0.490 *	36.050	0.230 *	R. Dry	0.000
9	36.400	1.890 #	36.240	0.860 *	36.220	0.770 *	36.130	0.430 *	36.050	0.230 *	R. Dry	0.000
10	36.350	1.510 *	36.240	0.860 *	36.210	0.720 *	36.130	0.430 *	36.050	0.230 *	R. Dry	0.000
11	36.300	2.296	36.240	0.860 *	36.220	0.770 *	36.110	0.370 *	36.030	0.190 *	R. Dry	0.000
12	36.300	1.190 #	36.240	0.860 *	36.230	0.810 *	36.110	0.370 *	36.030	0.190 *	R. Dry	0.000
13	36.300	1.190 #	36.240	0.860 *	36.230	0.810 *	36.110	0.370 *	36.030	0.190 *	R. Dry	0.000
14	36.300	1.190 *	36.250	0.910 *	36.230	0.810 *	36.110	0.370 *	36.030	0.190 *	R. Dry	0.000
15	36.300	1.190 #	36.250	0.910 *	36.230	0.810 *	36.110	0.370 *	36.030	0.190 *	R. Dry	0.000
16	36.300	1.190 *	36.250	0.910 *	36.220	0.770 *	36.110	0.370 *	36.030	0.190 *	R. Dry	0.000
17	36.300	1.190 *	36.250	0.910 *	36.220	0.770 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
18	36.300	2.009	36.250	0.910 *	36.220	0.770 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
19	36.300	1.959	36.250	0.910 *	36.220	0.770 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
20	36.280	1.839	36.250	0.910 *	36.220	0.770 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
21	36.280	1.070 #	36.250	0.910 *	36.220	0.770 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
22	36.280	1.070 #	36.250	0.910 *	36.210	0.720 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
23	36.280	1.070 #	36.250	0.910 *	36.210	0.720 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
24	36.280	1.070 *	36.240	0.860 *	36.200	0.680 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
25	36.260	0.960 *	36.240	0.860 *	36.200	0.680 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
26	36.240	0.961	36.240	0.860 *	36.180	0.600 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
27	36.240	0.999	36.240	0.860 *	36.180	0.600 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
28	36.240	0.850	36.240	0.860 *	36.180	0.600 *	36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
29	36.200	0.680 *	36.240	0.860 *			36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
30	36.200	0.680 *	36.240	0.860 *			36.100	0.340 *	36.020	0.170 *	R. Dry	0.000
31	36.200	0.680 *	36.240	0.860 *			36.100	0.340 *			R. Dry	0.000
Ten-Daily Mean												
I Ten-Daily	36.363	1.881	36.224	0.788	36.228	0.805	36.146	0.478	36.059	0.222	36.020	0.170
II Ten-Daily	36.298	1.524	36.247	0.895	36.224	0.786	36.106	0.358	36.026	0.182	R. Dry	0.000
III Ten-Daily	36.245	0.917	36.243	0.874	36.197	0.671	36.100	0.340	36.020	0.170	R. Dry	0.000
Monthly												
Min.	36.200	0.680	36.200	0.680	36.180	0.600	36.100	0.340	36.020	0.029	36.020	0.170
Max.	36.400	2.296	36.250	0.910	36.240	0.860	36.150	0.490	36.080	0.290	36.020	0.170
Mean	36.300	1.424	36.238	0.853	36.218	0.76	36.117	0.39	36.035	0.191	36.020	0.17

Peak Computed Discharge = 68.28 cumecs on 04-07-2017

Corres. Water Level :38 m

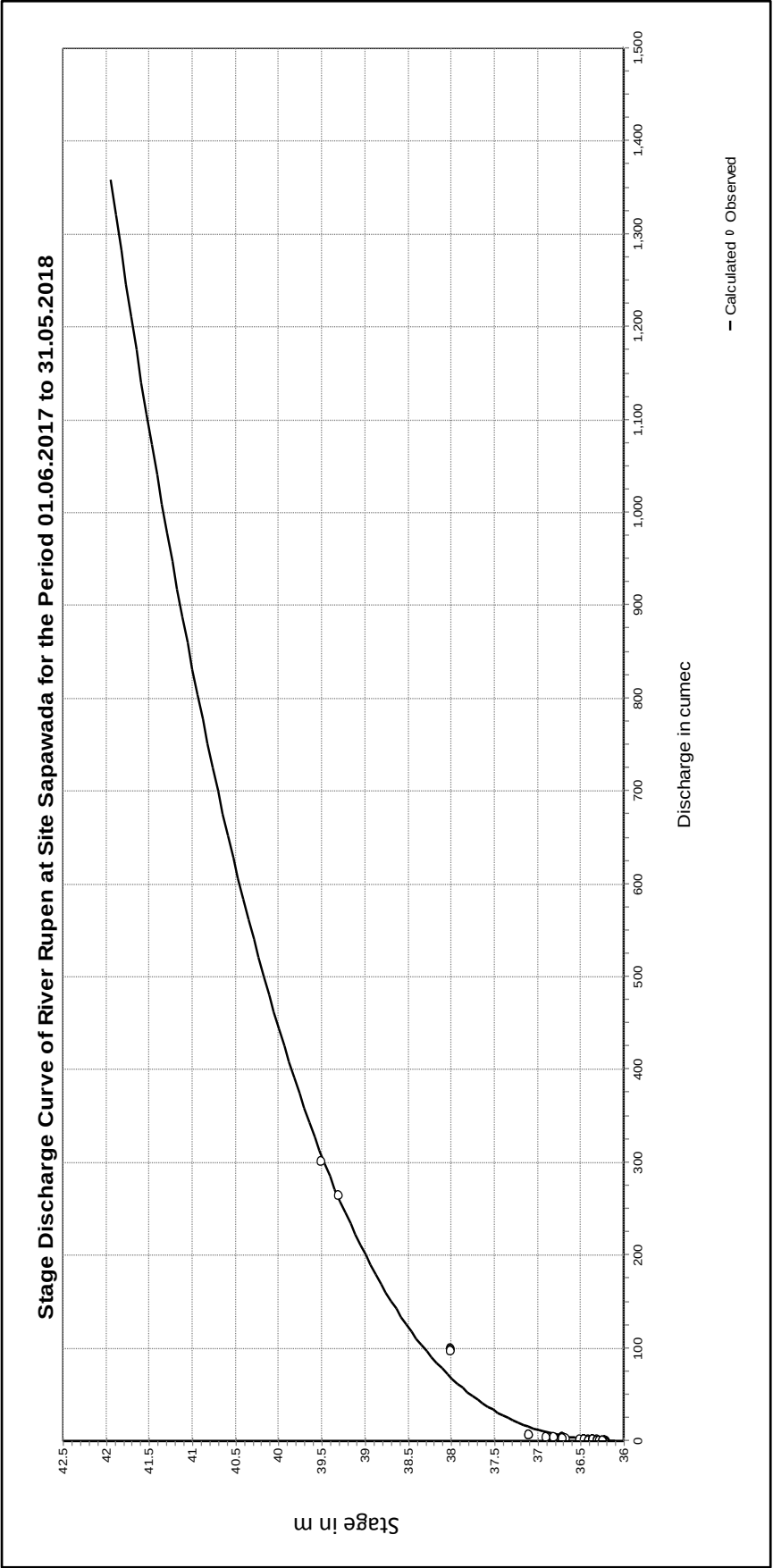
Lowest Computed Discharge = 0.029 cumecs on 03-04-2018

Corres. Water Level :36.08 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

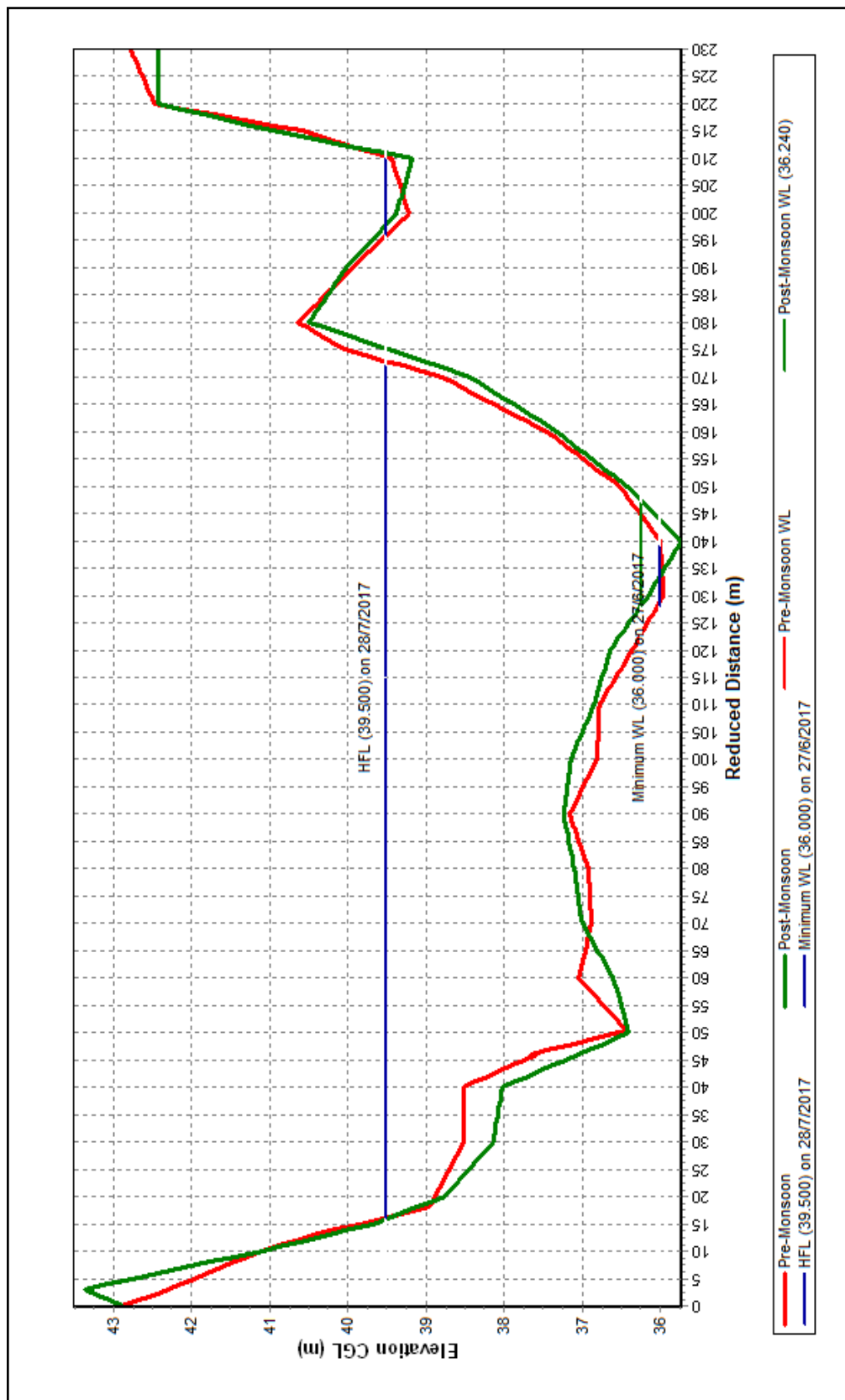
Equation Type - Power		Q=c*(h+a) ^b		
LB	UB	a	b	c
36.100	42.000	-35.71	2.988	5.742

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Rupen at Sapawada (01 02 04 001)

Local River : Rupen

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



Historical Flood Level-43.0m on 27.08.1997 at 0800hrs

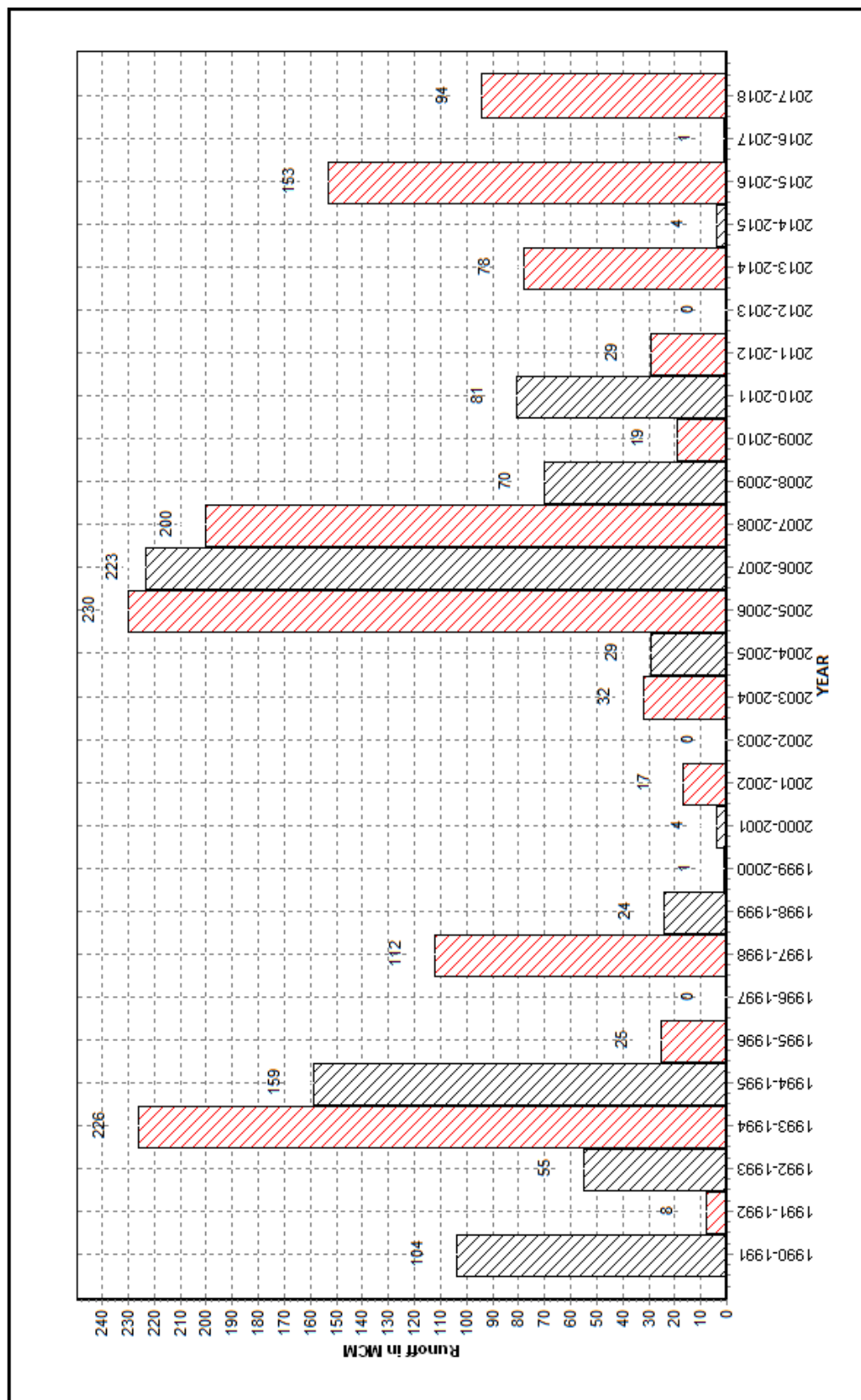
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 1990 - 2018

Station Name : Rupen at Sapawada (01 02 04 001)

Local River : Rupen

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

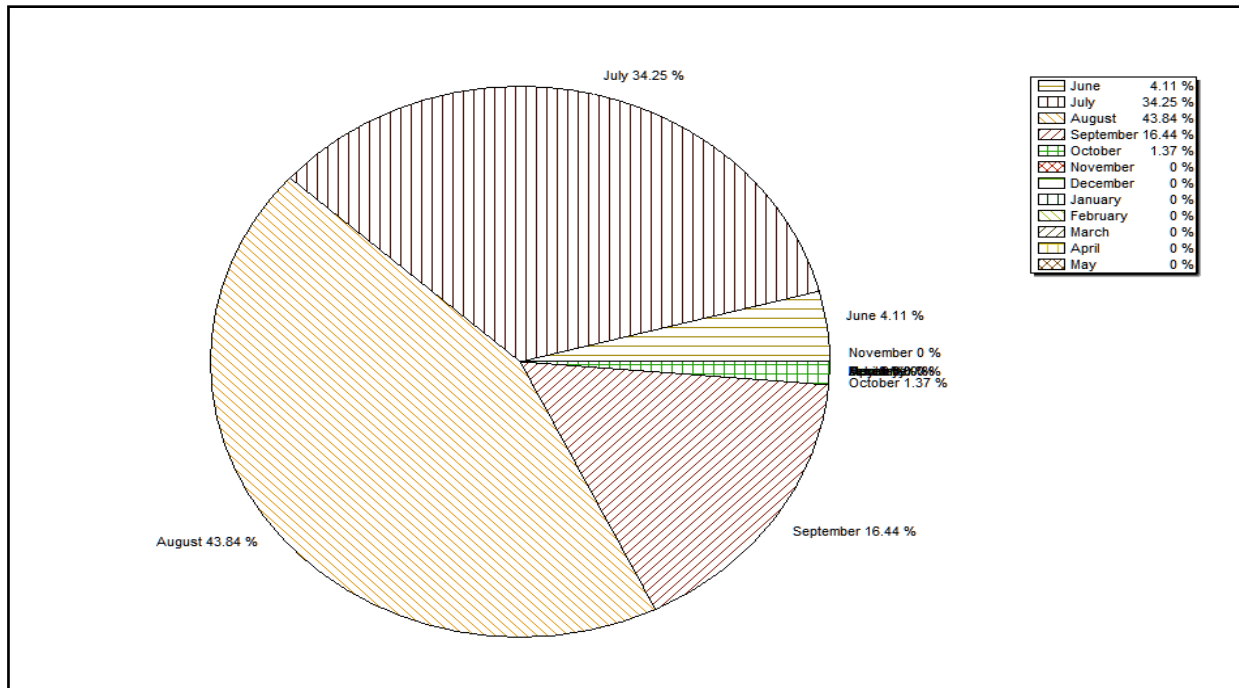


Note: Missing values have not been considered while arriving at Annual Runoff

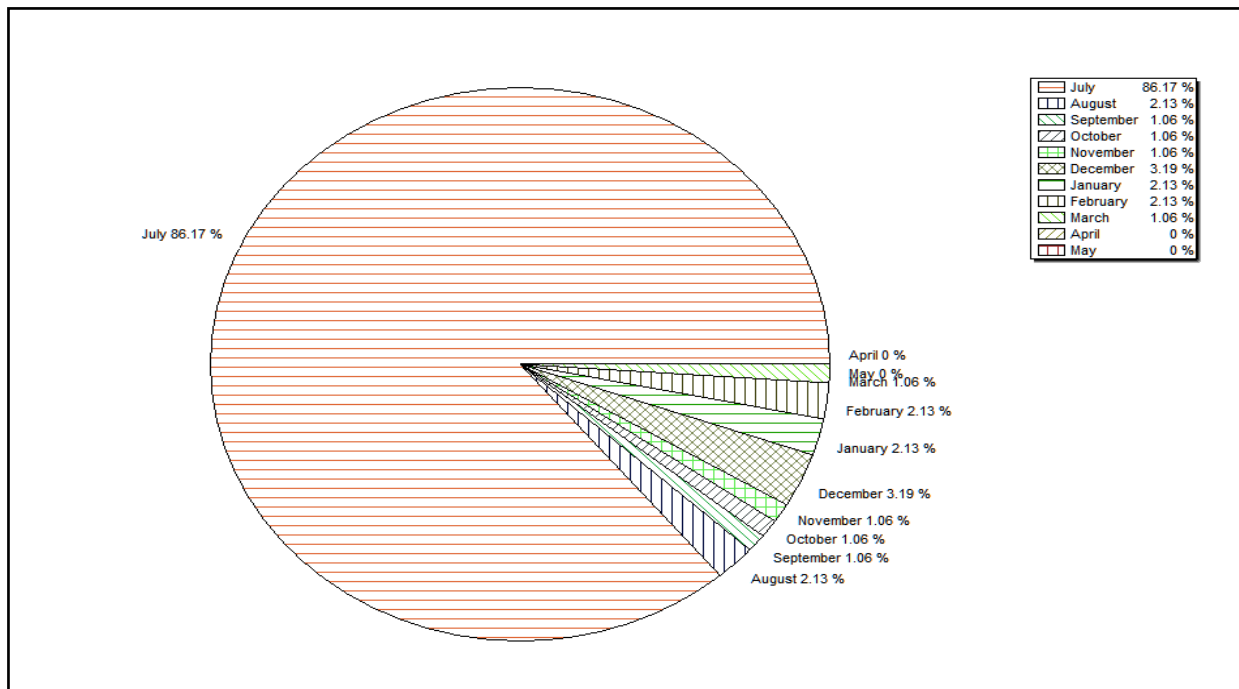
Station Name : Rupen at Sapawada (01 02 04 001)
Local River : Rupen

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

Monthly Average Runoff based on period : 1990-2017



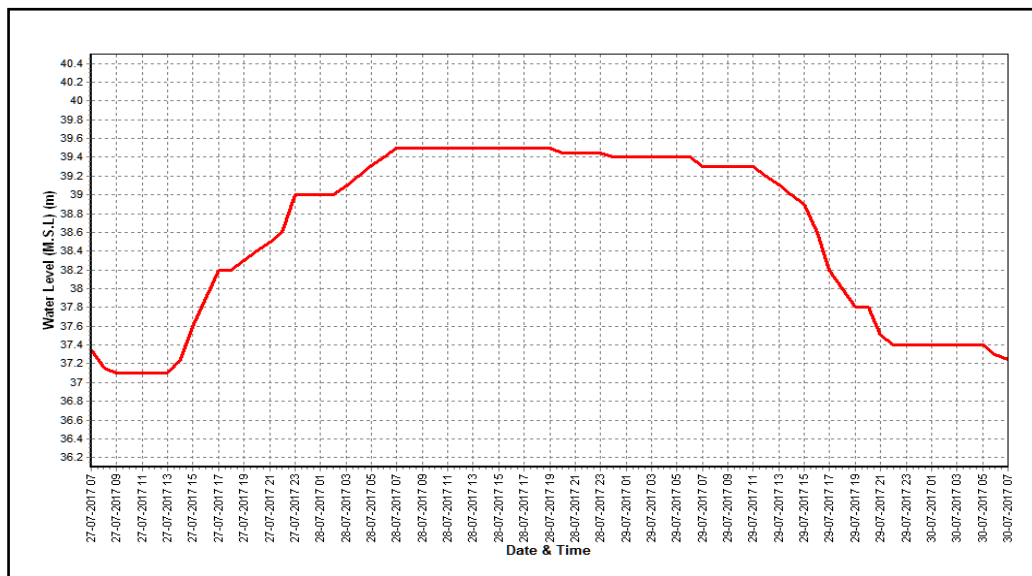
Monthly Runoff for the Year : 2017-2018



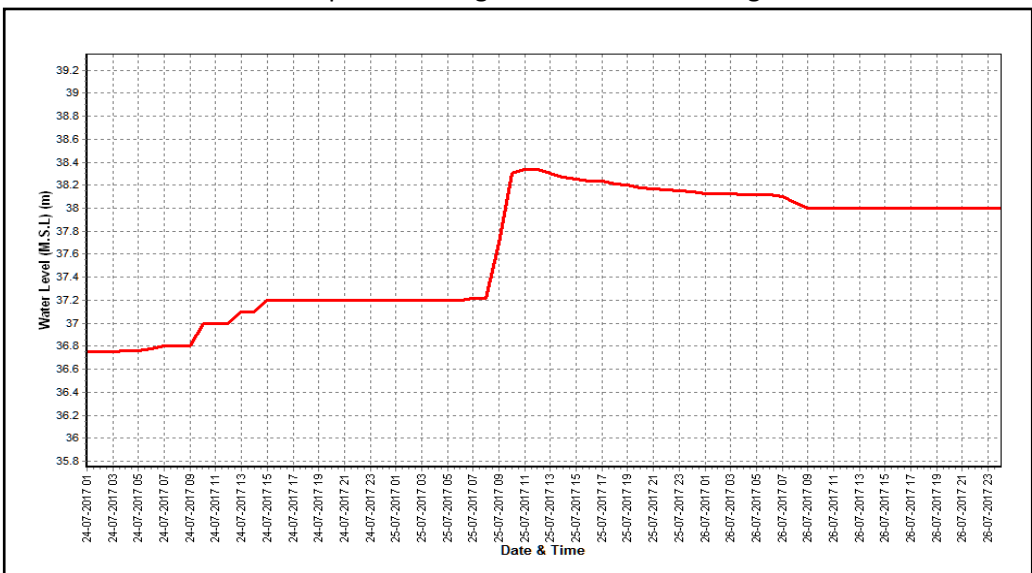
Station Name : Rupen at Sapawada (01 02 04 001)
Local River : Rupen

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

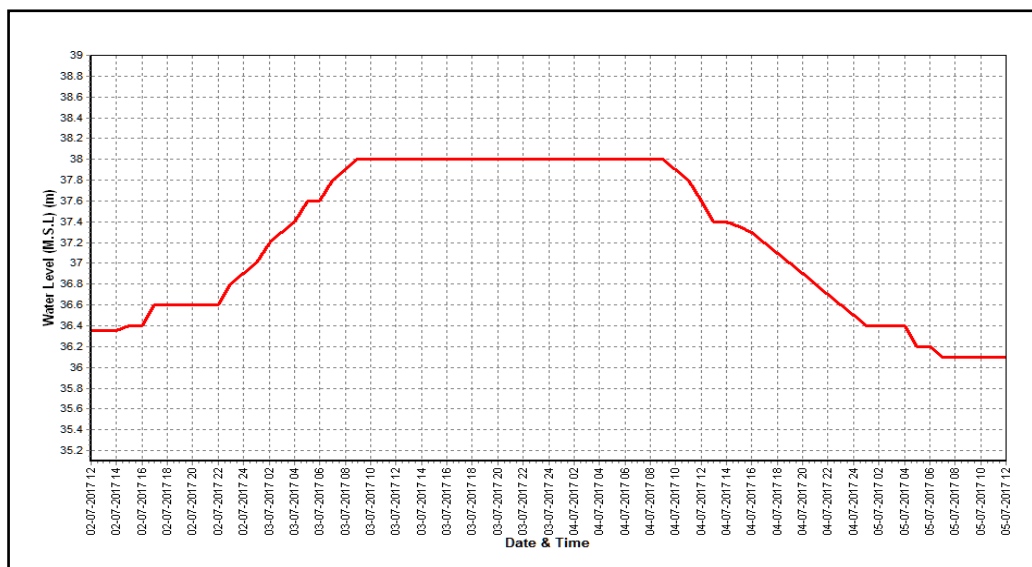
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018



HISTORY SHEET

Water Year : 2017-18

Site : Machhundri at Una

Code : 01 02 14 001

State : Gujarat

District : Somnath (Gir)

Basin : WFR of Kach.-Saur. & Luni

Independent

River : Machhundri

Tributary : -

Sub Tributary : -

Sub-Sub

Tributary : -

Local River : Machhundri

Division : E.E., Ahmedabad

Sub-Division : Ahmedabad

Drainage

Area : 395.01 Sq. Km.

Bank : Left

Latitude : 20°49'37"

Longitude : 71°02'51"

Zero of : 15.5 (m.s.l)

27/07/2014

Gauge (m)

Opening Date

Closing Date

Gauge : 26/07/2014

Discharge : 04/08/2014

Sediment :

Water

Quality :

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

Year	Maximum			Minimum		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
2014-2015	34.83	16.925	04/09/2014	0.000	River Dry	01/06/2014
2015-2016	7.959	16.705	21/09/2015	0.000	River Dry	01/06/2015
2016-2017	18.69	16.910	19/09/2016	0.000	River Dry	01/06/2016
2017-2018	39.95	17.292	31/08/2017	0.000	16.38	03/07/2017

Stage-Discharge Data for the period 2017 - 2018

Station Name : Machhundri at Una (01 02 14 001)

Division : E.E., Ahmedabad

Local River : Machhundri

Sub-Division : Ahmedabad

Day	Jun		Jul		Aug		Sep		Oct		Nov	
	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q	W.L	Q
1	R.Dry	0.000	R. Dry	0.000	16.550	1.880	16.748	14.52	16.590	2.860	16.420	0.000
2	R.Dry	0.000	16.550	2.050	16.540	1.631	16.720	8.773	16.580	2.484	16.415	0.000
3	R.Dry	0.000	16.380	0.000 #	16.540	1.644	16.700	6.001	16.560	2.803	16.415	0.000
4	R.Dry	0.000	16.335	0.000 #	16.540	1.431	16.680	5.219	16.550	2.127	16.400	0.000
5	R.Dry	0.000	16.300	0.000 #	16.530	1.396	16.660	6.169	16.550	1.855	16.400	0.000
6	R.Dry	0.000	16.295	0.000 #	16.530	1.516	16.650	3.016	16.540	1.608	16.400	0.000
7	R.Dry	0.000	16.295	0.000 #	16.530	1.387	16.640	6.134	16.530	1.479	16.400	0.000
8	R.Dry	0.000	16.295	0.000 #	16.530	1.669	16.660	6.672	16.530	1.276	16.400	0.000
9	R.Dry	0.000	16.295	0.000 #	16.530	1.544	16.700	9.295	16.520	1.729	16.395	0.000
10	R.Dry	0.000	16.295	0.000 #	16.520	1.621	16.700	8.553	16.510	1.437	16.395	0.000
11	R.Dry	0.000	16.295	0.000 #	16.530	1.456	16.690	6.507	16.510	1.237	16.390	0.000
12	R.Dry	0.000	16.295	0.151	16.520	1.484	16.780	10.42	16.530	2.018	16.380	0.000
13	R.Dry	0.000	16.295	0.000 #	16.520	1.383	16.885	17.48	16.570	3.153	16.380	0.000
14	R.Dry	0.000	16.295	0.000 #	16.530	1.411	16.690	8.346	16.590	3.584	16.380	0.000
15	R.Dry	0.000	16.416	0.000 #	16.520	1.450	16.680	7.895	16.590	3.560 *	16.380	0.000
16	R.Dry	0.000	16.640	5.390 #	16.519	1.170 #	16.660	5.107	16.540	1.837	16.380	0.000
17	R.Dry	0.000	16.480	0.873	16.500	0.570 #	16.830	10.58	16.530	1.424	16.380	0.000
18	R.Dry	0.000	16.455	0.834	16.480	0.000 #	16.915	17.66 #	16.500	0.570 #	16.380	0.000
19	R.Dry	0.000	16.557	2.428	16.470	0.000 #	16.700	7.913	16.490	0.270 *	16.380	0.000
20	R.Dry	0.000	16.455	0.852	16.450	0.811	16.680	6.667	16.490	0.270 #	16.380	0.000
21	R.Dry	0.000	16.502	1.220	16.535	1.517	16.660	6.327	16.490	0.270 #	16.380	0.000
22	R.Dry	0.000	16.700	23.36	16.848	17.13	16.640	4.838	16.490	0.270 *	16.350	0.000
23	R.Dry	0.000	16.607	3.312	16.590	2.695	16.620	6.406	16.480	0.000 #	16.350	0.000
24	R.Dry	0.000	16.570	2.143	16.570	2.262	16.610	6.220	16.460	0.000 #	16.350	0.000
25	R.Dry	0.000	16.545	1.959	16.550	2.203	16.620	4.194	16.440	0.000 #	16.340	0.000
26	R.Dry	0.000	16.530	1.663	16.550	2.333	16.620	4.282	16.450	0.000 #	16.340	0.000
27	R.Dry	0.000	16.553	2.056	16.550	1.784	16.610	3.478	16.440	0.000 #	16.330	0.000
28	R.Dry	0.000	16.545	1.777	16.550	1.860	16.610	3.776	16.430	0.000 #	16.330	0.000
29	R.Dry	0.000	16.556	1.879	16.550	2.479	16.600	3.110	16.430	0.000 *	16.330	0.000
30	R.Dry	0.000	16.550	1.900	16.596	3.416	16.590	3.201	16.430	0.000 #	16.330	0.000
31			16.545	1.919	17.292	39.95			16.420	0.000 #		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	16.254	0.228	16.534	1.572	16.686	7.435	16.546	1.966	16.404	0.000
II Ten-Daily	R.Dry	0.000	16.418	1.053	16.504	0.973	16.751	9.857	16.534	1.792	16.381	0.000
III Ten-Daily	R.Dry	0.000	16.564	3.926	16.653	7.057	16.618	4.583	16.451	0.049	16.343	0.000
Monthly												
Min.	R.Dry	0.000	15.500	0.000	16.450	0.000	16.590	3.016	16.420	0.000	16.330	0.000
Max.	R.Dry	0.000	16.700	23.36	17.292	39.95	16.915	17.66	16.590	3.584	16.420	0.000
Mean	R.Dry	0.000	16.417	1.859	16.566	3.325	16.685	7.292	16.508	1.23	16.376	0.000

Annual Runoff in MCM = 36 Annual Runoff in mm = 91

Peak Observed Discharge = 39.95 cumecs on 31-08-2017 Corres. Water Level :17.292 m

Lowest Observed Discharge = 0.000 cumecs on 03-07-2017 Corres. Water Level :16.38 m

River was in Pooling condition/Negligible flow from 3/7/17 to 11/7/17, 13/7/17 to 15/7/17,

23/11/17 to 16/2/18

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff

Stage-Discharge Data for the period 2017 - 2018

Station Name : Machhundri at Una (01 02 14 001)

Division : E.E., Ahmedabad

Local River : Machhundri

Sub-Division : Ahmedabad

Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	16.330	0.000	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
2	16.330	0.000	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
3	16.330	0.000	16.290	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
4	16.320	0.000	16.290	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
5	16.340	0.000	16.290	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
6	16.340	0.000	16.290	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
7	16.340	0.000	16.280	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
8	16.340	0.000	16.280	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
9	16.340	0.000	16.280	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
10	16.340	0.000	16.280	0.000	16.250	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
11	16.340	0.000	16.280	0.000	16.250	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
12	16.340	0.000	16.270	0.000	16.240	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
13	16.330	0.000	16.270	0.000	16.240	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
14	16.330	0.000	16.270	0.000	16.240	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
15	16.330	0.000	16.270	0.000	16.210	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
16	16.330	0.000	16.270	0.000	16.185	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
17	16.330	0.000	16.270	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
18	16.305	0.000	16.270	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
19	16.305	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
20	16.305	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
21	16.305	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
22	16.305	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
23	16.305	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
24	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
25	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
26	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
27	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
28	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
29	16.295	0.000	16.260	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
30	16.295	0.000	16.260	0.000			R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
31	16.295	0.000	16.260	0.000			R.Dry	0.000			R.Dry	0.000
Ten-Daily Mean												
I Ten-Daily	16.335	0.000	16.287	0.000	16.259	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
II Ten-Daily	16.324	0.000	16.269	0.000	16.227	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
III Ten-Daily	16.298	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Monthly												
Min.	16.295	0.000	16.260	0.000	16.185	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Max.	16.340	0.000	16.295	0.000	16.260	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Mean	16.318	0.000	16.272	0.000	16.247	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000

Peak Computed Discharge = 3.560 cumecs on 15-10-2017

Corres. Water Level :16.59 m

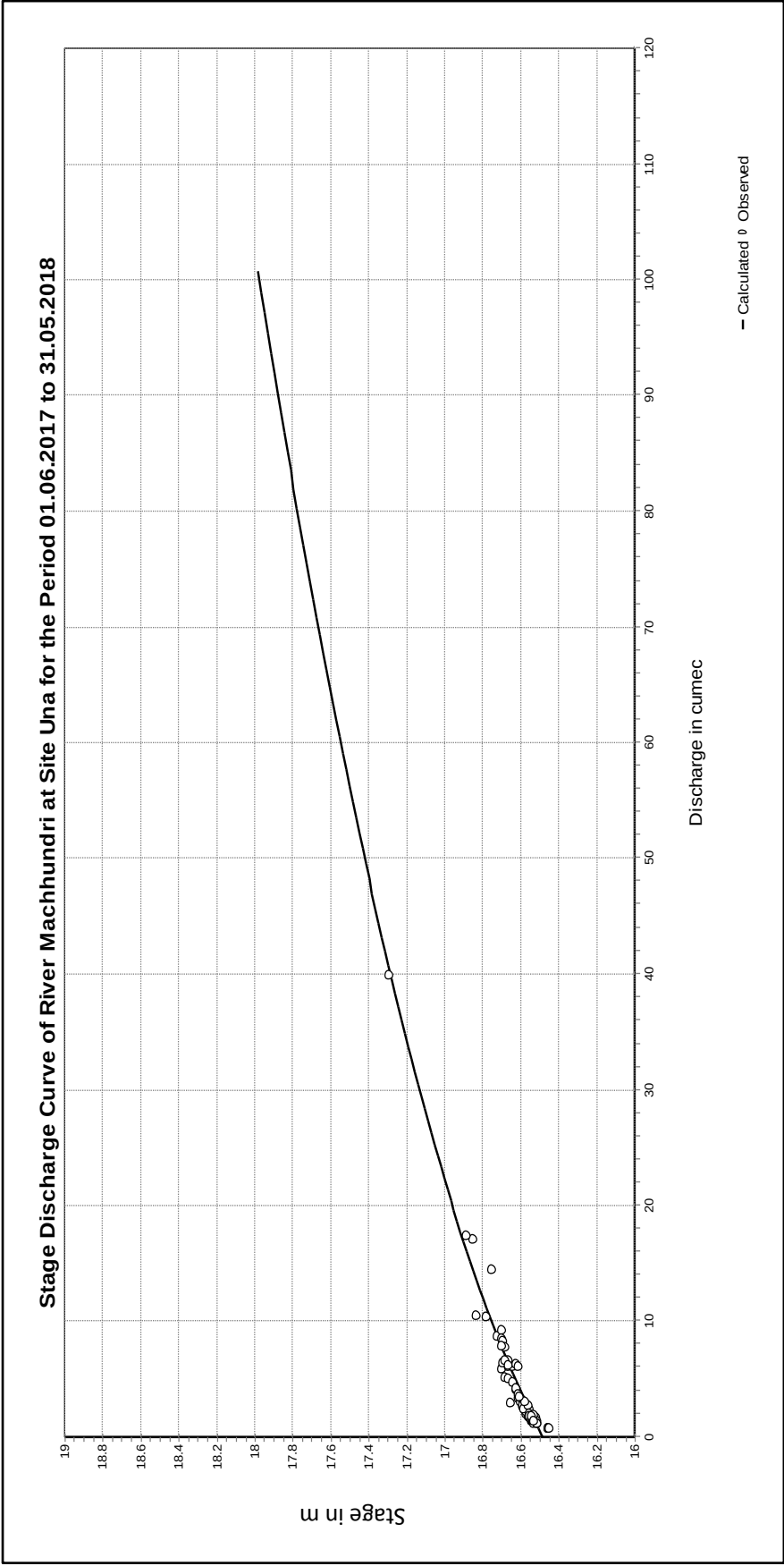
Lowest Computed Discharge = 0.000 cumecs on 29-10-2017

Corres. Water Level :16.43 m

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

#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



Procedure - Standard

Equation Type - Parabolic		$Q=(a+bh+ch^2)$		
LB	UB	a	b	c
16.280	18.000	6205.481	-783.047	24.666

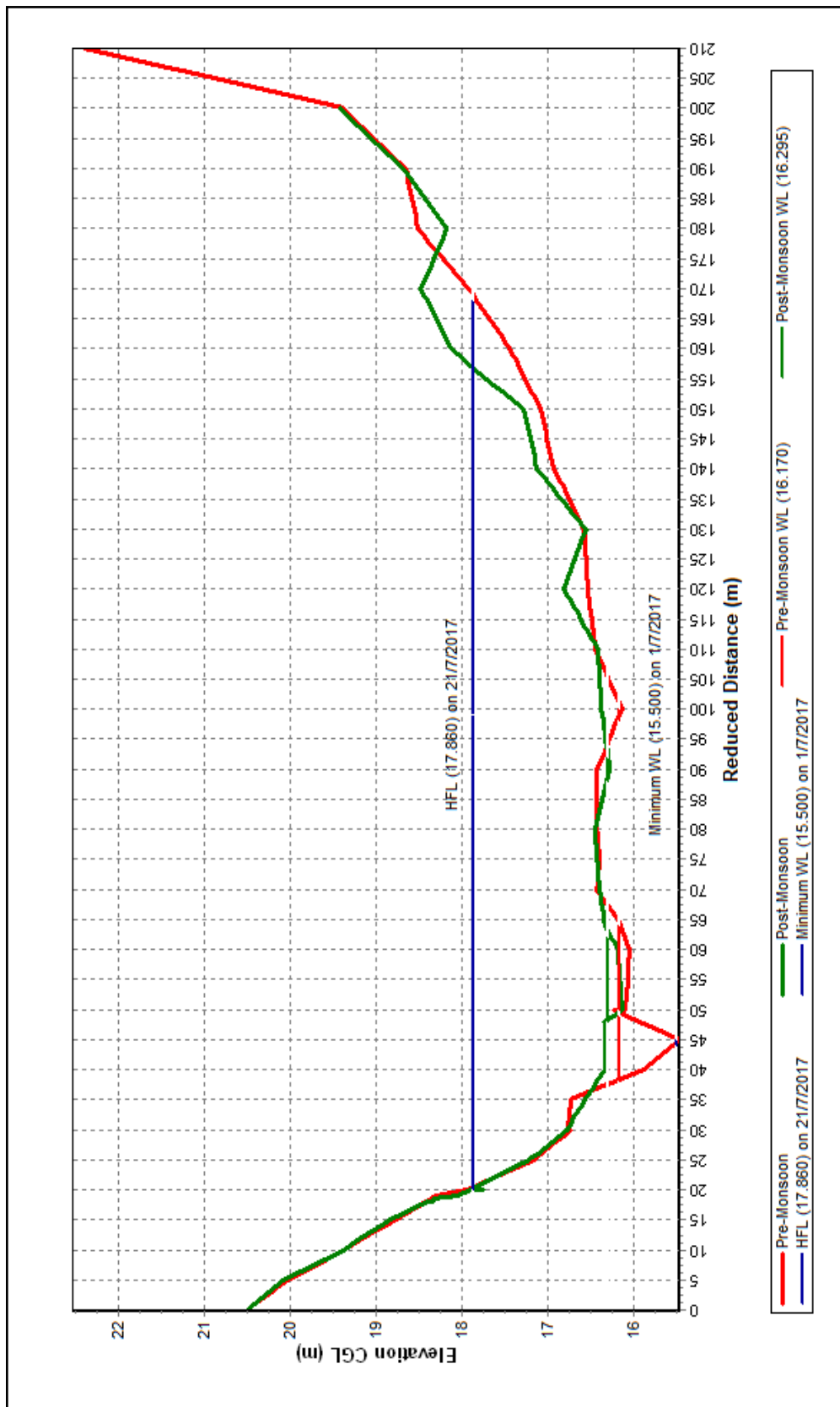
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2017-2018

Station Name : Machhundri at Una (01 02 14 001)

Local River : Machhundri

Division : E.E., Ahmedabad

Sub-Division : Ahmedabad



Historical Flood level - sufficient data not available

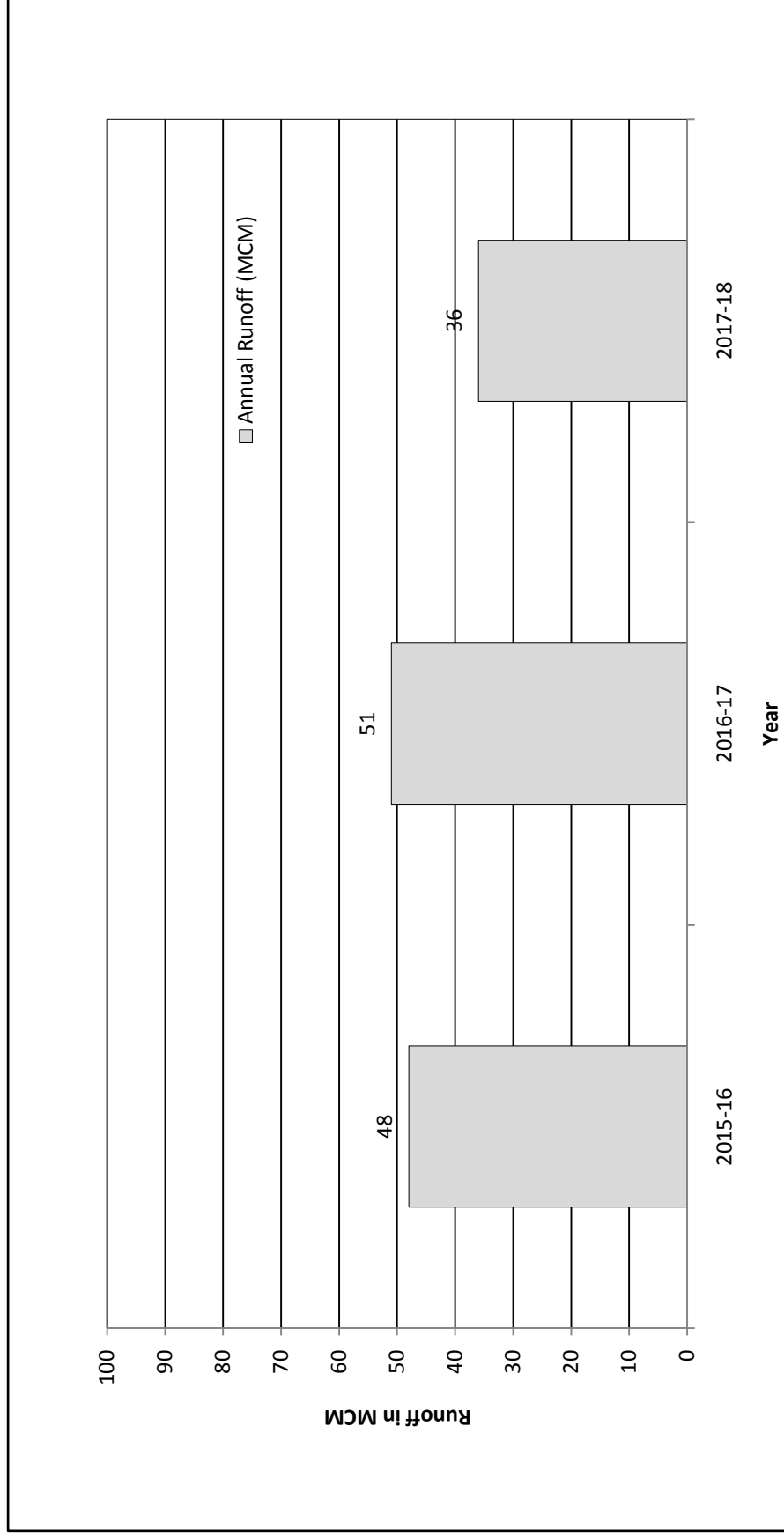
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2017-18

Annual Runoff Values for the period: 2016 - 2018

Station Name : Machhundri at Una (01 02 14 001)

Local River : Machhundri

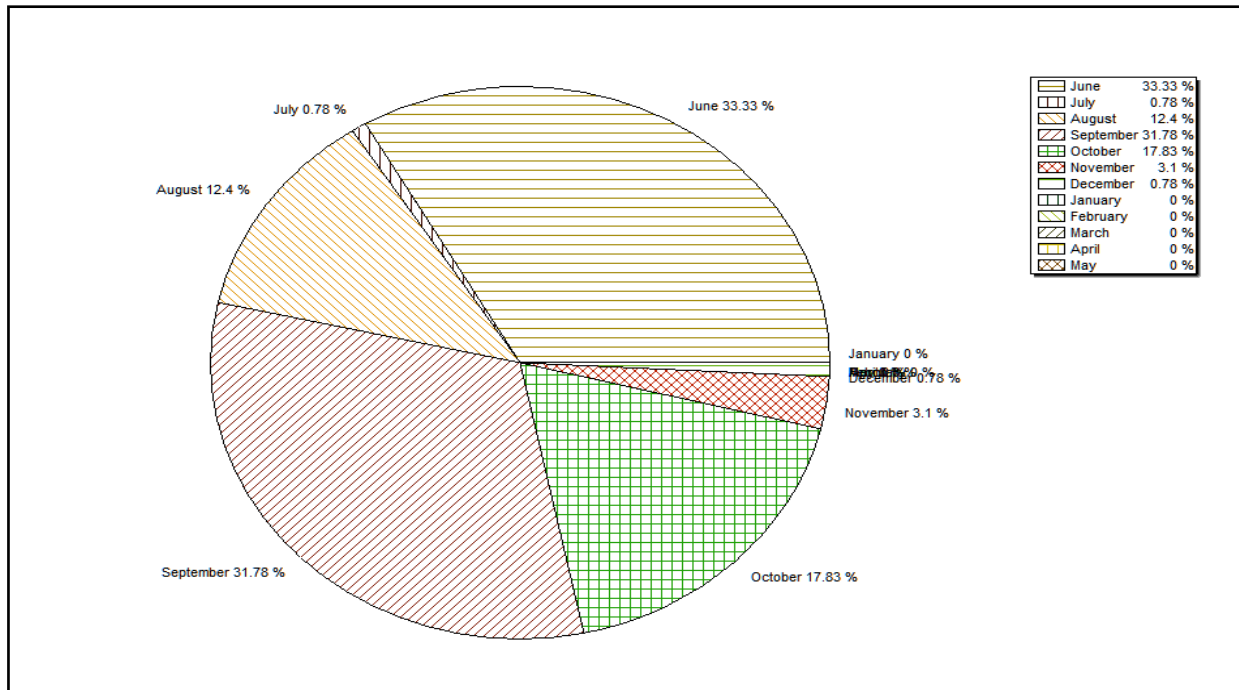
Division : E.E., Ahmedabad
Sub-Division : Ahmedabad



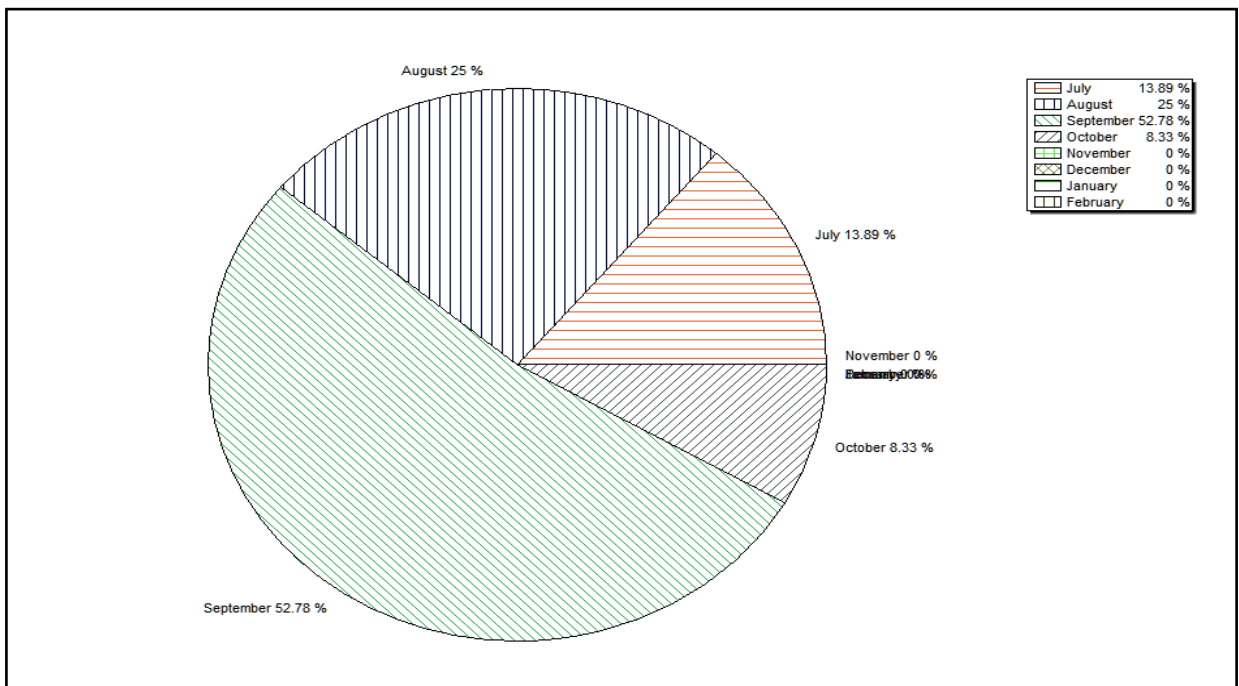
Station Name : Machhundri at Una (01 02 14 001)
Local River : Machhundri

Division : E.E., Ahmedabad
Sub-Division : Ahmedabad

Monthly Average Runoff based on period : 2014-2017



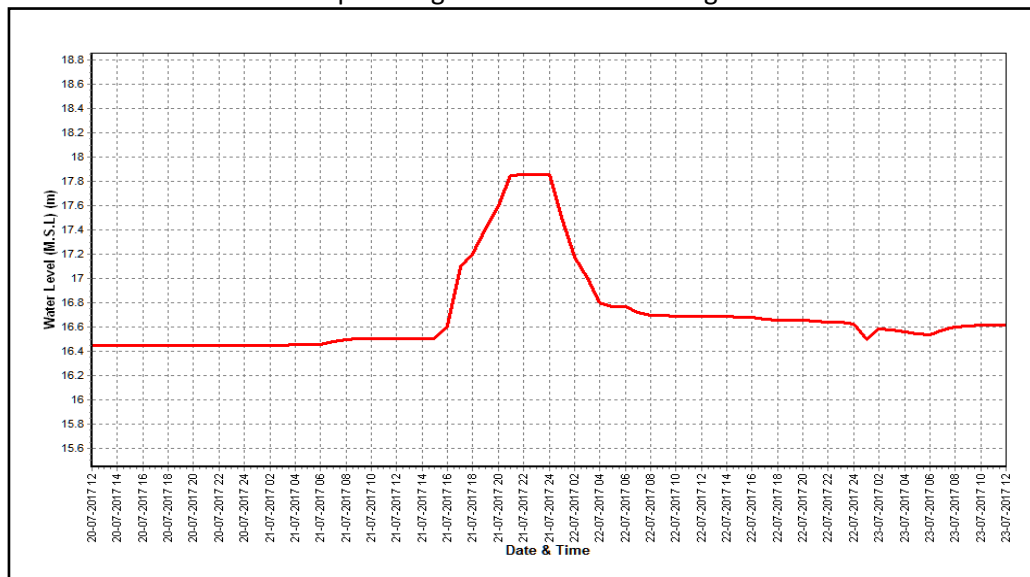
Monthly Runoff for the Year : 2017-2018



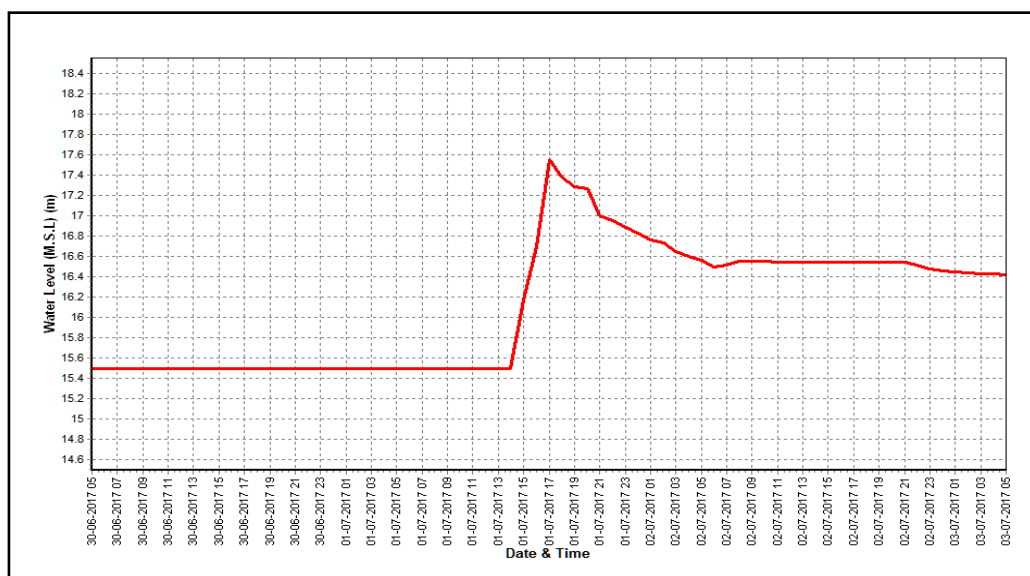
Station Name : Machhundri at Una (01 02 14 001)
Local River : Machhundri

Division : E.E., Ahmedabad
Sub-Division : Ahmedabad

Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2017-2018



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2017-2018

