



जल वार्षिकी WATER YEAR BOOK 2018 – 19

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)



केन्द्रीय जल आयोग
माही व तापी बेसिन संगठन
जल विज्ञानीय प्रेक्षण परिमंडल
गाँधीनगर



**Central Water Commission
Mahi & Tapi Basin
Hydrological Observation
Gandhinagar**

March, 2020

आमुख

राष्ट्रीय जल नीति में मानकीकृत राष्ट्रीय सूचना प्रणाली डेटा बेस और डेटा बैंकों के एक नेटवर्क के साथ गुणवत्ता के आँकड़ें 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 एकीकरण 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, दादर नगर हवेली 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।

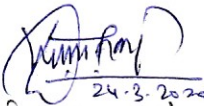
माही मंडल गाँधीनगर द्वारा माही, साबरमती एवं अन्य पश्चिम प्रवाही नदियों लूनी, बनास, शेव्रुन्जी, भादर, मच्छु, रूपेन एवं मच्छुन्दी पर, वर्तमान में, 25 स्थलों पर सतही प्रवाह का प्रेक्षण किया जा रहा है। इनके आँकड़ें इस वार्षिकी में संकलित किए गए हैं।

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 आँकड़ें 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)
मार्च 2020


(डी.एस.चासकर)
अधीक्षण अभियंता

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.

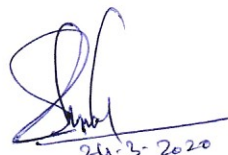
Hydrological Observation (HO) Circle, Gandhinagar, a field unit in Mahi & Tapi Basin Organisation of the Central Water Commission, is entrusted with the collection of surface water data (Hydrological Observation) of 17 river basins flowing through Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Dadra Nagar Haveli and Daman & Diu (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
March, 2020


(D. S. Chaskar)
Superintending Engineer

C o n t e n t s

Section No	Particulars	Page No
	List of Plates & Figures	vii
	Abbreviations & Symbols	viii-ix
1.0	Introduction	1
1.1	General	1
1.2	Jurisdiction map of Mahi Division, CWC, Gandhinagar	3
2.0	Basin Description	4
2.1	Mahi Basin	4-14
2.2	Sabarmati Basin	15-24
2.3	Luni Basin	25-30
2.4	Banas Basin	31-37
2.5	Shetrunji Basin	38-43
2.6	Bhadar Basin	44-49
2.7	Machchhu Basin	50-55
2.8	Rupen Basin	56-59
2.9	Machhundri Basin	60-66
3.0	Hydrological Observations by the State Governments	67-71
3.1	Methodology Stream flow measurement	72-75
3.1.1	Gauge measurement	72
3.1.2	Discharge measurement	72
3.1.3	Explanatory note	74
3.1.4	Method of presentation	75
4.0	Hydrological data	75
4.1	Mahi Basin	77-146
4.1.1	Mahi at Khanpur	77-86
	History sheet	77
	Stage discharge data for the period 2018-2019	78-80
	Stage discharge curves	81-82
	Pre-Monsoon and post-Monsoon X-section for the water year	83
	Annual runoff values for the period 1979-2018	84
	Monthly average runoff for the period 1979-2018	85
	Water level vs time graph of I, II & III highest peaks for the water year	86
4.1.2	Anas at Chakaliya	87-95
	History sheet	87-88
	Stage discharge data for the period 2018-2019	89-90
	Stage discharge curve	91
	Pre-Monsoon and post-Monsoon X-section for the water year	92

	Annual runoff values for the period 1991-2018	93
	Monthly average runoff for the period 1991-2018	94
	Water level vs time graph of I, II & III highest peaks for the water year	95
4.1.3	Mahi at Paderdibadi	96-103
	History sheet	96-97
	Stage discharge data for the period 2018-19	98-99
	Pre-Monsoon and post-Monsoon X-section for the water year	100
	Annual runoff values for the period 1978-2018	101
	Monthly average runoff for the period 1978-2018	102
	Water level vs time graph of I, II & III highest peaks for the water year	103
4.1.4	Som at Rangeli	104-113
	History sheet	104-105
	Stage discharge data for the period 2018-19	106-107
	Stage discharge curve	108-109
	Pre-Monsoon and post-Monsoon X-section for the water year	110
	Annual runoff values for the period 1979-2018	111
	Monthly average runoff for the period 1979-2018	112
	Water level vs time graph of I, II & III highest peaks for the water year	113
4.1.5	Jakham at Dhariawad	114-121
	History sheet	114
	Stage discharge data for the period 2018-2019	115-116
	Stage discharge curve	117
	Pre-Monsoon and post-Monsoon X-section for the water year	118
	Annual runoff values for the period 1988-2018	119
	Monthly average runoff for the period 1988-2018	120
	Water level vs time graph of I, II & III highest peaks for the water year	121
4.1.6	Mahi at Mataji	122-130
	History sheet	122-123
	Stage discharge data for the period 2018-2019	124-125
	Stage discharge curve	126
	Pre-Monsoon and post-Monsoon X-section for the water year	127
	Annual runoff values for the period 1982-2018	128
	Monthly average runoff for the period 1982-2018	129
	Water level vs time graph of I, II & III highest peaks for the water year	130
4.1.7	Mahi at Khandiovri	131-138
	History sheet	131
	Stage discharge data for the period 2018-2019	132-133
	Stage discharge curve	134

	Pre-Monsoon and post-Monsoon X-section for the water year	135
	Annual runoff values for the period 1982-2018	136
	Monthly average runoff for the period 1982-2018	137
	Water level vs time graph of I, II & III highest peaks for the water year	138
4.1.8	Mahi at Sohagpura	139-146
	History sheet	139
	Stage discharge data for the period 2018-2018	140-141
	Stage discharge curve	142
	Pre-Monsoon and post-Monsoon X-section for the water year	143
	Annual runoff values for the period 1982-2018	144
	Monthly average runoff for the period 1982-2018	145
	Water level vs time graph of I, II & III highest peaks for the water year	146
4.2	Sabarmati Basin	147-199
4.2.1	Sabarmati at Vautha	147-155
	History sheet	147
	Stage discharge data for the period 2018-2019	148-149
	Stage discharge curve	150-151
	Pre-Monsoon and post-Monsoon X-section for the water year	152
	Annual runoff values for the period 2001-2018	153
	Monthly average runoff for the period 2001-2018	154
	Water level vs time graph of I, II & III highest peaks for the water year	155
4.2.2	Sabarmati at Kheda	156-164
	History sheet	156-157
	Stage discharge data for the period 2018-2019	158-159
	Stage discharge curve	160
	Pre-Monsoon and post-Monsoon X-section for the water year	161
	Annual runoff values for the period 1998-2018	162
	Monthly average runoff for the period 1998-2018	163
	Water level vs time graph of I, II & III highest peaks for the water year	164
4.2.3	Watrak at Ratanpur	165-173
	History sheet	165-166
	Stage discharge data for the period 2018-2019	167-168
	Stage discharge curve	169
	Pre-Monsoon and post-Monsoon X-section for the water year	170
	Annual runoff values for the period 1991-2018	171
	Monthly average runoff for the period 1991-2018	172
	Water level vs time graph of I, II & III highest peaks for the water year	173
4.2.4	Sabarmati at Derol Bridge	174-182

	History sheet	174-175
	Stage discharge data for the period 2018-2019	176-177
	Stage discharge curve	178
	Pre-Monsoon and post-Monsoon X-section for the water year	179
	Annual runoff values for the period 1992-2018	180
	Monthly average runoff for the period 1992-2018	181
	Water level vs time graph of I, II & III highest peaks for the water year	182
4.2.5	Sabarmati at Kheroj	183-191
	History sheet	183-184
	Stage discharge data for the period 2018-2019	185-186
	Stage discharge curve	187
	Pre-Monsoon and post-Monsoon X-section for the water year	188
	Annual runoff values for the period 1992-2018	189
	Monthly average runoff for the period 1992-2018	190
	Water level vs time graph of I, II & III highest peaks for the water year	191
4.2.6	Wakal at Jotasan	192-199
	History sheet	192-193
	Stage discharge data for the period 2018-2019	194
	Stage discharge curve	195
	Pre-Monsoon and post-Monsoon X-section for the water year	196
	Annual runoff values for the period 1995-2018	197
	Monthly average runoff for the period 1995-2018	198
	Water level vs time graph of I, II & III highest peaks for the water year	199
4.3	Luni Basin	200-213
4.3.1	Luni at Gandhav	200-206
	History sheet	200-201
	Stage discharge data for the period 2018-2019	202-203
	Pre-Monsoon and post-Monsoon X-section for the water year	204
	Annual runoff values for the period 1974-2018	205
	Monthly average runoff for the period 1974-2018	206
4.3.2	Luni at Balotra	207-213
	History sheet	207-208
	Stage discharge data for the period 2018-2019	209-210
	Pre-Monsoon and post-Monsoon X-section for the water year	211
	Annual runoff values for the period 1990-2018	212
	Monthly average runoff for the period 1990-2018	213
4.4	Banas Basin	214-245
4.4.1	Banas at Kamalpur	214-220
	History sheet	214-215

	Stage discharge data for the period 2018-2019	216-217
	Pre-Monsoon and post-Monsoon X-section for the water year	218
	Annual runoff values for the period 1971-2018	219
	Monthly average runoff for the period 1971-2018	220
4.4.2	Banas at Chitrasani	221-227
	History sheet	221
	Stage discharge data for the period 2018-2019	222-223
	Pre-Monsoon and post-Monsoon X-section for the water year	224
	Annual runoff values for the period 1990-2018	225
	Monthly average runoff for the period 1990-2018	226
	Water level vs time graph of I, II & III highest peaks for the water year	227
4.4.3	Banas at Sarotry	228-236
	History sheet	228-229
	Stage discharge data for the period 2018-2019	230-231
	Stage discharge curve	232
	Pre-Monsoon and post-Monsoon X-section for the water year	233
	Annual runoff values for the period 1989-2018	234
	Monthly average runoff for the period 1989-2018	235
	Water level vs time graph of I, II & III highest peaks for the water year	236
4.4.4	Banas at Aburoad	237-245
	History sheet	237-238
	Stage discharge data for the period 2018-2019	239-240
	Stage discharge curve	241
	Pre-Monsoon and post-Monsoon X-section for the water year	242
	Annual runoff values for the period 1989-2018	243
	Monthly average runoff for the period 1989-2018	244
	Water level vs time graph of I, II & III highest peaks for the water year	245
4.5	Shetrunji Basin	246-253
4.5.1	Shetrunji at Lowara	246-253
	History sheet	246-247
	Stage discharge data for the period 2018-2019	248-249
	Pre-Monsoon and post-Monsoon X-section for the water year	250
	Annual runoff values for the period 1971-2018	251
	Monthly average runoff for the period 1971-2018	252
	Water level vs time graph of I, II & III highest peaks for the water year	253
4.6	Bhadar Basin	254-261
4.6.1	Bhadar at Ganod	254-261
	History sheet	254-255
	Stage discharge data for the period 2018-2019	256-257
	Pre-Monsoon and post-Monsoon X-section for the water year	258
	Annual runoff values for the period 1971-2018	259

	Monthly average runoff for the period 1971-2018	260
	Water level vs time graph of I, II & III highest peaks for the water year	261
4.7	Machchhu Basin	262-269
4.7.1	Machhu at Gungan	262-269
	History sheet	262-263
	Stage discharge data for the period 2018-2019	264-265
	Pre-Monsoon and post-Monsoon X-section for the water year	266
	Annual runoff values for the period 1971-2018	267
	Monthly average runoff for the period 1971-2018	268
4.8	Rupen Basin	269-275
4.8.1	Rupen at Sapawada	269-275
	History sheet	269-270
	Stage discharge data for the period 2018-2019	271-272
	Pre-Monsoon and post-Monsoon X-section for the water year	273
	Annual runoff values for the period 1990-2018	274
	Monthly average runoff for the period 1990-2018	275
4.9	Machhundri Basin	276-283
4.9.1	Machhundri at Una	276-283
	History sheet	276
	Stage discharge data for the period 2018-2019	277-278
	Stage discharge curve	279
	Pre-Monsoon and post-Monsoon X-section for the water year	280
	Monthly average runoff for the water year	281
	Monthly average runoff for the water year	282
	Water level vs time graph of I, II & III highest peaks for the water year	283

List of plates and Figures

Plate-1	Jurisdiction map of Mahi Division, CWC, Gandhinagar	3
Plate -2.1.1	River Basin map of Mahi Basin	13
Plate -2.1.2	Line diagram of River Basin of Mahi Basin	14
Plate -2.2.1	River Basin map of Sabarmati Basin	23
Plate -2.2.2	Line diagram of River Basin of Sabarmati Basin	24
Plate -2.3.1	River Basin map of Luni Basin	29
Plate -2.3.2	Line diagram of River Basin of Luni Basin	30
Plate -2.4.1	River Basin map of Banas Basin	36
Plate -2.4.2	Line diagram of River Basin of Banas Basin	37
Plate -2.5.1	River Basin map of Shetrunji Basin	42
Plate -2.5.2	Line diagram of River Basin of Shetrunji Basin	43
Plate -2.6.1	River Basin map of Bhadar Basin	48
Plate -2.6.2	Line diagram of River Basin of Bhadar Basin	49
Plate -2.7.1	River Basin map of Machchhu Basin	54
Plate -2.7.2	Line diagram of River Basin of Machchhu Basin	55
Plate -2.8.1	River Basin map of Rupen Basin	58
Plate -2.8.2	Line diagram of River Basin of Rupen Basin	59
Plate-2.9.1	River Basin map of Machhundri River	61

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

Mahi & Tapi Basin Organisation, CWC, Gandhinagar 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 2018-19 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**.

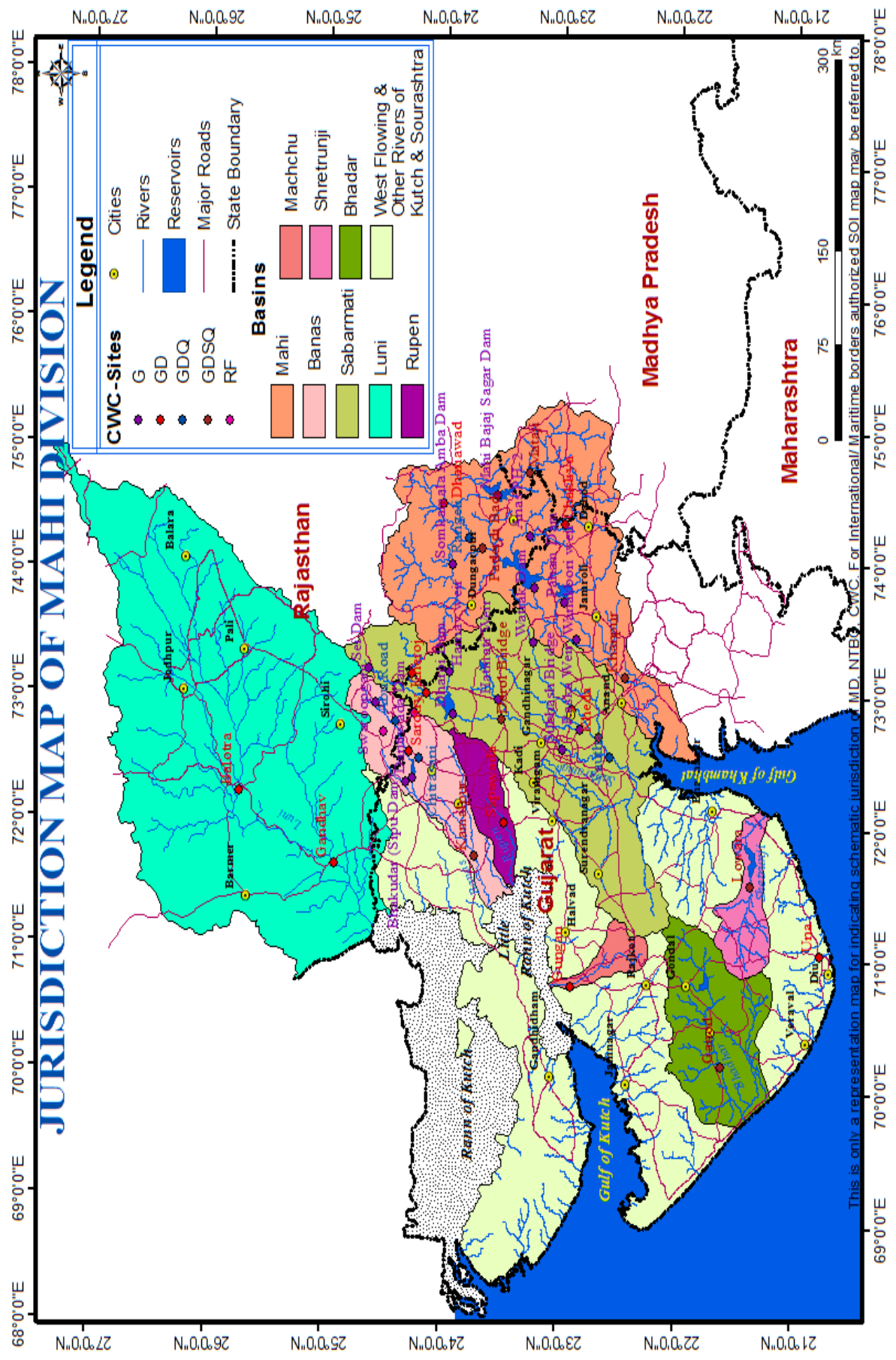
The schemewise distribution of sites is shown in the following table.

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
4	Karoti	Sipu	Banas	01 02 09 002	GD
7	Savni	Hiren	Hiren	01 02 14 002	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 Aravali hills, on the east by the ridge separating it from the Chambal Basin, on the south by the Vindhya and on the west by the Gulf of Khambhat. Mahi River originates on the northern slope of Vindhya 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 Aravali 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 2018-19

Sl. No.	Sites	Maximum	Minimum	Sl. No.	Sites	Maximum	Minimum
.							

1	Mataji	45	4	5	Sohagpura	41	14
2	Dhariawad	46	3	6	Chakaliya	46	5
3	Rangeli	45	6	7	Paderdibadi	45	6
4	Kandiovri	46	4	8	Khanpur	42	7

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 Aravali 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
				2018-19	2018-19
Chakaliya	28	743.2	22	695.2	39
Mataji	30	884.0	38	856.2	37
Khanpur	30	919.6	25	619.2	33
Paderdibadi	34	737.0	30	572.4	18
Dharaiwad	30	841.6	51	859.8	52
Rangeli	19	774.8	26	897.6	33
Mahi dam	17	963.6	26	861.1	28
Som Kamla Amba dam	17	739.5	27	491	21
Kadana dam	18	906.5	34	847	39
Anas ph-2	17	778.8	28	1048	22
Panam dam	17	956.5	33	852	33
Wanakbori weir	17	994.6	26	779.8	27

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	Som Kamla 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

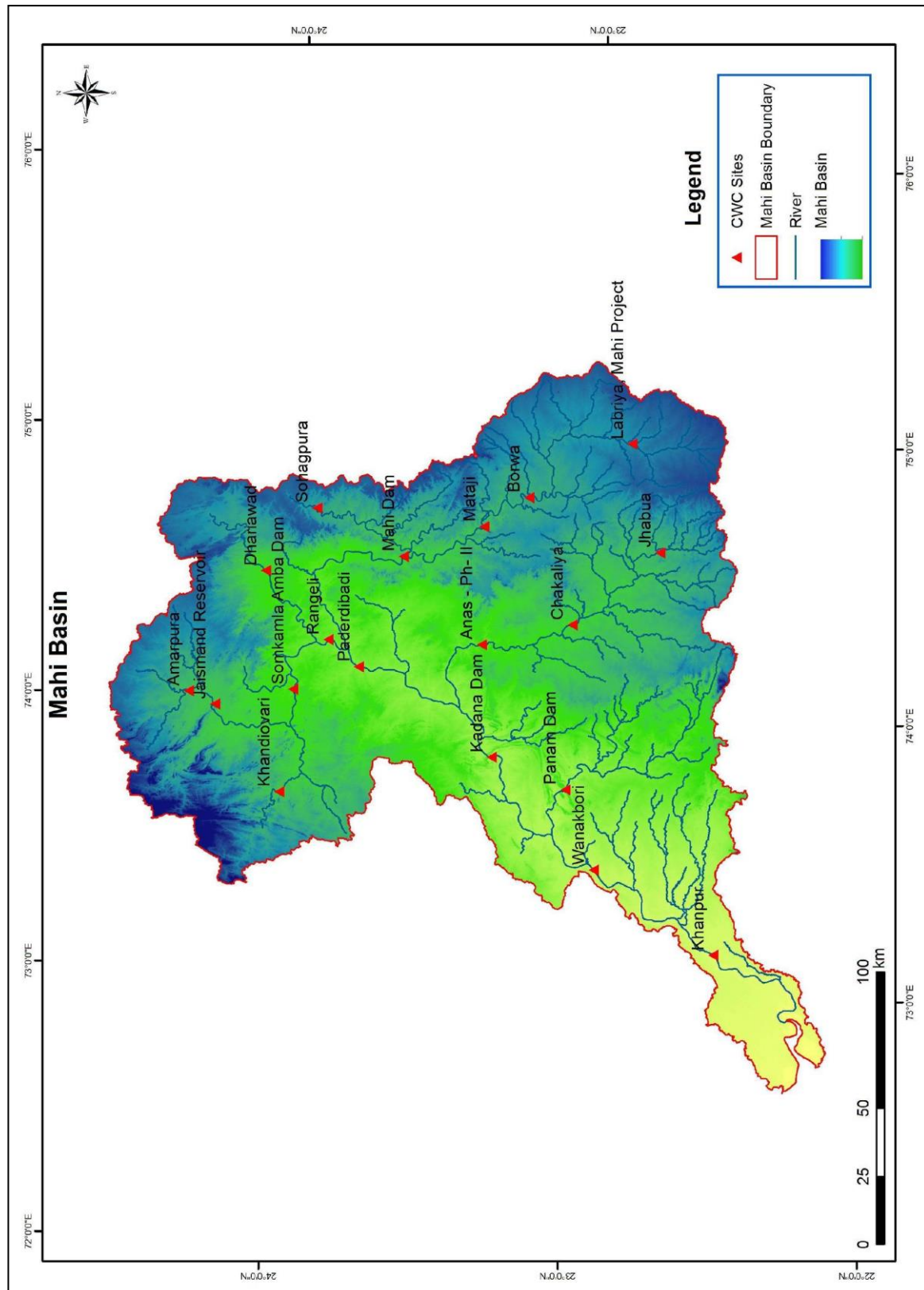
Location name	Local River	Lat. D M S	Long. D M S	Stn. Parameters				Type of gauge	Mode of Discharge Measurement
				Met	Hydro	WQ	Silt Lab		
Mataji	Mahi	23 20 57	74 43 31	SRG	GDS	WQ	Silt lab	Staff G	Wading, bridge, boat, float
Mahi dam	Mahi	23 37 43	74 32 50	SRG	G			Staff G	Dam site
Rangeli	Som	23 52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

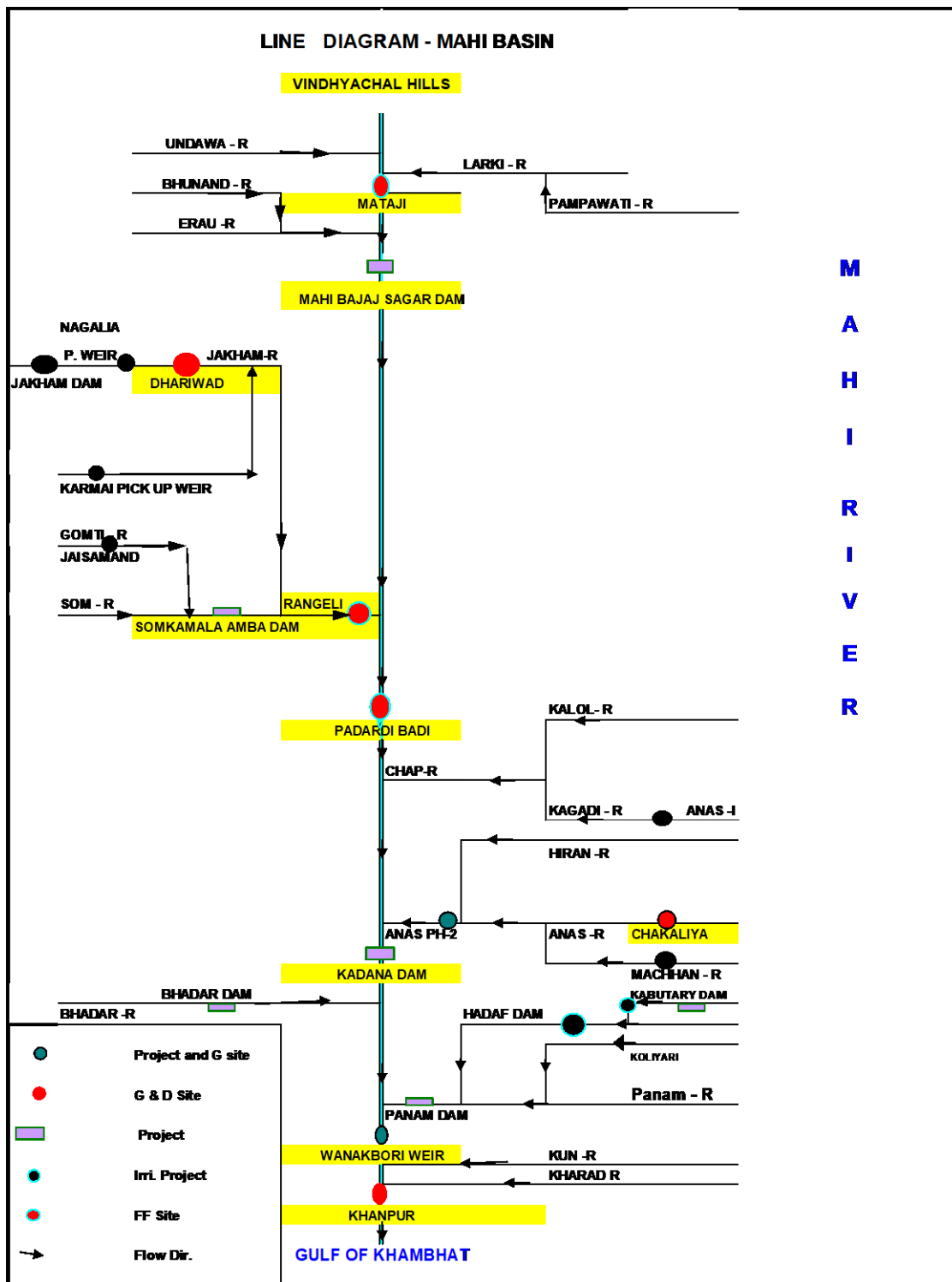
Paderdibadi	Mahi	23 46 03	74 08 12	SRG	GDS	WQ	Silt lab	Staff G	Wading, boat, float
Chakaliya	Anas	23 02 58	74 19 14	SRG	GD			Staff G	Wading, bridge, float
Anas Ph-2	Anas	23 21 11	74 14 07	SRG	G			Steps	Converted to gauge site only. made seasonal site w.e.f.2002
Kadana dam	Mahi	23 18 16	73 49 31	SRG	G			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	Erau 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 Aravali 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 Aravali hills at latitude $24^{\circ} 40'N$ and longitude $73^{\circ} 20'E$ 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 Dharoi 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 Aravali 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 Aravali 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 characterstics

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 Aravali & 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 2018-19

Year	Jotasan		Kheroj		Derol bridge		Ratanpur		Kheda		Voutha	
2018-19	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
	42	2.4	44	5	43.3	5	44	7	43.6	10	44.1	13.6

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
				2018-19	2018-19
Jotasan	23	758.5	34	549.8	38
Kheroj	30	739.4	33	723.4	55
Derol Bridge	30	744.3	28	520.1	35
Watrak dam	32	860.1	24	552	22
Raskaweir	33	639.2	18	484.8	34
Ratanpur	27	811.9	20	704.6	27
Kheda	34	738.8	20	601	36
Sei dam	18	800.4	34	518.6	53
Dharoi dam	18	804.7	34	459	42
Himatnagar	18	850.8	26	661.2	37
Voutha	11	727.0	23	567	35
Subhash bridge	10	806.3	29	404.3	27

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	Dharoi 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 Dharoi project and Watrak project are as follows.

Dharoi project

The project is located on Sabarmati River at Dharoi village of kheralu tehsil 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

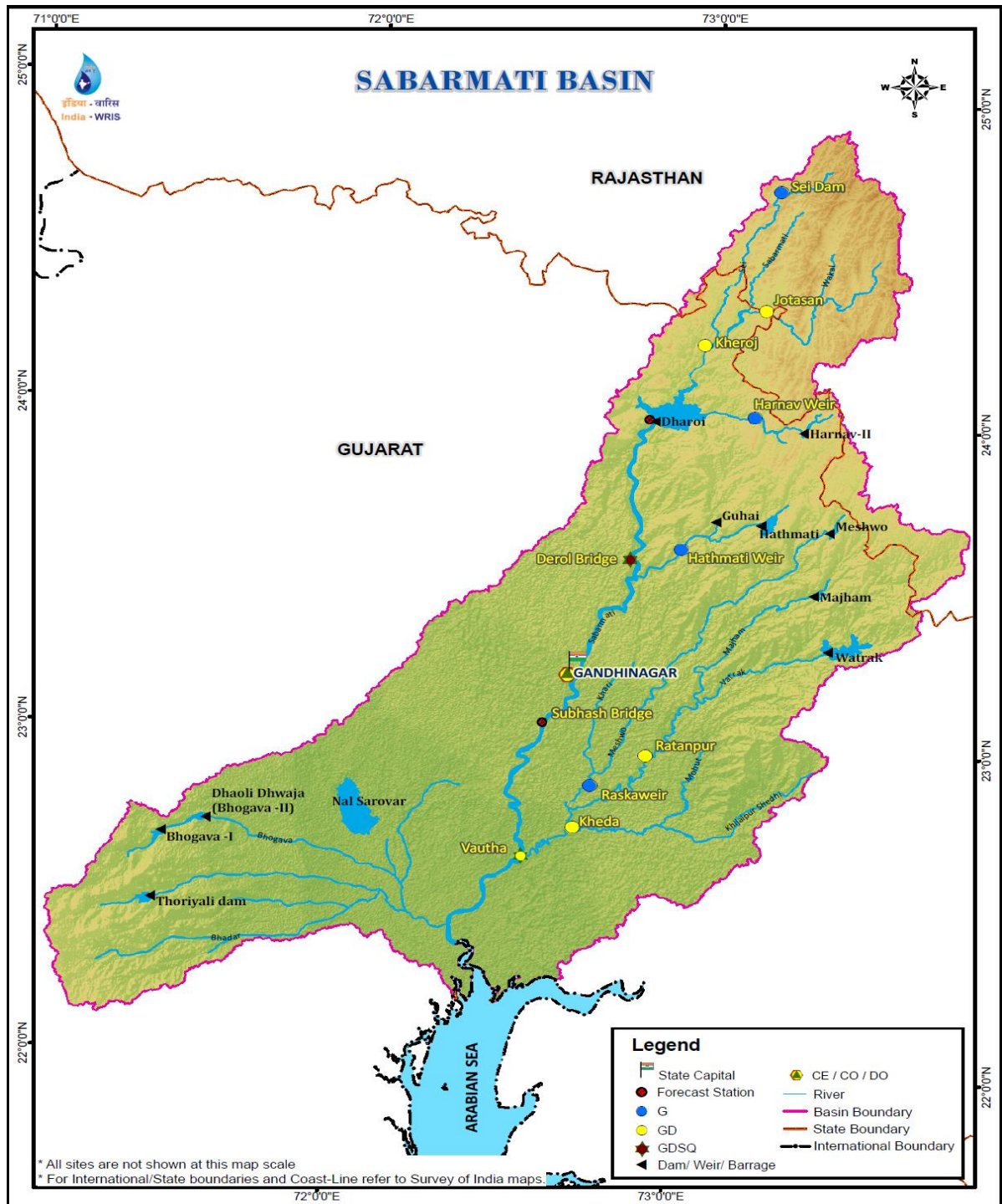
Salient features of sites maintained by CWC in Sabarmati Basin

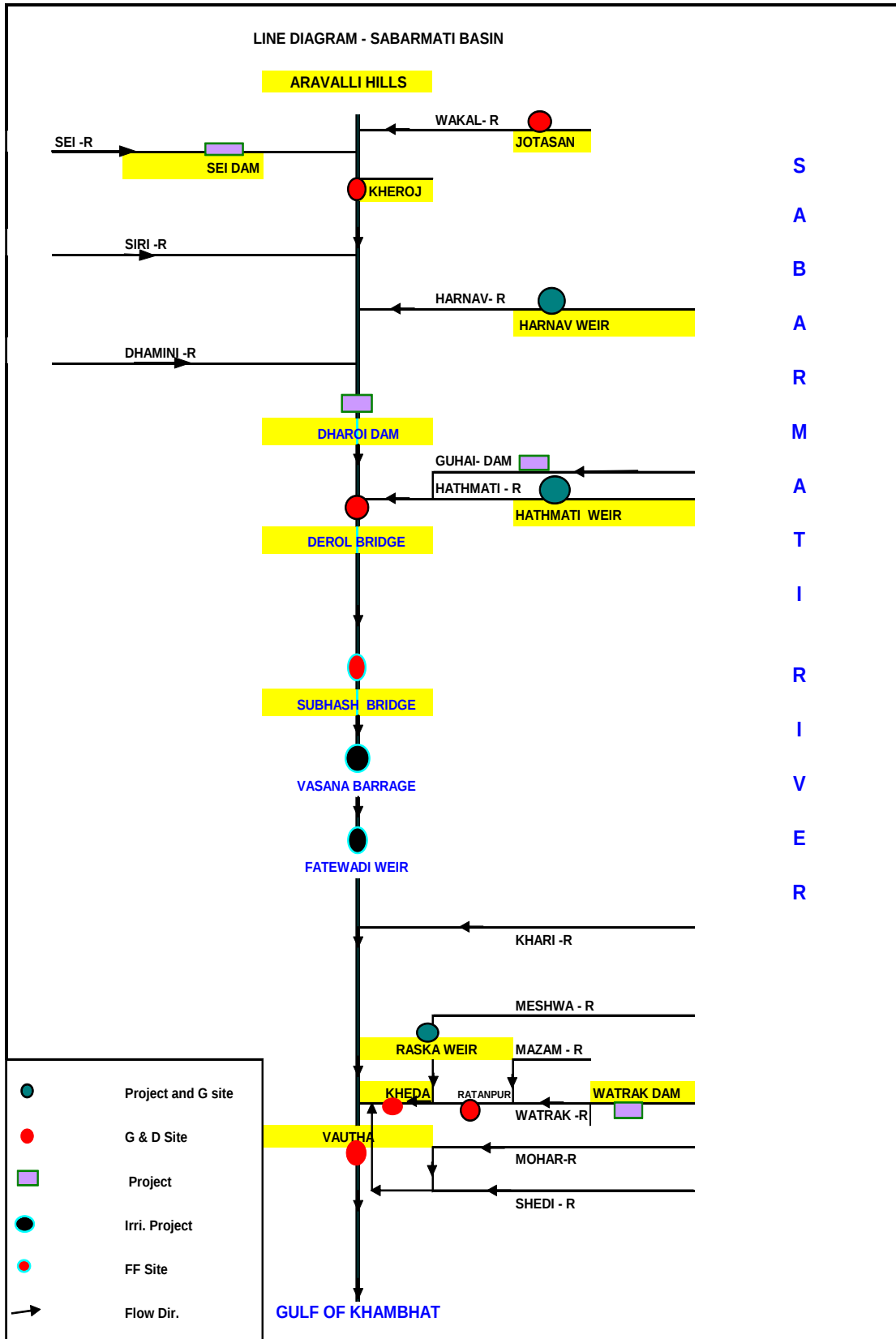
Sr No	Name	Local River / tributary	Lat. N	Long. E	Stn Parameters			Silt Lab	Type of gauge	Mode of Discharge Observation
			D M S	D M S	Met	Hydro	WQ			
1	Jotasan	Wakal	24 21 20	73 10 05	SRG	GD			Staff G	Wading,boat, float

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	Dharoi 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	Dharoi 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 Aravali 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 Aravali 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 Aravali 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	Jojari (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 characterstics

Temperature (°C) during year 2018-19

Year	Balotra		Gandhav	
	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
2018-19	45	4	45	5

2.3.4 Rainfall

The 50 cm isohyet approximately follow Aravalies 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
				2018-19	2018-19
Balotra	19	300.0	18	191.7	24
Gandhav	17	421.3	15	105.6	9

2.3.5 Geology

Aravalies 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 Aravalies (whole Luni basin) is covered by vast stretches of sand intercepted by numerous hillocks of low elevation. The North-West part of Aravalies 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 Aravalies, 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 waster 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

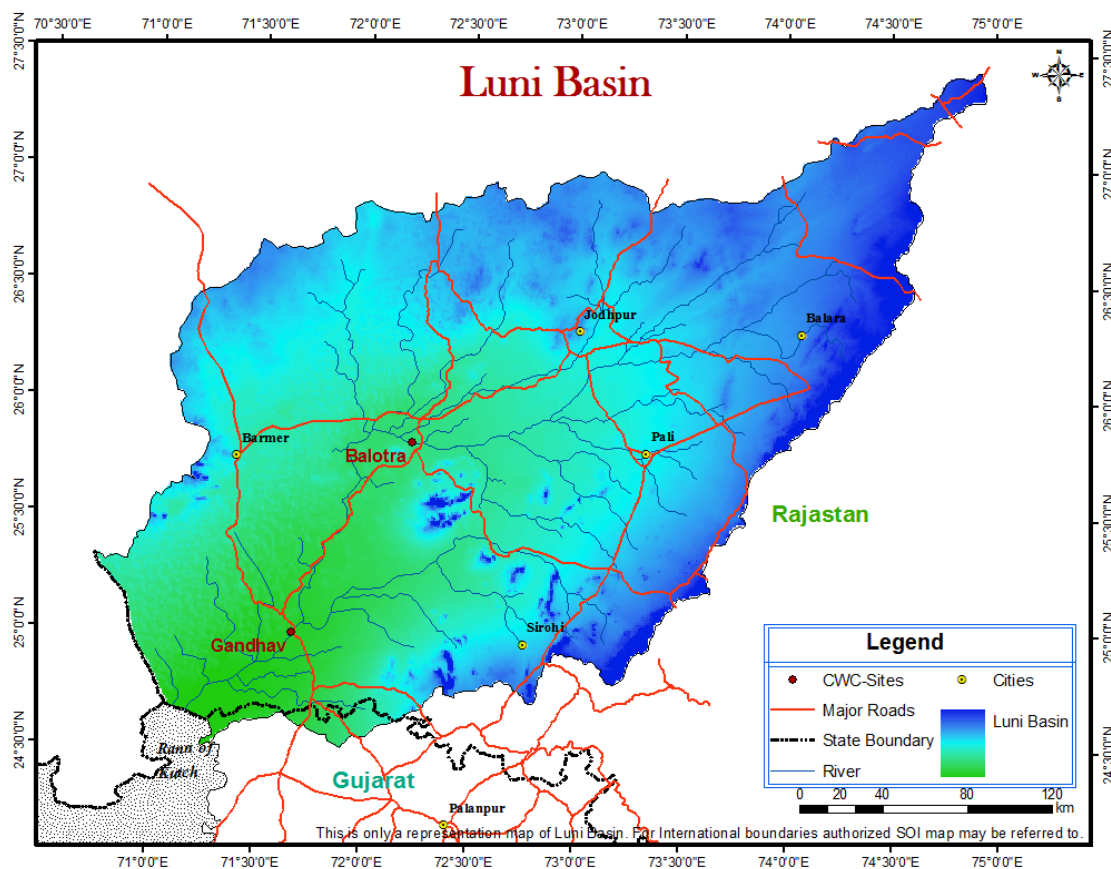
Sr No	Name	Local River	Lat.	Long.	Stn Parameters		Type of gauge	Discharge Measurement
			D M S	D M S	Met	Gauge		
1	Gandhav	Luni	24 59 22	71 40 47	SRG	GD	Staff G	Wading, bridge, float
2	Balotra	Luni	25 49 18	72 13 23	SRG	GD	Staff G	Wading, float

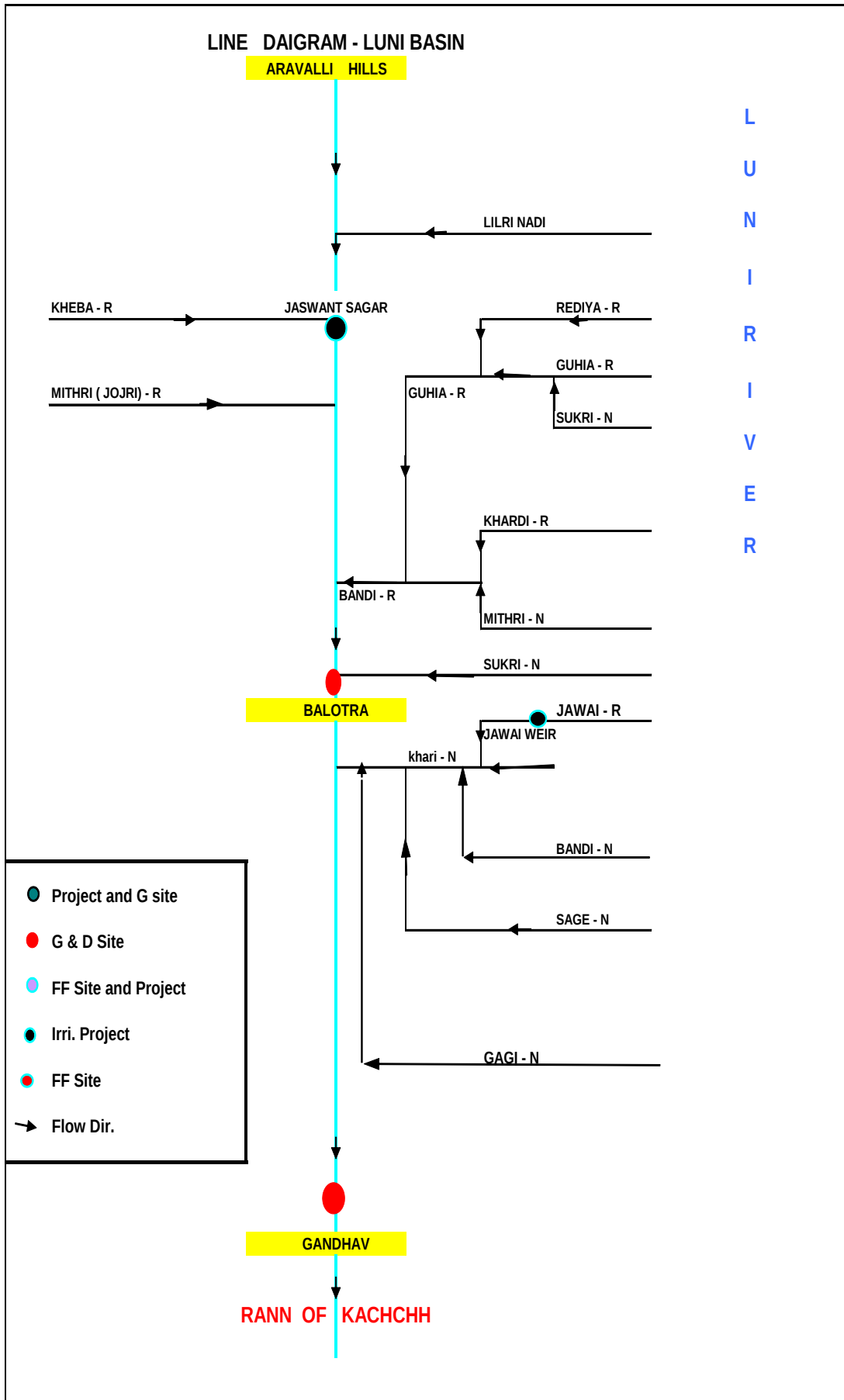
2.3.8 Data availability

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
---	-----------------------	---------	----------	----------	----------

Plate-2.3.1





2.4 Banas Basin

2.4.1 Geographical description of the Basin

Banas river originates from Aravali 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' to 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 Aravali 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 Aravali hills near Pindwara of Sirohi district (Rajasthan) and drains into the Banas river downstream of Swaroopganj dam and 9 km upstream of Aburoad in Rajasthan.

Batria

The Batria rises near Ambaji hills of Aravali 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 rises near Ambaji hills of Aravali 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 2018-19

Year	Kamalpur		Chitrasani		Sarotry		Abu Road		Karoti	
	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)	Max. (°C)	Min. (°C)
2018-19	45	8	42	7	42	5	43	5	43	8

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
				2018-19	2018-19
Abu Road	39	679.9	32	448.2	32
Sarotry	30	796.8	23	357	19
Chitrasani	39	715.0	36	257.4	29
Bhakudar	34	674.5	20	295.4	11
Kamalpur	38	534.1	13	132.4	17
Dantiwada	20	683.9	21	358	21
Ambaji	20	781.9	29	570.2	57
Mt.abu	20	1446.5	39	733	35

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

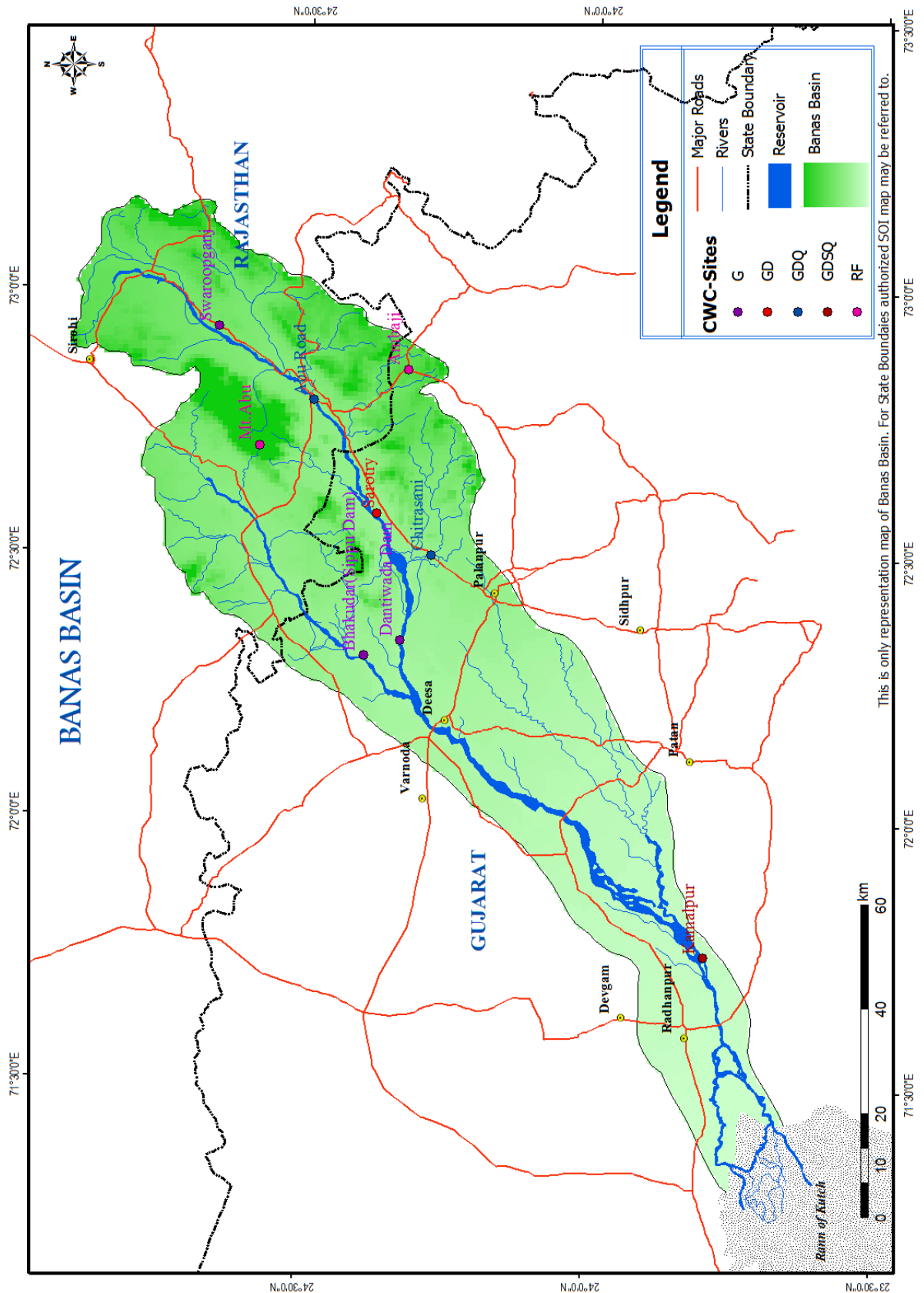
Salient features of sites maintained by CWC

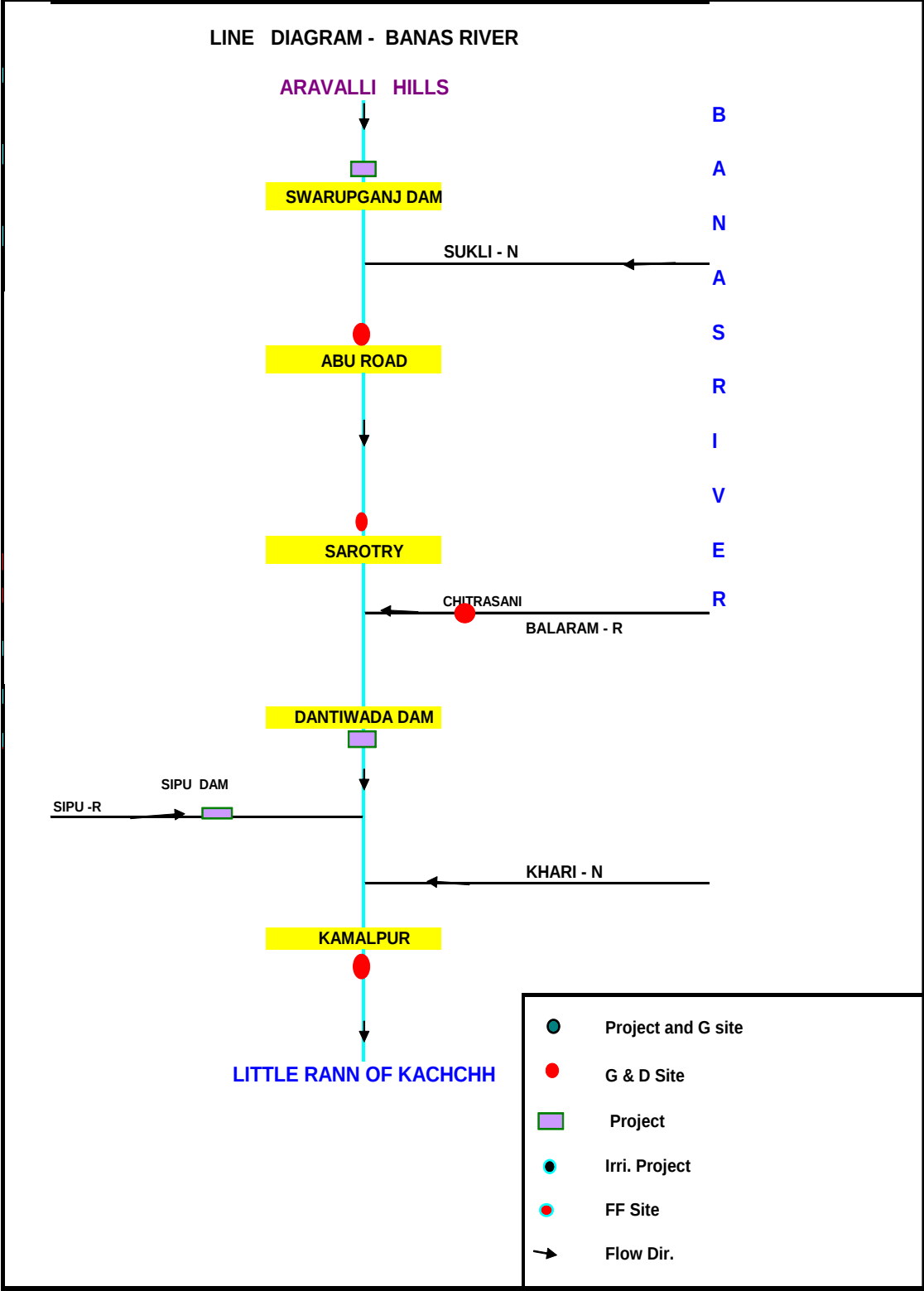
Sr No	Location Name	Local River	Lat. D M S	Long. D M S	Stn. Parameters			Silt lab	Type of gauge	Mode of Discharge Measurement
					Met	Gauge	WQ			
1	Swarup-ganj	Banas	24 41 28	72 55 52	SRG	G			Staff G	Weir site
2	Abu road	Banas	24 29 38	72 47 30	SRG	GD	WQ		Staff G	Wading,boat
3	Sarotry	Banas	24 22 04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

4	Chitrasani	Balaram	24 17 20	72 29 54	SRG/A RG	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	Gagaraia	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 2018-19

Lowara		
Year	Max. (°C)	Min. (°C)
2018-19	45.5	4

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
				2018-19	2018-19
Lowara	30	477.4	25	431.2	28

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

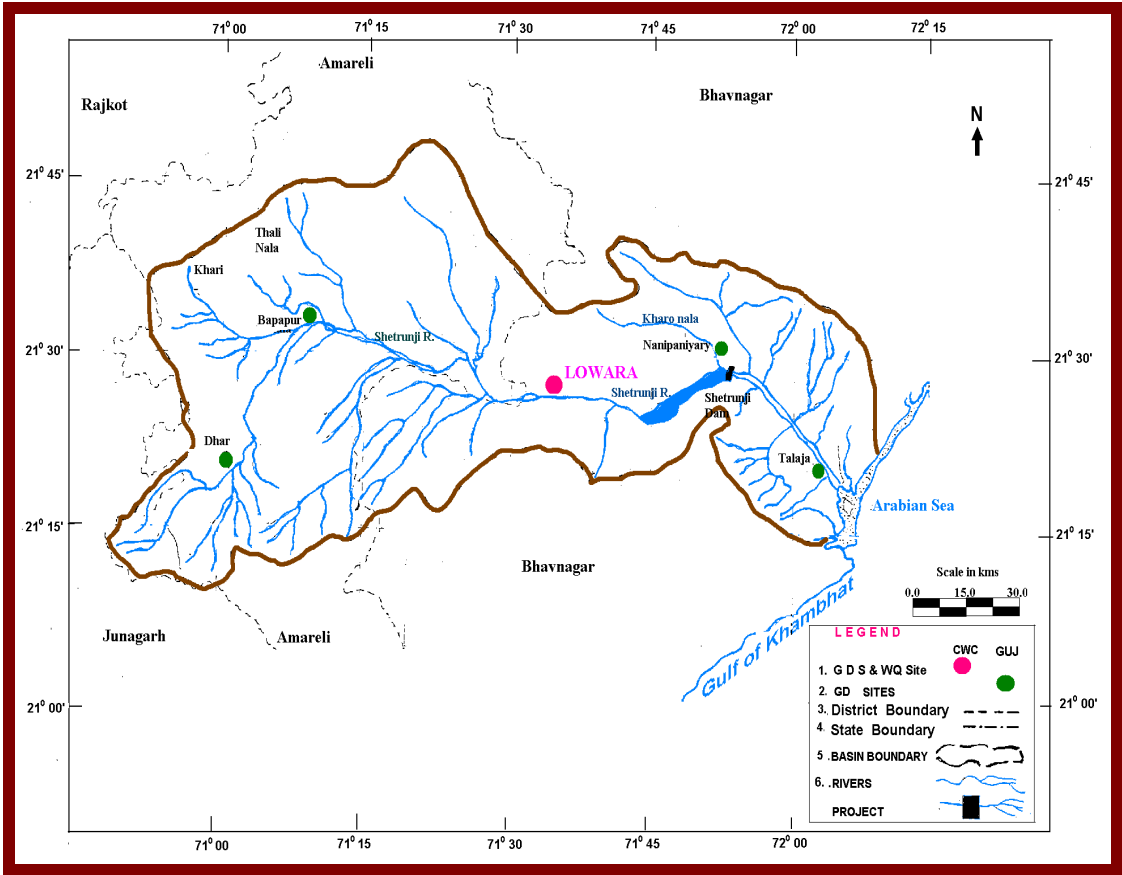
Salient features of sites maintained by CWC in Shetrunji Basin

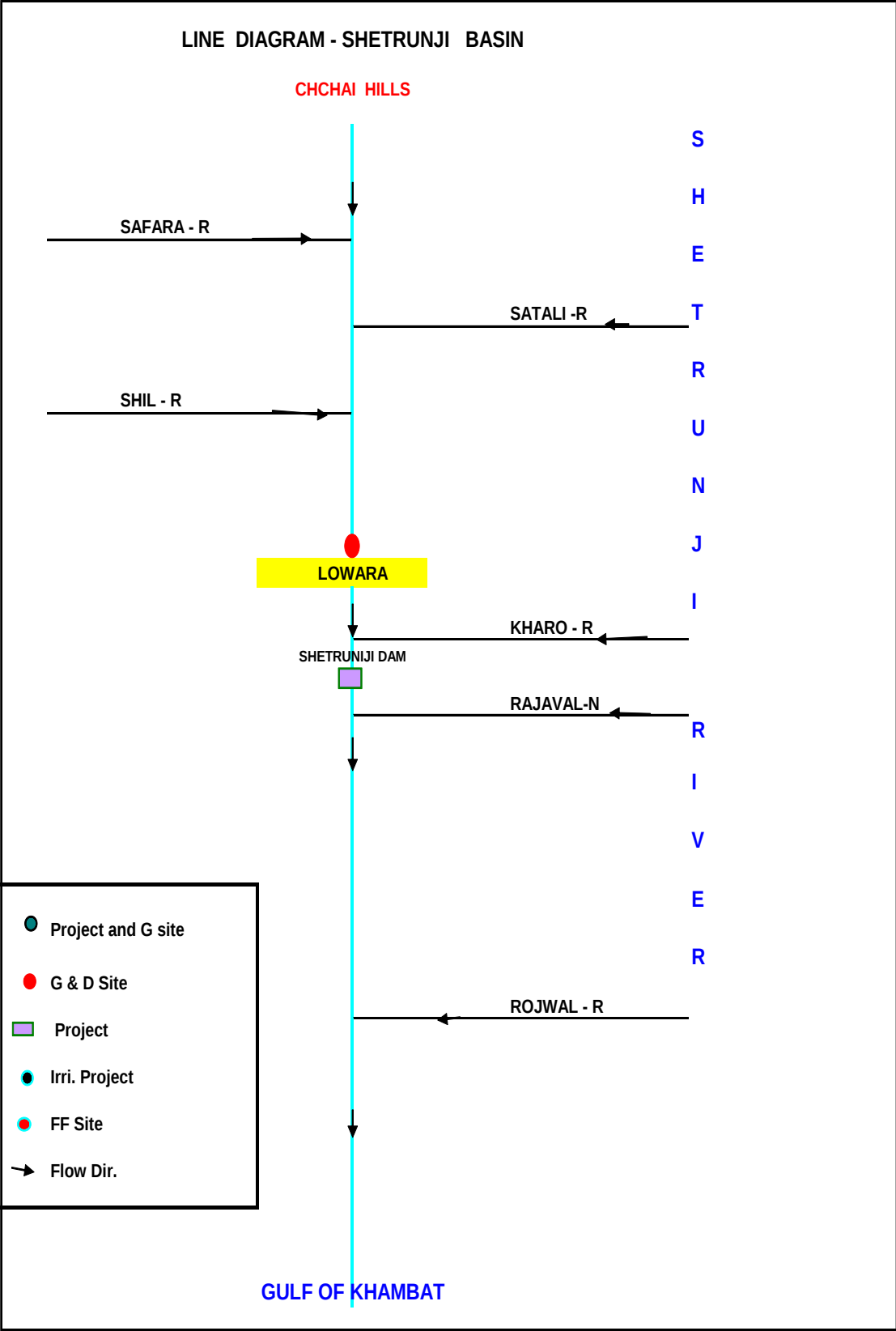
Sr No	Name	Local River	Lat.	Long.	Stn Parameters			Silt lab	Type of gauge	Discharge measure- ment
			D M S	D M S	Met	Gauge	WQ			
1	Lowara	Shetrunji	21 26 36	71 33 42	SRG	GDS	WQ	Silt lab	Staff G	Wading, boat, float

2.5.6 Data availability

Sl No	Site name	Rain fall	Discharge	Thrice daily water level	Hourly water level (for Monsoo n 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 tributaries and sub-tributaries 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 2018-19

Ganod		
Year	Max. (°C)	Min. (°C)
2018-19	44.6	4.7

Mean annual rainfall (mm) for Bhadar 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
				2018-19	2018-19
Ganod	38	663.0	15	662.4	27

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

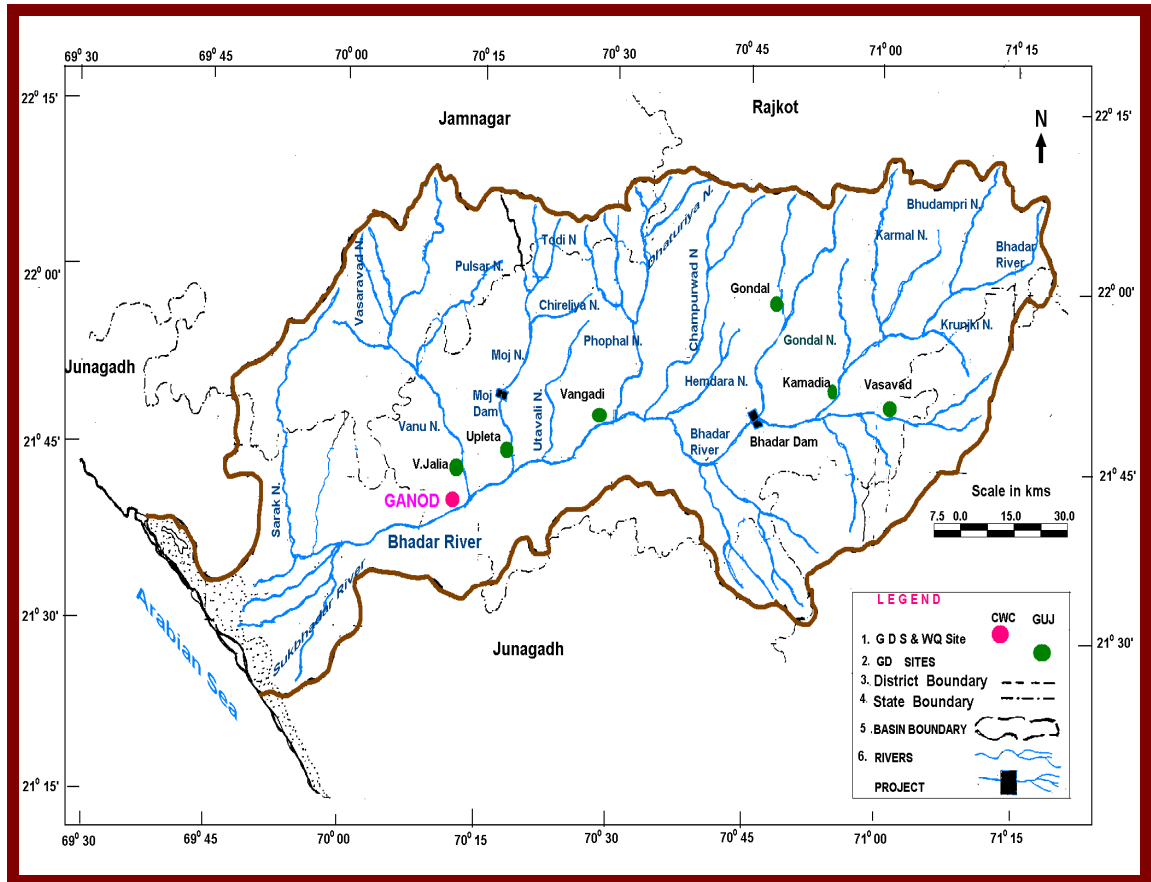
Salient features of sites maintained by CWC in Bhadar Basin

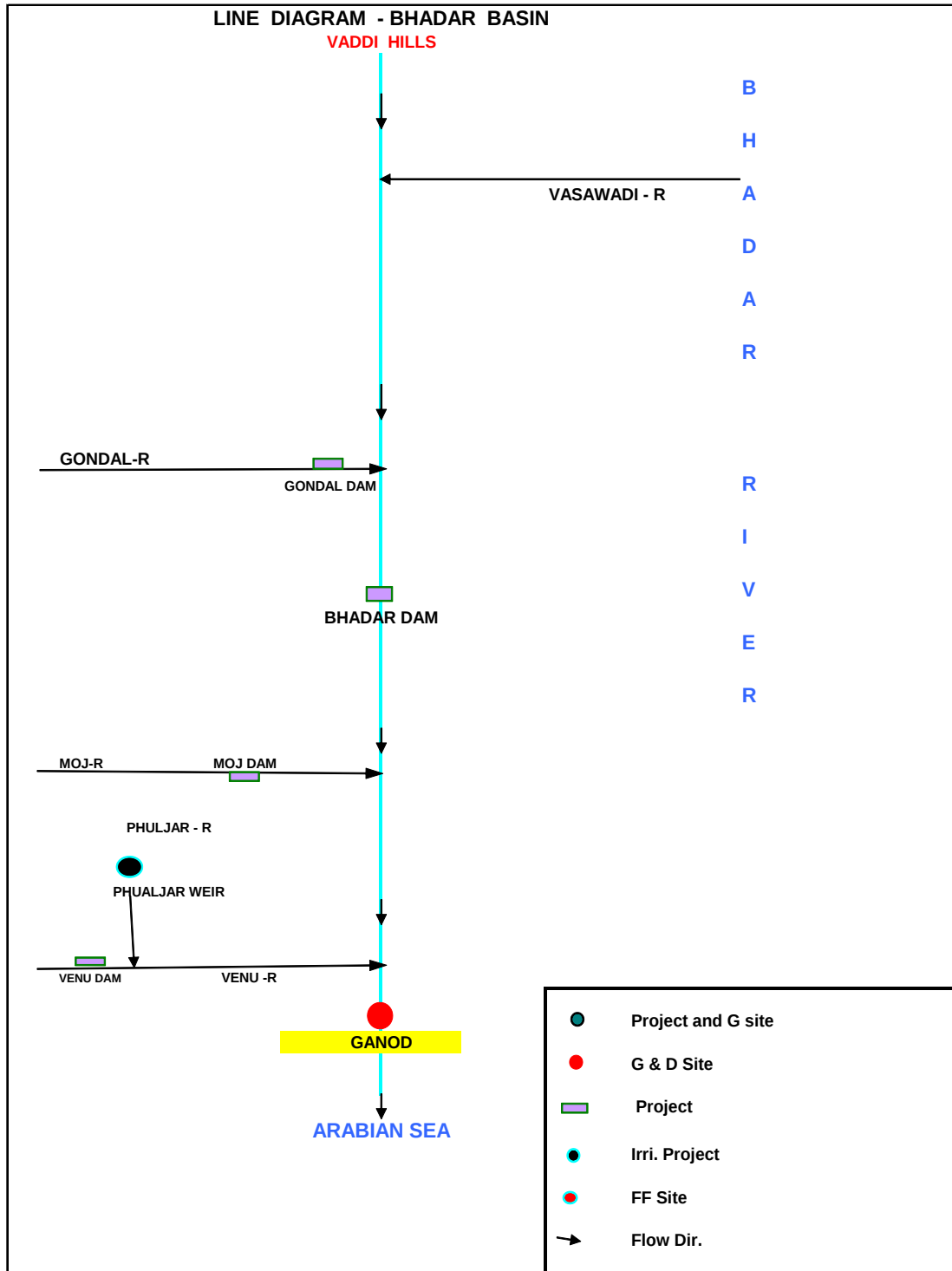
Sr		Local	Lat.	Long.	Stn	Stn.	Stn	Silt lab	Type of gauge	Discharge
No	Name	River	D M S	D M S	Met	Gauge	WQ			Measurement
1	Ganod	Bhadar	21 39 53	70 10 52	SRG	GDS	WQ	Silt lab	Staff G	Wading, boat, float

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 tributaries 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 characterstics

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 2018-19

Gungan		
Year	Max. (°C)	Min. (°C)
2018-19	45	7

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
				2018-19	2018-19
Gungan	31	545.6	12	85	4

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

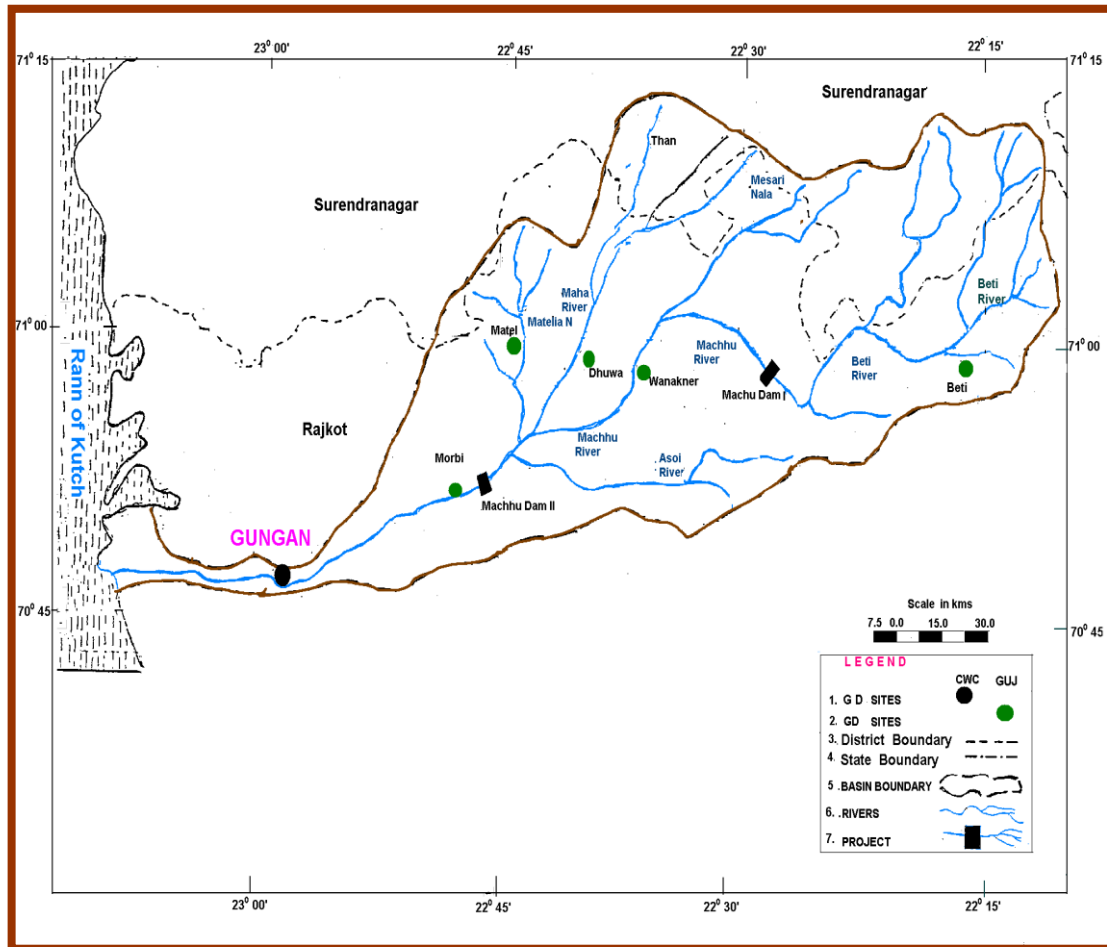
Salient features of sites maintained by CWC in Machhu Basin

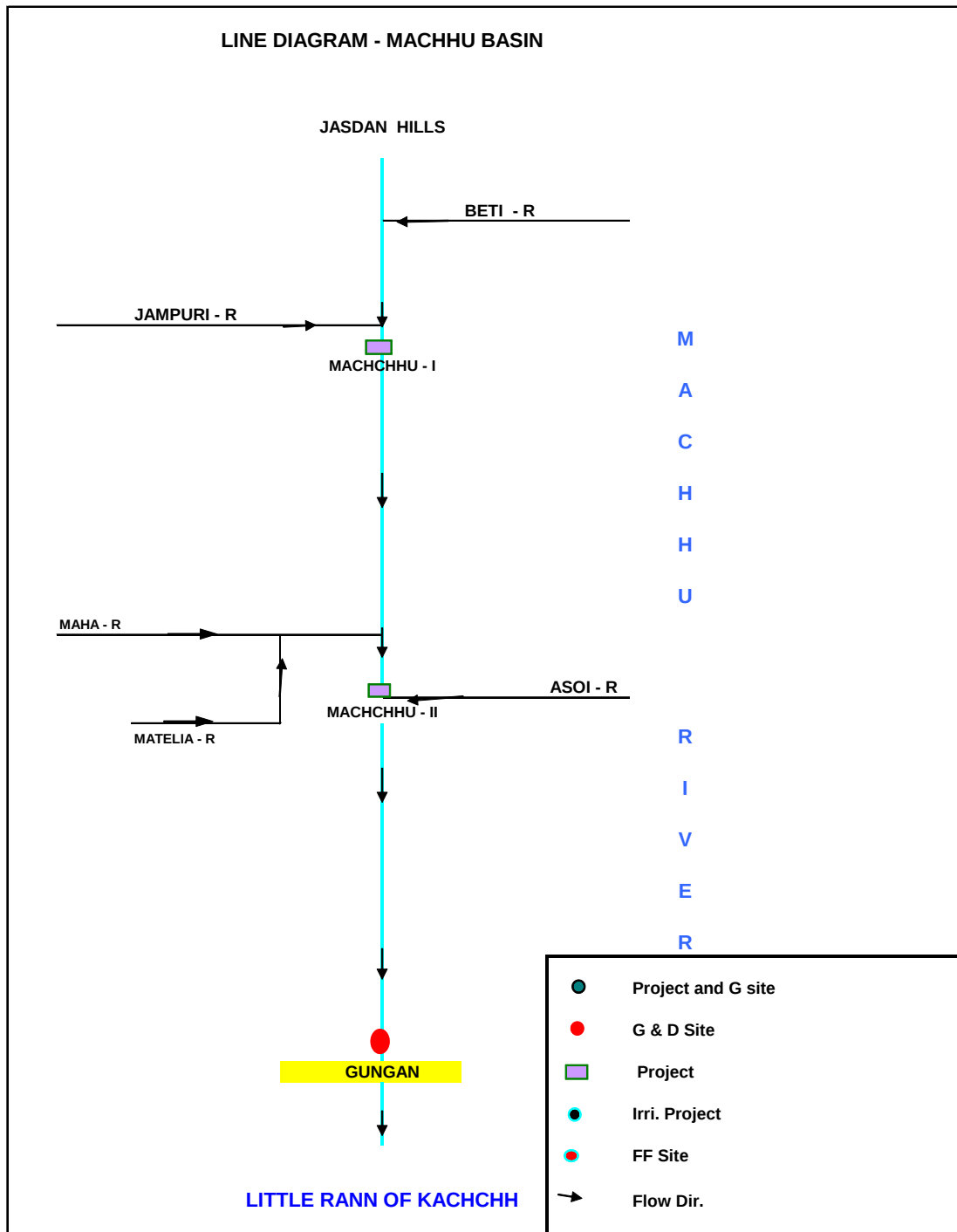
Sl No	Name	Local River	Lat. N D M S	Long. E D M S	Stn Met	Stn. Gauge	Stn WQ	Silt lab	Type of gauge	Discharge Measurement
1	Gungan	Machhu	22 57 42	70 45 52	SRG	GD	---	--	Staff G	Wading, boat,float

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 23° 25' to 24° 00' north latitude and 71° 30' to 72° 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 2018-19

Sapawada		
Year	Max. (°C)	Min. (°C)
2018-19	46	10

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
				2018-19	2018-19
Sapawada	28	579.2	15	207.6	16

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	Station code	Scheme	Type
1.	Rupen at Sapawada	01 02 04 001	163 key	GD

Salient features of sites maintained by CWC in Rupen Basin

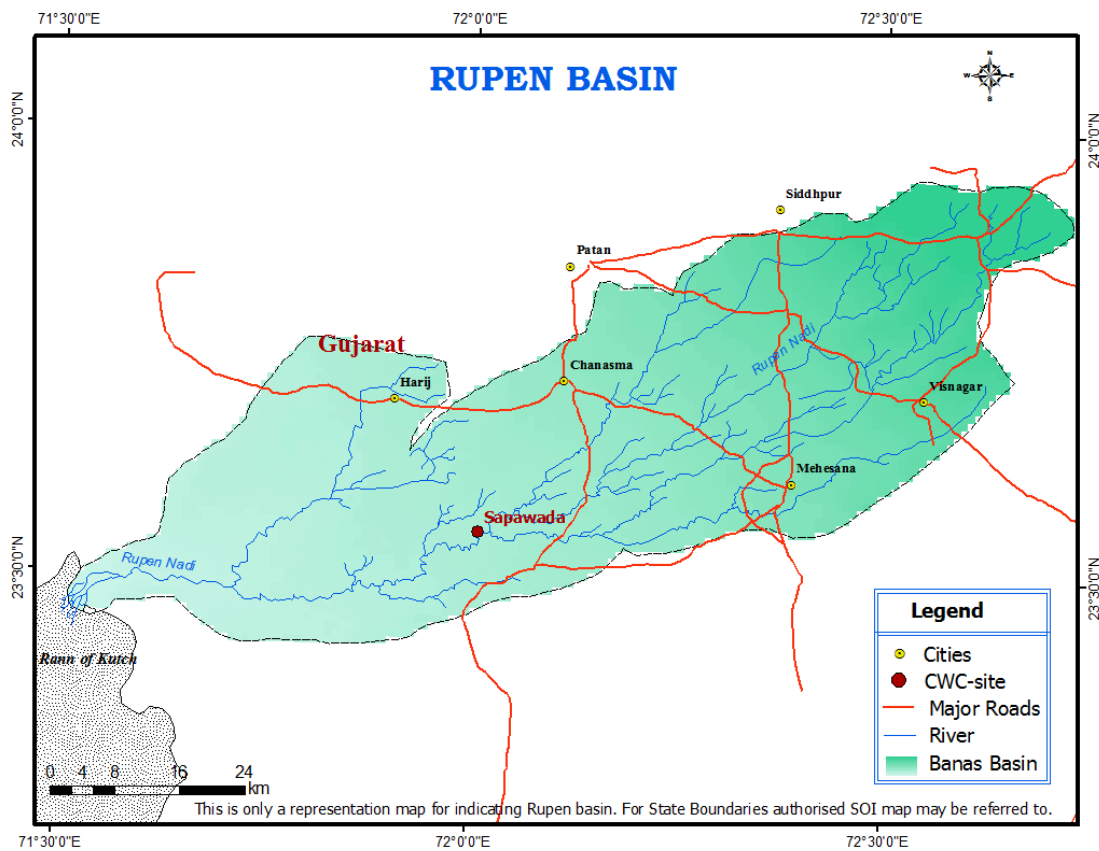
Sr No	Location Name	River	Lat. N D M S	Long. E D M S	Stn	Stn.	Stn	Silt lab	Type of gauge	Mode of Discharge Measurement
					Met	Gauge	WQ			
1	Sapawada	Rupen	23 32 54	72 00 52	SRG	GD	--	----	Staff G	Wading, float

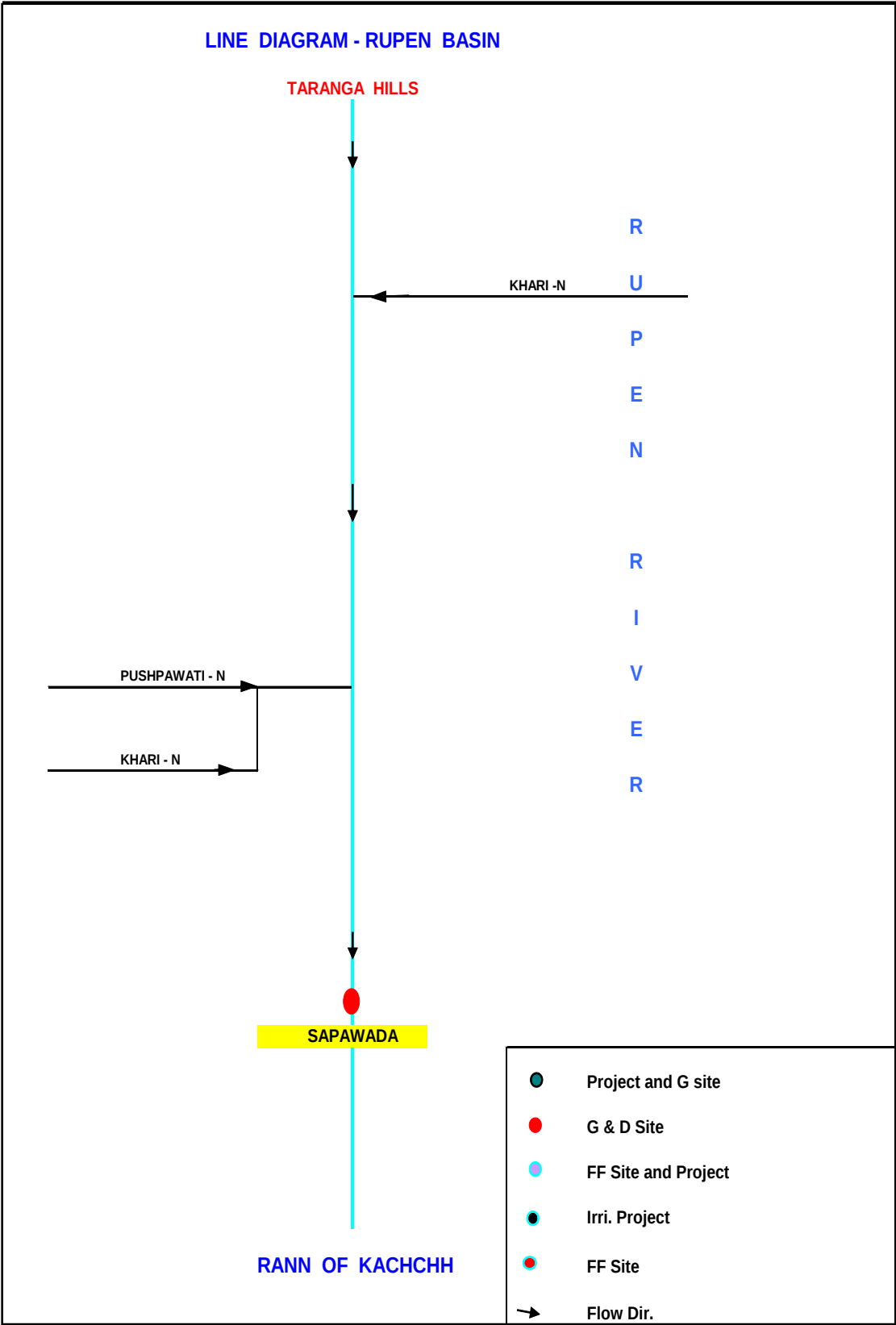
2.8.5 Data availability

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 2018-19

Una		
Year	Max. (°C)	Min. (°C)
2018-19	43.9	8.2

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
				2018-19	2018-19
Una	4	734.0	41	1066.8	35

2.9.3 Streamflow data

Hydrological observations by CWC

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

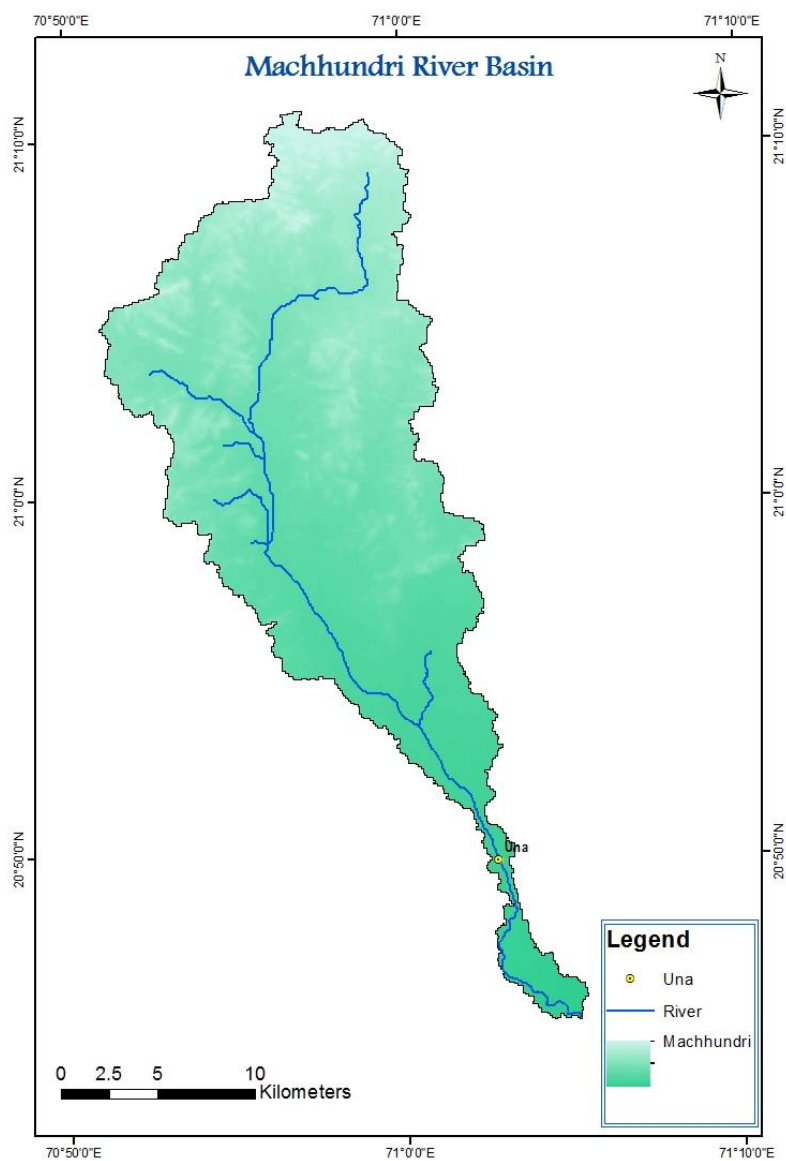
The details of this site are given below.

Sl.no.	Name of site	Station 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	Long. E	Stn	Stn.	Type of gauge	Mode of Discharge Measurement
			D M S	D M S	Met	Gauge		
1	Una	Machhundri	20 49 42	71 02 51	SRG	GD	Staff G	Wading, bridge, float

Plate – 2.9.1



2.10 Mitti Basin

2.10.1 Geographical description of the Basin

The Mitti River is an intermittent stream located in Kuchchh district. The major Water Resources Project located in the basin are Mitti Dam, Rudramata, Jangadiya, Mankuwa, Galath, Godana, Vasatava, Ora Bundh medium irrigation project. There is one CWC GD site located in the basin. Catchment area of the river upto CWC GD site is 965.5 Sq. Km. Basin map of Mitti Basin is enclosed as **Plate -2.10.1**

2.10.2 Climatic characteristics

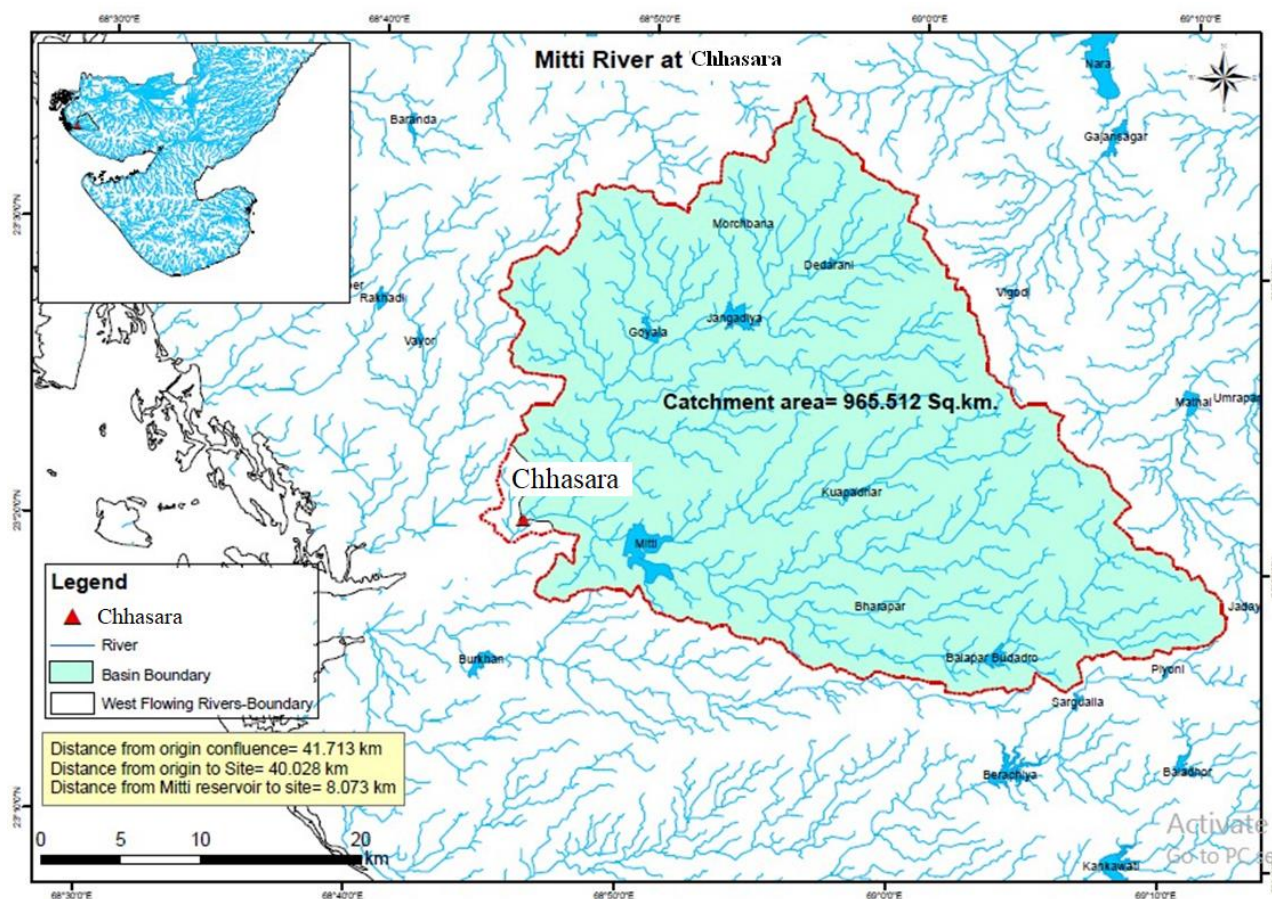
The south west monsoon sets in the last week of June and withdraws by the end of September. Owing to the topographical characteristics the climate is variable and mostly dry.

Temperature (°C) during year 2018-19

Chhasara		
Year	Max. (°C)	Min. (°C)
2018-19	49.9	8.2

Mean annual rainfall in mm Mitti 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
				2018-19	2018-19
Chhasara	1	Data is not completely available since it is new site			



2.10.3 Streamflow data

Hydrological observations by CWC

In Mitti basin, the CWC is conducting hydrological observations at Chhasara.

The details of this site are given below.

Sl.no.	Name of site	Station code	Scheme	Type
1.	Mitti at Chhasara	01 02 14 004	2701DWRIS	GD

Salient features of sites maintained by CWC in Mitti 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	Chhasra	Mitti	23 20 35	68 45 57	SRG	GD	Staff G	Wading, bridge, float

2.11 Vatru Basin

2.11.1 Geographical description of the Basin

Total length of the river is 70.2 Km, Districts covered are Jamnagar and Junagarh. Major WR projects are Sonmati, Sani, Sorthi, Vatru 1 and Vatru 2. The Mean Annual Rainfall is in range 500 to 600 mm. The CWC GD Station located in the basin is Jamraval. Basin map of Vatru Basin is enclosed as **Plate -2.11.1**

2.11.2 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 and mostly dry.

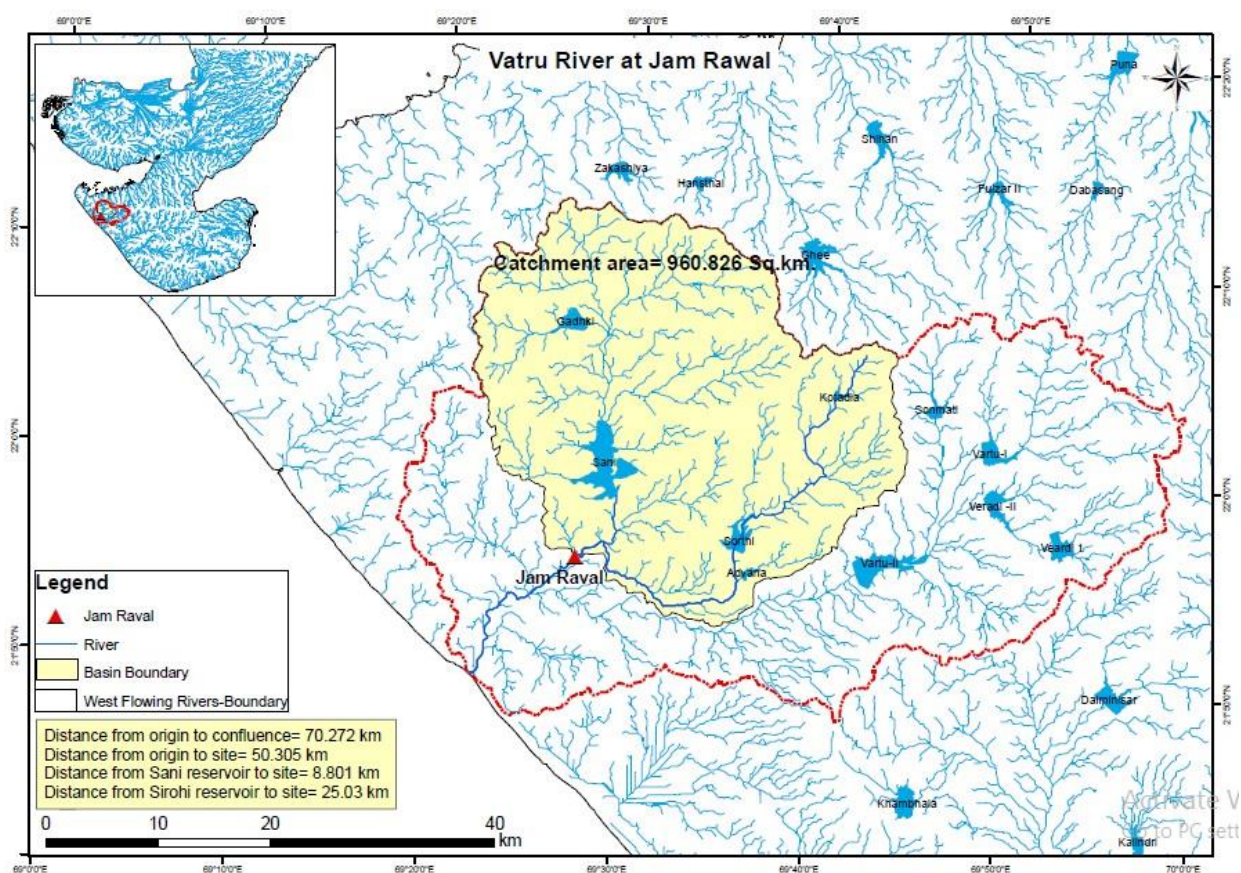
Temperature (°C) during year 2018-19

Jamraval		
Year	Max. (°C)	Min. (°C)
2018-19	38.8	18.5

Mean annual rainfall in mm Vatru Basin CWC site

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Average no. of rainy days	No of rainy days
				2018-19	2018-19
Jamraval	1	Site is new, hence data is not completely available			

Plate – 2.11.1



2.11.3 Streamflow data

Hydrological observations by CWC

In Vatru basin, the CWC is conducting hydrological observations at Jamraval. The details of this site are given below.

Sl.no.	Name of site	Statin code	Scheme	Type
1.	Vatru at Jamraval	01 02 14 003	2701DWRIS	GD

Salient features of sites maintained by CWC in Vatru 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	Jamraval	Vatru	21 55 27	69 29 03	SRG	GD	Staff G	Wading, bridge, float

2.12 Hiren Basin

2.12.1 Geographical description of the Basin

Hiren River is a river in Gujarat in western India whose source is near the Sasa hills in Gir forest. Length of the river is 40 km. The total catchment area of the basin is 518 km. Major tributaries are Saraswati river and Ambakhohi stream. Major WR projects are Kamleshwar Dam (Hiran1) and Umrethi Dam.

As the river flows from the western part of Gir forest, it is a major source of water for the forest ecology and biodiversity for the whole year. CWC GD site located in the basin is Savni. Basin map of Hiren Basin is enclosed as **Plate -2.10.1**

2.12.2 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 and mostly dry.

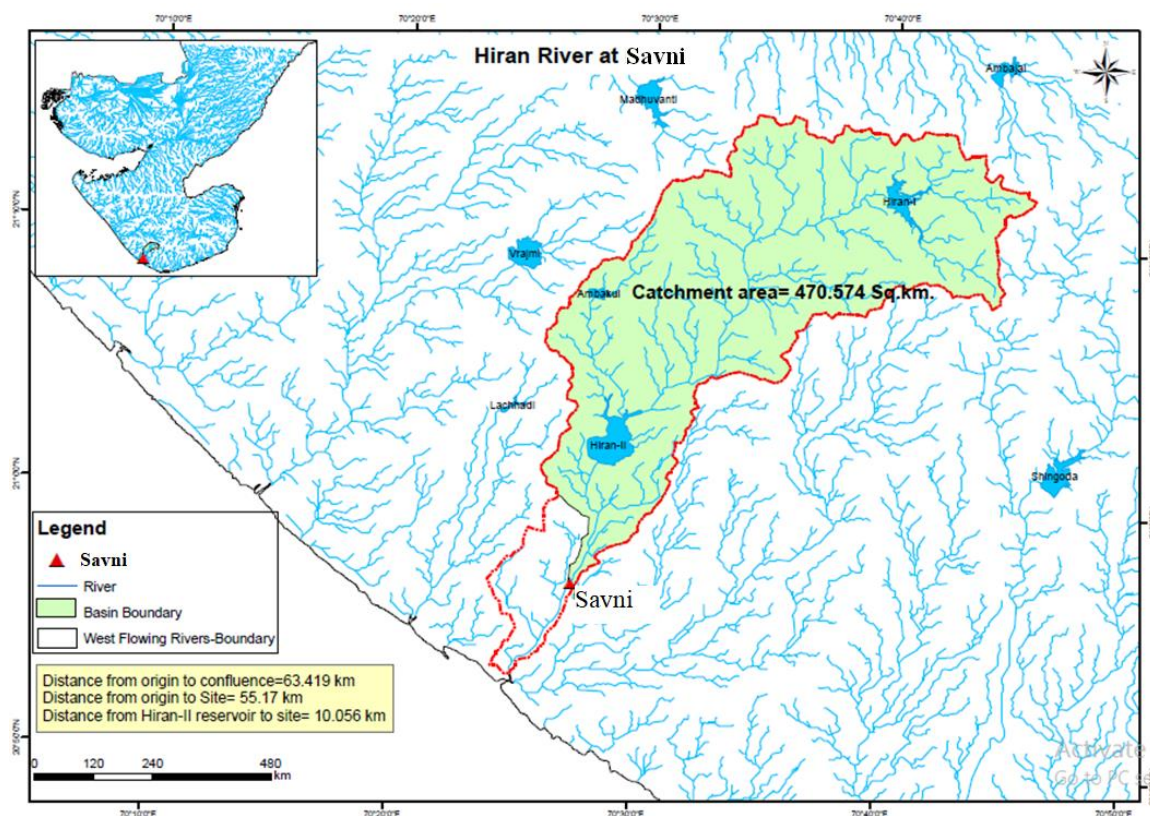
Temperature (°C) during year 2018-19

Savni		
Year	Max. (°C)	Min. (°C)
2018-19	42	11.4

Mean annual rainfall in mm Hiren Basin CWC site

Name of site	Data available (No of years)	Average rainfall (mm)	Average no. of rainy days	Rainfall during Water Year (mm)	No of rainy days
				2018-19	2018-19
Savni	1	Adequate data is not available		99.2	17

Plate – 2.10.1



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	Sup. Engineer, WRI
		2 Bhadar	At Khanpur	Circle I, LD Engg.
		3 Bhadar	At Undva	College campus, nr.
		4 Machhan	At Davadia	Gujarat university,
		5 Machhan	At Limdi (Wankol)	Ahmedabad
		6 Hadaf	At Morva	&
		7 Kabutari	At Vadosar	Executive engineer
		8 Panam	At Sant Road	WRI divn., Bhadra
		9 Goma	At Kalol	Fort, Laldarwaja,
		10 Mahi	At Anklav	Ahmedabad Gujarat
		11 Mahi	At Borsad	
		12 Mahi	At Gamla	Superintending
		13 Goma	At Sureli	Engineer, Jakham
		14 Kun	At Khandia	Irrigation circle,
		15 Koliyari	At Rampur	Udaipur, Rajasthan
		16 Wankadi	At Wankadi	
		17 Jakham	At Dhariwad	Chief Engineer,
		18 Jakham	At Nagalia Pickup Weir	Mahi Bajaj Sagar
		19 Jakham	At Karmai Pickup Weir	project , Banswada,
		20 Mahi	At Mahi Dam	Rajasthan
		21 Mahi	At Chandangarh	
		22 Mahi	At Ratangarh	Chief Engineer,
		23 Mahi	At Bhairongarh	survey & Irrigation
		24 Anas	At Anas I	(major projects)
		25 Anas	At Anas Ii	Irrigation dept. E-3 /

		26 Pantalla At Parwalia 27 Bhunand At Sangam 28 Pampawati At Larki 29 Undwa Nallah At Ranisingh	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 Dharoi 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	Supt,engineer, WRI circle-I, L.D.Engg.college campus near Gujarat University, Ahmedabad & Executive Engineer, WRI Division, Bhadra Fort, Laldarwaz, Ahmedabad (Gujarat)

		25.Hathmati At Mankadi 26.Hathmati At Pal 27.Khari At Prntij 28.Khari At Raipur 29.Meshwo At Kabola 30.Meshwo At Mithajinamuwada 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	
--	--	---	--

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	Executive Engineer Planning & Co - ordination Division I, Adarsh nagar, Raja park, Jaipur, Rajasthan
---	------------	---	--

		15Mithri- At Pipar Jojri 16 Lilri At Banjakudi	
4	Banas Basin	1 Banas At Roho 2 Banas At Deesa 3 Banas At Umari 4 Banas At Balundra 5 Banas At Dantiwada Dam 6 Banas At Gadh 7 Banas At Wav 8 Banas At Zerda 9 Sipu At Panthawada 10 Sipu At Bhakudar 11 Balaram At Chitrasani	Sup. Engineer, WRI Circle I, LD Engg. College Campus, near Gujarat University, Ahmedabad & Executive Engineer WRI divn., Bhadra Fort, Laldarwaja, Ahmedabad Gujarat
5	Shetrunji Basin	1 Shetrunji At talaja 2 Shetrunji At dhari 3 Shetrunji At gariyadhar 4 Shetrunji At gopnath 5 Shetrunji At jesar 6 Shetrunji At lathi 7 Rajwal At makhadka 8 kharo At nanipaniyari 9 satli 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 At Vangadi 2 Bhadar At Kamadhia 3 Bhadar At Chhaparvadi-Ii 4 Bhadar At Dhandhuka 5 Bhadar At Jasdan 6 Bhadar At Kukavav 7 Minsar At Rana-Kandorana 8 Venu Ii At Warjan Jaliya 9 Moj At Upleta 10 Gondali At Gondal 11 Vasawadi 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 At Morbi 2 Machhu At Wankaner 3 Machhu At Beti 4 Machhu At Chotila 5 Asoi At Sindhavadar 6 Maha At Dhuwa 7 Matelia 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 At Delwada 2 Rupen At Valam Ashram 3 Rupen At Dhinoj 4 Rupen At Ranuj 5 Rupen At Viramgam 6 Pushpavati At Aithor 7 Khari At Zillia 8 Khari At Mehsana	Sup. Engineer, WRI Circle I, LD engg. College campus, Near Gujarat University, Ahmedabad & Executive Engineer WRI Divn., Bhadra Fort, Laldarwaja, Ahmedabad, Gujarat
9	Hiren Basin	1 Hiren @ At Junagarh Sasan-Gir	

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 water 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 : 2018-2019

Site : Mahi at Khanpur

Code : 01 02 13 012

State : Gujarat

District : Anand

Basin : Mahi

Independent River : Mahi

Tributary : Mahi

Sub Tributary :

Sub-Sub Tributary :

Local River : Mahi

Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

Drainage Area : 32510 Sq. Km.

Bank : Right

Latitude : 22°31'55"

Longitude : 73°08'27"

Zero of Gauge (m) : 8.22 (m.s.l)

21/12/1978

Opening Date

Closing Date

Gauge : 21/12/1978

Discharge : 21/12/1978

Sediment : 01/05/1988

Water Quality : 01/01/1979

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	12.00	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	11.00	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	10.00	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	10.00	9.070	25/07/2004
2005-2006	1675	12.750	03/08/2005	15.80	8.770	24/04/2006
2006-2007	31062	26.820	12/08/2006	17.15	8.770	03/07/2006
2007-2008	11480	21.235	10/07/2007	14.01	8.735	20/05/2008
2008-2009	441.7	10.690	13/08/2008	8.545	8.620	24/03/2009
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	4363	15.240	13/09/2011	2.090	8.470	27/05/2012
2012-2013	12403	20.670	07/09/2012	2.346	8.470	06/06/2012
2013-2014	5348	16.695	03/08/2013	7.011	8.520	07/06/2013
2014-2015	4868	16.350	10/09/2014	8.482	8.290	25/04/2015
2015-2016	7091	16.140	29/07/2015	9.970	8.370	21/05/2016
2016-2017	13879	21.390	22/08/2016	7.483	8.360	31/05/2017
2017-2018	3395	13.770	28/07/2017	4.020	8.260	12/05/2018
2018-2019	623	10.850	18/08/2018	2.793	8.250	08/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	8.250	4.653	8.410	8.050 #	8.660	20.05	9.275	110.2	9.160	118.8	8.840	19.58
2	8.250	4.363	8.400	7.776 #	8.640	19.54	9.130	53.97 *	9.150	56.25 *	8.830	18.65
3	8.250	4.437 *	8.400	7.776 #	8.915	47.17	9.030	43.61 *	9.060	48.09	8.800	16.46
4	8.250	4.975	8.440	8.913 #	9.130	104.3	8.960	34.87	8.990	44.47	8.780	24.10 *
5	8.250	4.570	8.675	29.87	9.070	47.56 *	8.920	27.58	8.950	30.02	8.750	15.62
6	8.250	5.064	8.665	29.85	8.940	44.97	8.945	30.17	8.980	44.10	8.740	15.37
7	8.250	4.231	8.590	14.28 #	8.850	35.10	8.970	32.14	9.030	43.61 *	8.720	20.59 *
8	8.250	2.793	8.540	12.29 #	8.770	25.12	8.985	36.22	9.050	46.14	8.690	15.14
9	8.250	4.851	8.470	9.843 #	8.730	24.69	8.970	38.14 *	9.120	54.55	8.680	12.63
10	8.250	4.437 *	8.470	9.843 #	8.820	27.12	8.910	28.13	9.080	47.70	8.680	12.73
11	8.250	3.780	8.480	17.89	8.950	40.40	9.070	42.03	9.020	37.89	8.680	12.63
12	8.250	3.872	8.560	13.06 #	8.950	36.43 *	9.070	42.98	8.990	35.29	8.690	14.60
13	8.255	5.324	8.705	24.37	8.980	41.98	9.060	46.55 *	9.030	40.87	8.690	14.87
14	8.340	9.960	8.730	29.41	9.040	44.97	8.990	35.08	9.010	41.73 *	8.680	15.14
15	8.320	9.268	8.890	31.65 *	8.970	38.14 *	9.000	39.95	8.950	35.87	8.680	13.45
16	8.310	5.610 *	8.960	49.77	8.980	43.47	9.030	43.61 *	8.915	28.51	8.670	14.63
17	8.300	5.400 *	8.915	49.07	9.165	60.34	9.000	38.71	9.230	106.0	8.650	12.92
18	8.290	7.973	8.890	31.65 *	10.850	623.0	8.970	34.01	9.125	53.36	8.650	16.98 *
19	8.280	5.195	8.790	24.73 *	9.710	153.2 *	8.925	29.41	9.070	47.56 *	8.650	13.75
20	8.280	5.302	8.780	31.53	9.225	72.10	8.885	26.29	9.000	36.08	8.650	13.60
21	8.290	6.969	10.100	372.1	9.170	42.70	8.860	29.44 *	9.060	46.55 *	8.640	16.51 *
22	8.300	6.501	9.670	143.8 *	9.370	86.11 *	8.930	27.76	9.010	24.75	8.640	13.80
23	8.310	6.863	9.230	169.0	10.056	295.0	9.080	48.59 *	8.925	23.58	8.640	16.51 *
24	8.380	7.250 *	9.170	142.3	9.575	127.0	9.385	181.7	8.930	22.93	8.690	15.54
25	8.370	8.180	8.960	37.28 *	9.375	75.90	9.800	254.3	8.890	21.58	8.670	17.96 *
26	8.640	16.51 #	8.840	41.50	9.210	63.48 *	9.305	164.0	8.880	23.55	8.620	14.27
27	8.800	25.36 #	8.760	32.23	9.420	155.7	9.365	171.3	8.860	18.23	8.640	14.76
28	8.580	13.87 #	8.730	24.79	9.145	84.81	9.245	143.7	8.850	28.73 *	8.650	15.15
29	8.460	9.525 #	8.860	29.44 *	9.040	41.92	9.200	127.9	8.830	17.39	8.650	15.42
30	8.410	8.050 #	8.810	37.91	9.010	35.96	9.150	56.25 *	8.820	18.53	8.660	15.36
31			8.720	24.46	9.340	131.5			8.820	18.89		
Ten-Daily Mean												
I Ten-Daily	8.250	4.437	8.506	13.85	8.852	39.56	9.010	43.50	9.057	53.37	8.751	17.09
II Ten-Daily	8.288	6.168	8.770	30.31	9.282	115.4	9.000	37.86	9.034	46.31	8.669	14.26
III Ten-Daily	8.454	10.91	9.077	95.89	9.337	103.6	9.232	120.5	8.898	24.07	8.650	15.53
Monthly												
Min.	8.250	2.793	8.400	7.776	8.640	19.54	8.860	26.29	8.820	17.39	8.620	12.63
Max.	8.800	25.36	10.100	372.1	10.850	623.0	9.800	254.3	9.230	118.8	8.840	24.10
Mean	8.330	7.171	8.794	48.27	9.163	86.76	9.081	67.28	8.993	40.69	8.690	15.62

Annual Runoff in MCM = 898 Annual Runoff in mm = 28

Peak Observed Discharge = 623.0 cumecs on 18/08/2018 Corres. Water Level :10.85 m

Lowest Observed Discharge = 2.793 cumecs on 08/06/2018 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

Stage-Discharge Data for the period 2018 - 2019

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	8.690	15.98	8.580	15.15	8.510	14.67	8.490	14.44	8.440	9.666	8.410	7.947
2	8.660	18.72 *	8.510	15.18	8.510	15.18	8.490	14.75	8.430	9.169	8.410	7.975
3	8.620	17.40 #	8.590	16.69	8.500	12.88 *	8.480	12.00 *	8.430	9.238	8.410	7.646
4	8.620	15.28	8.580	16.46	8.500	14.11	8.480	14.48	8.420	8.594	8.410	7.630
5	8.630	15.84	8.600	18.17	8.540	16.66	8.490	14.64	8.420	7.424	8.410	8.417 *
6	8.640	16.11	8.580	16.00 *	8.610	18.35	8.480	14.38	8.420	7.494	8.410	7.518
7	8.640	16.48	8.560	14.67	8.540	13.94	8.450	9.633	8.440	10.07 *	8.410	8.657
8	8.630	16.56	8.550	14.98	8.510	15.27	8.440	9.223	8.440	9.830	8.410	7.560
9	8.620	17.40 *	8.550	15.06	8.500	15.54	8.430	8.981	8.440	9.295	8.410	7.687
10	8.610	15.74	8.550	16.33	8.500	12.88 *	8.420	8.995 *	8.440	9.431	8.410	7.613
11	8.600	15.35	8.550	16.58	8.490	14.52	8.420	8.728	8.440	8.915	8.410	8.440
12	8.600	15.46	8.550	16.65	8.490	14.09	8.430	8.898	8.440	8.904	8.420	8.995 *
13	8.600	15.46	8.540	14.51 *	8.490	15.07	8.450	9.387	8.440	8.441	8.410	8.517
14	8.600	15.97	8.540	14.51 *	8.490	14.94	8.460	9.934	8.440	10.07 *	8.420	7.873
15	8.600	15.35	8.560	17.02	8.480	12.10	8.470	9.128	8.440	9.039	8.420	7.911
16	8.600	16.71 *	8.550	16.55	8.480	12.36	8.460	10.03	8.440	8.816	8.420	7.851
17	8.620	16.16	8.550	16.30	8.480	12.00 *	8.500	12.88 *	8.440	10.07 *	8.420	7.859
18	8.600	15.16	8.540	16.34	8.490	15.25	8.510	12.34	8.430	8.419	8.420	8.995 *
19	8.630	16.73	8.540	16.04	8.490	14.22	8.510	12.32	8.430	9.545 *	8.420	8.995 *
20	8.630	17.31	8.550	14.89 *	8.490	15.45	8.520	13.03	8.430	8.596	8.420	7.998
21	8.600	15.36	8.550	16.10	8.500	16.14	8.520	13.71 *	8.430	9.545 *	8.410	7.686
22	8.600	15.43	8.550	16.70	8.500	14.84	8.490	11.52	8.430	8.503	8.410	7.643
23	8.600	16.71 *	8.550	16.49	8.500	14.74	8.480	10.83	8.430	9.545 *	8.400	7.408
24	8.600	15.45	8.540	15.74	8.500	12.88 *	8.490	12.44 *	8.430	8.543	8.380	6.621
25	8.610	17.06 *	8.540	16.71	8.490	15.37	8.480	11.08	8.430	8.586	8.380	6.776
26	8.610	16.18	8.540	14.51 *	8.490	14.48	8.480	11.25	8.430	8.548	8.380	6.457 *
27	8.590	14.79	8.530	14.11 *	8.490	13.91	8.470	10.88	8.430	8.582	8.360	6.066
28	8.580	14.61	8.530	14.11 *	8.490	14.49	8.460	9.814	8.420	8.995 *	8.360	6.112
29	8.590	15.38	8.510	15.71			8.490	11.27	8.420	8.387	8.360	6.738
30	8.580	16.00 *	8.510	14.83			8.440	9.671	8.410	7.963	8.360	6.644
31	8.580	14.79	8.510	15.53			8.440	10.07 *			8.360	6.627
Ten-Daily Mean												
I Ten-Daily	8.636	16.55	8.565	15.87	8.522	14.95	8.465	12.15	8.432	9.021	8.410	7.865
II Ten-Daily	8.608	15.97	8.547	15.94	8.487	14.00	8.473	10.67	8.437	9.082	8.418	8.343
III Ten-Daily	8.595	15.61	8.533	15.50	8.495	14.61	8.476	11.14	8.426	8.720	8.378	6.798
Monthly												
Min.	8.580	14.61	8.510	14.11	8.480	12.00	8.420	8.728	8.410	7.424	8.360	6.066
Max.	8.690	18.72	8.600	18.17	8.610	18.35	8.520	14.75	8.440	10.07	8.420	8.995
Mean	8.612	16.03	8.548	15.76	8.502	14.51	8.472	11.31	8.432	8.941	8.401	7.641

Peak Computed Discharge = 153.2 cumecs on 19/08/2018

Corres. Water Level :9.71 m

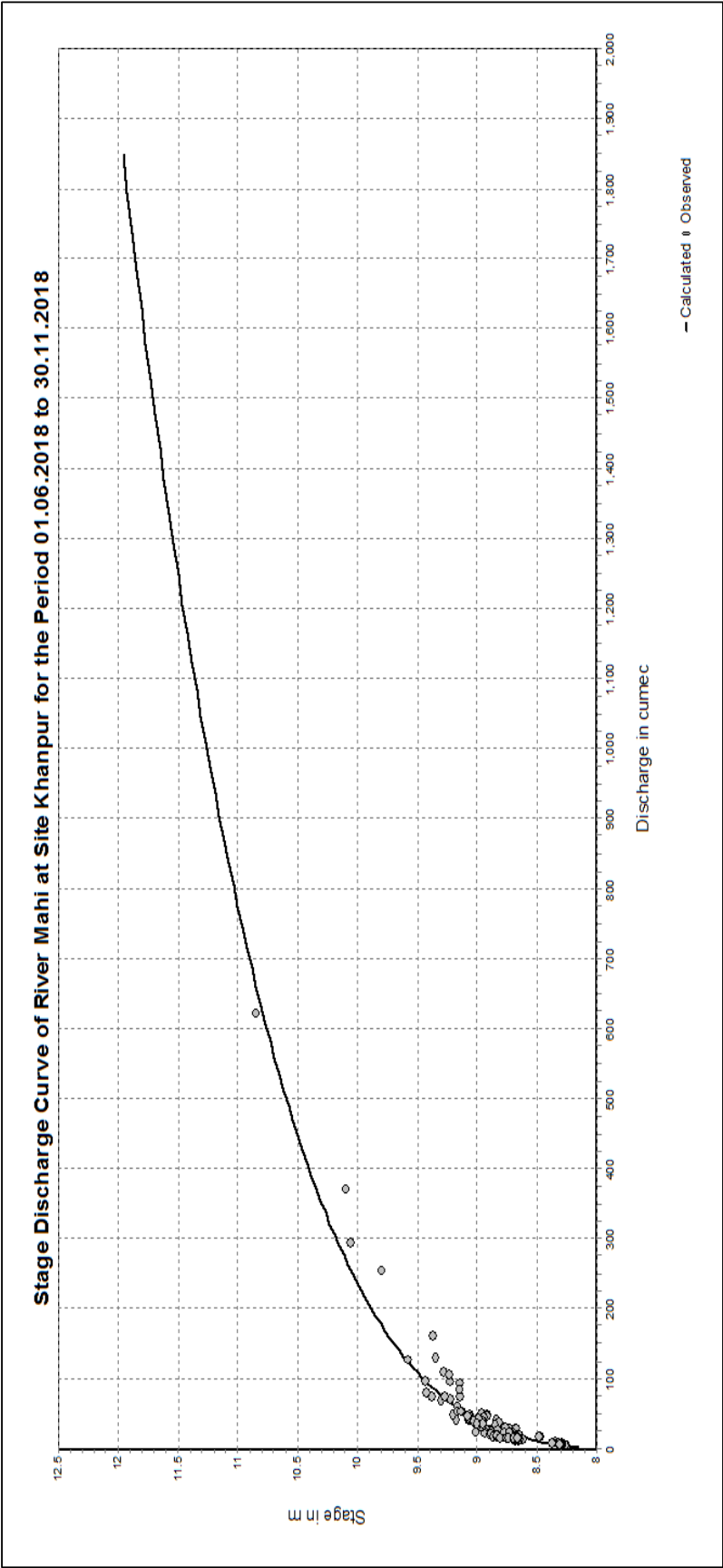
Lowest Computed Discharge = 4.437 cumecs on 03/06/2018

Corres. Water Level :8.25 m

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

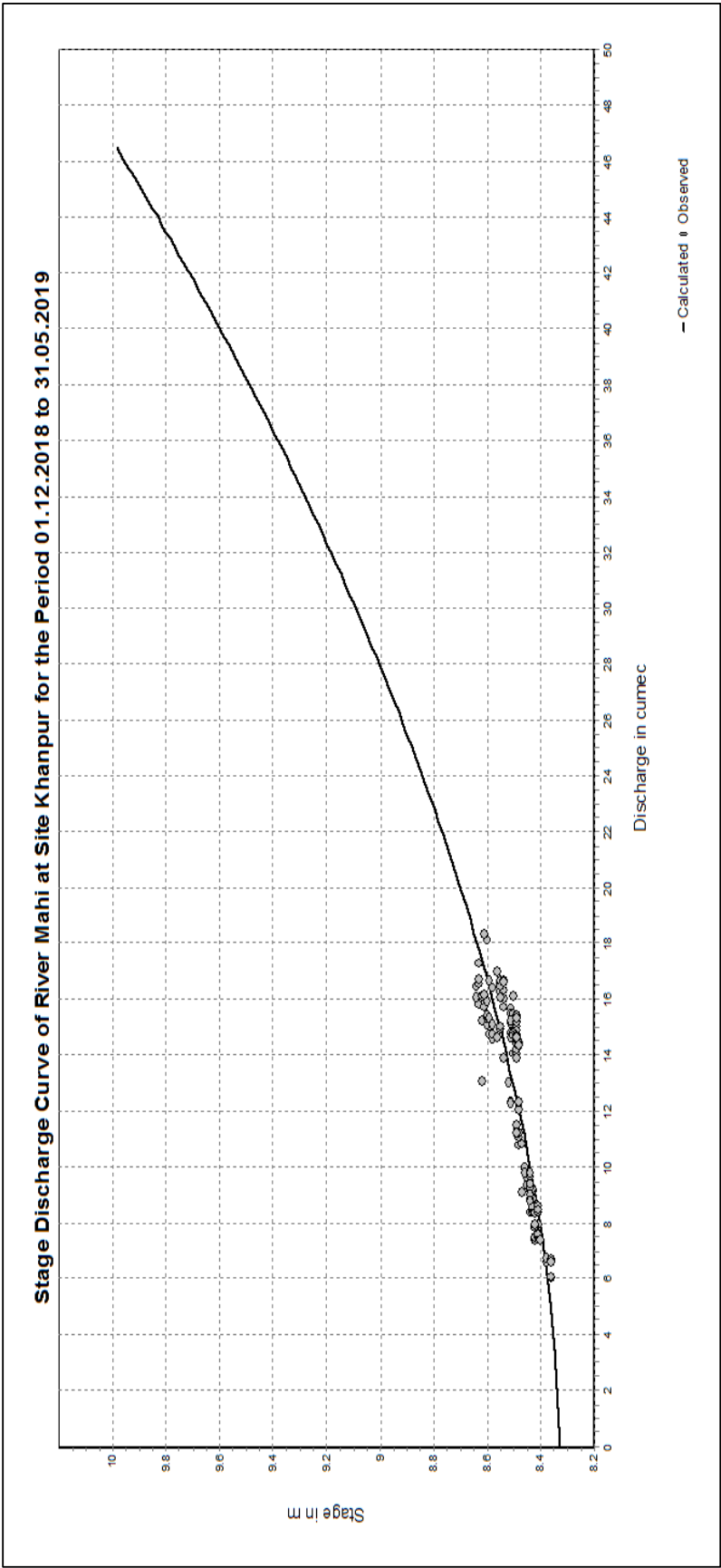
#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



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

LB	UB	a	b	c
8.15	12	-7.32	3.752	5.826



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

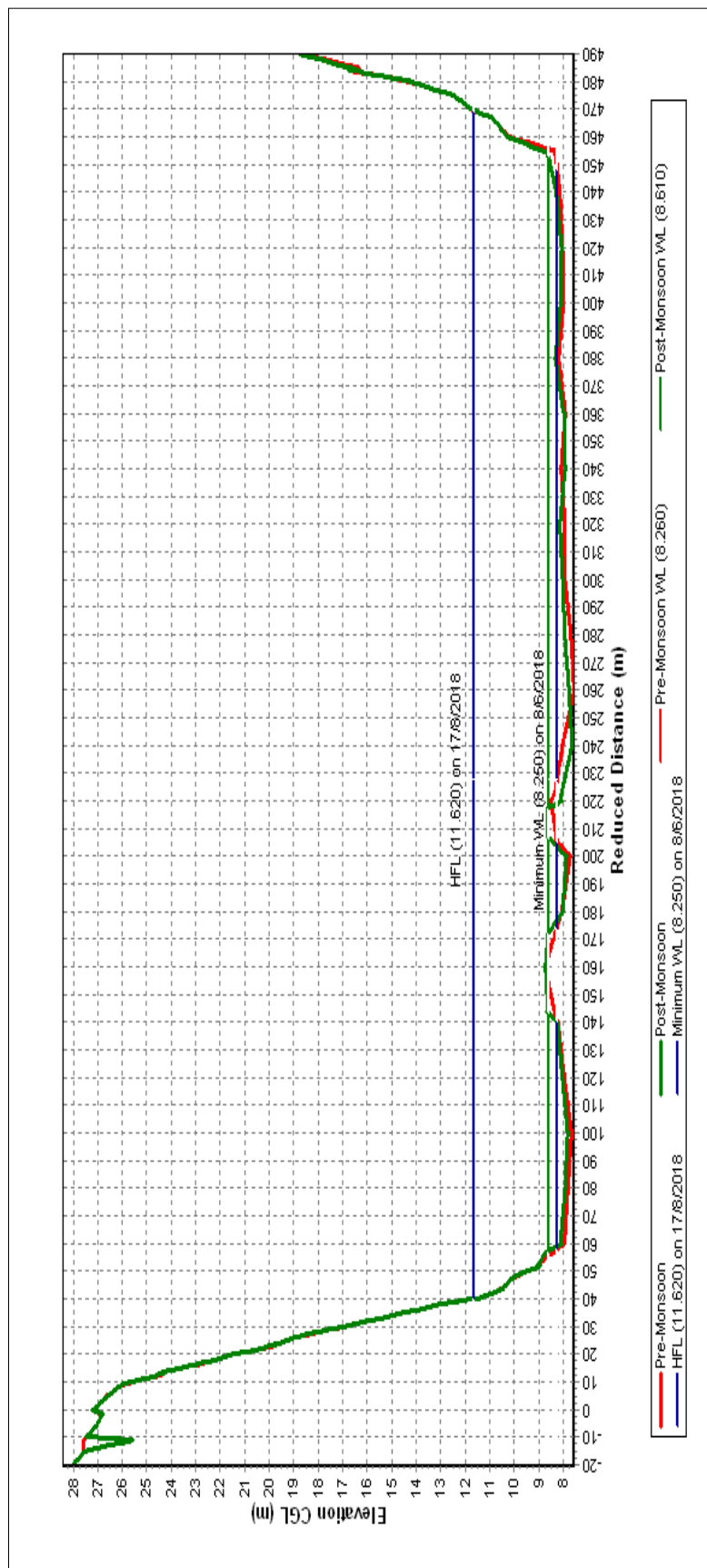
LB	UB	a	b	c
8.33	10	-8.33	0.564	34.978

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

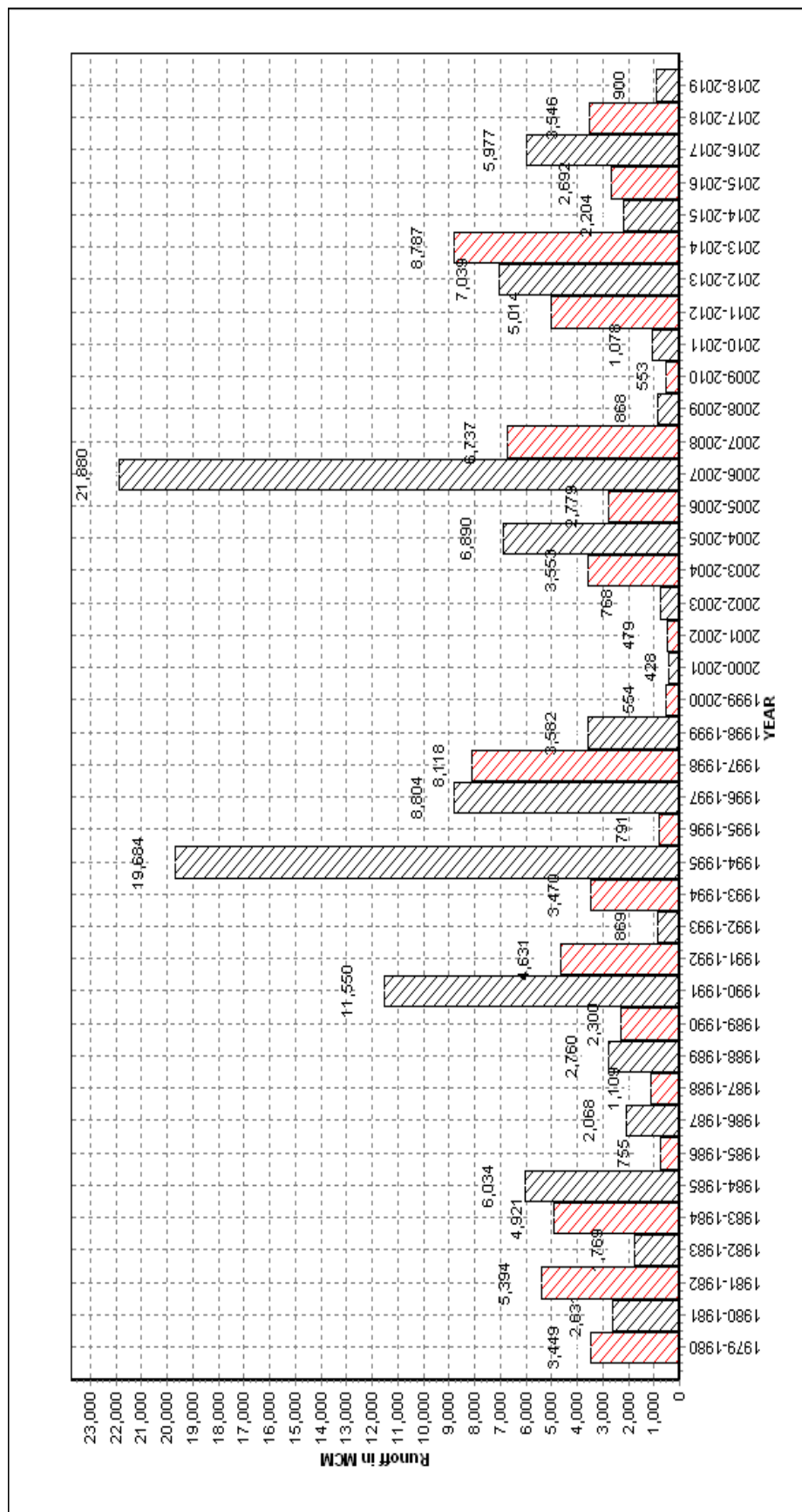
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2018-19

Annual Runoff Values for the period: 1979 - 2019

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

Local River : Mahi

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



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

Monthly Average Runoff based on period : 1979-2018

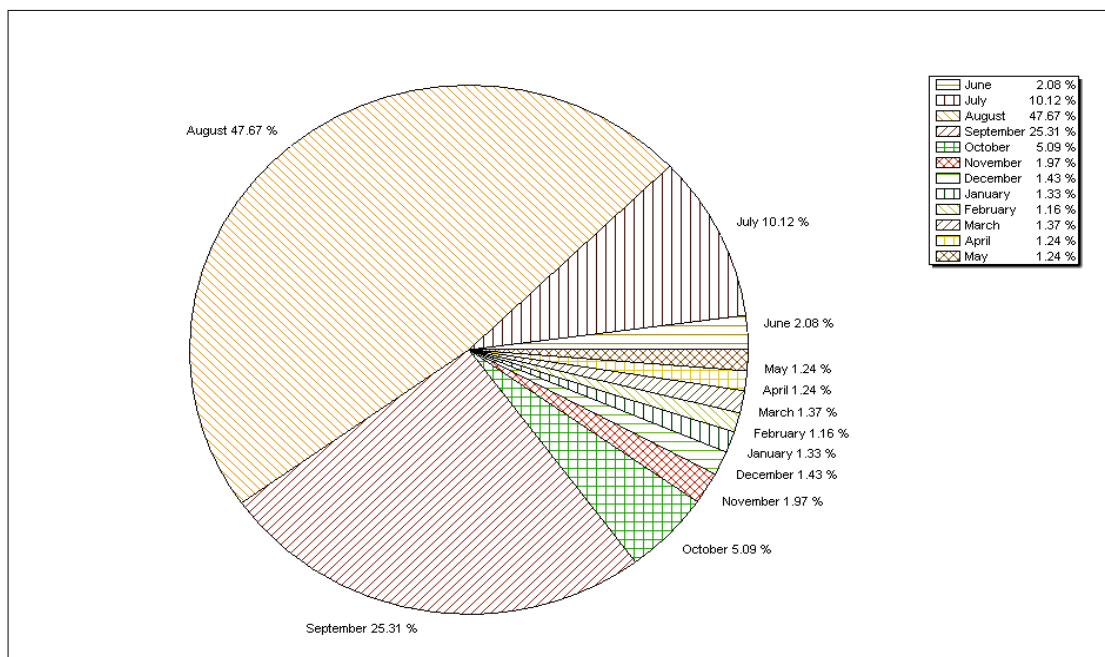
Station Name : Mahi at Khanpur (01 02 13 012)

Local River : Mahi

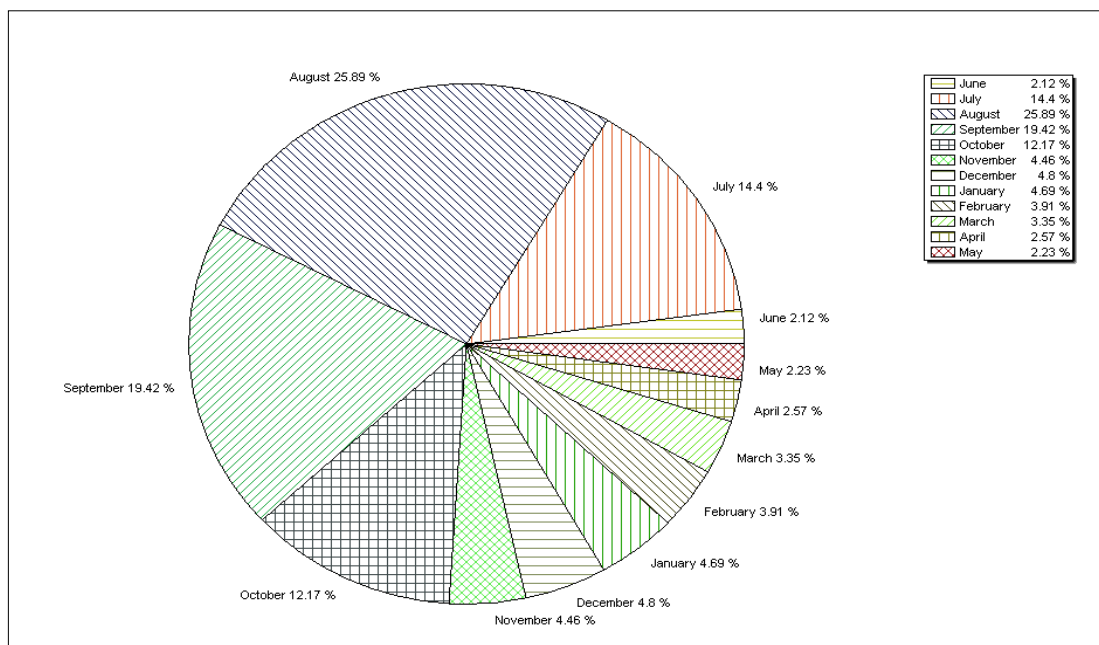
Division : Mahi Division, Gandhinagar

Sub-Division : Mahi Sub Divn., Kadana

Monthly Average Runoff based on period : 1979-2019



Monthly Runoff for the Year : 2018-19



Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019

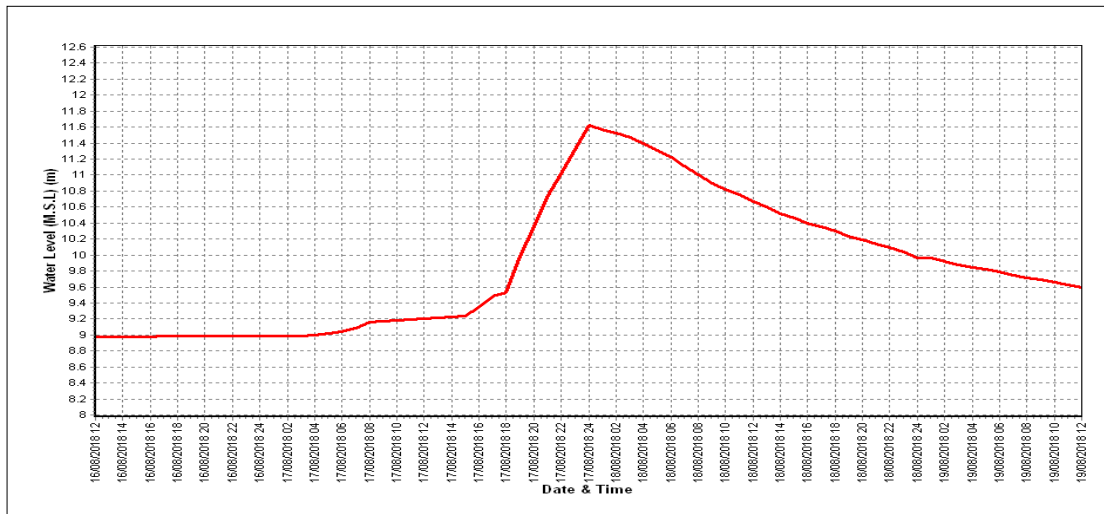
Station Name : Mahi at Khanpur (01 02 13 012)

Division : Mahi Division, Gandhinagar

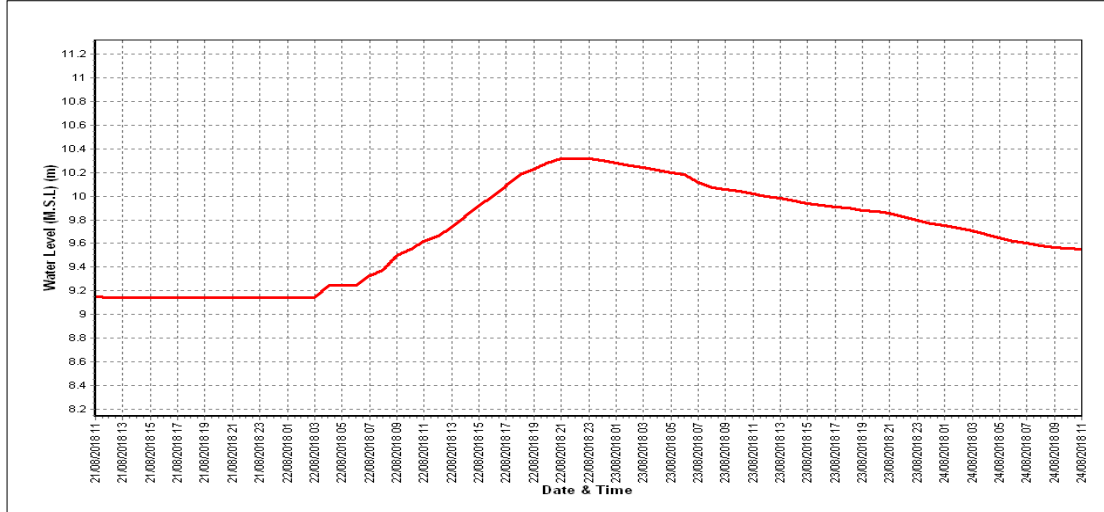
Local River : Mahi

Sub-Division : Mahi Sub Divn., Kadana

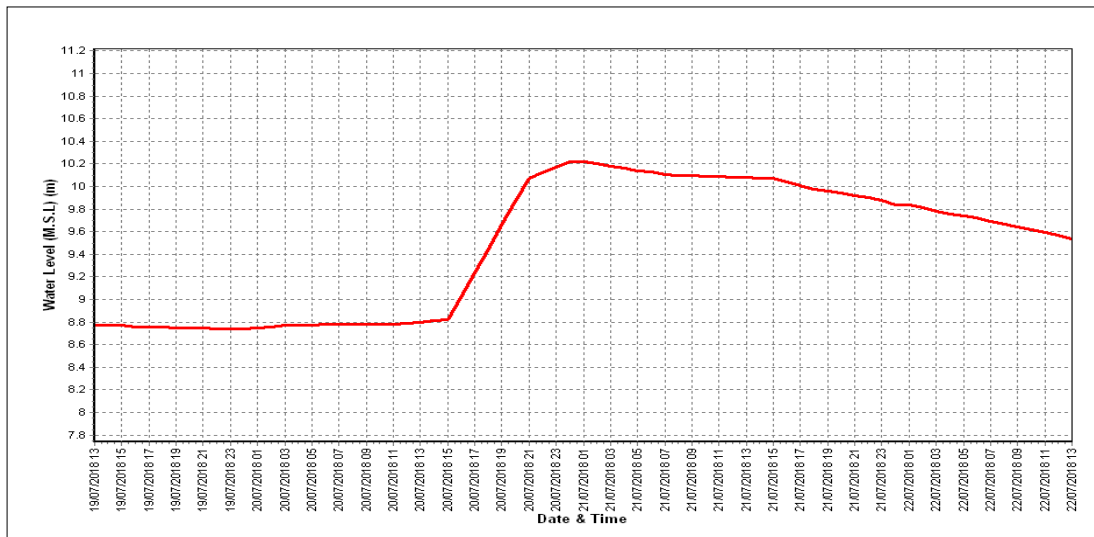
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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
River : 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
2018-2019	360.7	219.800	23/08/2018	0.000	218.220	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	218.220	0.000	218.370	1.049 *	218.590	21.70	218.800	50.06	218.850	58.40	218.360	0.000
2	218.210	0.000	218.360	0.717 *	218.590	21.67	218.750	41.41 *	218.800	49.97 *	218.360	0.000
3	218.200	0.000	218.370	1.049 *	218.560		218.700	33.53 *	218.700	33.53 *	218.360	0.000
4	218.190	0.000	218.370	1.049 *	218.580	18.69	218.700	31.29	218.650	22.50	218.360	0.000
5	218.180	0.000	218.380	1.433 *	218.570	16.40 *	218.650	27.91	218.650	26.35 #	218.350	0.000
6	218.180	0.000	218.390	1.865 *	218.560	14.90	218.770	43.80	218.630	24.27	218.350	0.000
7	218.170	0.000	218.370	1.049 *	218.550	13.90	218.770	44.85	218.600	2.342 *	218.350	0.000
8	218.160	0.000	218.370	1.049 *	218.530	12.45	218.750	40.32	218.580	20.77	218.350	0.000
9	218.160	0.000	218.380	1.433 *	218.530	12.43	218.750	41.41 *	218.580	20.58	218.350	0.000
10	218.160	0.000	218.390	1.865 *	218.520	10.84	218.750	39.39	218.570	19.99	218.350	0.000
11	218.160	0.000	218.390	1.865 *	218.510	10.79	218.700	31.17	218.560	18.38	218.350	0.000
12	218.150	0.000	218.370	1.049 *	218.470	6.853 *	218.700	30.71	218.400	2.614	218.350	0.000
13	218.140	0.000	218.550	14.59	218.400	2.342 *	218.700	33.53 *	218.400	2.598	218.350	0.000
14	218.140	0.000	218.790	44.50	218.420	3.429 *	218.680	29.35	218.400	2.342 *	218.350	0.000
15	218.140	0.000	218.700	33.53 *	218.440	4.681 *	218.660	28.78	218.410	2.684	218.350	0.000
16	218.140	0.000	218.780	42.47	218.470	6.853 *	218.650	26.35 *	218.410	2.686	218.350	0.000
17	218.130	0.000	218.855	57.59	218.470	6.853 *	218.630	26.45	218.410	2.667	218.350	0.000
18	218.130	0.000	218.700	31.71	219.200	114.1	218.630	25.99	218.400	2.611	218.350	0.000
19	218.120	0.000	218.690	31.55	218.860	61.10 *	218.590	22.67	218.400	2.342 *	218.350	0.000
20	218.110	0.000	218.670	30.58	218.780	44.98	218.570	18.10	218.400	2.597	218.350	0.000
21	218.110	0.000	218.850	58.72	218.790	45.75	218.450	5.367 *	218.400	2.342 *	218.350	0.000
22	218.110	0.000	218.870	63.05 *	220.490	657.4 *	218.400	2.342 *	218.400	2.608	218.350	0.000
23	218.110	0.000	218.770	44.44	219.800	360.7	219.500	232.2 *	218.400	2.342 *	218.350	0.000
24	218.220	0.000	218.730	36.49	219.350	184.1 #	218.800	50.55	218.400	2.610	218.360	0.000
25	218.170	0.000	218.770	44.32	219.000	95.30	218.780	46.48	218.410	2.706	218.360	0.000
26	218.480	7.652 *	218.740	36.79	218.900	69.04 *	218.950	69.86	218.410	2.698	218.360	0.000
27	218.380	1.433 *	218.730	36.54	218.900	65.64	218.900	66.37	218.410	2.608	218.360	0.000
28	218.380	1.433 *	218.700	31.21	218.900	65.65	218.900	65.71	218.400	2.342 *	218.360	0.000
29	218.380	1.433 *	218.680	30.57 *	218.800	49.78	218.880	62.83	218.380	1.039	218.360	0.000
30	218.380	1.433 *	218.660	29.90	218.850	53.70	218.870	63.05 *	218.370	0.654	218.360	0.000
31			218.630	26.33	218.850	53.97			218.360	0.000		
<u>Ten-Daily Mean</u>												
I Ten-Daily	218.18	0.000	218.38	1.256	218.56	15.78	218.74	39.40	218.66	27.87	218.35	0.000
II Ten-Daily	218.14	0.000	218.65	28.94	218.60	26.19	218.65	27.31	218.42	4.152	218.35	0.000
III Ten-Daily	218.27	1.338	218.74	39.85	219.15	154.6	218.84	66.48	218.39	1.995	218.36	0.000
<u>Monthly</u>												
Min.	218.11	0.000	218.36	0.717	218.40	2.342	218.40	2.342	218.36	0.000	218.35	0.000
Max.	218.48	7.652	218.87	63.05	220.49	657.4	219.50	232.2	218.85	58.40	218.36	0.000
Mean	218.20	0.446	218.59	23.88	218.78	68.41	218.74	44.39	218.49	11.04	218.35	0.00

Annual Runoff in MCM = 393 Annual Runoff in mm = 126

Peak Observed Discharge = 360.7 cumecs on 23/08/2018 Corres. Water Level :219.8 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :218.22 m

River was in Negligible flow condition from 01/06/2018 to 12/07/2018, 12/08/2018 to 17/08/2018 and 01/11/2018 to 31/05/2019

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 2018 - 2019

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	218.360	0.000	218.320	0.000	218.310	0.000	218.310	0.000	218.300	0.000	218.250	0.000
2	218.360	0.000	218.310	0.000	218.310	0.000	218.310	0.000	218.300	0.000	218.250	0.000
3	218.360	0.000	218.310	0.000	218.310	0.000	218.310	0.000	218.300	0.000	218.260	0.000
4	218.360	0.000	218.310	0.000	218.310	0.000	218.310	0.000	218.290	0.000	218.260	0.000
5	218.360	0.000	218.310	0.000	218.310	0.000	218.310	0.000	218.290	0.000	218.260	0.000
6	218.360	0.000	218.300	0.000	218.310	0.000	218.310	0.000	218.290	0.000	218.260	0.000
7	218.360	0.000	218.300	0.000	218.310	0.000	218.300	0.000	218.290	0.000	218.270	0.000
8	218.360	0.000	218.300	0.000	218.310	0.000	218.300	0.000	218.280	0.000	218.270	0.000
9	218.360	0.000	218.300	0.000	218.310	0.000	218.300	0.000	218.280	0.000	218.270	0.000
10	218.360	0.000	218.300	0.000	218.310	0.000	218.300	0.000	218.280	0.000	218.270	0.000
11	218.360	0.000	218.290	0.000	218.310	0.000	218.300	0.000	218.280	0.000	218.270	0.000
12	218.350	0.000	218.290	0.000	218.310	0.000	218.300	0.000	218.280	0.000	218.270	0.000
13	218.350	0.000	218.290	0.000	218.310	0.000	218.300	0.000	218.270	0.000	218.270	0.000
14	218.350	0.000	218.290	0.000	218.310	0.000	218.300	0.000	218.270	0.000	218.270	0.000
15	218.350	0.000	218.290	0.000	218.320	0.000	218.300	0.000	218.270	0.000	218.270	0.000
16	218.350	0.000	218.290	0.000	218.320	0.000	218.300	0.000	218.270	0.000	218.270	0.000
17	218.350	0.000	218.290	0.000	218.320	0.000	218.300	0.000	218.270	0.000	218.270	0.000
18	218.350	0.000	218.300	0.000	218.320	0.000	218.300	0.000	218.270	0.000	218.270	0.000
19	218.350	0.000	218.300	0.000	218.300	0.000	218.300	0.000	218.270	0.000	218.270	0.000
20	218.340	0.000	218.300	0.000	218.300	0.000	218.300	0.000	218.270	0.000	218.260	0.000
21	218.340	0.000	218.300	0.000	218.300	0.000	218.300	0.000	218.260	0.000	218.260	0.000
22	218.340	0.000	218.300	0.000	218.300	0.000	218.300	0.000	218.260	0.000	218.260	0.000
23	218.340	0.000	218.300	0.000	218.300	0.000	218.300	0.000	218.260	0.000	218.260	0.000
24	218.340	0.000	218.300	0.000	218.300	0.000	218.300	0.000	218.260	0.000	218.260	0.000
25	218.330	0.000	218.310	0.000	218.300	0.000	218.300	0.000	218.260	0.000	218.260	0.000
26	218.330	0.000	218.310	0.000	218.300	0.000	218.300	0.000	218.250	0.000	218.240	0.000
27	218.330	0.000	218.310	0.000	218.310	0.000	218.300	0.000	218.250	0.000	218.230	0.000
28	218.330	0.000	218.310	0.000	218.310	0.000	218.300	0.000	218.250	0.000	218.220	0.000
29	218.330	0.000	218.310	0.000			218.300	0.000	218.250	0.000	218.210	0.000
30	218.320	0.000	218.310	0.000			218.300	0.000	218.250	0.000	218.210	0.000
31	218.320	0.000	218.310	0.000			218.300	0.000			218.210	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	218.36	0.000	218.31	0.000	218.31	0.000	218.31	0.000	218.29	0.000	218.26	0.000
II Ten-Daily	218.35	0.000	218.29	0.000	218.31	0.000	218.30	0.000	218.27	0.000	218.27	0.000
III Ten-Daily	218.33	0.000	218.31	0.000	218.30	0.000	218.30	0.000	218.25	0.000	218.24	0.000
<u>Monthly</u>												
Min.	218.32	0.000	218.29	0.000	218.30	0.000	218.30	0.000	218.25	0.000	218.21	0.000
Max.	218.36	0.000	218.32	0.000	218.32	0.000	218.31	0.000	218.30	0.000	218.27	0.000
Mean	218.35	0.00	218.30	0.00	218.31	0.00	218.30	0.00	218.27	0.00	218.26	0.00

Peak Computed Discharge = 657.4 cumecs on 22/08/2018

Corres. Water Level :220.49 m

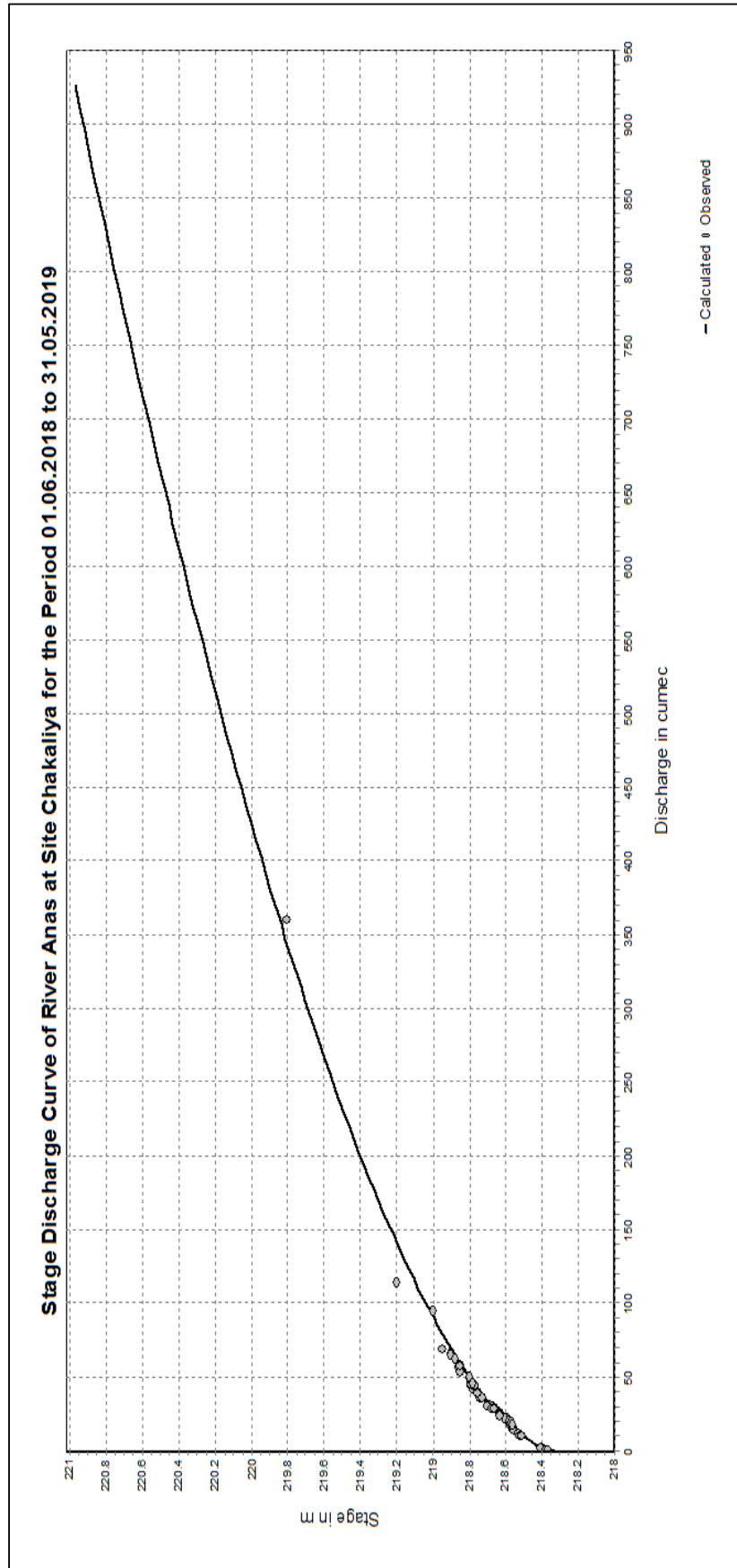
Lowest Computed Discharge = 0.717 cumecs on 02/07/2018

Corres. Water Level :218.36 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
218.3	221	-218.32	1.708	175.039

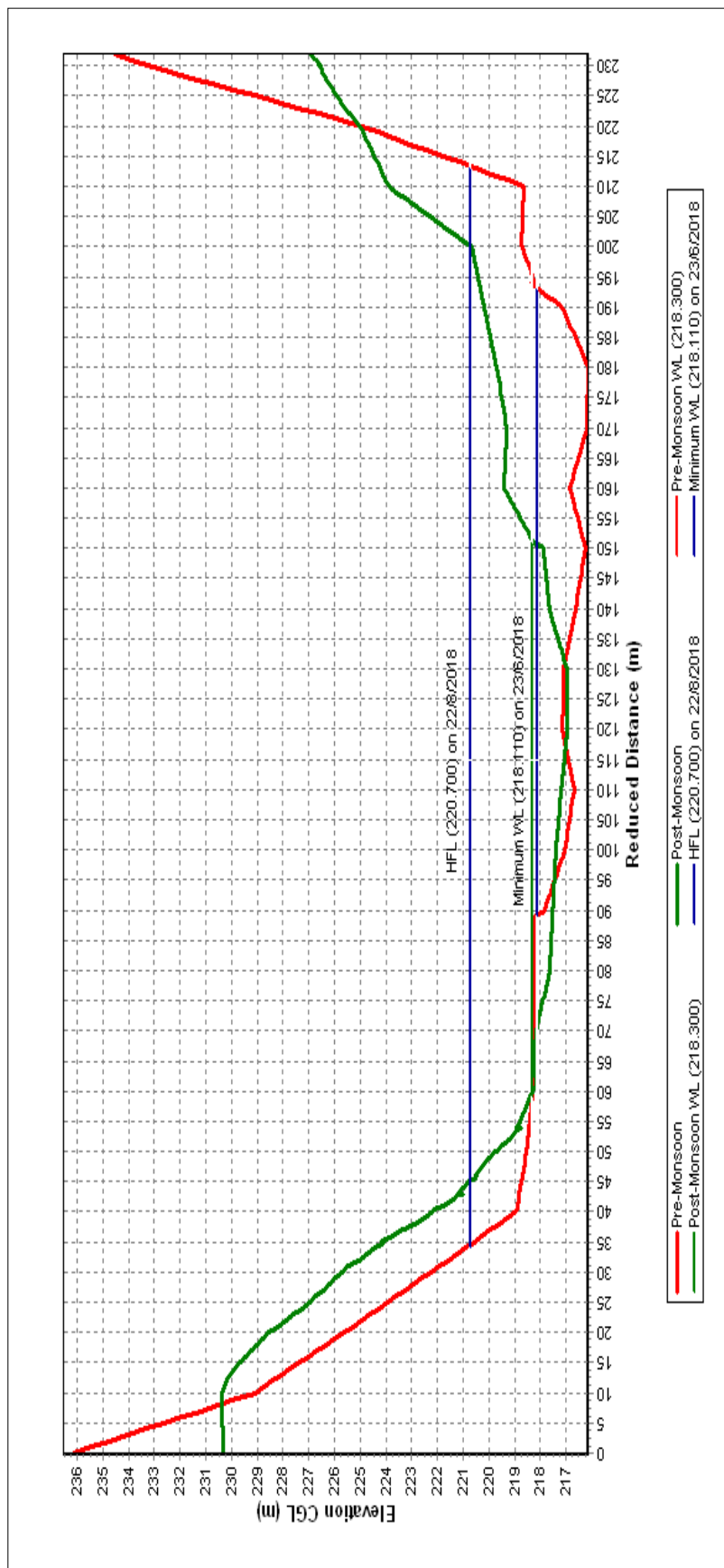
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 -230.200m on 11.08.2006 at 1400 hrs

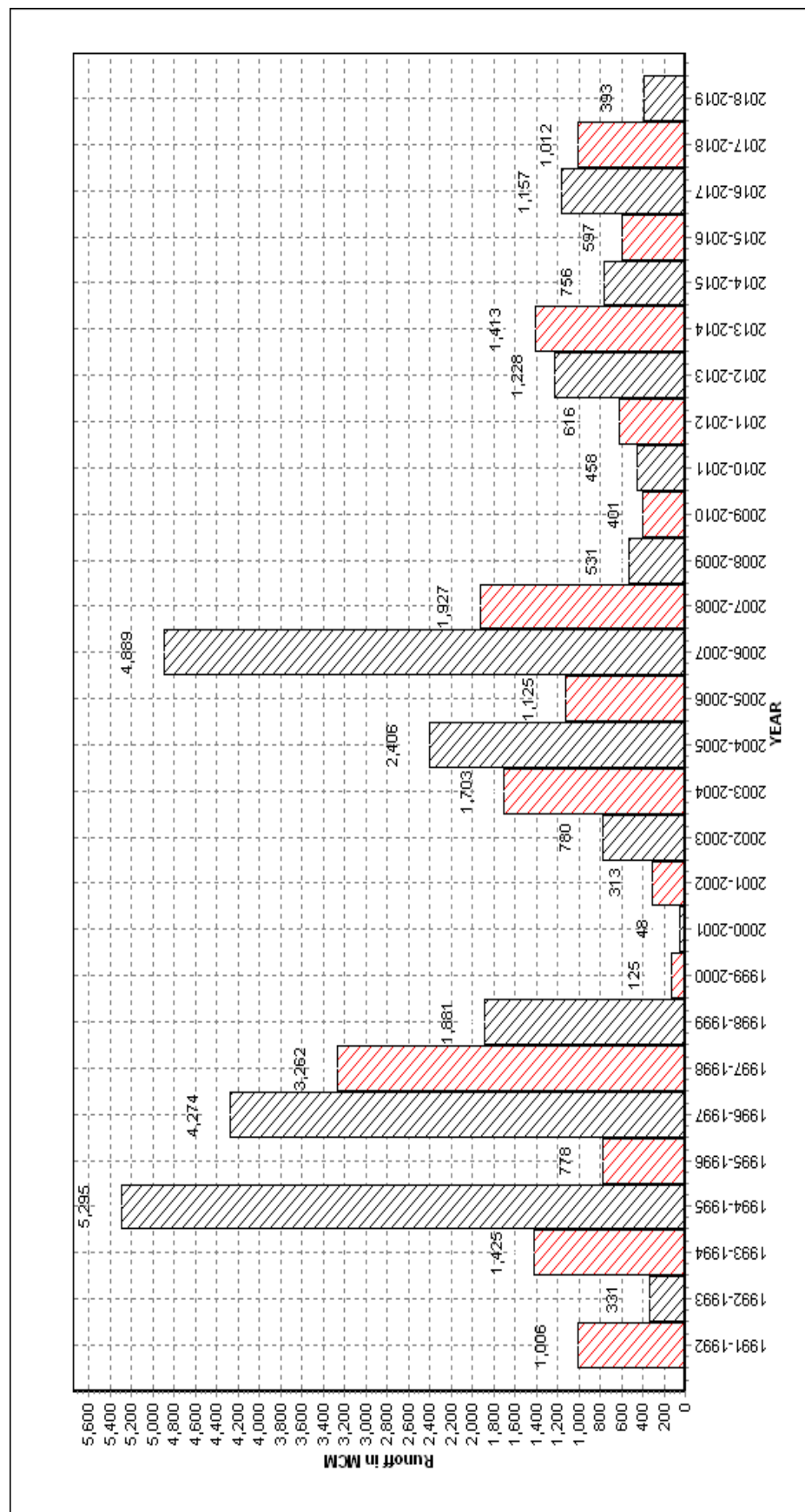
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1991 - 2019

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

Local River : Anas

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

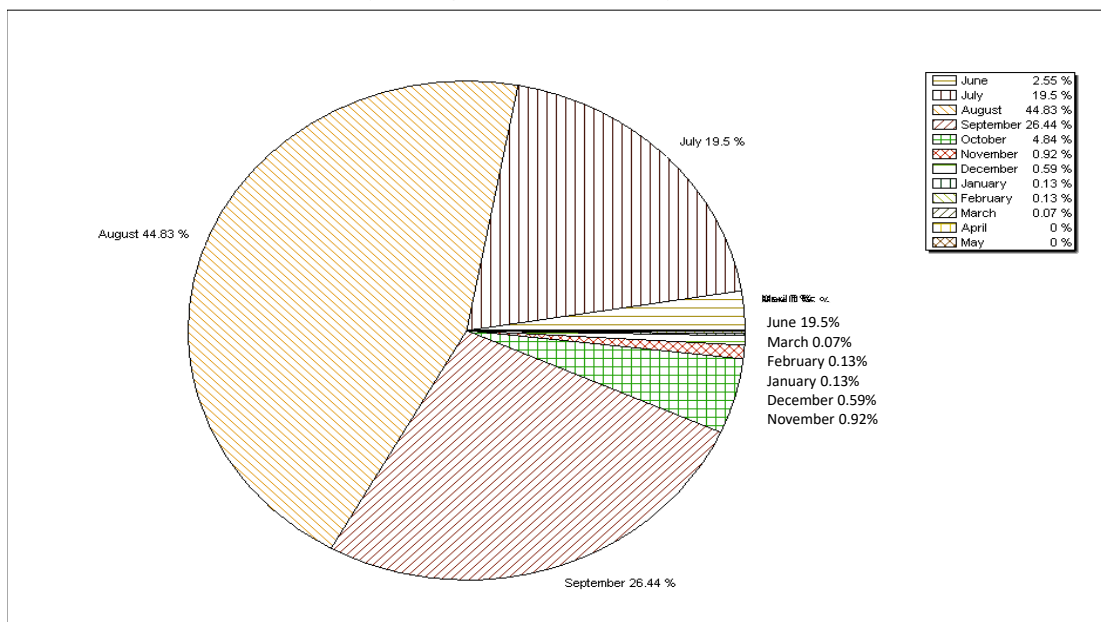


Note: Missing values have not been considered while arriving at Annual Runoff

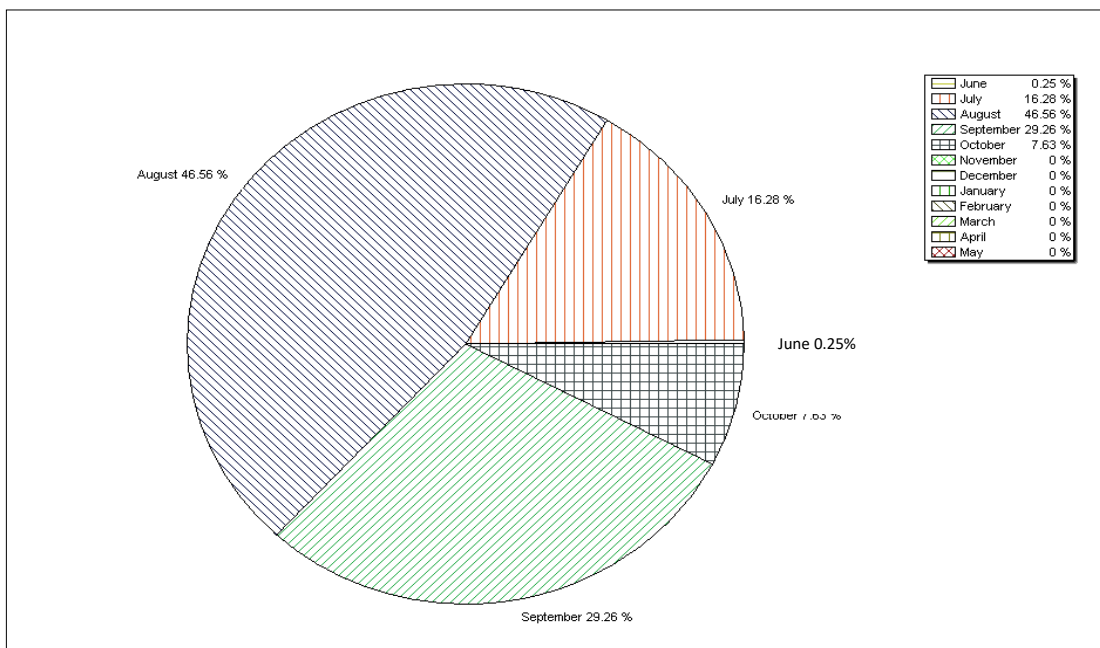
Station Name : Anas at Chakaliya (01 02 13 007)
Local River : Anas

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

Monthly Average Runoff based on period : 1991-2018



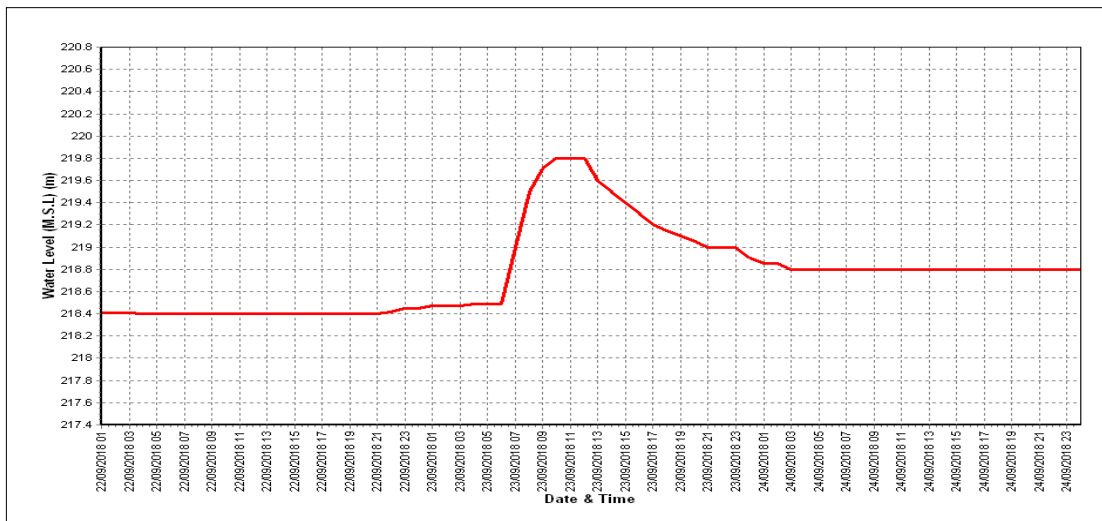
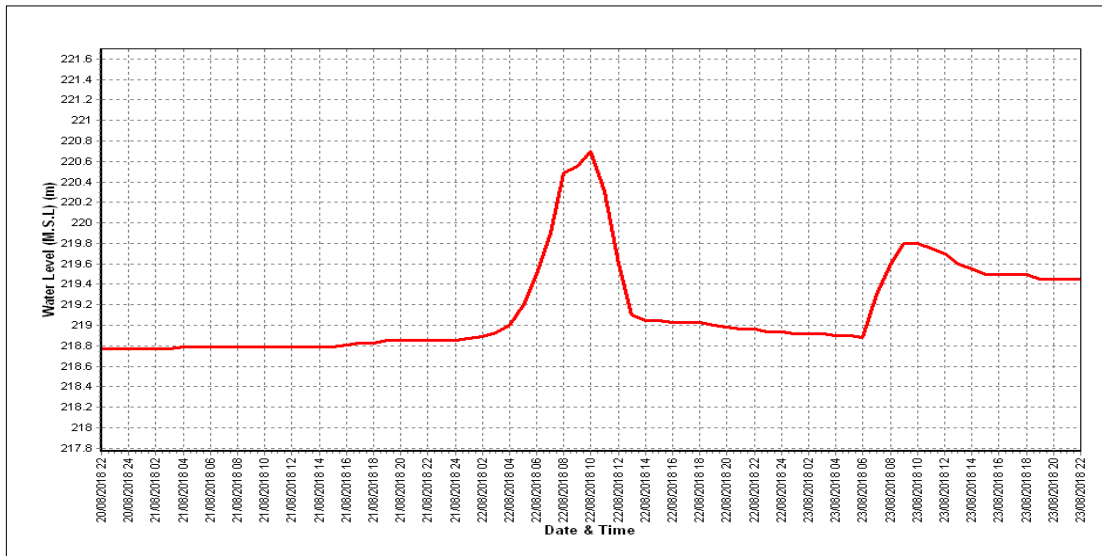
Monthly Runoff for the Year : 2018-2019



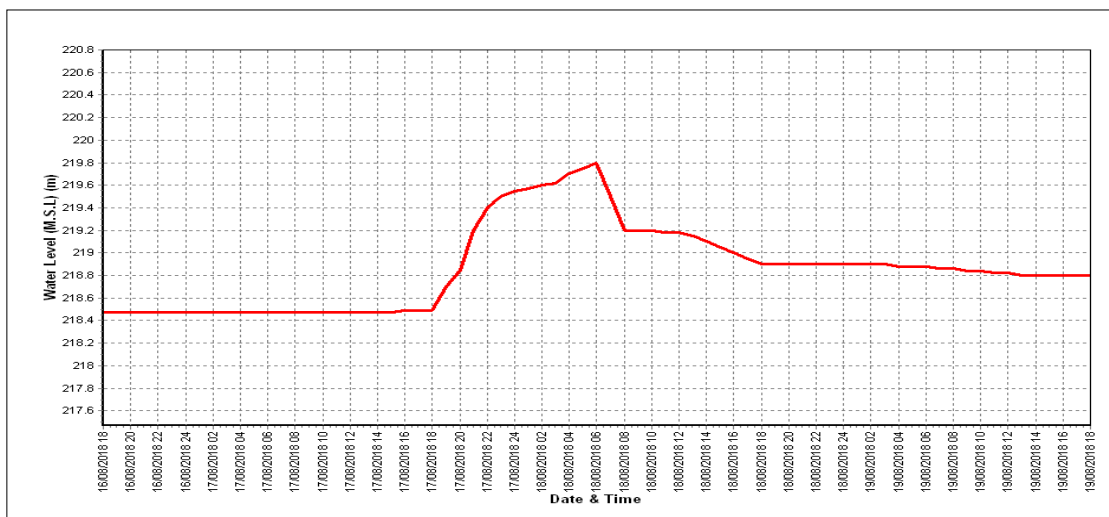
Station Name : Anas at Chakaliya (01 02 13 007)
Local River : Anas

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

Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

Site : Mahi at Paderdibadi State : Rajasthan Basin : Mahi Tributary : Mahi Sub Sub Tributary: Division : Mahi Division, Gandhinagar Drinage Area : 16247 Sq. Km. Latitude : 23°46'02" N Zero of Gauge(m): 131 (m.s.l) Opening Date Gauge : 17/09/1977 Discharge : 24/06/1978 Sediment : 21/07/1980 Water Quality : 01/07/1978	Code : 01 02 13 006 District : Dungarpur Independent R : Mahi Sub Tributary : Local River : Mahi Sub-Division : Mahi Sub Divn., Kadana Bank : Right Longitude : 74°08'12" E 17/09/1977 - 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
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
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
2018-2019	1042	137.750	22/08/2018	0.000	132.830	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	132.83	0.00	134.26	36.83 *	133.67	78.81 #	134.64	280.10 #	134.23	191.30 *	133.46	19.05 *
2	132.86	0.00	133.89	23.23 *	133.64	73.19 #	134.41	229.80 *	134.20	185.00 *	133.43	17.55 *
3	132.85	0.00	133.74	18.33 *	133.61	67.62 #	134.26	197.70 *	134.16	176.60 *	133.41	16.59 *
4	132.84	0.00	133.72	17.71 *	133.59	63.94 #	134.17	178.70 *	134.12	168.30 *	133.41	16.59 *
5	133.52	11.88 *	133.82	20.90 *	133.56	58.47 #	134.13	170.40 *	134.08	160.00 *	133.40	16.13 *
6	133.42	9.26 *	133.83	21.23 *	133.54	54.86 #	134.27	199.80 *	134.06	155.90 *	133.40	16.13 *
7	133.35	7.56 *	133.71	17.40 *	133.53	53.07 #	134.22	189.20 *	134.04	151.80 *	133.40	16.13 *
8	133.30	6.42 *	133.67	16.18 *	133.51	49.50 #	134.20	185.00 *	133.84	111.60 *	133.39	15.67 *
9	133.27	5.76 *	133.98	26.35 *	133.50	47.73 *	134.27	199.80 *	133.82	107.70 *	133.39	15.67 *
10	133.24	5.13 *	133.84	21.56 *	133.78	99.86 *	134.37	221.10 *	133.77	97.92 *	133.39	15.67 *
11	133.23	4.93 *	134.22	35.27 *	133.73	90.21 *	134.37	221.10 *	133.76	95.98 *	133.38	15.22 *
12	133.22	4.73 *	133.88	22.89 *	133.67	78.81 *	134.09	162.10 *	133.74	92.13 *	133.38	15.22 *
13	133.21	4.73 *	133.74	18.33 *	133.68	80.70 *	133.98	139.60 *	133.72	35.10 *	133.38	15.22 *
14	133.21	4.73 *	133.70	17.09 *	133.61	67.62 #	133.96	135.50 *	133.70	33.67 *	133.40	16.13 *
15	133.21	4.73 *	133.68	80.70 *	133.58	62.11 *	133.90	123.50 *	133.68	32.27 *	133.40	16.13 *
16	133.21	4.73 *	133.95	133.50 *	133.56	57.57 #	133.87	117.50 *	133.67	31.59 *	133.40	16.13 *
17	133.21	4.73 *	133.98	139.60 *	133.59	63.94 #	133.84	111.60 *	133.65	30.24 *	133.40	16.13 *
18	133.20	4.33 *	133.80	103.70 *	134.37	221.10 *	133.81	105.70 *	133.63	28.92 *	133.38	15.22 *
19	133.20	4.33 *	133.76	95.98 *	134.15	174.50 #	133.79	101.80 *	133.62	28.28 *	133.37	14.78 *
20	133.20	4.33 *	134.70	293.40 *	133.92	127.50 *	133.76	95.98 *	133.61	27.64 #	133.36	14.31 *
21	133.19	4.14 *	134.28	201.90 *	134.05	453.80 *	133.74	92.13 *	133.60	27.01 *	133.35	13.92 *
22	133.18	3.94 *	134.17	178.70 *	137.75	##### #	133.72	88.30 *	133.57	25.17 #	133.35	13.92 *
23	133.18	3.94 *	133.03	0.00 *	135.78	544.80 *	133.85	113.60 *	133.55	23.98 *	133.37	14.78 *
24	133.18	3.94 *	134.02	147.70 *	135.16	398.10 *	134.58	266.80 *	133.53	22.83 *	133.40	16.13 *
25	133.17	3.76 *	134.06	155.90 *	134.76	306.80 *	135.48	473.10 *	133.52	22.27 *	133.40	16.13 *
26	133.19	4.14 *	134.19	182.90 *	134.71	295.70 *	134.40	227.60 *	133.51	21.71 *	133.40	16.13 *
27	133.20	4.33 *	134.11	166.20 *	134.65	282.30 *	134.47	242.80 *	133.50	21.16 *	133.41	16.59 *
28	134.76	58.20 *	134.04	151.80 *	134.45	238.40 *	134.37	221.10 *	133.49	20.62 *	133.47	19.57 *
29	135.24	81.52 *	134.00	143.60 *	134.37	221.10 *	134.33	212.60 *	133.48	20.09 *	133.53	22.83 *
30	134.99	69.06 #	133.77	97.92 *	135.00	361.20 #	134.27	199.80 *	133.47	19.57 *	133.53	22.83 *
31			133.70	84.49 *	135.00	361.20 #			133.47	19.57 *		
Ten-Daily Mean												
I Ten-Daily	133.15	7.67	133.85	21.97	133.59	64.70	134.29	205.10	134.03	150.60	133.41	16.52
II Ten-Daily	133.21	4.63	133.94	94.05	133.79	102.40	133.94	131.40	133.68	43.58	133.39	15.45
III Ten-Daily	133.73	23.70	133.94	137.40	135.06	409.60	134.32	213.80	133.52	22.18	133.42	17.28
Monthly												
Min.	132.83	3.76	133.03	0.00	133.50	47.73	133.72	88.30	133.47	19.57	133.35	13.92
Max.	135.24	81.52	134.70	293.40	137.75	#####	135.48	473.10	134.23	191.30	133.53	22.83
Mean	133.36	12.66	133.91	86.17	134.18	199.30	134.18	183.50	133.74	70.51	133.40	16.42

Annual Runoff in MCM = 4051 Annual Runoff in mm = 249

Peak Observed Discharge = 1042 cumecs on 22/08/2018 Corres. Water Level :137.75 m

Lowest Observed Discharge = 25.17 cumecs on 22/10/2018 Corres. Water Level :133.57 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 2018 - 2019

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	133.53	22.83 *	133.62	28.28 *	133.62	28.28 *	133.53	22.83 *	133.46	19.05 *	133.22	9.11 *
2	133.56	24.57 *	133.62	28.28 *	133.62	28.28 *	133.53	22.83 *	133.46	19.05 *	133.21	8.80 *
3	133.58	25.78 *	133.62	28.28 *	133.62	28.28 *	133.53	22.83 *	133.46	19.05 *	133.20	8.49 *
4	133.58	25.78 *	133.62	28.28 *	133.62	28.28 *	133.53	22.83 *	133.48	20.09 *	133.19	8.20 *
5	133.59	26.39 *	133.62	28.28 *	133.61	27.64 *	133.52	22.27 *	133.49	20.62 *	133.18	7.91 *
6	133.60	27.01 *	133.61	27.64 *	133.61	27.64 *	133.52	22.27 *	133.49	20.62 *	133.17	7.63 *
7	133.59	26.39 *	133.59	26.39 *	133.61	27.64 *	133.51	21.71 *	133.49	20.62 *	133.20	8.49 *
8	133.59	26.39 *	133.58	25.78 *	133.59	27.39 *	133.51	21.71 *	133.48	20.09 *	133.20	8.49 *
9	133.58	25.78 *	133.56	24.57 *	133.58	25.78 *	133.51	21.71 *	133.48	20.09 *	133.21	8.80 *
10	133.58	25.78 *	133.56	24.57 *	133.58	25.78 *	133.52	22.27 *	133.48	20.09 *	133.21	8.80 *
11	133.57	25.17 *	133.56	24.57 *	133.58	25.78 *	133.53	22.83 *	133.48	20.09 *	133.21	8.80 *
12	133.56	24.57 *	133.59	26.39 *	133.53	22.83 *	133.53	22.83 *	133.47	19.57 *	133.21	8.80 *
13	133.56	24.57 *	133.60	27.01 *	133.51	21.71 *	133.52	22.27 *	133.47	19.57 *	133.21	8.80 *
14	133.57	25.17 *	133.60	27.01 *	133.49	20.62 *	133.52	22.27 *	133.47	19.57 *	133.21	8.80 *
15	133.57	25.17 *	133.60	27.01 *	133.49	20.62 *	133.51	21.71 *	133.47	19.57 *	133.19	8.20 *
16	133.57	25.17 *	133.60	27.01 *	133.49	20.62 *	133.49	20.62 *	133.47	19.57 *	133.19	8.20 *
17	133.58	25.78 *	133.60	27.01 *	133.50	21.16 *	133.48	20.09 *	133.47	19.57 *	133.19	8.20 *
18	133.58	25.78 *	133.60	27.01 *	133.52	22.27 *	133.47	19.57 *	133.47	19.57 *	133.18	7.91 *
19	133.58	25.78 *	133.62	28.28 *	133.52	22.27 *	133.47	19.57 *	133.47	19.57 *	133.18	7.91 *
20	133.58	25.78 *	133.62	28.28 *	133.52	22.27 *	133.49	20.62 *	133.46	19.05 *	133.17	7.63 *
21	133.58	25.78 *	133.62	28.28 *	133.52	22.27 *	133.49	20.62 *	133.46	19.05 *	133.17	7.63 *
22	133.58	26.39 *	133.62	28.28 *	133.53	22.83 *	133.49	20.62 *	133.46	19.05 *	133.17	7.63 *
23	133.59	27.01 *	133.62	28.28 *	133.53	22.83 *	133.49	20.62 *	133.42	17.07 *	133.17	7.63 *
24	133.60	27.64 *	133.62	27.64 *	133.53	22.83 *	133.49	20.62 *	133.38	15.22 *	133.17	7.63 *
25	133.61	28.28 *	133.61	27.64 *	133.53	22.83 *	133.49	20.62 *	133.36	14.34 *	133.17	7.63 *
26	133.62	28.28 *	133.61	27.64 *	133.52	22.27 *	133.49	20.62 *	133.32	12.68 *	133.18	7.91 *
27	133.62	28.28 *	133.61	27.64 *	133.52	22.27 *	133.49	20.62 *	133.28	11.16 *	133.19	8.20 *
28	133.62	28.28 *	133.61	27.64 *	133.53	22.83 *	133.48	20.09 *	133.27	10.80 *	133.19	8.20 *
29	133.62	28.28 *	133.61	27.64 *			133.48	20.09 *	133.27	10.80 *	133.19	7.63 *
30	133.62	28.28 *	133.61	27.64 *			133.46	19.05 *	133.23	9.43 *	133.17	7.63 *
31	133.62	28.28 *	133.61	27.64 *			133.46	19.05 *			133.17	7.63 *
Ten-Daily Mean												
I Ten-Daily	133.58	#####	133.60	27.03	133.61	27.50	133.52	22.33	133.48	19.94	133.20	8.47
II Ten-Daily	133.57	25.29	133.60	26.96	133.51	22.01	133.50	21.24	133.47	19.57	133.19	8.32
III Ten-Daily	133.61	27.70	133.61	27.81	133.53	22.62	133.48	20.24	133.35	13.96	133.18	7.76
Monthly												
Min.	133.53	22.83	133.56	24.57	133.49	20.62	133.46	19.05	133.23	9.43	133.17	7.63
Max.	133.62	28.30	133.62	28.28	133.62	28.28	133.53	22.83	133.49	20.62	133.22	9.11
Mean	133.59	856.90	133.60	27.28	133.55	24.14	133.50	21.23	133.43	17.82	133.19	8.17

Peak Computed Discharge = 544.8 cumecs on 23/08/2018

Corres. Water Level :135.78 m

Lowest Computed Discharge = 0.000 cumecs on 23/07/2018

Corres. Water Level :133.03 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)

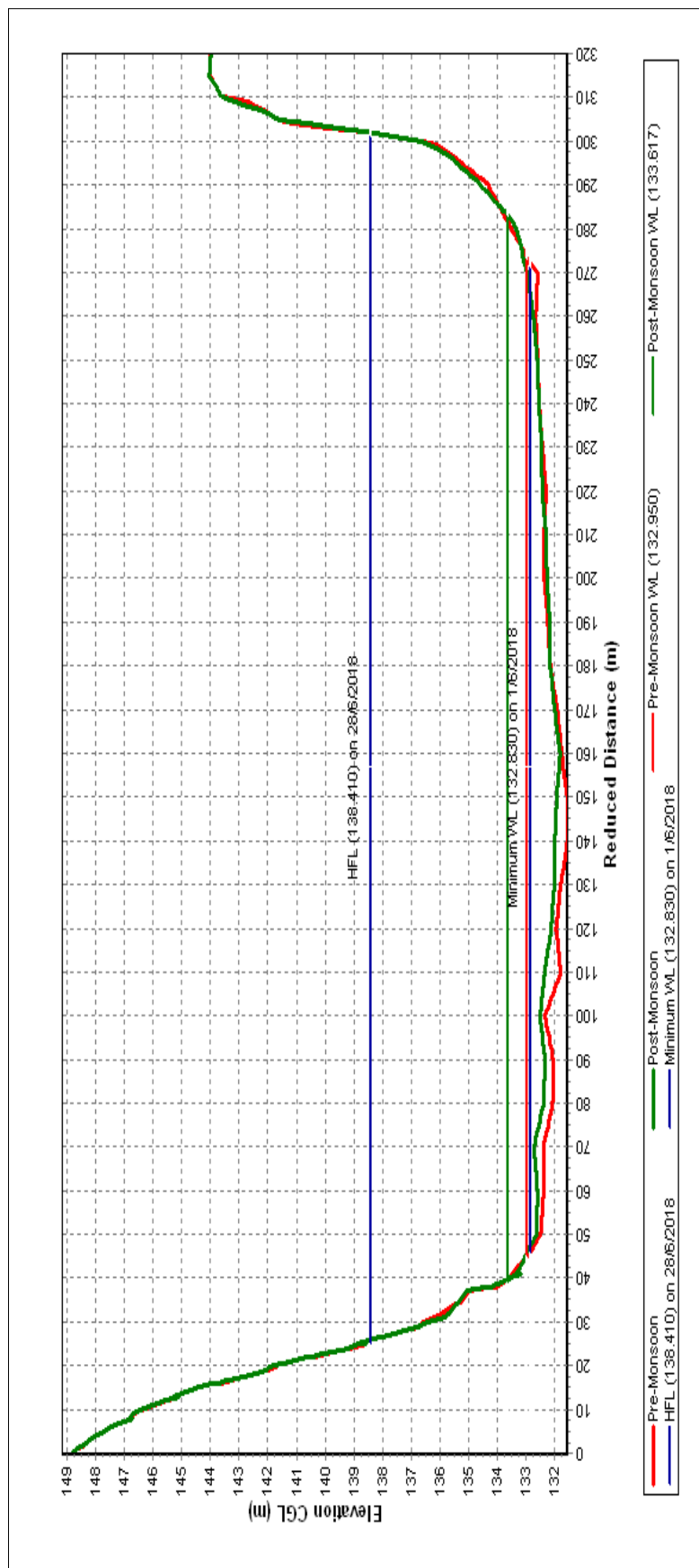
Note:Missing values ignored while arriving at Annual Runoff

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

Station Name : Mahi at Paderdibadi (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 1600hrs

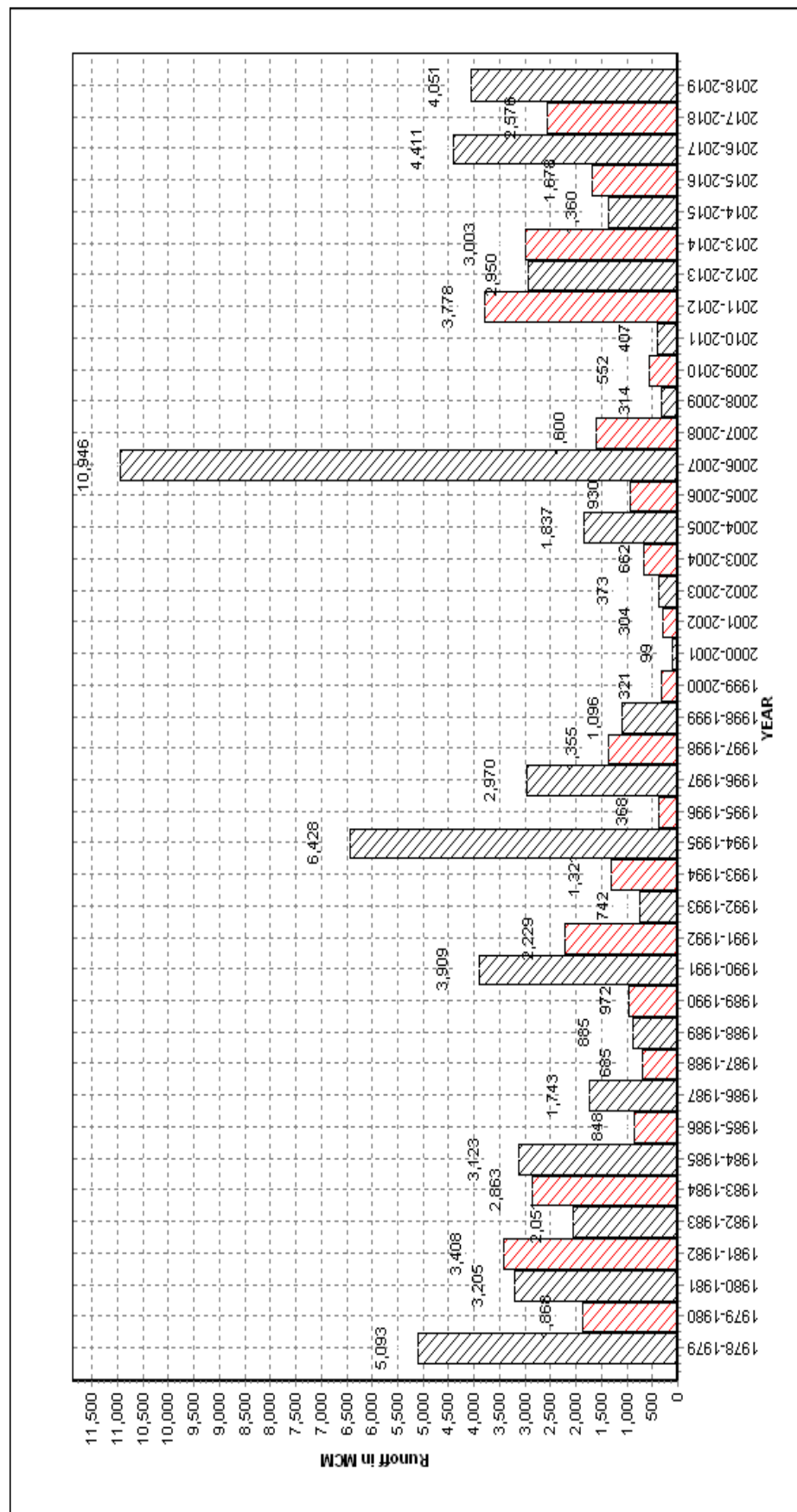
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1978 - 2019

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

Local River : Mahi

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

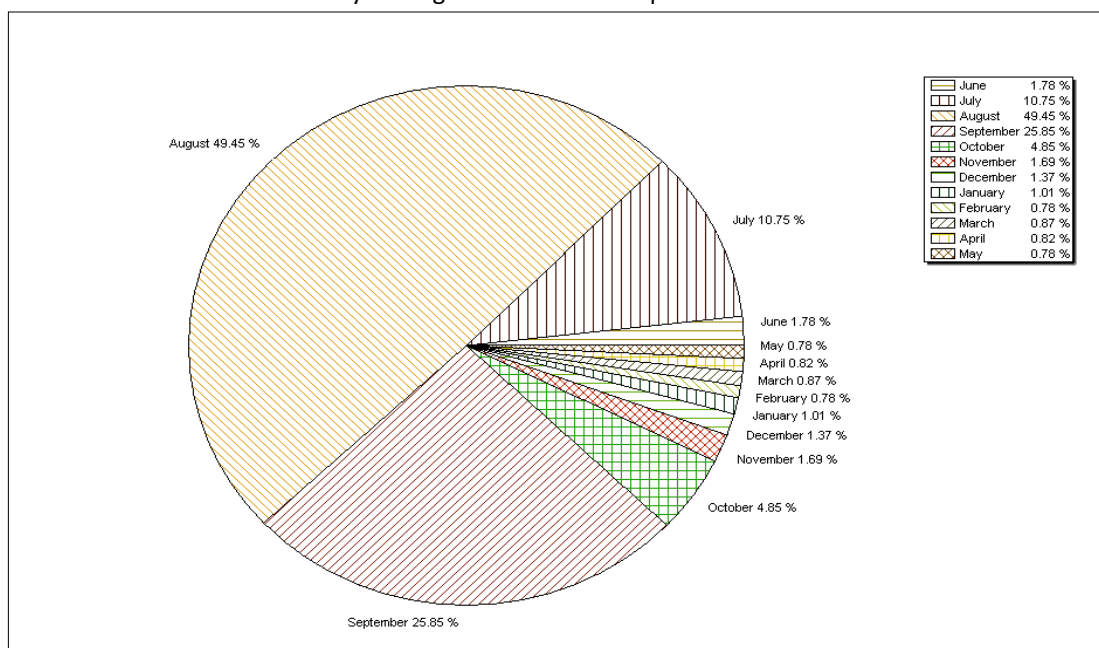


Note: Missing values have not been considered while arriving at Annual Runoff

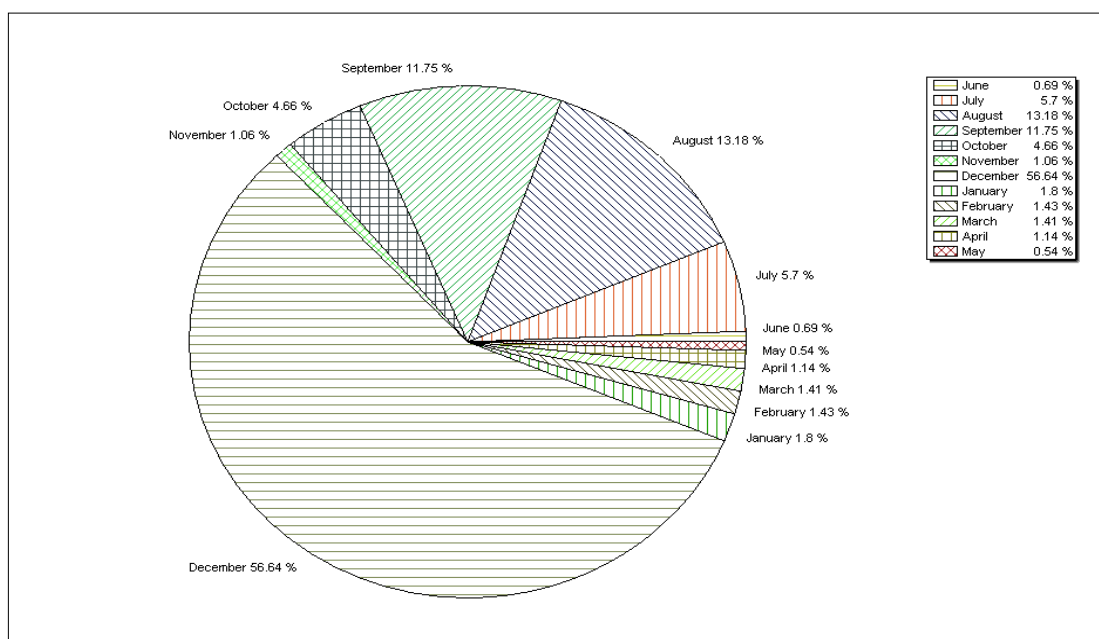
Station Name : Mahi at Paderdibadi (01 02 13 006)
Local River : Mahi

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

Monthly Average Runoff based on period : 1978-2018



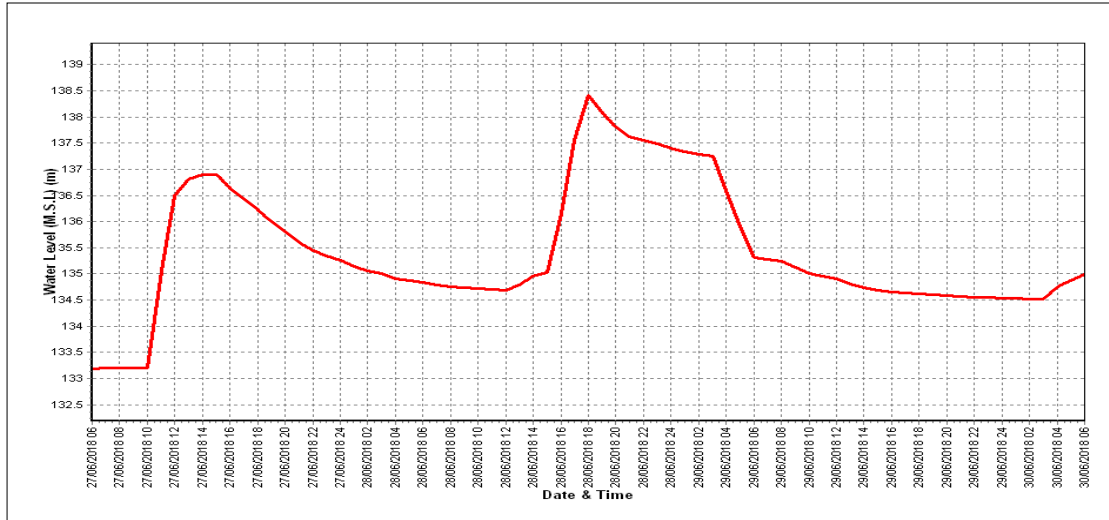
Monthly Runoff for the Year : 2018-2019



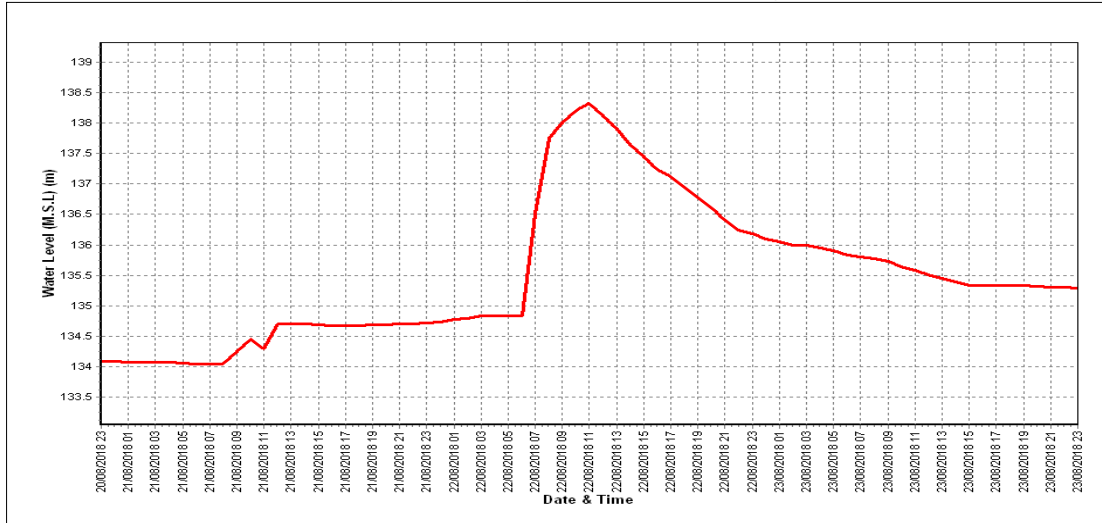
Station Name : Mahi at Paderdibadi (01 02 13 006)
Local River : Mahi

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

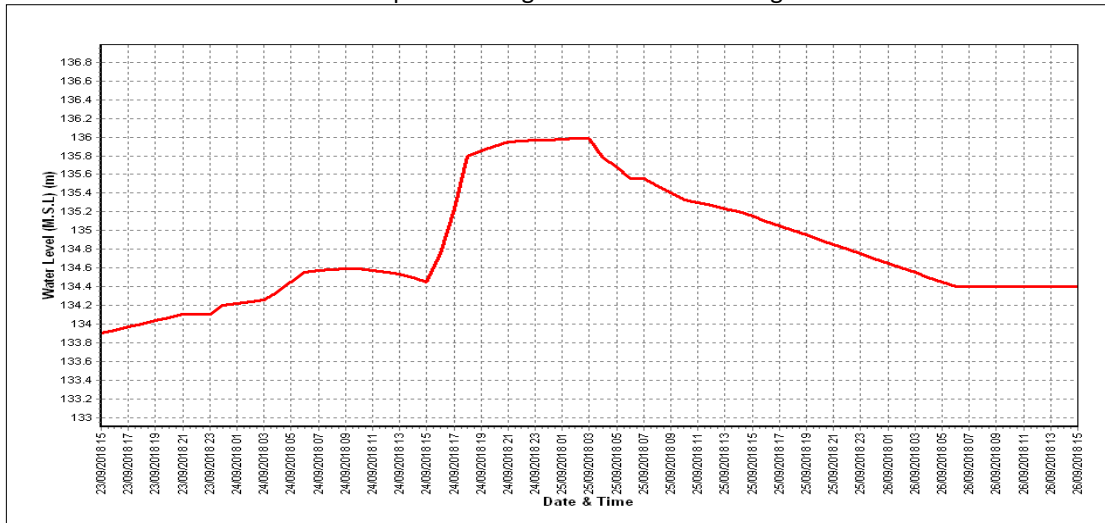
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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		Date
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	
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
2018-2019	144.2	152.950	30/08/2018	0.000	150.970	25/05/2019

Stage-Discharge Data for the period 2018 - 2019

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	151.060	0.000	151.950	42.60 *	151.670	13.99 #	152.500	96.72 *	152.230	65.41	151.520	10.08
2	151.060	0.000	151.750	26.48 *	151.650	19.31 *	152.250	70.55 *	152.170	62.70 *	151.500	10.01
3	151.070	0.000	151.680	21.39 *	151.630	17.96 *	152.100	56.06 *	152.150	63.62	151.500	9.817
4	151.070	0.000	151.600	15.99 *	151.620	17.30 *	152.030	65.39	152.150	61.76	151.490	9.378 *
5	151.070	0.000	151.600	15.99 *	151.610	16.64 *	151.990	41.92	152.130	59.66	151.480	8.830 *
6	151.060	0.000	151.650	19.31 *	151.570	10.90	152.230	82.40	151.980	48.90	151.470	9.137
7	151.060	0.000	151.650	19.31 *	151.550	12.86 *	152.200	82.35	151.920	40.05 *	151.470	8.292 *
8	151.060	0.000	151.600	15.99 *	151.550	12.86 *	152.210	76.23	151.860	35.07 *	151.460	7.764 *
9	151.050	0.000	152.200	65.61 *	151.710	23.53 *	152.260	71.55 *	151.850	22.59 #	151.460	8.871
10	151.050	0.000	151.800	30.29 *	151.820	31.86 *	152.270	87.25	151.860	22.99 #	151.450	8.604
11	151.050	0.000	151.900	38.37 *	151.740	25.73 *	152.260	74.96	151.820	22.08 #	151.450	7.247 *
12	151.050	0.000	151.800	30.29 *	151.710	23.53 *	152.000	46.97 *	151.800	22.22	151.450	8.457
13	151.050	0.000	151.640	18.63 *	151.640	18.63 *	151.950	42.60 *	151.770	20.96	151.440	8.235
14	151.040	0.000	151.650	19.31 *	151.640	18.63 *	151.900	52.97	151.760	27.23 *	151.430	8.007
15	151.040	0.000	152.100	56.06 *	151.600	15.99 *	151.880	50.24	151.730	19.32	151.430	7.871 #
16	151.040	0.000	151.890	37.53 *	151.580	14.71 *	151.850	34.26 *	151.720	19.11	151.420	5.759 *
17	151.040	0.000	151.930	40.89 *	151.710	23.53 *	151.810	21.75	151.710	17.73 #	151.420	5.759 *
18	151.040	0.000	151.790	29.52 *	152.100	56.06 *	151.800	22.59 #	151.680	21.39 *	151.410	5.286 *
19	151.030	0.000	151.750	26.48 *	152.000	46.97 *	151.790	22.99 #	151.680	18.13	151.410	7.992 #
20	151.030	0.000	151.880	36.71 *	152.150	55.59	151.760	22.08 #	151.670	18.01	151.410	7.992 #
21	151.020	0.000	152.090	55.13 *	152.400	85.96 *	151.730	24.99 *	151.660	20.00 *	151.410	5.286 *
22	151.020	0.000	152.050	51.46 *	153.200	181.4 *	151.710	17.73 #	151.650	19.31 *	151.410	5.286 *
23	151.020	0.000	152.050	51.46 *	152.790	129.9 *	151.850	34.26 *	151.640	11.96 #	151.410	5.286 *
24	151.020	0.000	152.100	56.06 *	152.550	102.2 *	152.550	94.91	151.620	11.40 #	151.420	5.759 *
25	151.000	0.000	152.200	65.61 *	152.480	94.54 *	153.000	155.6 *	151.600	11.24 #	151.420	5.759 *
26	151.100	0.000	152.180	64.94	152.420	88.09 *	152.260	73.28	151.590	11.10 #	151.420	8.146 #
27	153.150	0.000	152.150	60.78 *	152.380	*	152.280	73.56 *	151.580	11.51	151.430	8.941 #
28	152.600	0.000	152.100	56.06 *	152.330	78.66 *	152.265	74.53	151.570	14.09 *	151.470	9.748
29	152.110	61.87	151.960	43.47 *	152.750	125.2 *	152.250	70.37	151.550	11.20	151.480	9.904
30	152.000	46.97 *	151.780	16.69 #	152.950	144.2	152.220	67.57 *	151.540	11.13	151.470	9.545
31			151.740	25.73 *	152.730	124.5			151.530	10.19		
<u>Ten-Daily Mean</u>												
I Ten-Daily	151.061	0.000	151.748	27.30	151.638	17.72	152.204	73.04	152.030	48.27	151.480	9.078
II Ten-Daily	151.041	0.000	151.833	33.38	151.787	29.94	151.900	39.14	151.734	20.62	151.427	7.260
III Ten-Daily	151.604	54.42	152.036	49.76	152.635	112.6	152.212	68.68	151.594	13.01	151.434	7.366
<u>Monthly</u>												
Min.	151.000	46.97	151.600	15.99	151.550	10.90	151.710	17.73	151.530	10.19	151.410	5.286
Max.	153.150	61.87	152.200	65.61	153.200	181.4	153.000	155.6	152.230	65.41	151.520	10.08
Mean	151.235	54.42	151.878	37.23	152.040	55.33	152.105	60.29	151.780	26.84	151.447	7.902

Annual Runoff in MCM = 577 Annual Runoff in mm = 69

Peak Observed Discharge = 144.2 cumecs on 30/08/2018 Corres. Water Level :152.95 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :151.06 m

River was in pooling condition from 25/05/2019 to 31/05/2019

River was in Negligible flow condition from 01/06/2018 to 28/06/2018

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 2018 - 2019

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	151.500	10.27	151.530	5.855 *	151.530	6.674	151.460	5.355 *	151.140	3.169	151.030	2.015
2	151.500	9.935 *	151.540	6.199	151.520	5.438	151.460	5.355 *	151.140	2.989 *	151.030	2.130 *
3	151.500	9.935 *	151.540	6.020	151.540	5.926 *	151.460	5.355 *	151.150	3.066 *	151.020	2.050 *
4	151.480	8.830 *	151.550	5.997 *	151.550	6.185	151.490	5.881	151.150	2.791	151.030	2.025
5	151.490	9.378 *	151.540	5.926 *	151.550	6.149	151.480	5.758	151.140	2.801	151.030	2.130 *
6	151.480	8.830 *	151.500	5.642 *	151.540	6.001	151.480	5.795	151.140	2.801	151.020	1.893
7	151.480	8.830 *	151.500	5.696	151.500	4.776	151.480	5.722	151.140	2.989 *	151.010	1.970 *
8	151.470	8.292 *	151.460	5.501	151.480	5.499 *	151.480	5.700	151.130	2.998	151.020	2.050 *
9	151.470	8.292 *	151.460	5.355 *	151.480	5.499 *	151.470	5.700	151.130	2.912 *	151.010	1.970 *
10	151.470	8.292 *	151.480	5.593	151.480	5.499 *	151.470	5.427 *	151.120	2.835 *	151.000	1.904
11	151.460	7.428	151.480	5.608	151.480	4.773	151.470	5.548	151.100	2.680 *	151.000	1.881
12	151.450	6.938	151.490	5.570 *	151.480	4.750	151.460	5.355 *	151.120	2.835 *	150.990	1.808 *
13	151.450	6.955	151.490	5.570 *	151.480	5.447	151.450	5.283 *	151.120	2.835 *	150.980	1.789
14	151.440	7.129	151.500	5.642 *	151.460	4.887	151.450	5.283 *	151.120	2.835 *	150.980	1.489
15	151.440	6.564	151.500	5.652	151.450	4.872	151.440	5.211 *	151.130	2.912 *	151.000	1.889 *
16	151.440	5.211 *	151.500	5.672	151.450	4.688	151.280	4.813	151.100	3.008	150.990	1.808 *
17	151.440	6.961 #	151.490	5.600	151.460	5.355 *	151.300	4.191 *	151.100	2.680 *	150.990	1.808 *
18	151.480	7.442 #	151.560	6.042	151.460	4.779	151.300	4.191 *	151.090	2.957	150.990	1.808 *
19	151.500	7.662 #	151.560	5.903	151.460	4.808	151.310	4.265 *	151.090	2.603 *	150.990	1.808 *
20	151.480	6.310	151.550	5.997 *	151.460	5.355 *	151.310	4.265 *	151.080	2.525 *	150.970	1.645 *
21	151.520	7.673 #	151.560	6.011	151.490	5.570 *	151.280	4.044 *	151.080	2.525 *	150.970	1.645 *
22	151.540	8.271 #	151.570	6.134	151.490	5.570 *	151.260	3.895 *	151.070	3.178	150.980	1.727 *
23	151.540	5.926 *	151.520	5.717	151.480	5.499 *	151.250	3.821 *	151.100	2.411	150.980	1.727 *
24	151.550	5.997 *	151.530	6.027	151.470	5.427 *	151.230	3.671 *	151.100	2.355	150.980	1.727 *
25	151.550	5.997 *	151.530	6.042	151.470	5.427 *	151.210	3.521 *	151.080	3.036	150.970	0.000
26	151.560	3.631 #	151.530	5.855 *	151.470	5.427 *	151.200	3.445 *	151.070	2.522	150.970	0.000
27	151.560	3.563 #	151.550	5.997 *	151.470	5.427 *	151.200	3.445 *	151.060	2.525	150.970	0.000
28	151.550	3.459 #	151.550	6.446	151.470	5.427 *	151.210	3.521 *	151.050	2.289 *	150.970	0.000
29	151.550	3.441 #	151.550	6.158			151.210	3.521 *	151.050	2.289 *	150.980	0.000
30	151.540	5.926 *	151.530	5.855 *			151.180	3.294 *	151.040	2.016	150.980	0.000
31	151.540	3.384 #	151.530	5.544			151.160	3.142 *			150.980	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	151.484	9.088	151.510	5.778	151.517	5.764	151.473	5.605	151.138	2.935	151.020	2.014
II Ten-Daily	151.458	6.860	151.512	5.726	151.464	4.971	151.377	4.840	151.105	2.787	150.988	1.773
III Ten-Daily	151.545	5.206	151.541	5.980	151.476	5.472	151.217	3.575	151.070	2.515	150.975	0.621
<u>Monthly</u>												
Min.	151.440	3.384	151.460	5.355	151.450	4.688	151.160	3.142	151.040	2.016	150.970	0.000
Max.	151.560	10.27	151.570	6.446	151.550	6.674	151.490	5.881	151.150	3.178	151.030	2.130
Mean	151.497	6.992	151.522	5.833	151.486	5.398	151.351	4.638	151.104	2.746	150.994	1.442

Peak Computed Discharge = 181.4 cumecs on 22/08/2018

Corres. Water Level :153.2 m

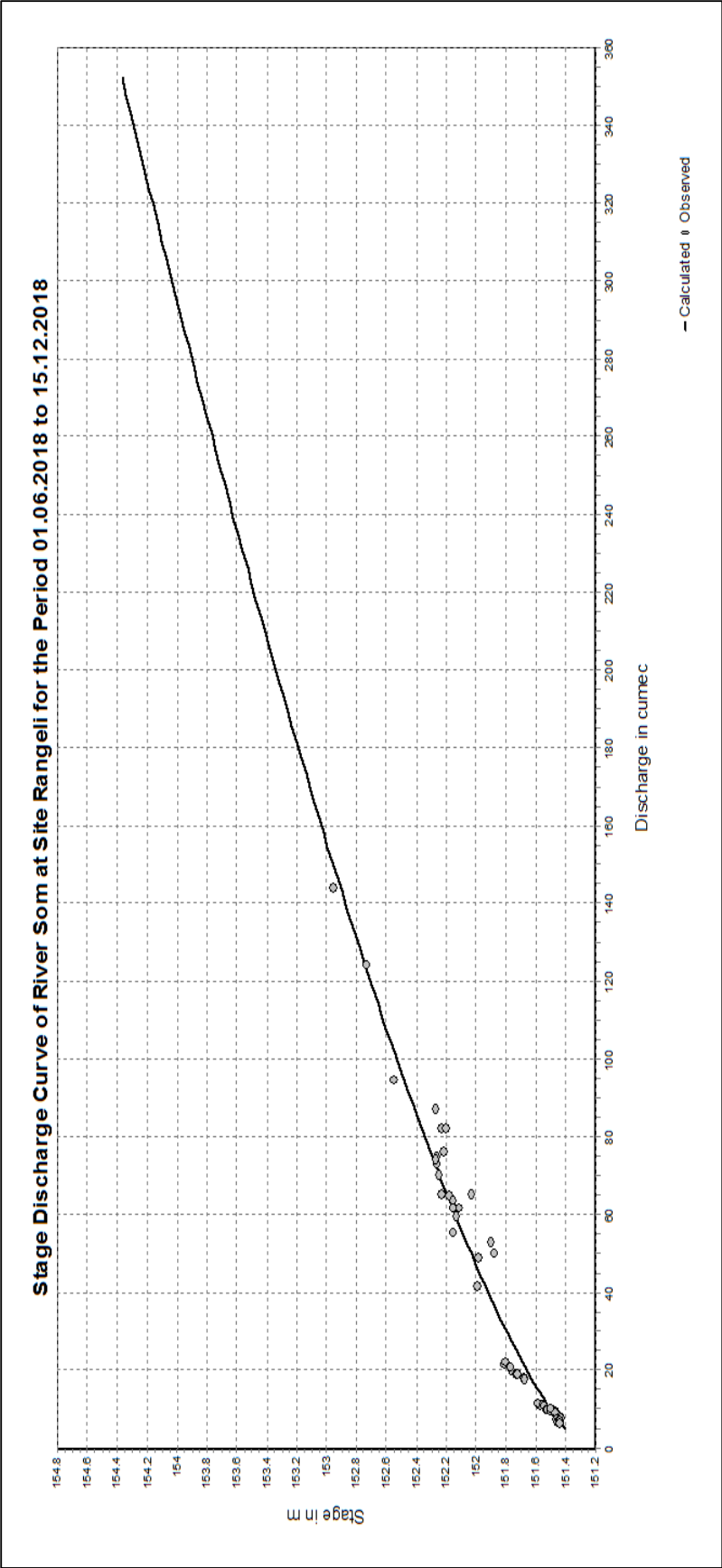
Lowest Computed Discharge = 1.645 cumecs on 20/05/2019

Corres. Water Level :150.97 m

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

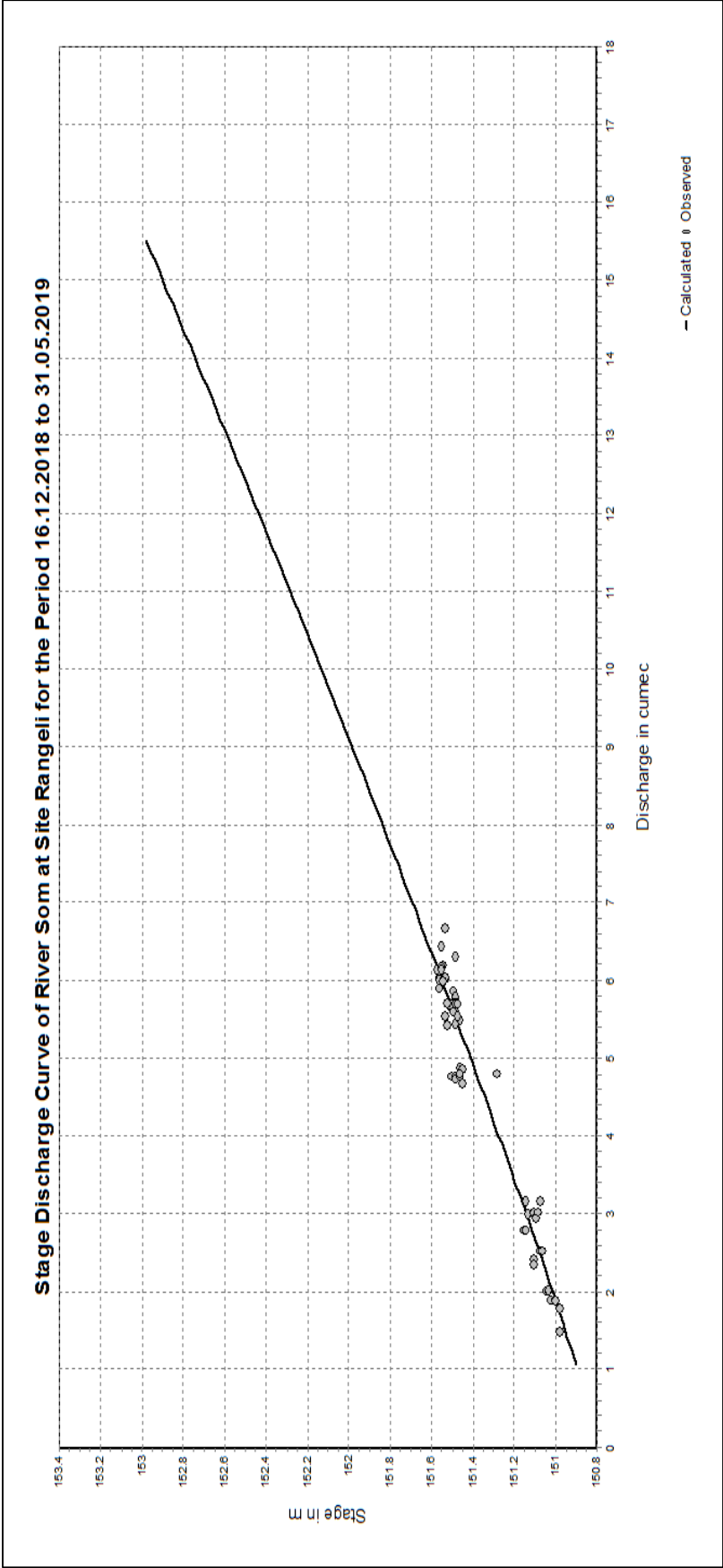
#:Discarded Discharge (values changed as per rating curve)

Note:Missing values ignored while arriving at Annual Runoff



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

LB	UB	a	b	c
151.4	154.4	-151.25	1.414	70.548



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

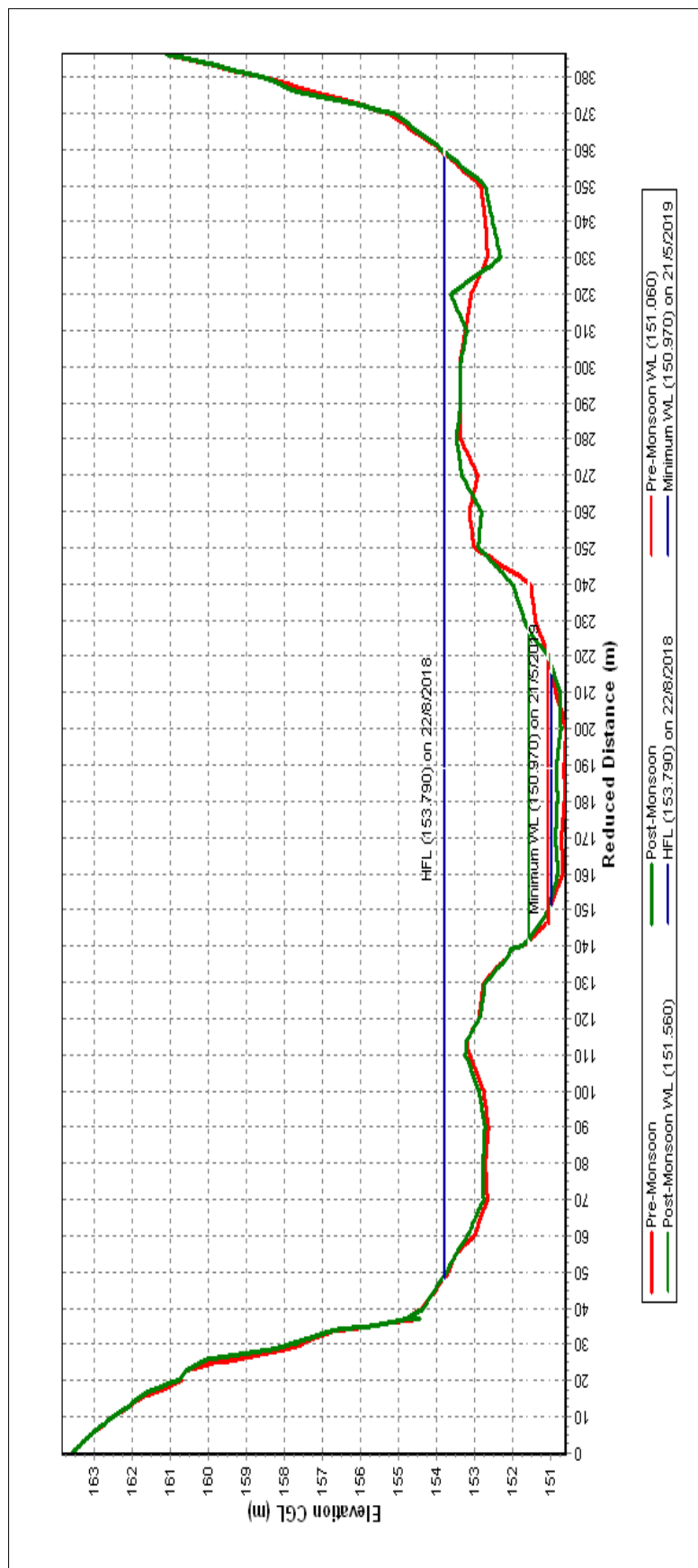
LB	UB	a	b	c
150.9	153	-150.79	0.898	7.673

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Som

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



Historic Flood Level - 160.86m on 19.08.2006 at 1700 hrs

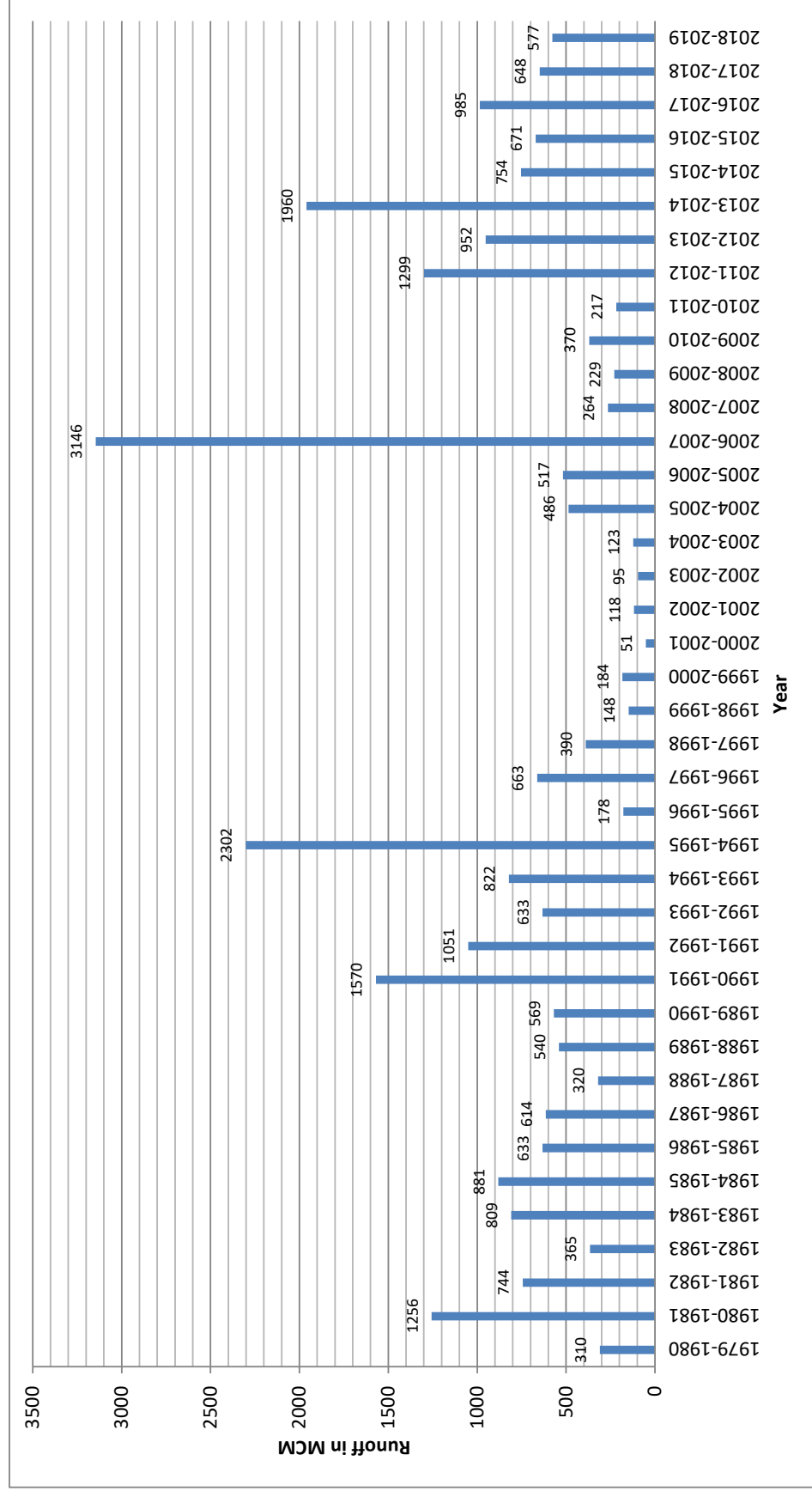
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1979 - 2019

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

Local River : Som

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

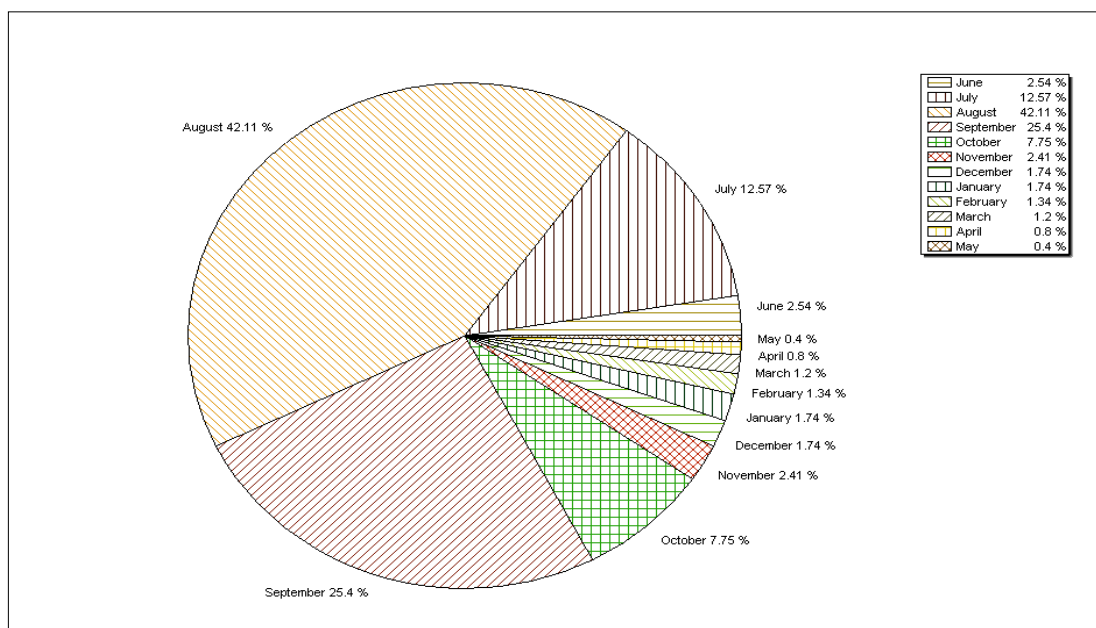


Note: Missing values have not been considered while arriving at Annual Runoff

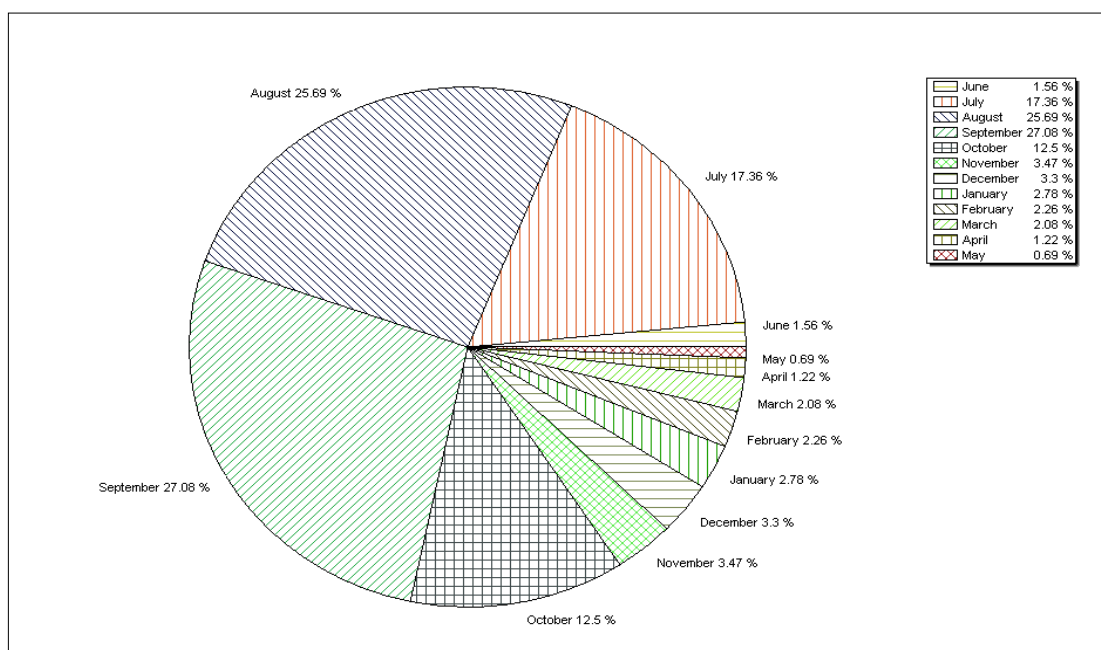
Station Name : Som at Rangeli (01 02 13 005)
Local River : Som

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

Monthly Average Runoff based on period : 1979-2018



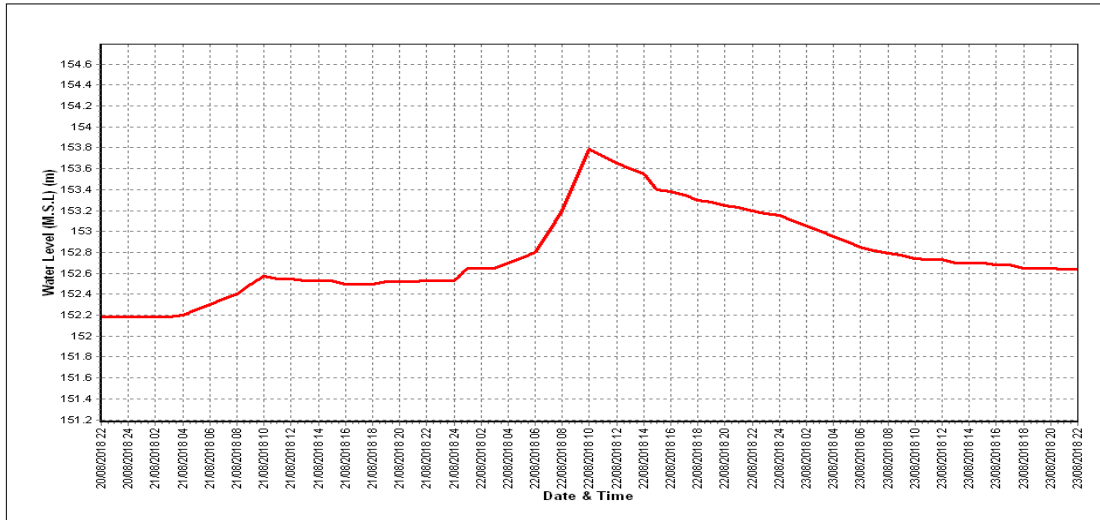
Monthly Runoff for the Year : 2018-2019



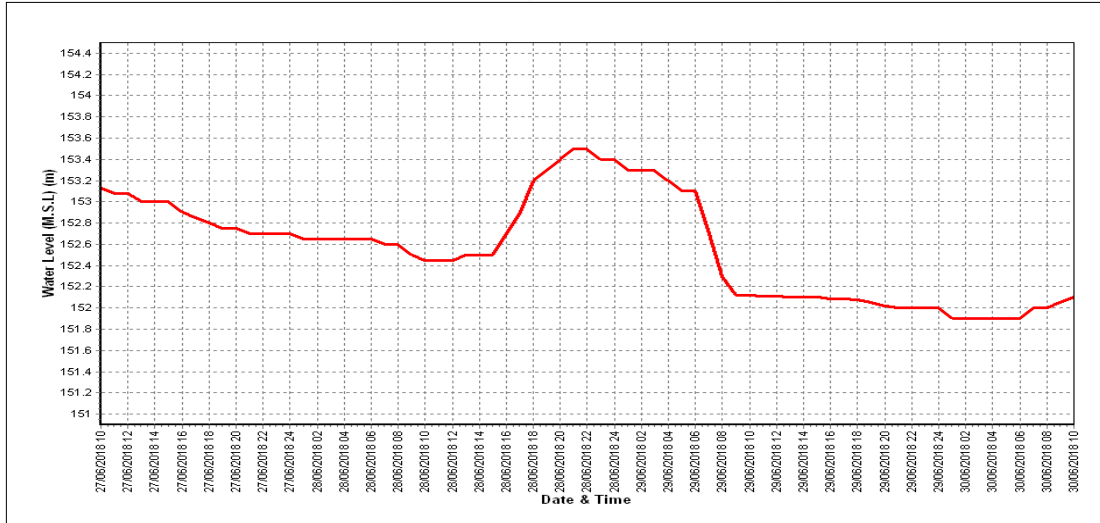
Station Name : Som at Rangeli (01 02 13 005)
Local River : Som

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

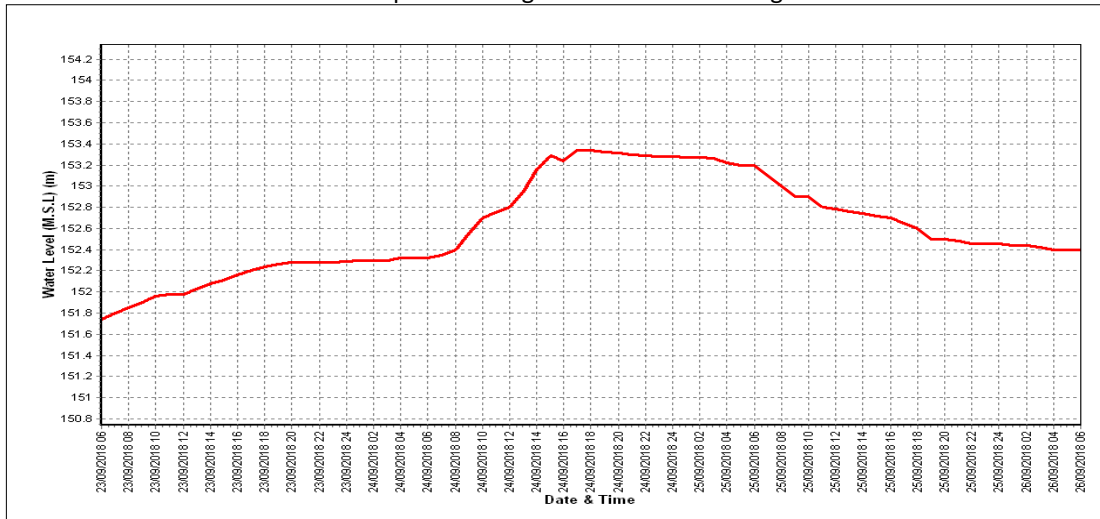
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

Site : Jakham at Dhariawad **Code** : 01 02 13 004
State : Rajasthan **District** : Udaipur
Basin : Mahi **River** : Mahi
Tributary : Jakham **Sub Tributary** :
Sub-Sub :
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)
Opening Date : 17/07/1984
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
2018-2019	66.25	204.410	28/09/2018	0.000	203.300	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	203.300	0.000	203.500	1.531 *	203.500	1.501	203.840	9.592	204.340	52.13	203.519	1.473
2	203.300	0.000	203.430	0.890 *	203.470	1.367	203.810	8.782 *	204.300	49.19 *	203.510	1.374
3	203.300	0.000	203.410	0.750 *	203.450	1.255	203.780	7.657 *	204.230	45.24	203.500	1.251
4	203.300	0.000	203.370	0.519 *	203.440	1.118	203.730	5.765 #	204.190	40.39	203.500	1.531 *
5	203.300	0.000	203.340	0.383 *	203.430	0.890 *	203.700	5.293	204.170	39.83	203.500	1.246
6	203.290	0.000	203.340	0.383 *	203.420	1.030	203.670	4.997	204.110	29.50	203.490	1.302
7	203.290	0.000	203.330	0.345 *	203.410	0.955	203.650	2.939 #	204.080	25.02 *	203.490	1.424 *
8	203.290	0.000	203.660	4.177 *	203.410	1.153	203.686	5.281	204.040	18.39	203.490	1.424 *
9	203.290	0.000	203.391	0.779	203.580	2.317	203.820	9.182 *	204.010	16.99	203.480	1.240
10	203.280	0.000	203.880	9.378	203.590	2.381	203.950	11.20	203.980	12.06	203.480	1.349
11	203.280	0.000	203.520	1.688	203.570	2.348	203.850	9.973	203.948	12.43	203.490	1.424 *
12	203.280	0.000	203.430	1.063	203.550	2.160 *	203.780	4.856 #	203.900	7.851 #	203.500	1.369
13	203.280	0.000	203.400	0.769	203.510	1.650	203.740	6.325 *	203.870	6.931 #	203.500	1.379
14	203.270	0.000	203.618	2.680	203.490	1.559	203.690	5.124	203.850	10.46 *	203.520	1.764 *
15	203.270	0.000	203.560	2.305 *	203.460	1.134 *	203.660	4.921	203.820	6.460	203.520	1.639
16	203.260	0.000	203.720	4.296	203.440	1.157	203.640	3.736 *	203.800	5.483 #	203.500	1.366
17	203.260	0.000	203.550	1.997	203.450	1.239	203.620	4.268	203.790	5.456 #	203.498	1.405
18	203.260	0.000	203.450	1.214	203.737	4.595	203.610	4.168	203.780	5.377	203.480	1.322 *
19	203.260	0.000	203.430	1.070	203.600	2.958 *	203.610	4.135	203.760	6.968 *	203.480	1.157
20	203.260	0.000	203.729	4.342	203.580	2.307	203.600	3.933	203.740	5.264	203.470	1.098
21	203.250	0.000	203.840	9.567	203.980	6.278 #	203.600	2.958 *	203.710	5.443 *	203.480	1.322 *
22	203.250	0.000	203.620	3.331 #	205.250	365.6 *	203.595	3.745	203.700	5.245	203.500	1.409
23	203.250	0.000	203.530	1.796	204.171	41.85	204.050	22.58 *	203.662	5.122	203.510	1.644 *
24	203.250	0.000	203.550	2.135	204.000	15.18 #	204.340	56.36	203.630	4.687	203.520	1.635
25	203.250	0.000	203.660	3.014 *	203.998	15.04 #	204.000	15.38	203.630	4.323	203.520	1.764 *
26	203.590	3.214	203.620	2.736	203.920	13.95 *	204.330	50.64	203.602	3.906	203.530	1.861
27	203.800	8.394 *	203.590	2.484	203.780	4.892 *	204.347	54.90	203.580	2.888	203.530	1.875
28	203.440	1.085	203.580	2.324	203.750	4.600 *	204.410	66.25	203.560	2.305 *	203.570	2.457 *
29	203.420	1.058	203.570	2.457 *	204.220	46.84	204.390	54.18	203.550	2.238	203.600	3.704
30	203.740	7.194	203.540	2.037	204.100	33.90	204.360	58.00 *	203.530	1.870	203.600	3.711
31			203.520	1.764 *	203.969	13.16			203.520	1.749		
Ten-Daily Mean												
I Ten-Daily	203.294	0.000	203.465	1.914	203.470	1.397	203.764	7.069	204.145	32.87	203.496	1.361
II Ten-Daily	203.268	0.000	203.541	2.142	203.539	2.111	203.680	5.144	203.826	7.268	203.496	1.392
III Ten-Daily	203.424	2.094	203.602	3.059	204.103	51.02	204.142	38.50	203.607	3.616	203.536	2.138
Monthly												
Min.	203.250	0.000	203.330	0.345	203.410	0.890	203.595	2.939	203.520	1.749	203.470	1.098
Max.	203.800	8.394	203.880	9.567	205.250	365.6	204.410	66.25	204.340	52.13	203.600	3.711
Mean	203.329	0.698	203.538	2.394	203.717	19.24	203.862	16.9	203.851	14.23	203.509	1.631

Annual Runoff in MCM = 165 Annual Runoff in mm = 110

Peak Observed Discharge = 66.25 cumecs on 28/09/2018 Corres. Water Level :204.41 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :203.3 m

River was in pooling condition from 01/06/2018 to 25/06/2018, 26/03/2019 to 24/04/2019

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 2018 - 2019

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	203.590	3.510	203.600	3.678	203.570	2.126	203.500	1.640	203.340	0.000	203.260	0.148 *
2	203.590	2.784 *	203.600	2.958 *	203.570	2.120	203.510	1.713	203.340	0.000	203.260	0.123
3	203.590	3.526	203.630	3.957	203.570	2.457 *	203.510	1.644 *	203.340	0.000	203.260	0.119
4	203.535	2.039	203.607	3.725	203.560	2.107	203.510	1.644 *	203.320	0.000	203.260	0.124
5	203.470	1.225 *	203.558	2.124	203.530	1.768	203.520	1.764 *	203.320	0.000	203.260	0.148 *
6	203.440	0.949	203.500	1.531 *	203.500	1.531 *	203.520	1.816	203.310	0.000	203.260	0.148 *
7	203.420	0.817 *	203.450	1.137	203.480	1.249	203.520	1.764 *	203.310	0.000	203.250	0.128 *
8	203.410	0.618	203.430	0.976	203.460	1.145	203.530	1.890 *	203.300	0.000	203.250	0.128 *
9	203.400	0.686 *	203.410	0.750 *	203.430	0.957	203.530	1.921	203.300	0.000	203.250	0.117
10	203.380	0.571 *	203.410	0.872	203.410	0.750 *	203.520	1.764 *	203.280	0.000	203.250	0.103
11	203.370	0.519 *	203.420	0.892	203.400	0.572	203.500	1.683	203.280	0.000	203.250	0.103
12	203.540	2.021 *	203.500	1.407	203.400	0.621	203.460	1.199	203.280	0.000	203.250	0.128 *
13	203.580	2.617 *	203.520	1.764 *	203.510	1.644 *	203.430	0.890 *	203.280	0.000	203.250	0.102
14	203.580	2.617 *	203.540	2.021 *	203.520	1.774	203.410	1.050	203.280	0.000	203.240	0.111 *
15	203.550	2.050	203.560	2.118	203.520	1.805	203.410	1.038	203.280	0.000	203.230	0.000
16	203.540	2.021 *	203.560	2.305 *	203.530	1.864	203.410	1.040	203.280	0.000	203.230	0.000
17	203.530	1.856	203.600	3.624	203.500	1.531 *	203.410	0.750 *	203.290	0.000	203.230	0.000
18	203.530	1.852	203.600	3.627	203.510	1.703	203.408	0.616	203.340	0.000	203.220	0.000
19	203.550	2.160 *	203.610	3.690	203.510	1.728	203.400	0.636	203.520	0.000	203.220	0.000
20	203.570	2.120	203.610	3.140 *	203.510	1.644 *	203.400	0.686 *	203.310	0.000	203.220	0.000
21	203.570	2.124	203.610	3.988	203.500	1.620	203.400	0.686 *	203.310	0.000	203.220	0.000
22	203.580	2.474	203.620	3.910	203.500	1.675	203.400	0.632	203.300	0.000	203.210	0.000
23	203.580	2.617 *	203.610	3.140 *	203.510	1.755	203.390	0.514	203.300	0.000	203.210	0.000
24	203.580	2.617 *	203.610	3.695	203.520	1.764 *	203.390	0.626 *	203.290	0.000	203.200	0.000
25	203.590	2.784 *	203.600	3.650	203.530	1.894	203.388	0.467	203.290	0.187	203.200	0.000
26	203.600	2.958 *	203.590	2.784 *	203.530	1.914	203.370	0.000	203.290	0.178	203.200	0.000
27	203.610	3.140 *	203.580	2.617 *	203.530	1.934	203.360	0.000	203.280	0.143	203.200	0.000
28	203.620	3.331 *	203.580	2.488	203.500	1.639	203.360	0.000	203.280	0.192 *	203.200	0.000
29	203.620	3.331 *	203.570	2.132			203.360	0.000	203.270	0.169 *	203.190	0.000
30	203.610	3.140 *	203.580	2.617 *			203.350	0.000	203.260	0.137	203.190	0.000
31	203.600	2.958 *	203.580	2.454			203.350	0.000			203.190	0.000
Ten-Daily Mean												
I Ten-Daily	203.483	1.673	203.520	2.171	203.508	1.621	203.517	1.756	203.316	0.000	203.256	0.129
II Ten-Daily	203.534	1.983	203.552	2.459	203.491	1.489	203.424	0.959	203.314	0.000	203.234	0.044
III Ten-Daily	203.596	2.861	203.594	3.043	203.515	1.774	203.374	0.266	203.287	0.101	203.201	0.000
Monthly												
Min.	203.370	0.519	203.410	0.750	203.400	0.572	203.350	0.000	203.260	0.000	203.190	0.000
Max.	203.620	3.526	203.630	3.988	203.570	2.457	203.530	1.921	203.520	0.192	203.260	0.148
Mean	203.540	2.195	203.556	2.573	203.504	1.618	203.436	0.97	203.306	0.034	203.229	0.056

Peak Computed Discharge = 365.6 cumecs on 22/08/2018

Corres. Water Level :205.25 m

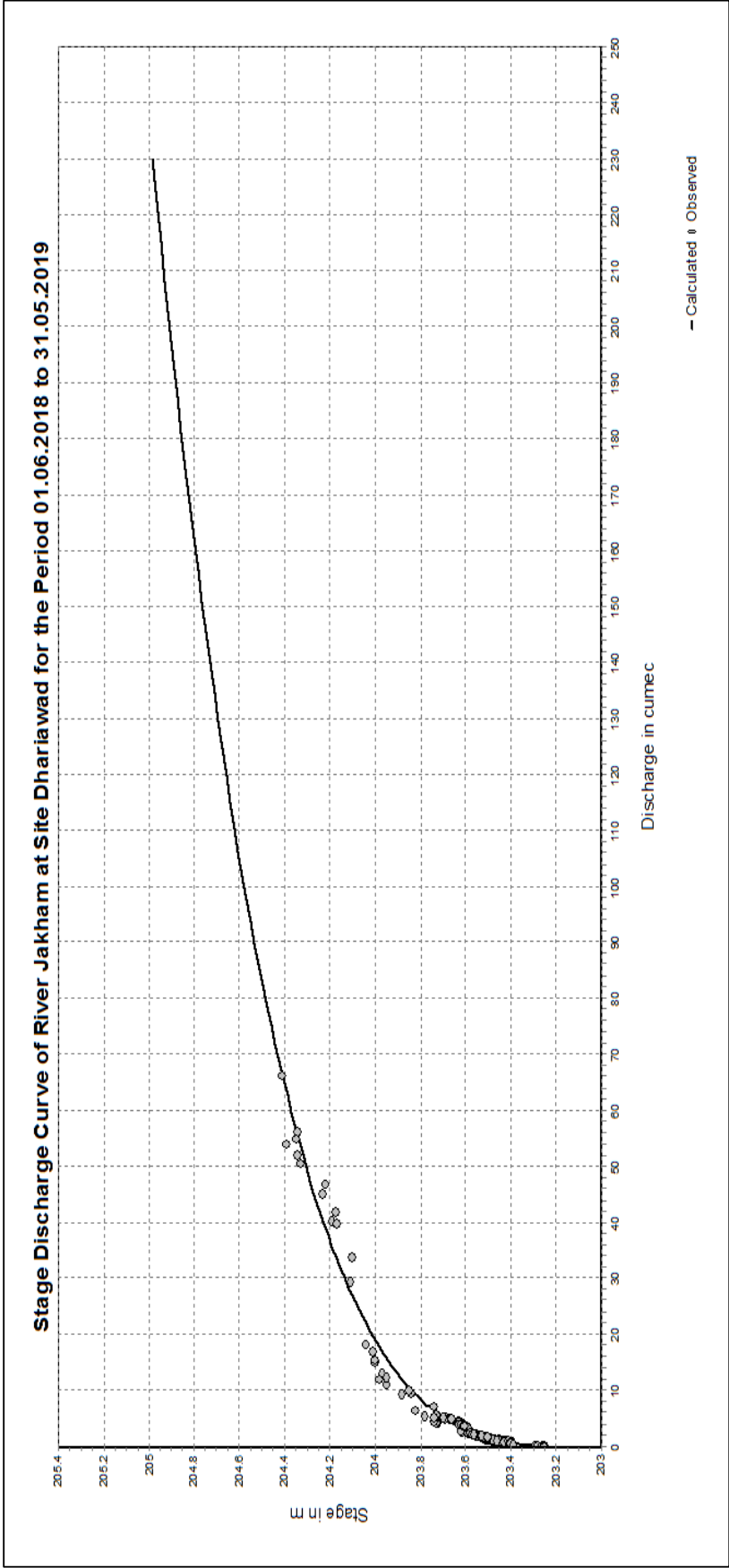
Lowest Computed Discharge = 0.111 cumecs on 14/05/2019

Corres. Water Level :203.24 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 $Q=c*(h+a)^b$

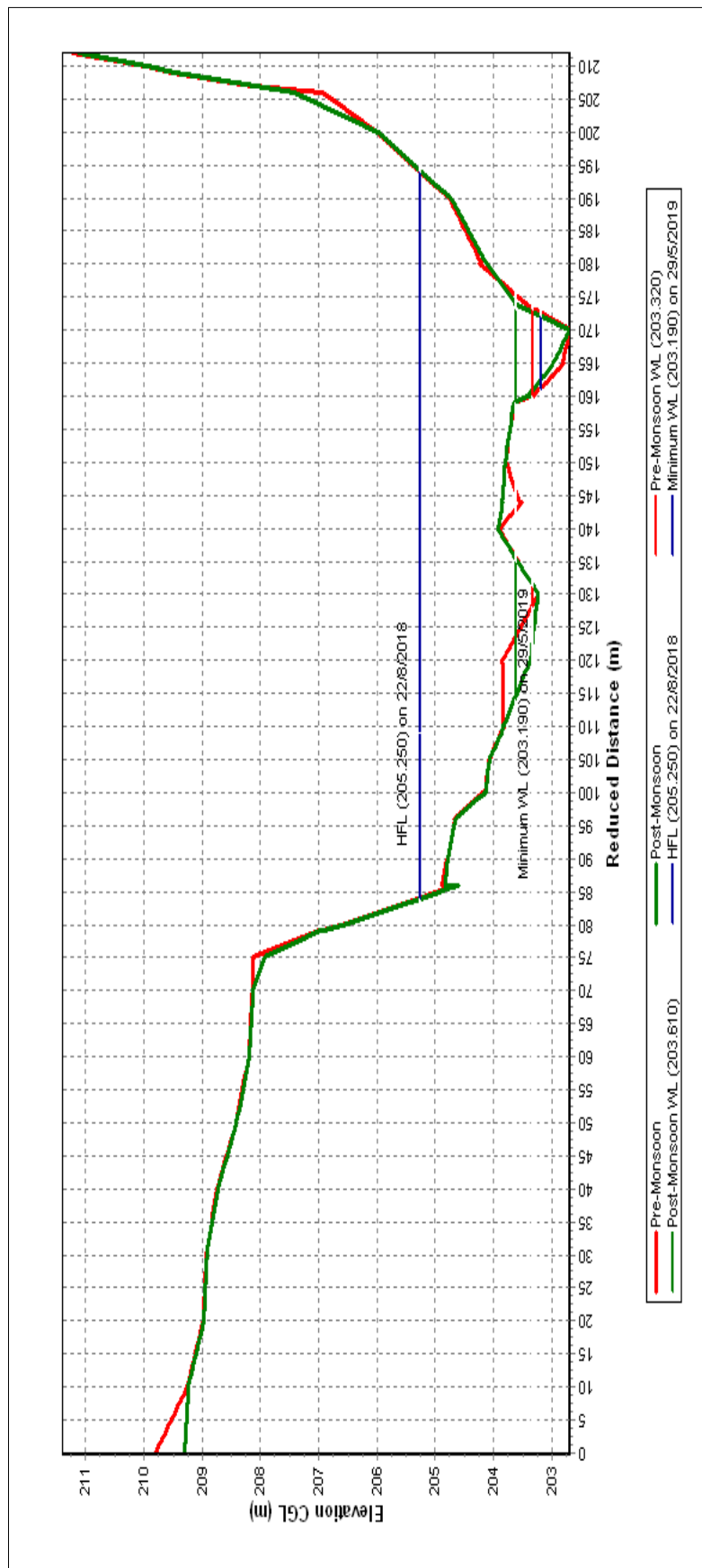
LB	UB	a	b	c
203.2	205	-202.99	3.678	18.221

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Jakham

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



Historic Flood Level - 211.0m dt 21.08.2016

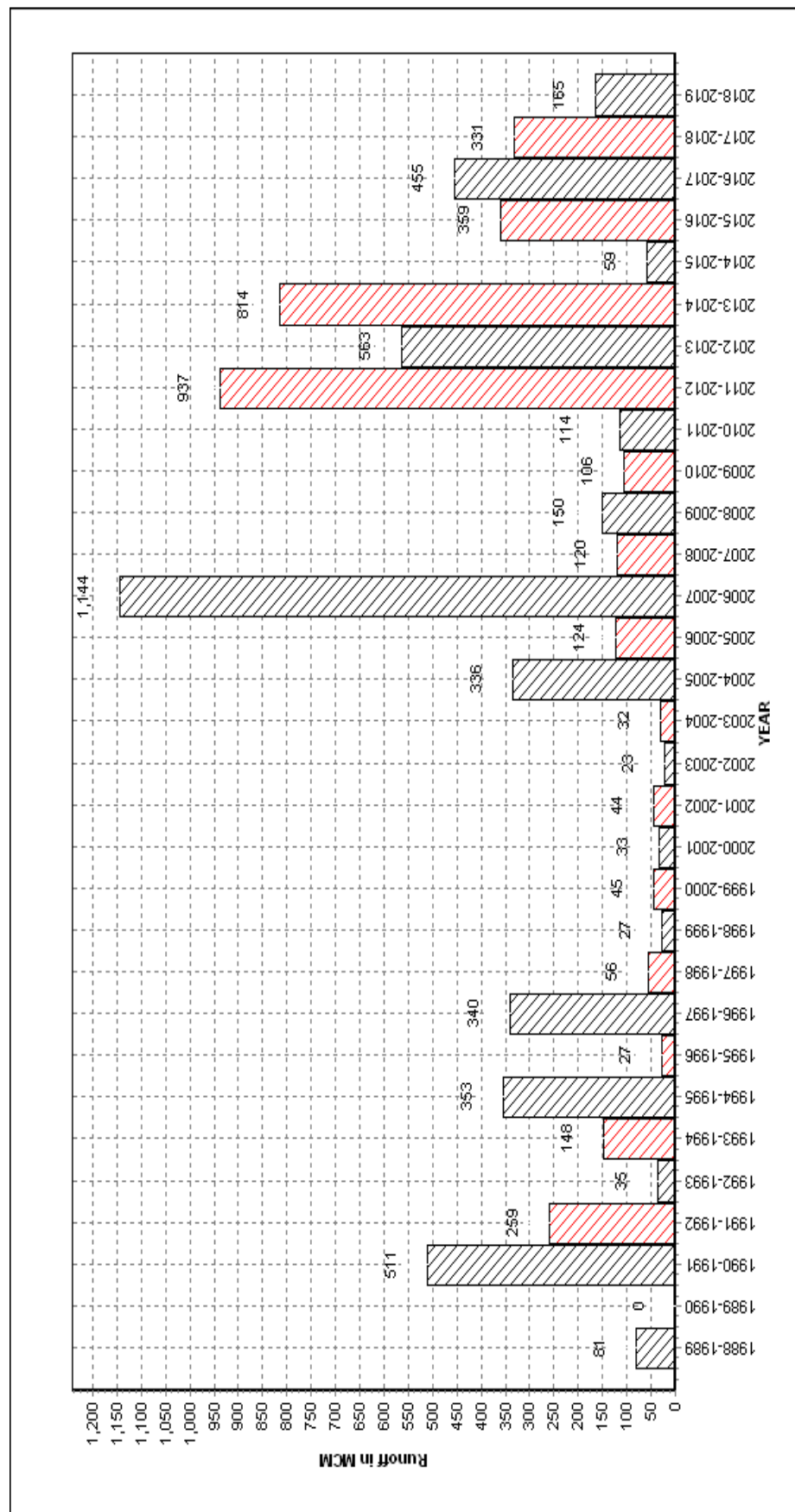
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1988 - 2019

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

Local River : Jakham

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

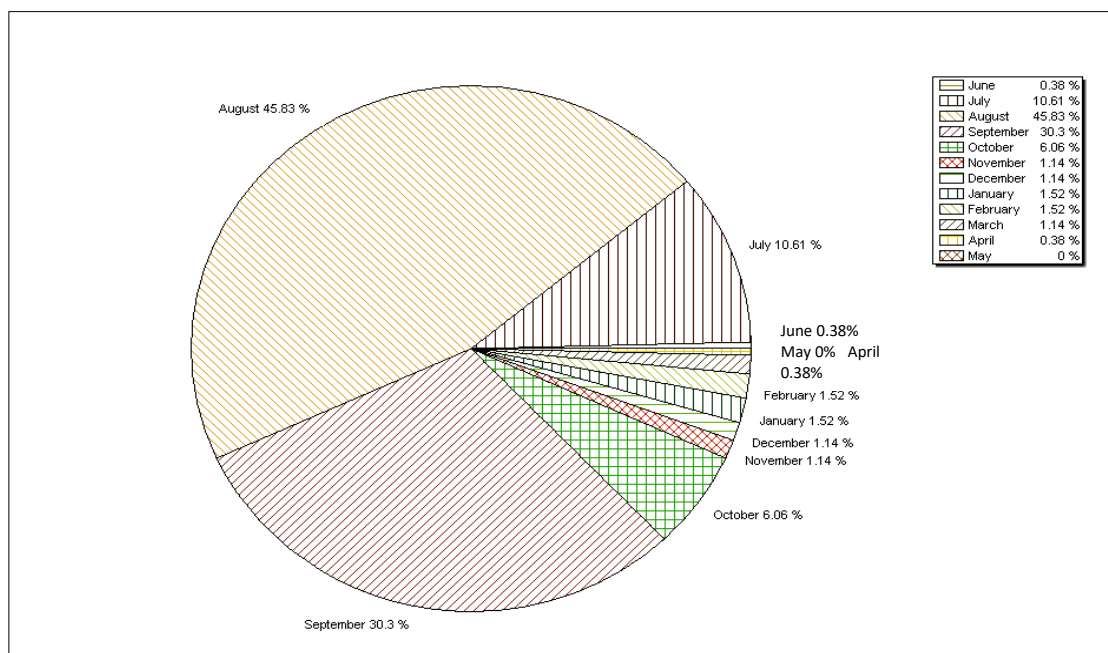


Note: Missing values have not been considered while arriving at Annual Runoff

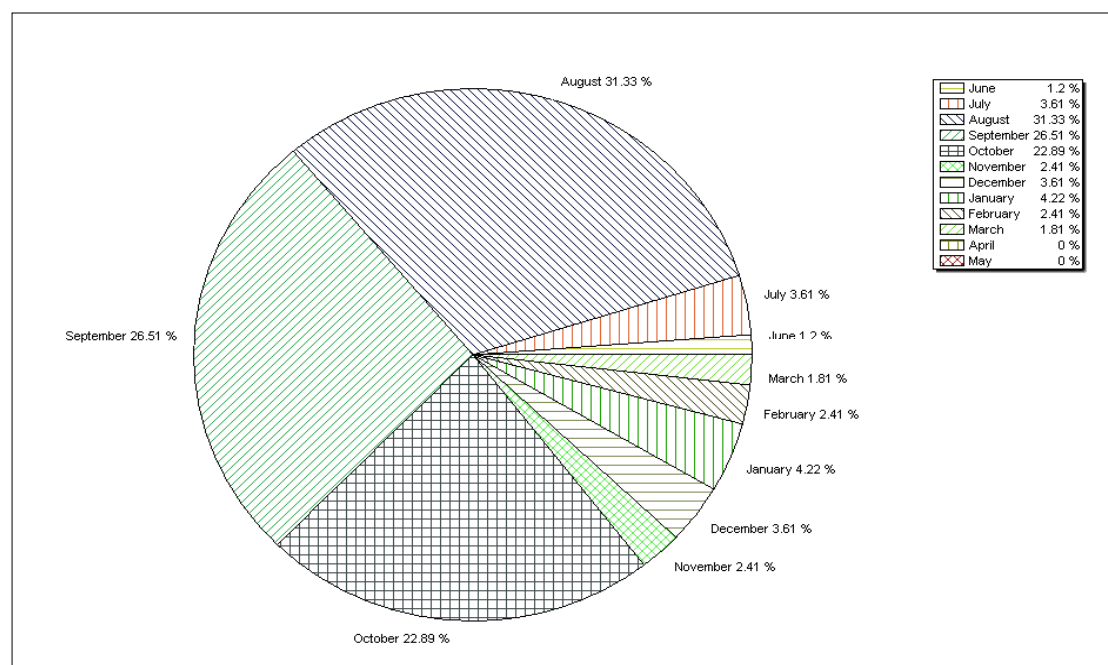
Station Name : Jakham at Dhariawad (01 02 13 004)
Local River : Jakham

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

Monthly Average Runoff based on period : 1988-2019



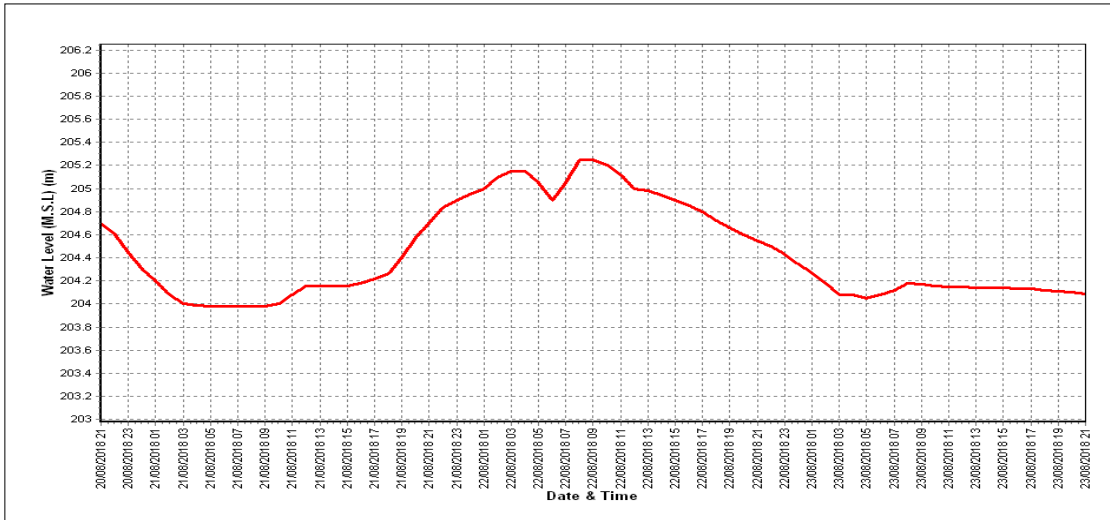
Monthly Runoff for the Year : 2018-2019



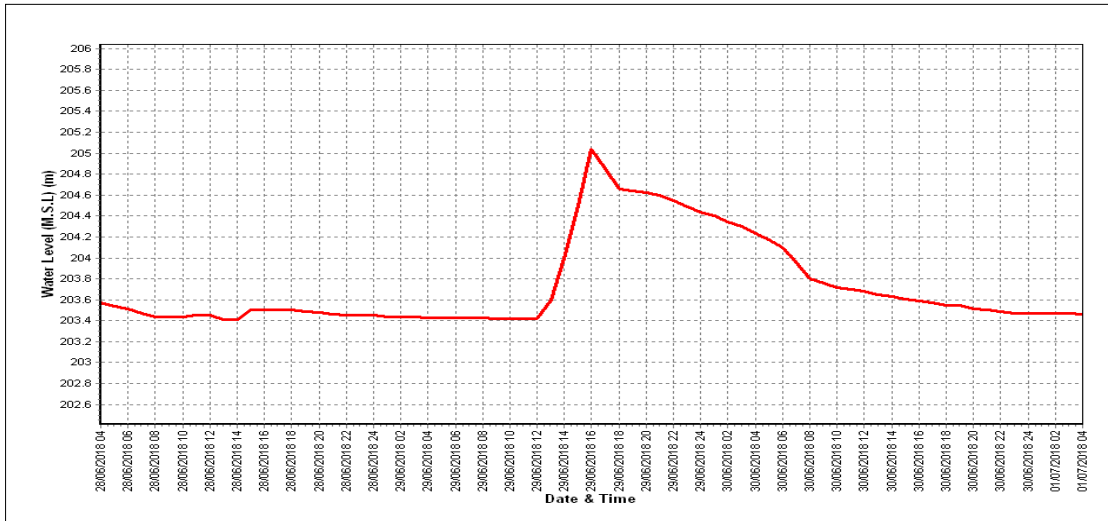
Station Name : Jakham at Dhariawad (01 02 13 004)
Local River : Jakham

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

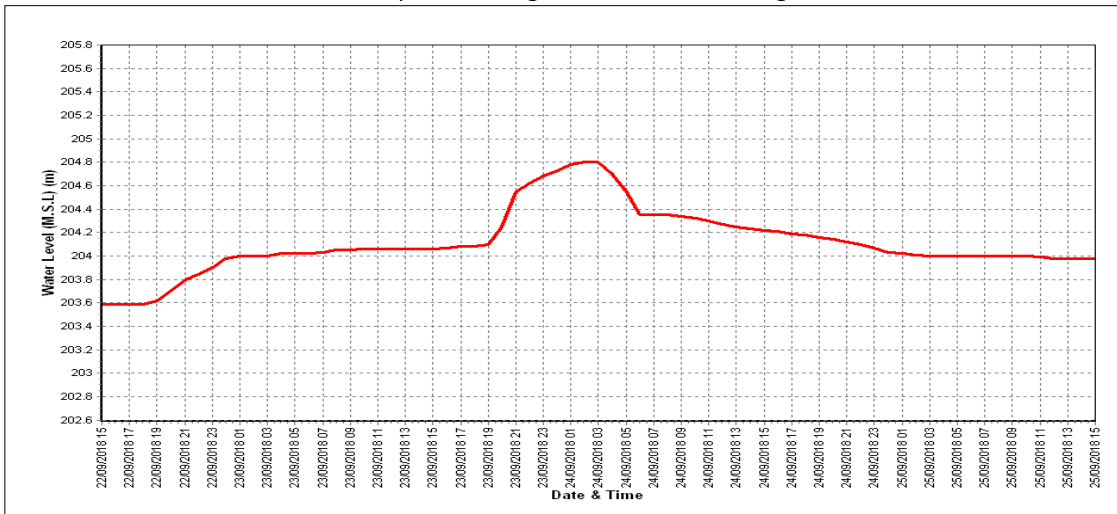
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

		Water Year	: 2018-19
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
	Opening Date	01/01/2004	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
2018-2019	287	288.480	24/07/2018	0.000	286.050	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	286.050	0.000	287.440	41.09 *	287.330	24.78	287.530	58.54	287.340	24.12 #	286.750	2.063 *
2	286.050	0.000	287.360	32.64 *	287.320	28.89 *	287.500	48.32 *	287.310	28.00 *	286.740	1.916 *
3	286.040	0.000	287.320	28.89 *	287.300	27.13 *	287.370	33.63 *	287.270	24.63 *	286.740	1.916 *
4	286.040	0.000	287.280	25.45 *	287.290	23.69	287.430	29.55	287.190	21.28	286.740	1.916 *
5	286.040	0.000	287.130	15.00 *	287.270	24.63 *	287.400	27.75	287.110	16.66	286.730	1.776 *
6	286.030	0.000	287.000	8.687 *	287.180	21.26	287.370	26.08	287.090	15.45	286.730	1.776 *
7	286.030	0.000	286.960	7.188 *	287.150	15.00	287.350	24.80 #	287.080	12.29 *	286.730	1.776 *
8	286.020	0.000	286.990	8.294 *	287.130	14.43 *	287.330	29.80 *	287.060	14.16	286.720	1.643 *
9	286.020	0.000	286.960	7.188 *	287.120	14.43 *	287.310	28.00 *	287.050	10.84 *	286.720	1.643 *
10	286.020	0.000	287.130	20.57 #	287.100	17.12	287.300	22.34 #	287.010	9.093 *	286.710	1.516 *
11	286.020	0.000	287.070	14.54	287.100	13.33 *	287.280	25.45 *	287.000	8.920	286.710	1.516 *
12	286.020	0.000	287.060	14.27	287.100	19.31 #	287.150	19.31	286.980	5.517 #	286.700	1.397 *
13	286.020	0.000	287.020	10.44	287.090	12.81 *	287.310	28.00 *	286.950	6.842 *	286.700	1.397 *
14	286.010	0.000	287.120	14.43 *	287.090	16.54	287.300	27.13 *	286.940	6.508 *	286.690	1.284 *
15	286.010	0.000	287.250	23.06 *	287.080	12.29 *	287.250	21.18 #	286.870	3.834	286.690	1.284 *
16	285.990	0.000	287.120	14.43 *	287.000	9.870	287.200	19.41 *	286.850	3.982 *	286.620	0.660 *
17	285.990	0.000	287.400	36.70 *	286.940	5.038	286.950	6.842 *	286.840	3.535	286.590	0.472 *
18	285.990	0.000	287.300	24.43	287.000	9.820	286.810	3.112 *	286.830	3.271	286.590	0.472 *
19	285.980	0.000	287.290	23.87	287.010	9.093 *	286.760	2.218 *	286.830	3.529 *	286.550	0.000
20	285.980	0.000	287.270	23.01	287.070	14.76	286.760	2.218 *	286.820	3.316 *	286.540	0.000
21	285.970	0.000	287.450	42.24 *	287.150	16.18 *	286.750	2.063 *	286.810	3.112 *	286.540	0.000
22	285.970	0.000	287.880	114.8 *	287.420	38.85 *	286.740	1.652	286.790	2.466	286.540	0.000
23	285.970	0.000	287.460	30.67	288.200	222.9	289.420	960.1 *	286.780	2.313	286.530	0.000
24	285.970	0.000	288.480	287.0	287.940	129.1 *	288.250	229.9	286.770	2.180	286.530	0.000
25	285.960	0.000	288.080	201.4	287.800	97.55 *	287.950	164.9	286.770	2.153	286.520	0.000
26	286.500	0.000	287.450	29.52	287.650	70.04 *	287.780	75.95 #	286.770	2.118	286.520	0.000
27	286.530	0.000	287.430	28.54	287.630	66.83 *	287.640	70.04	286.760	2.020	286.480	0.000
28	286.550	0.000	287.420	27.73	287.600	67.96	287.550	61.48	286.760	2.218 *	286.470	0.000
29	286.550	0.000	287.410	37.77 *	287.670	72.99	287.480	32.37 #	286.760	2.218 *	286.470	0.000
30	287.380	0.000	287.400	26.77	287.580	65.54	287.420	38.85 *	286.760	2.218 *	286.500	0.000
31			287.360	25.52	287.570	63.90			286.750	2.063 *		
Ten-Daily Mean												
I Ten-Daily	286.034	0.000	287.157	19.50	287.219	21.14	287.389	32.88	287.151	17.65	286.731	1.794
II Ten-Daily	286.001	0.000	287.190	19.92	287.048	12.29	287.077	15.49	286.891	4.925	286.638	0.848
III Ten-Daily	286.335	0.000	287.620	77.46	287.655	82.89	287.698	163.7	286.771	2.280	286.510	0.000
Monthly												
Min.	285.960	0.000	286.960	7.188	286.940	5.038	286.740	1.652	286.750	2.020	286.470	0.000
Max.	287.380	0.000	288.480	287.0	288.200	222.9	289.420	960.1	287.340	28.00	286.750	2.063
Mean	286.123	0	287.332	40.2	287.319	40.19	287.388	70.7	286.932	8.093	286.626	0.881

Annual Runoff in MCM = 423 Annual Runoff in mm = 109

Peak Observed Discharge = 287.0 cumecs on 24/07/2018 Corres. Water Level :288.48 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :286.05 m

River was in pooling condition from 01/06/2018 to 30/06/2018, 19/11/2018 to 31/05/2019

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 2018 - 2019

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	286.500	0.000	286.460	0.000	286.560	0.000	286.600	0.000	286.530	0.000	286.540	0.000
2	286.500	0.000	286.460	0.000	286.560	0.000	286.590	0.000	286.530	0.000	286.530	0.000
3	286.500	0.000	286.460	0.000	286.560	0.000	286.590	0.000	286.530	0.000	286.530	0.000
4	286.500	0.000	286.460	0.000	286.570	0.000	286.570	0.000	286.530	0.000	286.530	0.000
5	286.520	0.000	286.450	0.000	286.570	0.000	286.560	0.000	286.520	0.000	286.530	0.000
6	286.520	0.000	286.450	0.000	286.570	0.000	286.560	0.000	286.520	0.000	286.530	0.000
7	286.520	0.000	286.450	0.000	286.570	0.000	286.550	0.000	286.520	0.000	286.530	0.000
8	286.530	0.000	286.450	0.000	286.710	0.000	286.550	0.000	286.520	0.000	286.530	0.000
9	286.540	0.000	286.440	0.000	286.730	0.000	286.550	0.000	286.560	0.000	286.530	0.000
10	286.540	0.000	286.440	0.000	286.730	0.000	286.550	0.000	286.570	0.000	286.530	0.000
11	286.530	0.000	286.440	0.000	286.730	0.000	286.540	0.000	286.570	0.000	286.530	0.000
12	286.530	0.000	286.440	0.000	286.720	0.000	286.540	0.000	286.560	0.000	286.530	0.000
13	286.530	0.000	286.440	0.000	286.720	0.000	286.540	0.000	286.560	0.000	286.520	0.000
14	286.530	0.000	286.440	0.000	286.700	0.000	286.530	0.000	286.560	0.000	286.520	0.000
15	286.520	0.000	286.440	0.000	286.670	0.000	286.530	0.000	286.560	0.000	286.520	0.000
16	286.520	0.000	286.440	0.000	286.640	0.000	286.530	0.000	286.560	0.000	286.520	0.000
17	286.520	0.000	286.430	0.000	286.620	0.000	286.530	0.000	286.560	0.000	286.520	0.000
18	286.510	0.000	286.430	0.000	286.600	0.000	286.520	0.000	286.550	0.000	286.520	0.000
19	286.510	0.000	286.430	0.000	286.580	0.000	286.520	0.000	286.550	0.000	286.520	0.000
20	286.500	0.000	286.430	0.000	286.560	0.000	286.520	0.000	286.550	0.000	286.520	0.000
21	286.500	0.000	286.430	0.000	286.550	0.000	286.520	0.000	286.550	0.000	286.530	0.000
22	286.490	0.000	286.430	0.000	286.540	0.000	286.520	0.000	286.550	0.000	286.530	0.000
23	286.490	0.000	286.430	0.000	286.540	0.000	286.520	0.000	286.550	0.000	286.530	0.000
24	286.490	0.000	286.430	0.000	286.560	0.000	286.540	0.000	286.540	0.000	286.530	0.000
25	286.480	0.000	286.430	0.000	286.580	0.000	286.550	0.000	286.540	0.000	286.530	0.000
26	286.480	0.000	286.450	0.000	286.620	0.000	286.550	0.000	286.540	0.000	286.530	0.000
27	286.470	0.000	286.480	0.000	286.620	0.000	286.550	0.000	286.540	0.000	286.530	0.000
28	286.470	0.000	286.480	0.000	286.620	0.000	286.550	0.000	286.540	0.000	286.530	0.000
29	286.470	0.000	286.520	0.000			286.540	0.000	286.540	0.000	286.530	0.000
30	286.470	0.000	286.520	0.000			286.540	0.000	286.540	0.000	286.530	0.000
31	286.470	0.000	286.540	0.000			286.540	0.000			286.520	0.000
Ten-Daily Mean												
I Ten-Daily	286.517	0.000	286.452	0.000	286.613	0.000	286.567	0.000	286.533	0.000	286.531	0.000
II Ten-Daily	286.520	0.000	286.436	0.000	286.654	0.000	286.530	0.000	286.558	0.000	286.522	0.000
III Ten-Daily	286.480	0.000	286.467	0.000	286.579	0.000	286.538	0.000	286.543	0.000	286.529	0.000
Monthly												
Min.	286.470	0.000	286.430	0.000	286.540	0.000	286.520	0.000	286.520	0.000	286.520	0.000
Max.	286.540	0.000	286.540	0.000	286.730	0.000	286.600	0.000	286.570	0.000	286.540	0.000
Mean	286.505	0	286.452	0	286.618	0	286.545	0	286.545	0	286.527	0

Peak Computed Discharge = 960.1 cumecs on 23/09/2018

Corres. Water Level :289.42 m

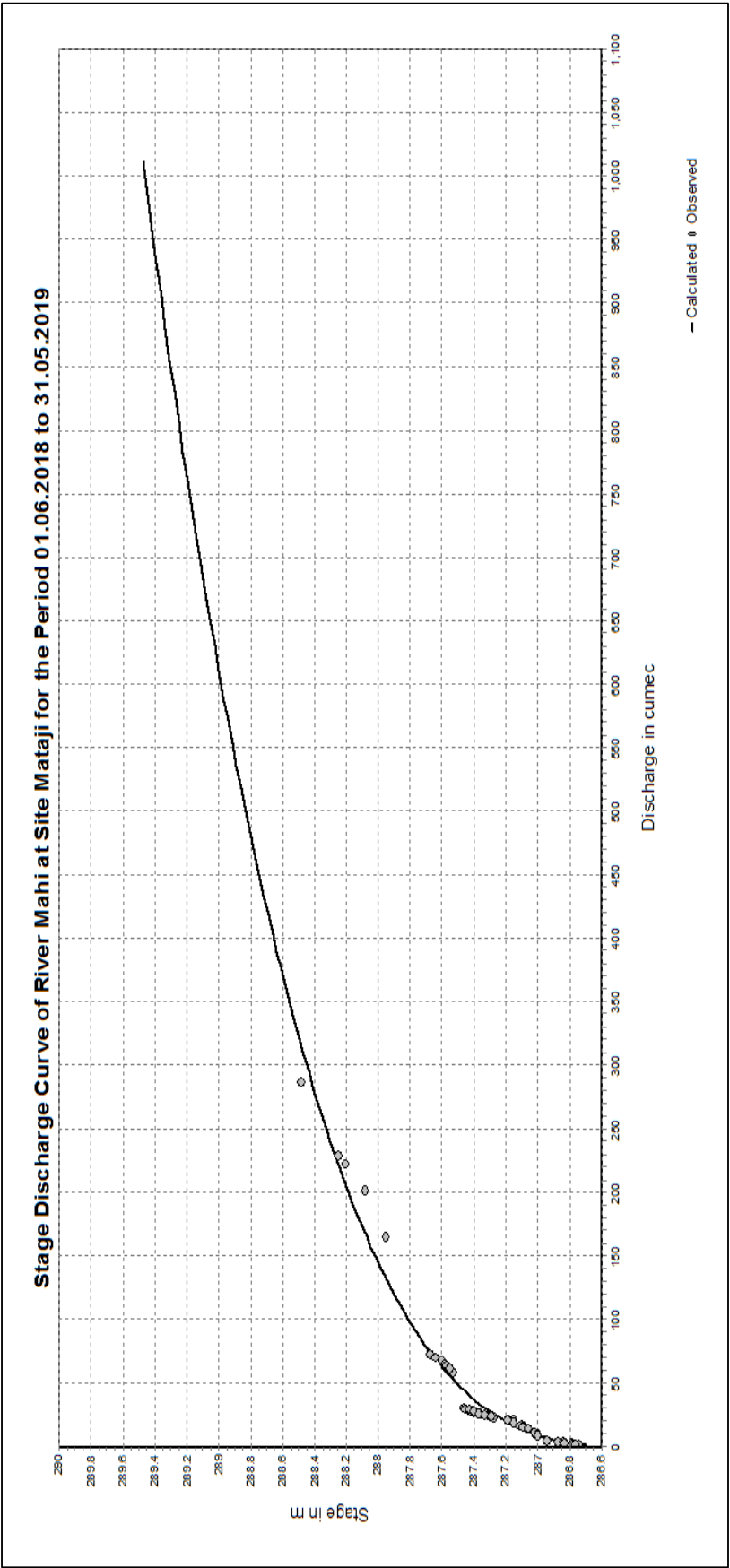
Lowest Computed Discharge = 0.472 cumecs on 17/09/2018

Corres. Water Level :286.59 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 $Q=c*(h+a)^b$

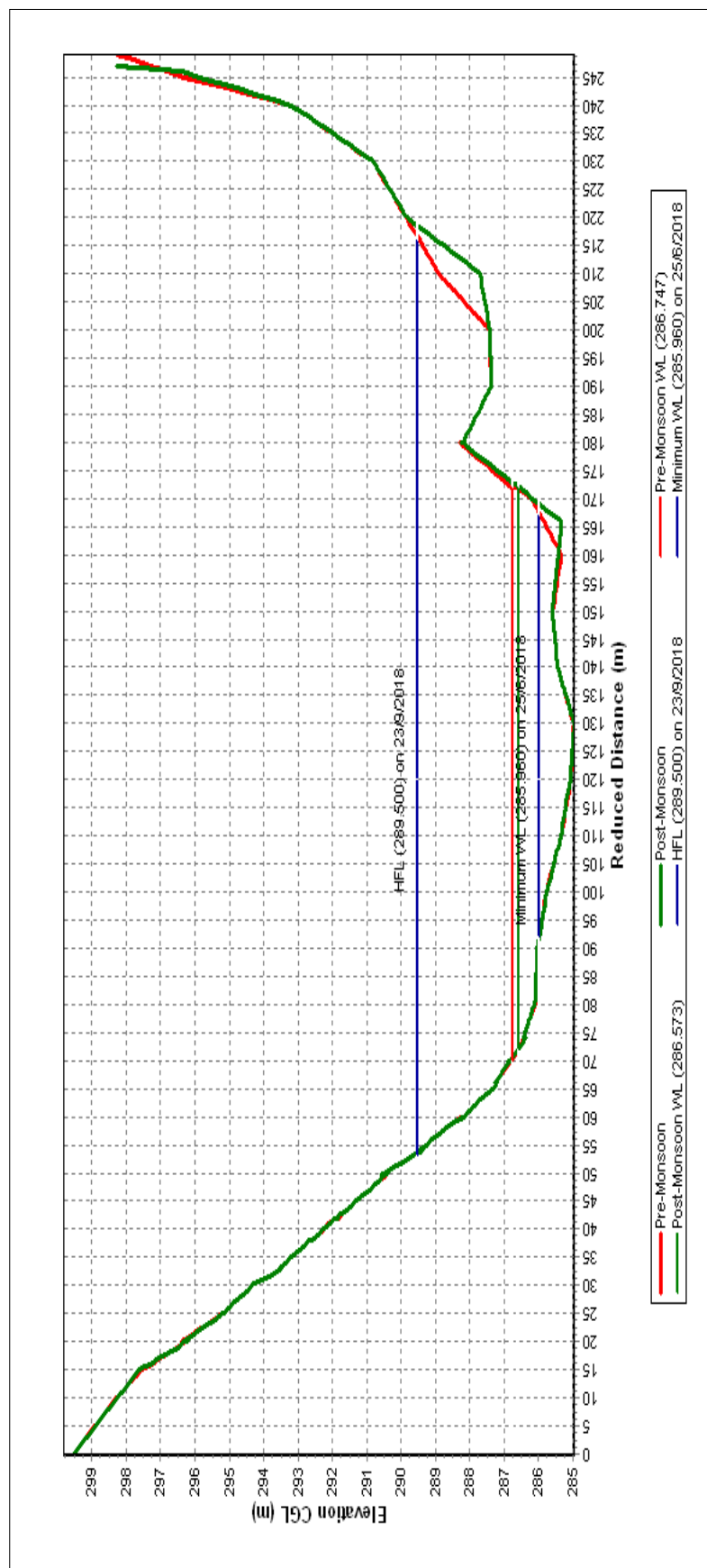
LB	UB	a	b	c
286.7	289.5	-286.33	3.078	29.801

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Mahi

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



Historic Flood Level - 298.320m on 06.09.2006 at 1800 hrs

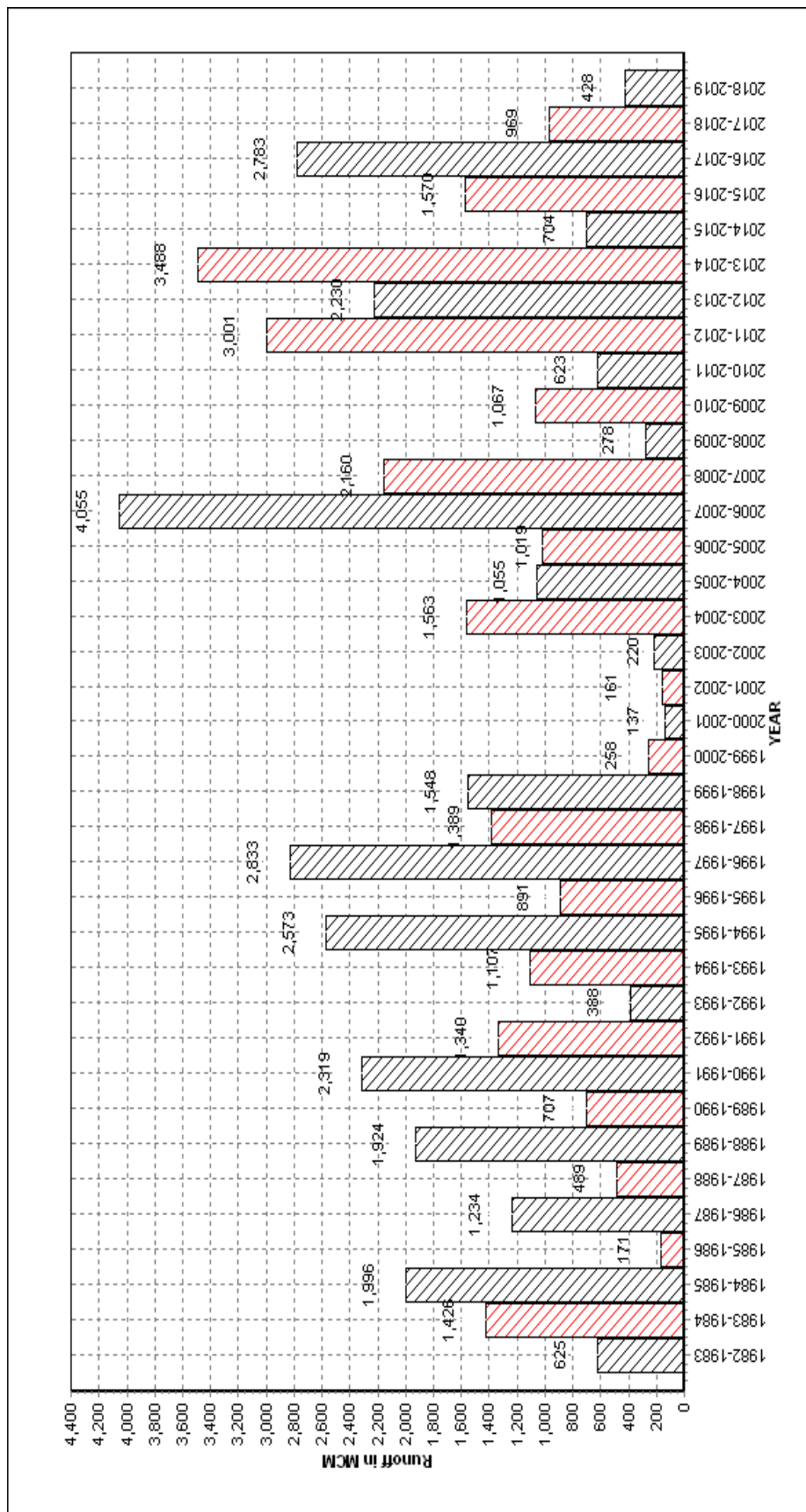
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1982 - 2019

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

Local River : Mahi

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

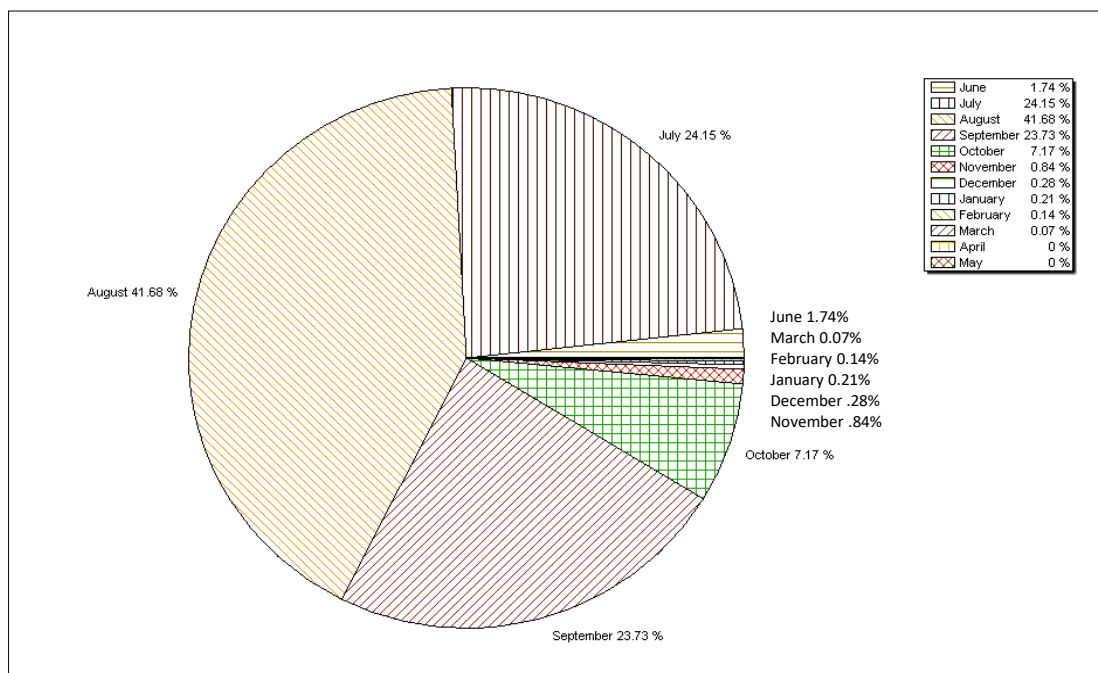


Note: Missing values have not been considered while arriving at Annual Runoff

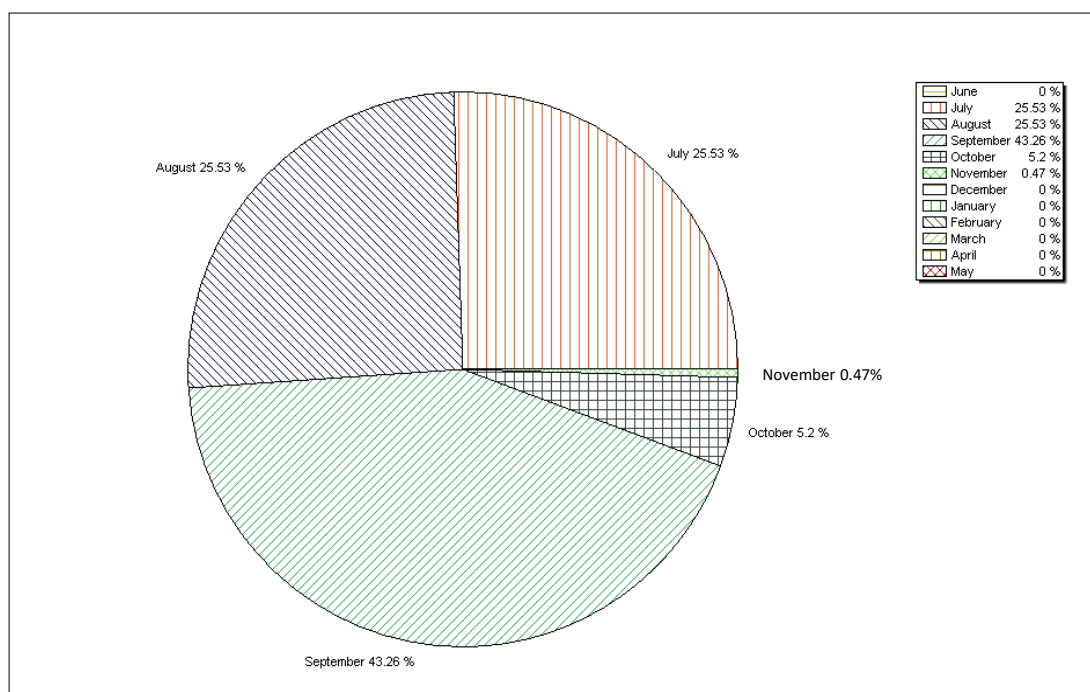
Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

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

Monthly Average Runoff based on period : 1982-2018



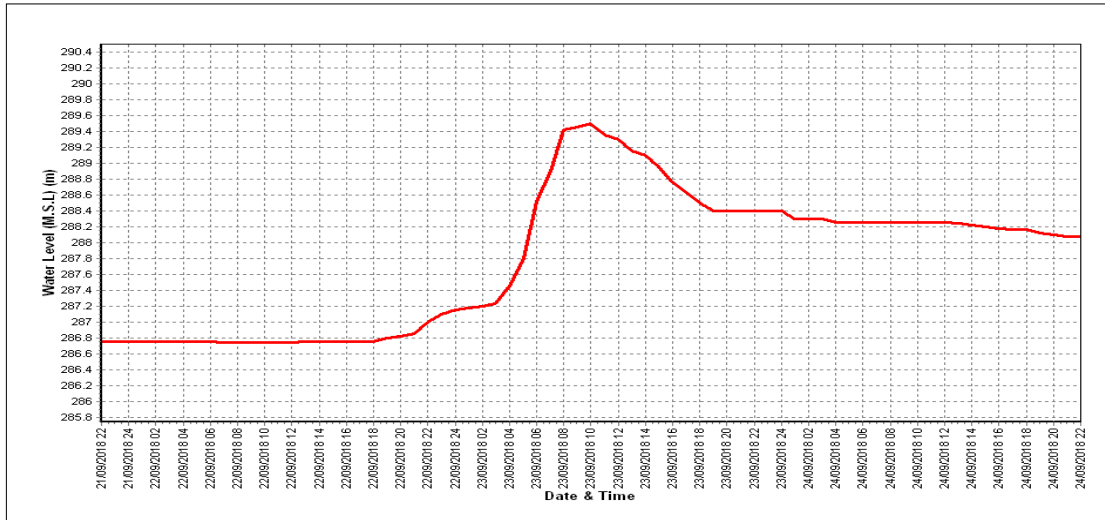
Monthly Runoff for the Year : 2018-2019



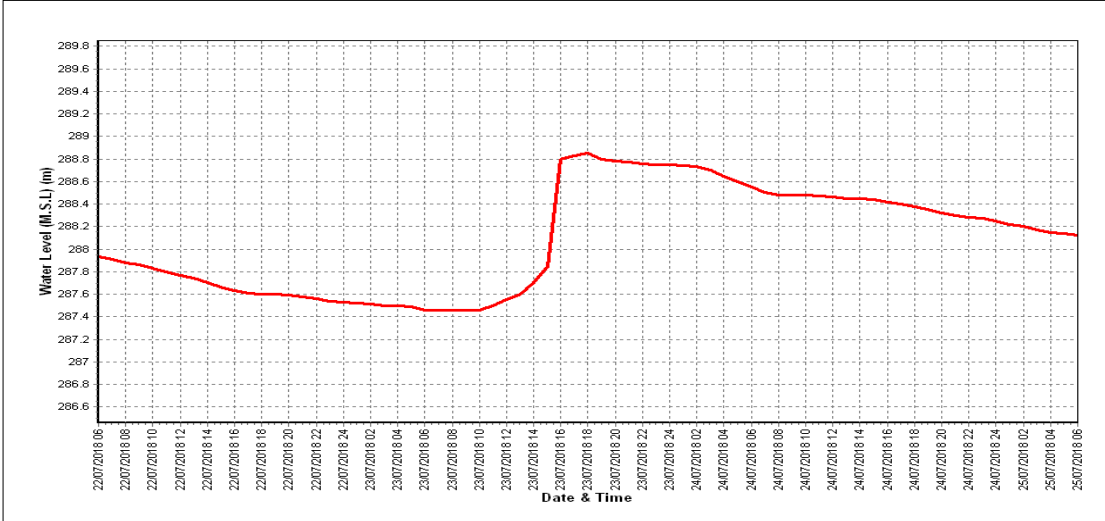
Station Name : Mahi at Mataji (01 02 13 001)
Local River : Mahi

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

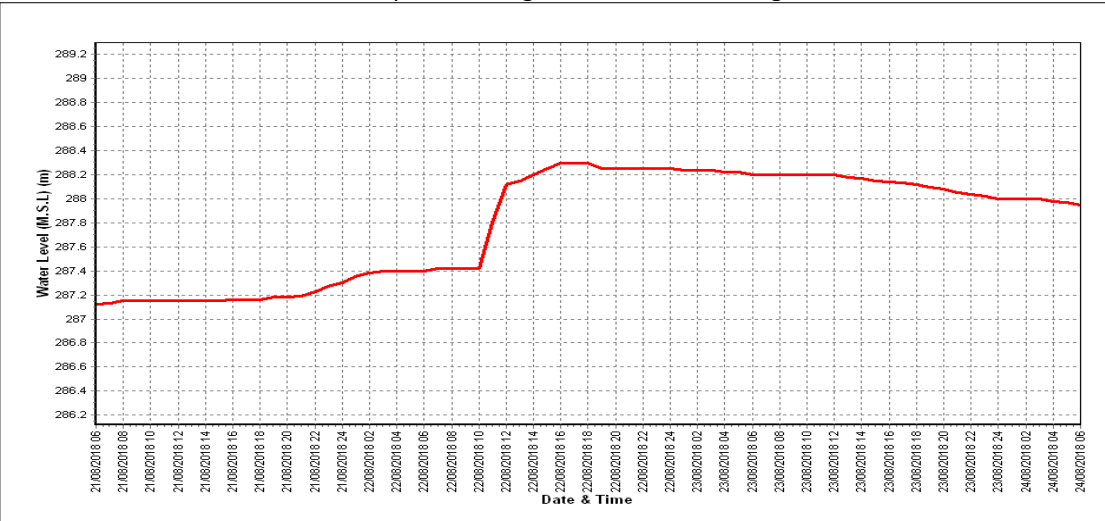
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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
2018-19	73.61	266.360	30/08/2018	0.000	264.750	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	264.750	0.000	265.440	0.000	265.470	0.000	265.920	28.46	265.510	10.20	265.170	1.644	
2	264.750	0.000	265.440	0.000	265.450	0.000	265.860	20.01 *	265.470	5.928 *	265.170	1.642	
3	264.750	0.000	265.470	0.000	265.420	0.000	265.780	15.88 *	265.390	3.397	265.160	1.621	
4	264.750	0.000	265.470	0.000	265.410	0.000	265.740	14.90	265.350	3.205	265.150	1.764 *	
5	264.750	0.000	265.700	0.000	265.400	0.000	265.660	12.60	265.320	2.816	265.110	1.497	
6	264.750	0.000	265.670	0.000	265.390	0.000	265.620	10.66	265.300	2.546	265.110	1.490	
7	264.750	0.000	265.610	0.000	265.380	0.000	265.590	10.21	265.260	2.750 *	265.100	1.427 *	
8	264.750	0.000	265.590	0.000	265.370	0.000	265.560	9.187	265.230	1.826	265.090	1.393	
9	264.750	0.000	265.540	0.000	265.390	0.000	265.580	8.563 *	265.220	1.744	265.090	1.385	
10	264.750	0.000	266.200	0.000	265.410	0.000	265.570	8.288 *	265.210	2.256 *	265.080	1.379	
11	264.750	0.000	266.660	0.000	265.390	0.000	265.560	9.163	265.170	1.450	265.060	1.197 *	
12	264.750	0.000	266.170	0.000	Sub Division		0.000	265.550	8.916	265.080	1.306	265.060	1.267
13	264.750	0.000	265.900	0.000	265.340	3.012	265.510	6.793 *	265.060	1.261	265.060	1.275	
14	264.750	0.000	265.520	0.000	265.330	2.917	265.460	5.141	265.080	1.308 *	265.060	1.197 *	
15	264.750	0.000	265.640	0.000	265.310	3.330 *	265.470	5.634	265.260	1.980	265.060	1.272	
16	264.750	0.000	266.080	0.000	265.290	2.529	265.430	5.157 *	265.270	2.022	265.060	1.289	
17	264.750	0.000	265.950	0.000	265.355	3.438	265.430	4.160	265.270	2.014	265.060	1.276	
18	264.750	0.000	265.860	0.000	265.810	17.68	265.420	3.978	265.260	1.961	265.060	1.197 *	
19	264.750		265.630	0.000	265.660	11.04 *	265.420	3.986	265.250	2.644 *	265.060	1.256	
20	264.750	0.000	266.390	0.000	265.545	10.69	265.400	3.605	265.250	1.860	265.060	1.197 *	
21	264.750	0.000	266.060	0.000	265.510	10.09	265.410	4.804 *	265.240	2.542 *	265.060	1.197 *	
22	264.750	0.000	265.950	0.000	265.750	14.53 *	265.380	3.394	265.230	1.612	265.060	1.263	
23	264.750	0.000	265.800	0.000	265.720	15.30	265.660	11.04 *	265.220	1.409	265.060	1.197 *	
24	264.750	0.000	265.740	0.000	265.670	13.22	266.200	52.36	265.220	1.389	265.060	1.267	
25	264.750	0.000	265.690	0.000	265.620	10.67	266.200	59.46 #	265.200	1.175	265.060	1.197 *	
26	266.500	0.000	265.630	0.000	265.590	8.844 *	265.900	25.73	265.190	1.142	265.070	1.377	
27	267.200	0.000	265.610	0.000	265.550	10.21	265.750	16.56	265.180	1.108	265.080	1.379	
28	265.590	0.000	265.600	0.000	265.510	10.05	265.650	12.46	265.230	2.443 *	265.080	1.359	
29	265.590	0.000	265.560	0.000	266.310	66.84	265.600	10.71	265.200	1.182	265.080	1.377	
30	265.460	0.000	265.560	0.000	266.360	73.61	265.550	7.762 *	265.180	1.097	265.080	1.382	
31			265.500	0.000	266.020	44.73			265.180	1.103			
Ten-Daily Mean													
I Ten-Daily	264.750	0.000	265.613	0.000	265.409	0.000	265.688	13.88	265.326	3.667	265.123	1.524	
II Ten-Daily	264.750	0.000	265.980	0.000	265.439	6.312	265.465	5.653	265.195	1.781	265.060	1.242	
III Ten-Daily	265.409	0.000	265.700	0.000	265.783	25.28	265.730	20.43	265.206	1.473	265.069	1.300	
Monthly													
Min.	264.750	0.000	265.440	0.000	265.290	0.000	265.380	3.394	265.060	1.097	265.060	1.197	
Max.	267.200	0.000	266.660	0.000	266.360	73.61	266.200	59.46	265.510	10.20	265.170	1.764	
Mean	264.970	0.000	265.762	0.000	265.551	12.56	265.628	13.32	265.241	2.28	265.084	1.355	

Annual Runoff in MCM = 197 Annual Runoff in mm = 174

Peak Observed Discharge = 73.61 cumecs on 30/08/2018 Corres. Water Level :266.36 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :264.75 m

River was in pooling condition from 01/06/2018 to 12/08/2018

River was in Negligible flow condition from 16/04/2019 to 31/05/2019

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 2018 - 2019

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	265.080	1.379	265.080	1.370	265.090	1.414	265.080	1.391	264.980	1.092	264.890	0.535 *
2	265.080	1.308 *	265.080	1.380	265.090	1.396	265.090	1.405	264.980	1.082	264.890	0.535 *
3	265.080	1.363	265.080	1.373	265.090	1.366 *	265.090	1.366 *	264.980	0.830 *	264.890	0.535 *
4	265.090	1.388	265.080	1.387	265.080	1.384	265.090	1.414	264.970	1.033	264.880	0.509 *
5	265.090	1.395	265.090	1.404	265.080	1.392	265.090	1.408	264.970	1.015	264.880	0.509 *
6	265.090	1.380	265.090	1.366 *	265.080	1.382	265.090	1.401	264.970	0.999	264.880	0.509 *
7	265.100	1.427 *	265.090	1.392	265.080	1.390	265.090	1.393	264.960	0.755 *	264.870	0.483 *
8	265.100	3.826 #	265.090	1.386	265.080	1.393	265.090	1.386	264.960	0.862	264.870	0.483 *
9	265.090	1.366 *	265.090	1.407	265.080	1.387	265.080	1.383	264.960	0.857	264.860	0.459 *
10	265.090	1.379	265.090	1.402	265.080	1.308 *	265.080	1.308 *	264.960	0.771	264.860	0.459 *
11	265.090	1.412	265.090	1.391	265.080	1.391	265.080	1.367	264.950	0.687	264.850	0.436 *
12	265.090	1.387	265.090	1.403	265.070	1.367	265.080	1.379	264.950	0.623	264.850	0.436 *
13	265.091	1.393	265.090	1.366 *	265.070	1.361	265.070	1.311	264.950	0.610	264.840	0.413 *
14	265.090	1.401	265.090	1.366 *	265.070	1.350	265.060	1.284	264.950	0.720 *	264.840	0.392 *
15	265.090	1.395	265.080	1.373	265.060	1.283	265.050	1.249	264.940	0.396	264.830	0.372 *
16	265.090	1.366 *	265.080	1.370	265.060	1.274	265.050	1.224	264.920	0.622 *	264.820	0.352 *
17	265.090	1.403	265.080	1.308 *	265.060	1.197 *	265.050	1.145 *	264.920	0.622 *	264.810	0.352 *
18	265.080	1.382	265.080	1.391	265.060	1.262	265.050	1.222	264.910	0.592 *	264.810	0.352 *
19	265.080	1.358	265.080	1.342	265.070	1.346	265.040	1.203	264.910	0.592 *	264.810	0.334 *
20	265.080	1.308 *	265.080	1.308 *	265.070	1.345	265.040	1.194	264.910	0.592 *	264.800	0.334 *
21	265.080	1.370	265.070	1.366	265.000	1.358	265.040	1.095 *	264.910	0.592 *	264.800	0.334 *
22	265.090	1.404	265.070	1.358	265.070	1.251 *	265.040	1.188	264.900	0.563 *	264.800	0.334 *
23	265.090	1.366 *	265.070	1.345	265.070	1.355	265.040	1.177	264.900	0.563 *	264.800	0.334 *
24	265.090	1.396	265.070	1.358	265.070	1.251 *	265.030	1.046 *	264.900	0.563 *	264.800	0.334 *
25	265.090	1.366 *	265.070	1.358	265.070	1.251 *	265.010	1.159	264.900	0.563 *	264.800	0.334 *
26	265.080	1.357	265.080	1.308 *	265.080	1.376	265.000	1.139	264.900	0.563 *	264.790	0.316 *
27	265.080	1.383	265.090	1.366 *	265.080	1.382	265.000	0.912 *	264.900	0.563 *	264.780	0.299 *
28	265.080	1.367	265.090	1.415	265.080	1.389	264.990	0.870 *	264.900	0.563 *	264.780	0.299 *
29	265.080	1.372	265.090	1.403			264.980	1.112	264.900	0.563 *	264.770	0.283 *
30	265.080	1.308 *	265.090	1.412			264.980	0.830 *	264.900	0.563 *	264.760	0.267 *
31	265.080	1.308 *	265.090	1.400			264.980	0.830 *			264.750	0.253 *
Ten-Daily Mean												
I Ten-Daily	265.089	1.621	265.086	1.387	265.083	1.381	265.087	1.386	264.969	0.930	264.877	0.502
II Ten-Daily	265.087	1.381	265.084	1.362	265.067	1.318	265.057	1.258	264.931	0.606	264.826	0.377
III Ten-Daily	265.084	1.363	265.080	1.372	265.065	1.326	265.008	1.033	264.901	0.566	264.785	0.308
Monthly												
Min.	265.080	1.308	265.070	1.308	265.000	1.197	264.980	0.830	264.900	0.396	264.750	0.253
Max.	265.100	3.826	265.090	1.415	265.090	1.414	265.090	1.414	264.980	1.092	264.890	0.535
Mean	265.086	1.452	265.083	1.373	265.072	1.343	265.049	1.219	264.934	0.7	264.828	0.393

Peak Computed Discharge = 390.2 cumecs on 27/06/2018

Corres. Water Level :267.2 m

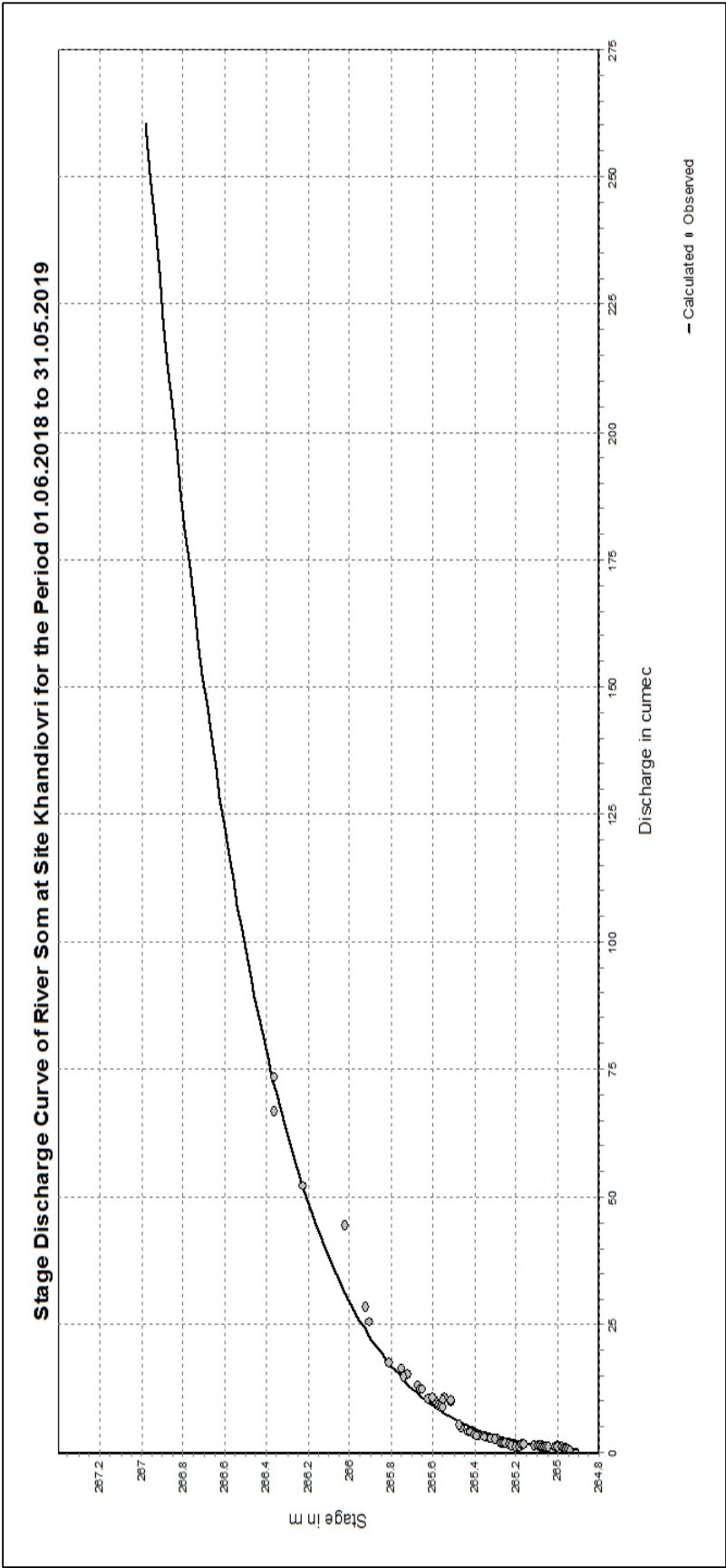
Lowest Computed Discharge = 0.253 cumecs on 31/05/2019

Corres. Water Level :264.75 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
264.9	267	-263.65	6.267	0.139

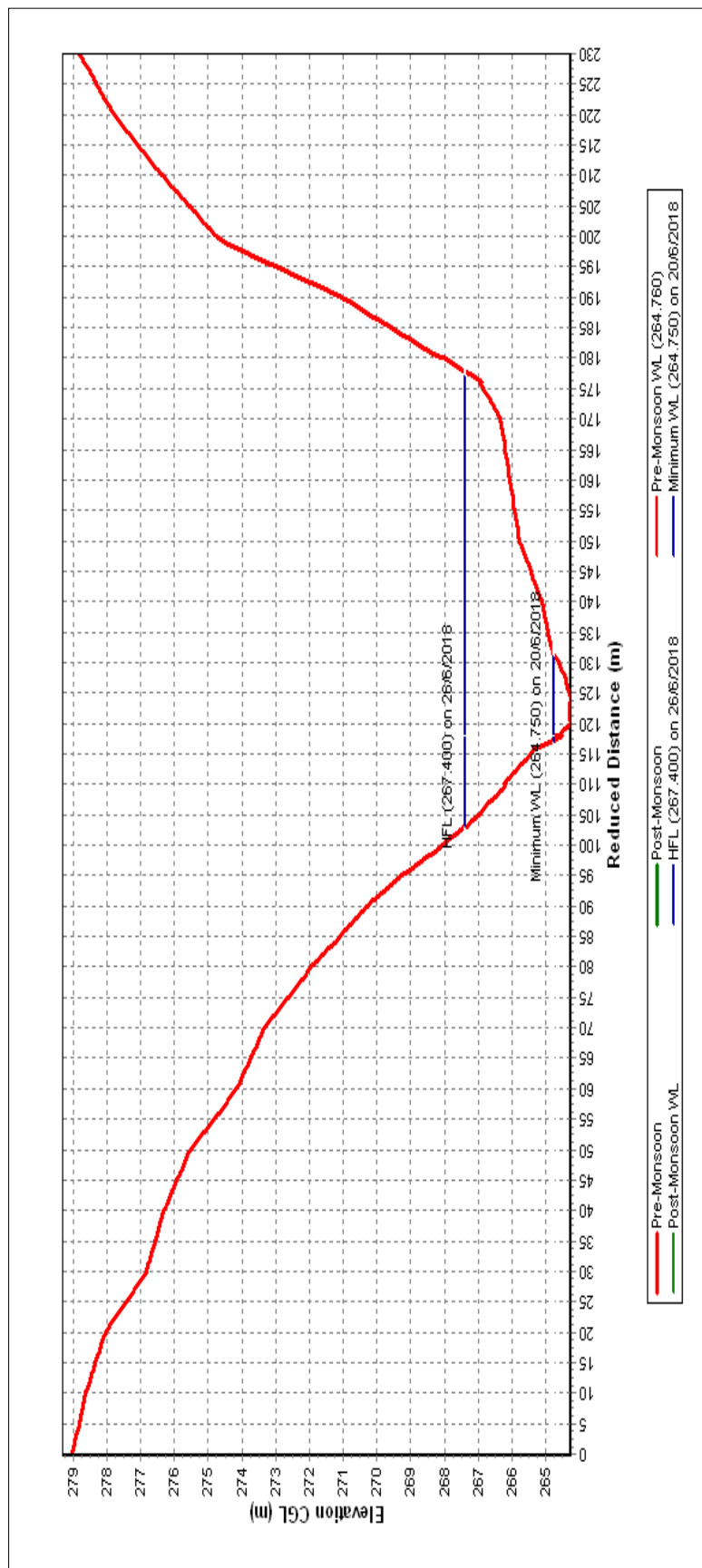
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

Station Name : Som at Khandiovri (010213UA3)

Local River : Som

Division : EE, MDN,GANDHINAGAR

Sub-Division : MSD, KADANA



Historic Flood Level - newly opened site

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

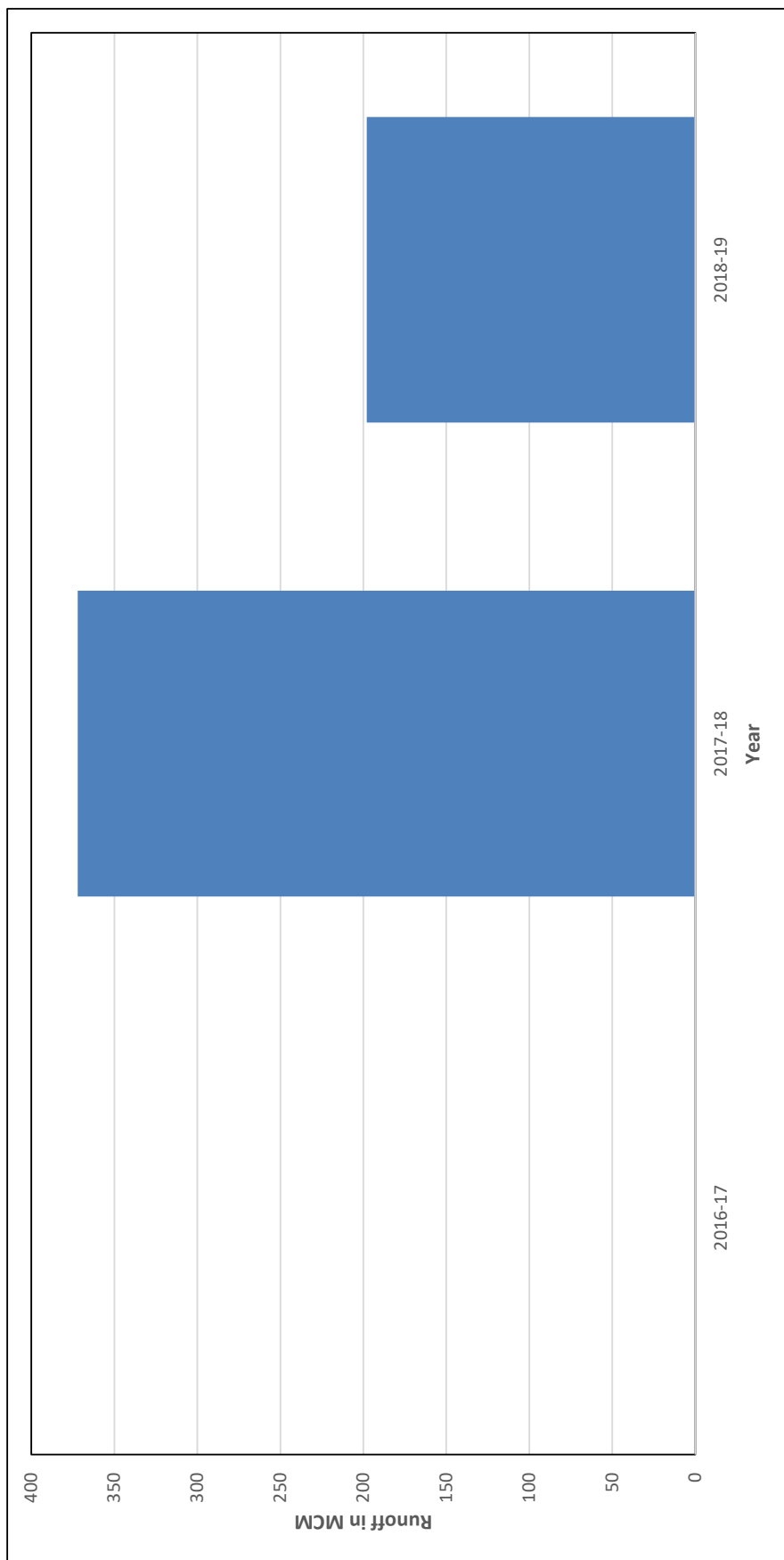
Annual Runoff Values for the period: 2018 - 2019

Station Name : Som at Khandiovri (010213UA3)

Local River :

Division : EE. MDN,GANDHINAGAR

Sub-Division : MSD, KADANA



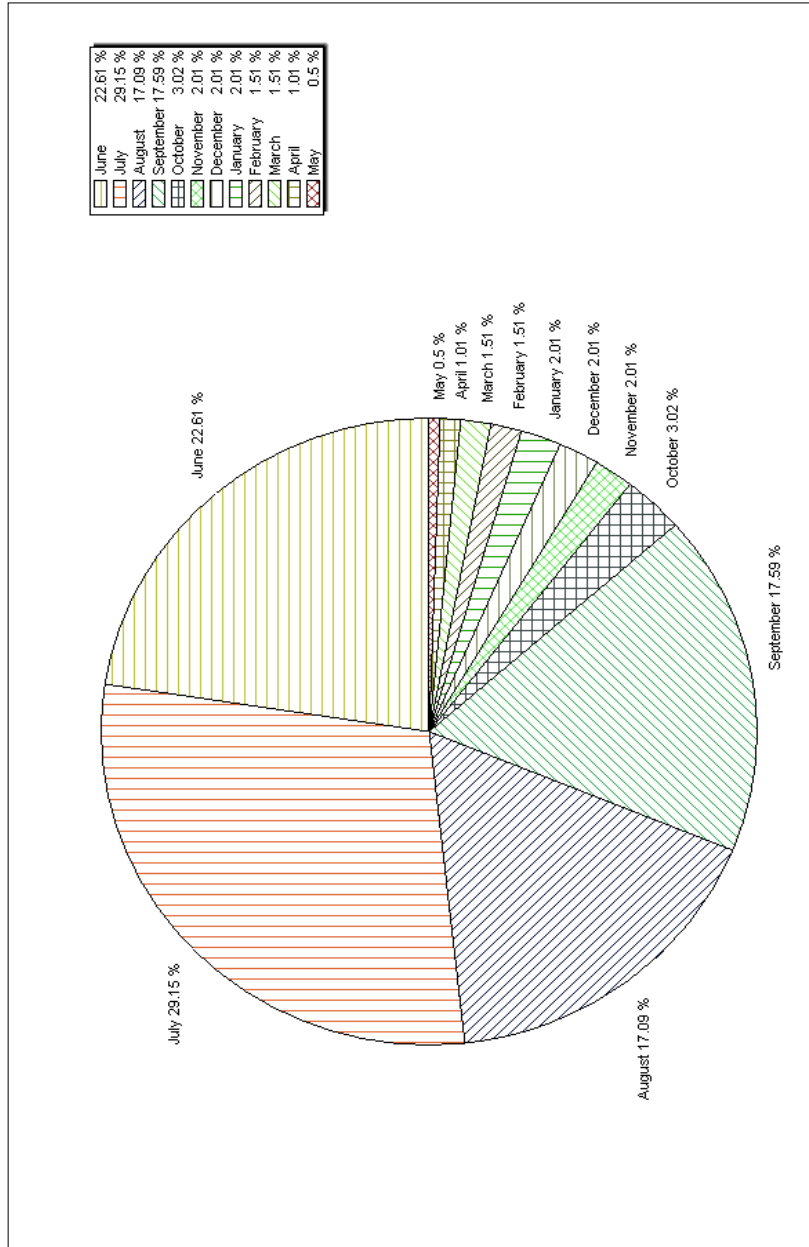
Note: Khandiovri is newly opened site

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

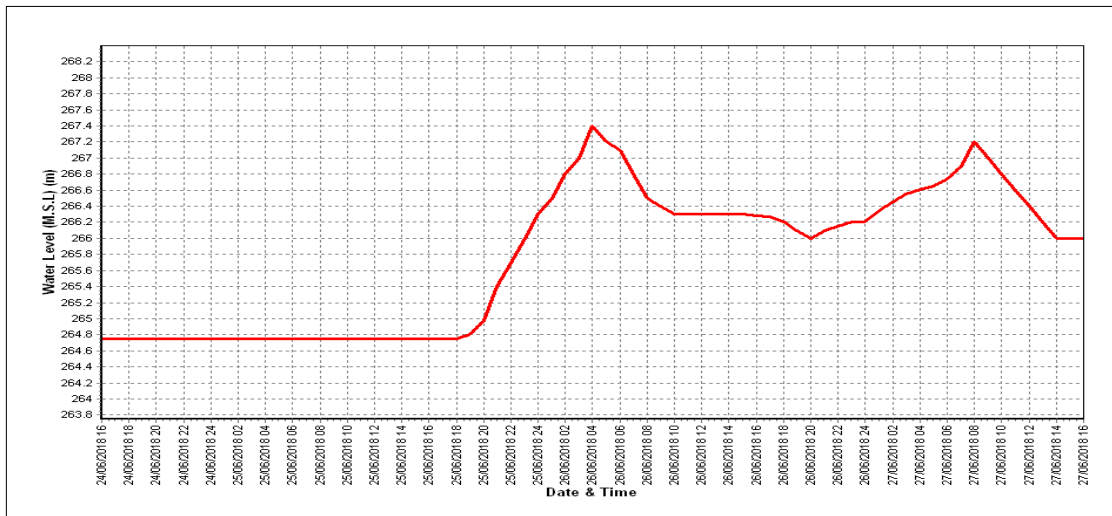
Station Name : Som at Khandiovri (010213UA3)
Local River : Som

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

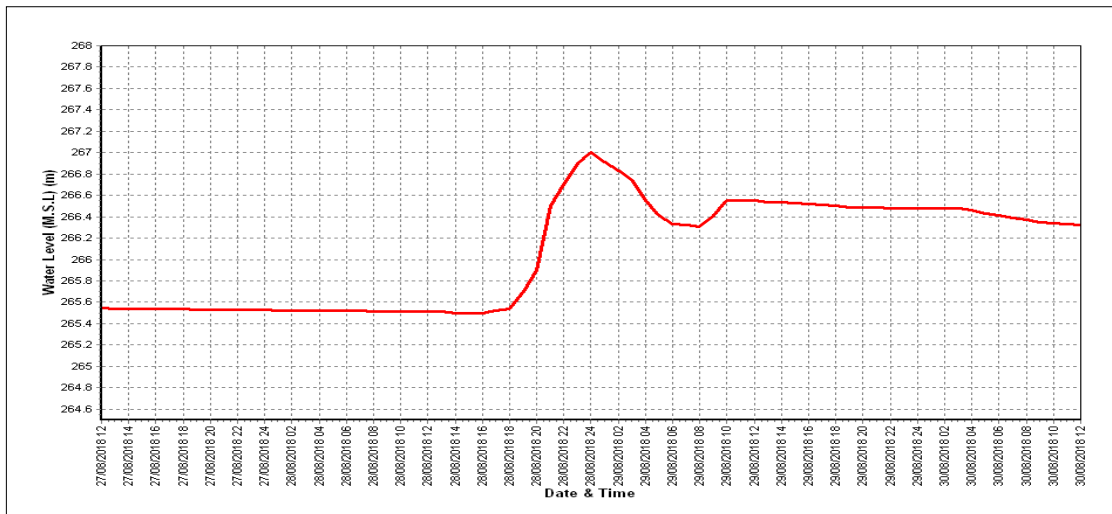
Monthly Average Runoff based on period : 2018-2019



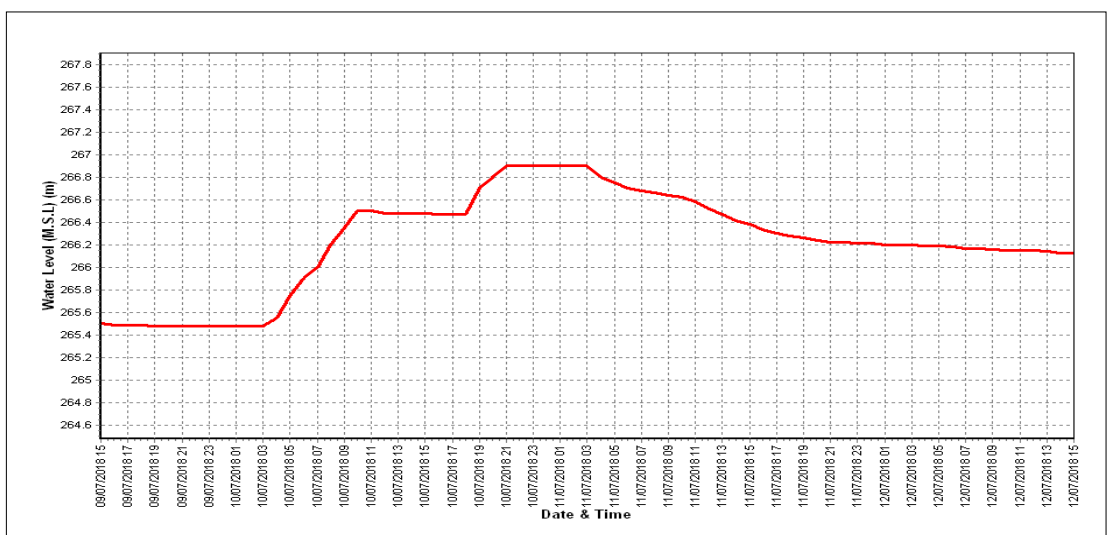
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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
2018-19	16.73	399.400	29/08/2018	0.000	397.000	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	397.000	0.000	399.150	0.000	398.900	0.848 *	399.080	4.508	399.050	3.326	398.870	0.506
2	397.000	0.000	399.100	0.000	398.900	0.848 *	399.080	3.643 *	399.070	3.416 *	398.870	0.492
3	397.000	0.000	398.650	0.000	399.100	8.794	399.080	4.112	399.010	2.195	398.860	0.477
4	397.000	0.000	398.750	0.000	398.900	0.848 *	399.050	2.918	398.990	1.936	398.860	0.457
5	397.000	0.000	398.800	0.000	398.890	0.762 *	399.020	2.335	399.000	2.132	398.850	0.423
6	397.000	0.000	398.750	0.000	398.890	0.620	399.040	2.580	398.990	2.071	398.850	0.420
7	397.000	0.000	398.750	0.000	398.890	0.762 *	399.040	2.525	398.980	1.774 *	398.850	0.476 *
8	397.000	0.000	399.300	0.000	398.950	1.519	399.130	4.951	398.970	1.844	398.850	0.413
9	397.000	0.000	398.800	0.000	399.020	2.417 *	399.280	10.52 *	399.100	4.824	398.840	0.398
10	397.000	0.000	398.900	0.000	399.010	2.244 *	399.250	8.571	399.000	2.139	398.840	0.395
11	397.000	0.000	398.950	0.000	398.980	1.774 *	399.180	6.695	398.950	1.183	398.840	0.418 *
12	397.000	0.000	398.900	0.000	398.960	1.499 *	399.100	4.965	398.950	1.191	398.820	0.352
13	397.000	0.000	398.900	0.000	398.940	0.881	399.070	3.416 *	398.930	1.151	R. Dry	0.000
14	397.000	0.000	399.050	3.660	398.940	1.255 *	399.040	2.843	398.930	1.143 *	R. Dry	0.000
15	397.000	0.000	399.000	2.079 *	398.930	1.143 *	399.030	2.682	398.920	0.966	R. Dry	0.000
16	397.000	0.000	399.000	2.079 *	398.930	1.143 *	399.020	2.417 *	398.920	0.884	R. Dry	0.000
17	397.000	0.000	398.950	1.374 *	398.950	1.374 *	399.100	4.823	398.920	0.878	R. Dry	0.000
18	397.000	0.000	398.950	1.374 *	398.960	1.499 *	399.040	2.809	398.910	0.831	R. Dry	0.000
19	397.000	0.000	398.940	1.255 *	398.950	1.374 *	399.010	2.263	398.910	0.790	R. Dry	0.000
20	397.000	0.000	399.300	11.48 *	398.930	0.930	398.990	2.044	398.910	0.764	R. Dry	0.000
21	397.000	0.000	399.050	2.989 *	398.970	1.633 *	398.980	1.774 *	398.900	0.848 *	R. Dry	0.000
22	397.000	0.000	399.000	2.079 *	400.600	265.0 *	398.980	1.915	398.900	0.848 *	R. Dry	0.000
23	397.000	0.000	398.950	1.374 *	399.420	18.51 *	399.440	19.90 *	398.900	0.716	R. Dry	0.000
24	397.000	0.000	399.050	2.989 *	399.150	5.523 *	399.750	51.04 *	398.890	0.661	R. Dry	0.000
25	397.000	0.000	399.250	9.176 *	399.180	6.619	399.290	10.54	398.890	0.639	R. Dry	0.000
26	397.000	0.000	399.050	2.989 *	399.180	6.492 *	399.140	5.399	398.890	0.622	R. Dry	0.000
27	398.400	0.000	399.020	2.417 *	399.120	4.464	399.110	5.068	398.890	0.580	R. Dry	0.000
28	399.100	0.000	399.000	2.079 *	399.070	3.397	399.100	4.791	398.880	0.682 *	398.780	0.164 *
29	398.870	0.000	399.000	2.079 *	399.400	16.73	399.080	4.162	398.880	0.557	398.770	0.136 *
30	399.350	0.000	398.950	1.513	399.330	12.94	399.060	3.197 *	398.880	0.541	398.780	0.164 *
31			398.950	1.374 *	399.100	4.491			398.870	0.513		
Ten-Daily Mean												
I Ten-Daily	397.000	0.000	398.895	0.000	398.945	1.966	399.105	4.666	399.016	2.566	398.854	0.446
II Ten-Daily	397.000	0.000	398.994	2.330	398.947	1.287	399.058	3.496	398.925	0.978	398.830	0.385
III Ten-Daily	397.772	0.000	399.025	2.823	399.320	31.44	399.193	10.78	398.888	0.655	398.777	0.155
Monthly												
Min.	397.000	0.000	398.650	0.000	398.890	0.620	398.980	1.774	398.870	0.513	398.770	0.136
Max.	399.350	0.000	399.300	11.48	400.600	265.0	399.750	51.04	399.100	4.824	398.870	0.506
Mean	397.257	0	398.973	1.754	399.079	12.2	399.119	6.313	398.941	1.376	398.835	0.379

Annual Runoff in MCM = 60 Annual Runoff in mm = 328

Peak Observed Discharge = 16.73 cumecs on 29/08/2018 Corres. Water Level :399.4 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :397 m

River was in pooling condtion from 01/06/2018 to 27/06/2018

River was in Negligible flow condtion from 28/11/2018 to 14/12/2018, 26/04/2019 to 31/05/2019

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 2018 - 2019

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	398.770	0.136 *	398.780	0.306	398.770	0.132	398.550	0.000	398.780	0.192	398.600	0.000
2	398.770	0.136 *	398.770	0.300 #	398.770	0.130	398.540	0.000	398.780	0.188	398.600	0.000
3	398.770	0.136 *	398.790	0.293 #	398.770	0.136 *	398.540	0.000	398.770	0.108	398.600	0.000
4	398.770	0.136 *	398.790	0.279 #	398.770	0.128	398.550	0.000	398.770	0.121	398.600	0.000
5	398.780	0.164 *	398.770	0.276	398.770	0.123	398.550	0.000	398.770	0.115	398.600	0.000
6	398.780	0.164 *	398.770	0.136 *	398.790	0.489 #	398.760	0.084	398.770	0.136 *	398.600	0.000
7	398.780	0.164 *	398.770	0.224	398.790	0.489 *	398.760	0.084	398.770	0.136 *	398.600	0.000
8	398.780	0.164 *	398.770	0.225	398.790	0.480 *	398.760	0.082	398.770	0.103	398.600	0.000
9	398.780	0.164 *	398.780	0.078	398.790	0.464 *	398.760	0.081	398.770	0.115	398.600	0.000
10	398.770	0.136 *	398.790	0.318	398.780	0.164 *	398.760	0.111 *	398.770	0.115	398.580	0.000
11	398.770	0.136 *	398.790	0.296	398.780	0.386 *	398.750	0.000	398.770	0.112	398.580	0.000
12	398.770	0.136 *	398.790	0.324	398.780	0.164 *	398.750	0.000	398.770	0.112	398.580	0.000
13	398.770	0.136 *	398.790	0.196 *	398.780	0.373 #	398.760	0.076	398.770	0.136 *	398.580	0.000
14	398.770	0.136 *	398.790	0.285	398.790	0.407	398.760	0.075	398.770	0.136 *	398.580	0.000
15	398.780	0.164 *	398.780	0.267	398.790	0.397 #	398.760	0.082	398.760	0.111 *	398.580	0.000
16	398.770	0.136 *	398.780	0.256	398.780	0.396	398.760	0.081	398.760	0.105	398.580	0.000
17	398.770	0.306 #	398.780	0.252	398.780	0.164 *	398.760	0.111 *	398.770	0.119	398.600	0.000
18	398.770	0.293 #	398.770	0.209	398.780	0.372 #	398.760	0.076	398.770	0.118	398.600	0.000
19	398.770	0.305 #	398.770	0.199	398.770	0.136 #	398.760	0.074	398.770	0.118	398.600	0.000
20	398.770	0.297 #	398.770	0.136 *	398.770	0.340 #	398.760	0.073	398.770	0.116	398.630	0.000
21	398.770	0.296 #	398.770	0.144	398.770	0.319 #	398.760	0.111 *	398.770	0.136 *	398.630	0.000
22	398.770	0.295 #	398.770	0.122	398.770	0.269	398.760	0.073	398.770	0.114	398.600	0.000
23	398.770	0.136 #	398.760	0.085	398.770	0.252	398.750	0.000	398.770	0.113	398.580	0.000
24	398.770	0.294 #	398.760	0.077	398.770	0.136 *	398.750	0.000	398.770	0.112	398.580	0.000
25	398.770	0.136 #	398.760	0.055	398.770	0.221	398.750	0.000	398.760	0.109	398.580	0.000
26	398.770	0.293 #	398.780	0.164 *	398.770	0.206	398.750	0.000	398.740	0.000	398.580	0.000
27	398.770	0.292 #	398.780	0.164 *	398.750	0.000	398.770	0.193	398.720	0.000	398.580	0.000
28	398.770	0.291 #	398.780	0.240	398.680	0.000	398.780	0.196	398.720	0.000	398.580	0.000
29	398.760	0.255 #	398.770	0.221			398.790	0.241	398.680	0.000	398.650	0.000
30	398.760	0.111 #	398.770	0.123			398.780	0.193	398.600	0.000	398.650	0.000
31	398.780	0.378 #	398.770	0.118			398.780	0.164 *			398.650	0.000
Ten-Daily Mean												
I Ten-Daily	398.775	0.150	398.778	0.244	398.779	0.273	398.653	0.044	398.772	0.133	398.598	0.000
II Ten-Daily	398.771	0.205	398.781	0.242	398.780	0.314	398.758	0.065	398.768	0.118	398.591	0.000
III Ten-Daily	398.769	0.252	398.770	0.138	398.756	0.176	398.765	0.106	398.730	0.058	398.605	0.000
Monthly												
Min.	398.760	0.111	398.760	0.055	398.680	0.000	398.540	0.000	398.600	0.000	398.580	0.000
Max.	398.780	0.378	398.790	0.324	398.790	0.489	398.790	0.241	398.780	0.192	398.650	0.000
Mean	398.772	0.204	398.776	0.205	398.773	0.26	398.727	0.073	398.757	0.103	398.598	0

Peak Computed Discharge = 265.0 cumecs on 22/08/2018

Corres. Water Level :400.6 m

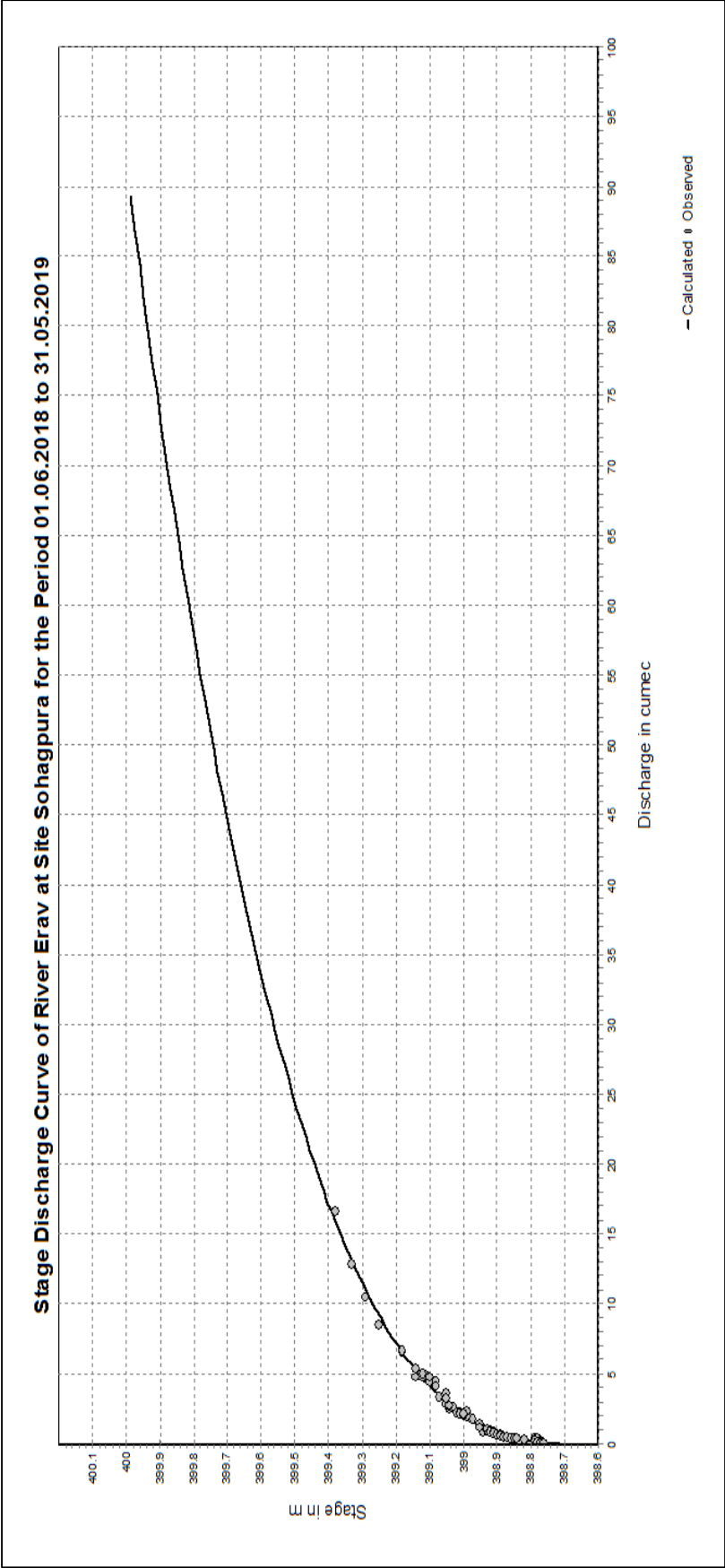
Lowest Computed Discharge = 0.111 cumecs on 10/03/2019

Corres. Water Level :397.00 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
398.7	400	-398.62	2.937	35.643

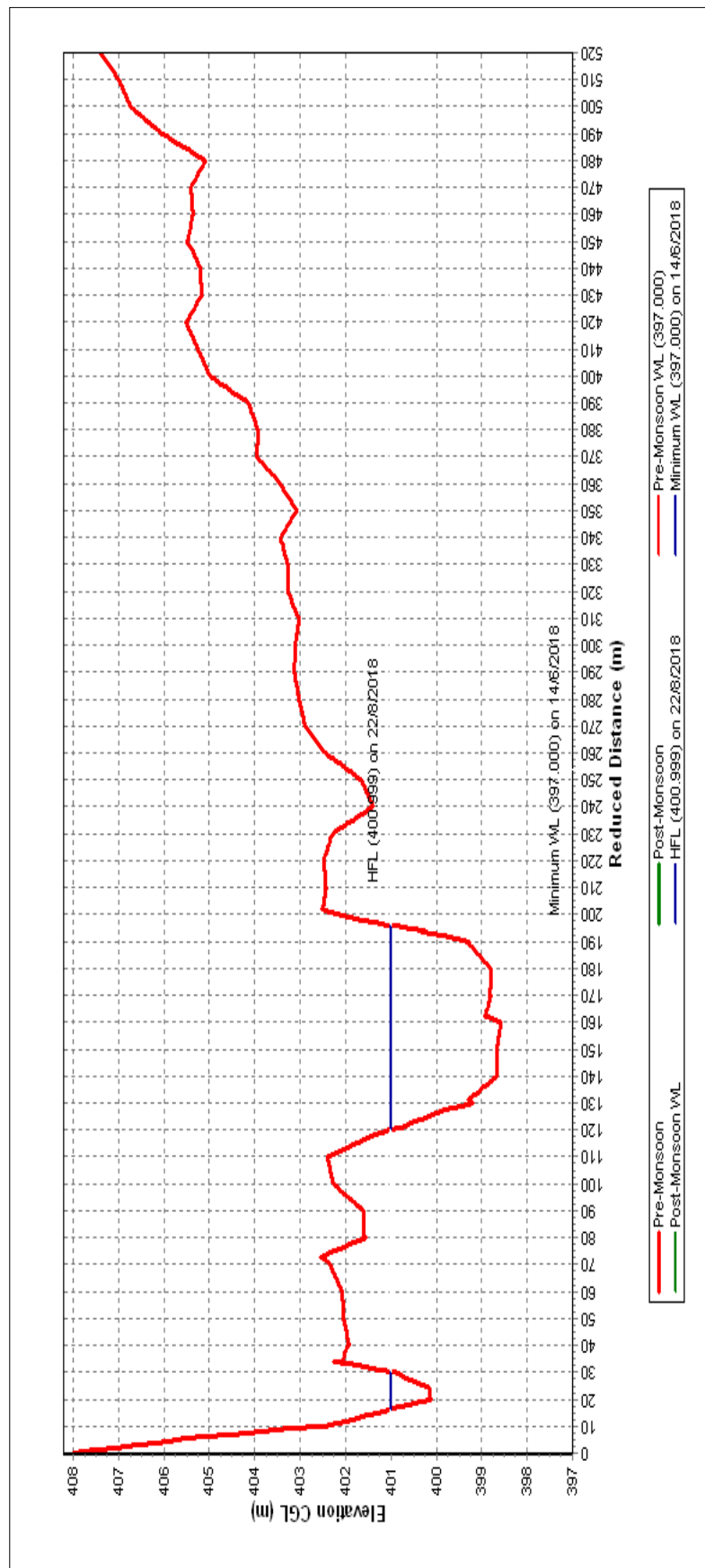
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

Station Name : Erau at Sohagpura (010213UB1)

Local River : Erau

Division : EE, MDN,GANDHINAGAR

Sub-Division : MSD, KADANA

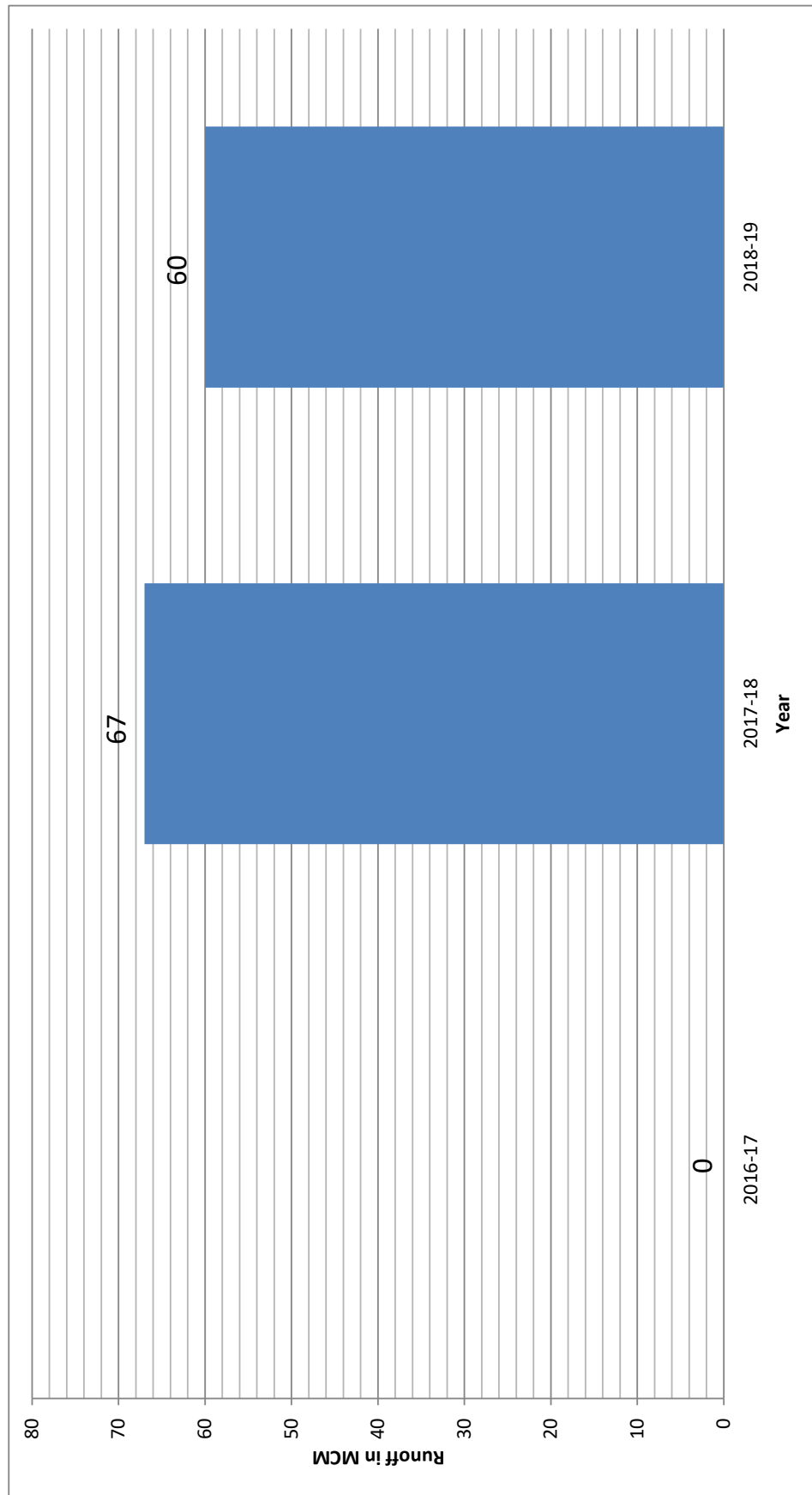


Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 2018 - 2019

Station Name : Erav at Sohagpura (010213UB1)
Local River : Erav

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



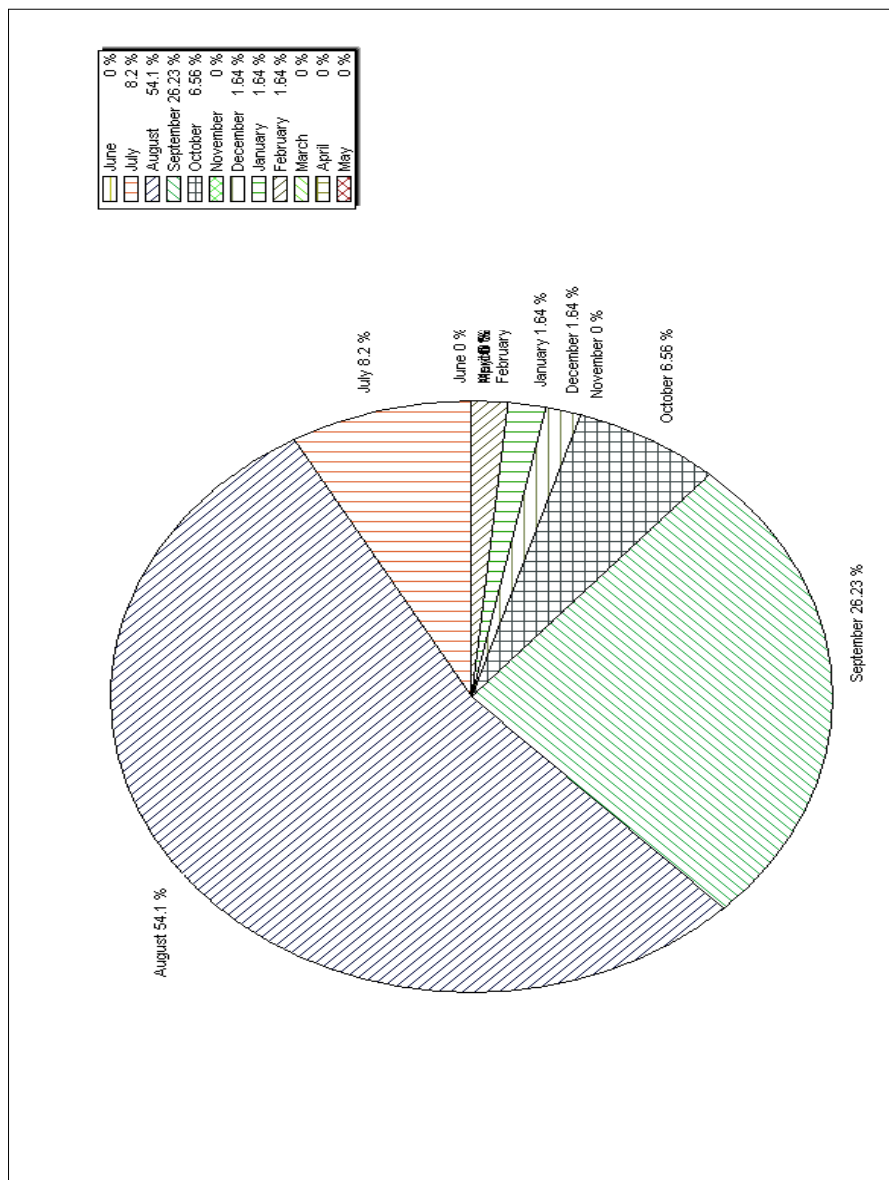
Monthly Runoff for the Year : 2018-2019

Station Name : Erau at Sohagpura (010213UB1)

Local River : Erau

Division : EE. MDN,GANDHINAGAR

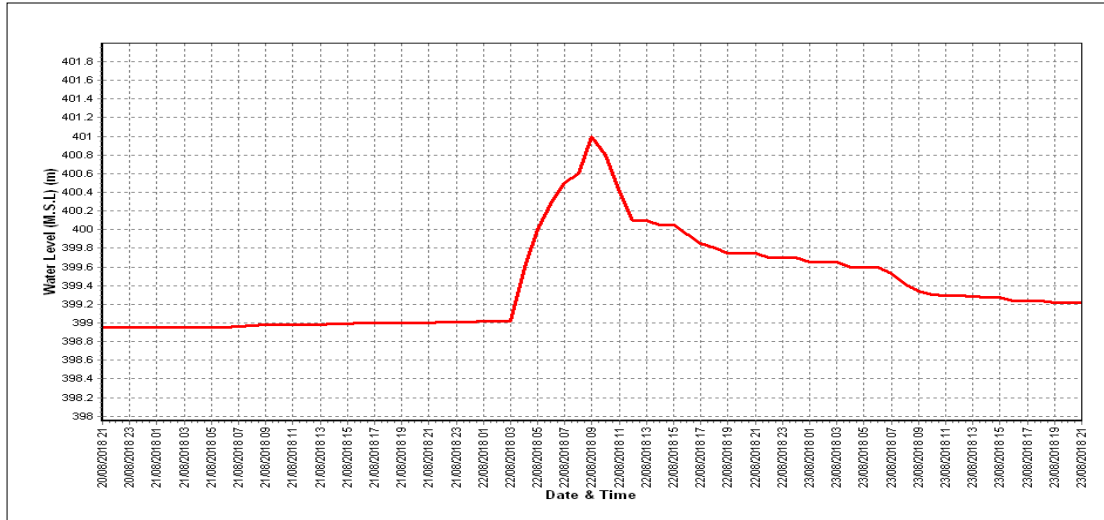
Sub-Division : MSD, KADANA



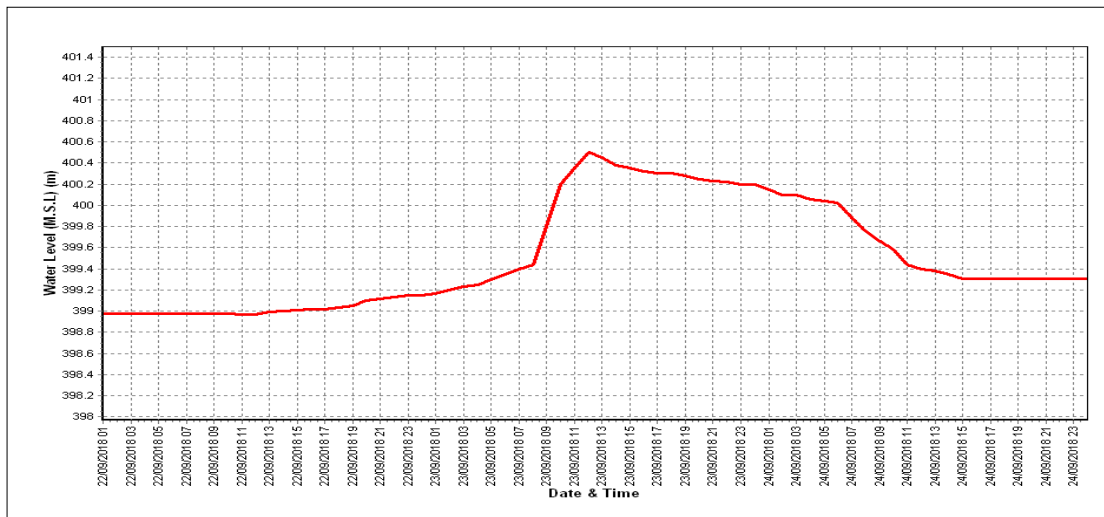
Station Name : Erau at Sohagpura (010213UB1)
Local River : Erau

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

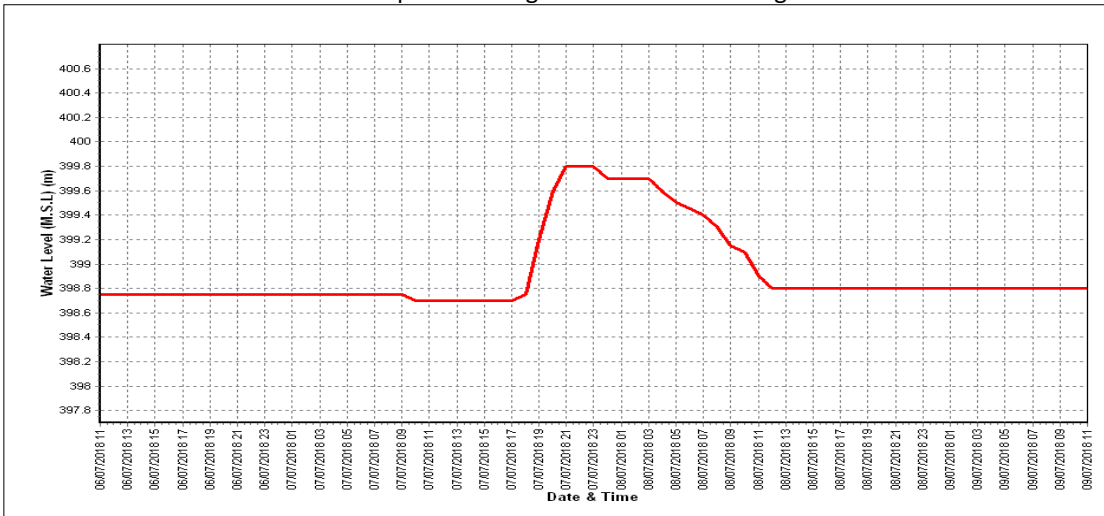
Water Level vs. Time - Graph of the Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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		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
2018-2019	133.9	15.340	19/08/2018	9.625	13.540	16./04/2019

Stage-Discharge Data for the period 2018 - 2019

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	13.620	14.29 *	13.880	22.47	13.630	17.79	13.900	49.47	13.920	47.52	13.740	39.85
2	13.630	15.60	13.800	18.69	13.620	15.98	13.870	45.89	13.850	42.63	13.740	35.53
3	13.630	14.63 *	13.740	17.43	13.600	15.40	13.890	44.99	13.820	37.48	13.730	33.14
4	13.630	12.86	13.700	19.02	13.590	14.21	13.900	49.29	13.780	35.76	13.600	19.37
5	13.620	10.77	13.860	22.37	13.550	14.18	13.860	45.47	13.800	37.86	13.770	29.98
6	13.620	12.57	13.820	21.90	13.550	14.50	13.850	35.51	13.900	41.93	13.760	31.54
7	13.620	12.85	13.890	24.62	13.520	15.27	13.770	29.23	13.930	47.74	13.780	32.95 *
8	13.620	10.85	13.840	20.00	13.540	14.34	13.750	35.12	13.820	38.67	13.720	35.55
9	13.630	11.96	13.770	15.47	13.560	16.83	13.720	32.85	13.990	40.56	13.710	34.27
10	13.640	14.97 *	13.690	13.89	13.670	16.94	13.720	32.49	13.860	37.85	13.690	26.49
11	13.640	12.52	13.730	15.69	13.700	18.10	13.740	37.74	13.880	38.12	13.670	24.60 *
12	13.640	11.99	13.720	22.82	13.650	18.37	13.690	33.24	13.820	37.37	13.630	21.81
13	13.620	12.29	14.340	37.89	13.630	17.88	13.680	30.69	13.760	28.46	13.640	23.61
14	13.620	13.29	14.220	37.83	13.610	15.75	13.670	25.98	13.760	29.68	13.630	23.08
15	13.620	14.10	14.070	29.76	13.580	12.97 *	13.650	24.93	13.760	28.34	13.630	20.99
16	13.630	17.39	13.980	28.45	13.570	16.62	13.670	28.72	13.740	25.55	13.650	28.92
17	13.630	14.63 *	13.970	24.77	13.660	17.93	13.640	26.74	13.750	29.15	13.650	24.79
18	13.630	17.71	13.970	26.25	14.290	51.49	13.640	26.18	13.760	24.69	13.650	23.10 *
19	13.620	13.21	13.870	25.05	15.340	133.9	13.650	27.70	13.770	25.39	13.740	33.79
20	13.620	15.38	13.820	20.60	14.820	81.48	13.630	26.39	13.800	30.39	13.720	36.24
21	13.610	13.95 *	13.970	28.21	14.610	73.37	13.680	25.21	13.780	25.85	13.690	26.11 *
22	13.600	10.88	14.480	62.81	14.650	74.97	13.650	25.39	13.780	25.79	13.680	31.89
23	13.610	11.52	14.880	108.3	15.050	88.35	13.700	35.42	13.810	34.64	13.690	26.11 *
24	13.610	11.60	14.390	58.52	14.920	83.23	13.930	48.59	13.800	33.55	13.630	27.43
25	13.640	12.64	14.150	31.64	14.590	65.65 #	14.040	53.05	13.760	32.36	13.620	20.86 *
26	13.700	16.00	14.030	31.56	14.500	74.42	14.040	53.77	13.770	29.52	13.620	26.48
27	13.630	13.89	13.920	25.22	14.380	71.45	13.990	48.99	13.750	33.25	13.610	21.84
28	14.250	33.04	13.820	20.13	14.270	58.29	14.060	53.60	13.770	29.16	13.610	20.64
29	13.990	32.22	13.690	15.20	14.060	32.95 #	14.000	46.41	13.780	29.97	13.670	29.89
30	13.950	21.51	13.640	14.59	13.980	36.12	14.000	46.78	13.760	32.29	13.670	30.96
31			13.630	16.95	13.900	28.72			13.740	28.56		
Ten-Daily Mean												
I Ten-Daily	13.626	13.13	13.799	19.59	13.583	15.54	13.823	40.03	13.867	40.80	13.724	31.87
II Ten-Daily	13.627	14.25	13.969	26.91	13.985	38.45	13.666	28.83	13.780	29.71	13.661	26.09
III Ten-Daily	13.759	17.72	14.055	37.55	14.446	62.50	13.909	43.72	13.773	30.45	13.649	26.22
Monthly												
Min.	13.600	10.77	13.630	13.89	13.520	12.97	13.630	24.93	13.740	24.69	13.600	19.37
Max.	14.250	33.04	14.880	108.3	15.340	133.9	14.060	53.77	13.990	47.74	13.780	39.85
Mean	13.671	15.04	13.945	28.32	14.019	39.6	13.799	37.53	13.805	33.55	13.678	28.06

Annual Runoff in MCM = 783 Annual Runoff in mm = 40

Peak Observed Discharge = 133.9 cumecs on 19/08/2018 Corres. Water Level :15.34 m

Lowest Observed Discharge = 9.625 cumecs on 16/04/2019 Corres. Water Level :13.54 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 2018 - 2019

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	13.670	26.88	13.580	16.82	13.510	15.39	13.570	15.72	13.570	9.823	13.610	15.76
2	13.660	23.85	13.550	17.80	13.560	18.42	13.570	16.56	13.570	10.38	13.610	17.05
3	13.610	22.42	13.540	17.22	13.550	15.70 *	13.560	16.43 *	13.570	12.49	13.610	11.78
4	13.600	20.40	13.540	16.24	13.530	17.33	13.560	15.97	13.580	13.61	13.680	21.95
5	13.740	36.19	13.570	17.98	13.540	17.17	13.570	13.57	13.570	12.91	13.640	22.35 *
6	13.730	33.87	13.560	16.43 *	13.550	20.82	13.580	16.47	13.570	15.40	13.600	14.98
7	13.680	29.88	13.580	14.81	13.600	22.53	13.610	26.08	13.570	17.16	13.640	18.99
8	13.670	26.46	13.590	26.51	13.600	21.49	13.580	16.16	13.590	14.61	13.680	19.46
9	13.630	21.60 *	13.590	21.68	13.560	17.27	13.580	16.41	13.580	13.23	13.670	18.58
10	13.620	26.11	13.580	20.38	13.600	19.37 *	13.590	18.63 *	13.590	14.19	13.680	21.79
11	13.640	22.54	13.610	26.78	13.700	26.86 #	13.620	23.64	13.590	14.04	13.810	39.64
12	13.690	35.93	13.580	19.37	13.680	17.32	13.630	18.39	13.580	12.88	14.170	63.57 *
13	13.700	38.15	13.560	16.43 *	13.680	20.33	13.620	16.94	13.580	12.91	13.720	24.52
14	13.700	37.55	13.570	17.16 *	13.550	20.18	13.590	14.77	13.580	17.90 *	13.860	49.95
15	13.690	36.99	13.580	19.83	13.550	19.11	13.600	16.53	13.580	13.39	13.620	16.25
16	13.660	23.85 *	13.550	18.71	13.540	17.08	13.560	14.18	13.540	9.625	13.620	16.63
17	13.650	24.46	13.510	18.96	13.550	15.70 *	13.590	18.63 *	13.560	16.43 *	13.620	17.02
18	13.660	25.16	13.540	21.74	13.580	16.40	13.610	16.94	13.590	16.46	13.620	20.86 *
19	13.660	24.93	13.540	22.30	13.580	18.33	13.590	13.24	13.590	18.63 *	13.610	20.12 *
20	13.600	24.67	13.530	14.24 *	13.580	19.01	13.600	15.72	13.580	15.67	13.620	17.42
21	13.630	28.37	13.500	18.38	13.580	17.57	13.600	19.37 *	13.580	17.90 *	13.620	15.63
22	13.640	29.95	13.530	16.39	13.590	21.40	13.600	16.35	13.580	16.01	13.620	16.34
23	13.650	23.10 *	13.520	17.62	13.560	20.66	13.590	15.72	13.580	15.65	13.620	16.86
24	13.650	30.51	13.530	20.65	13.570	17.16 *	13.580	17.90 *	13.590	16.77	13.630	17.66
25	13.580	17.90 *	13.520	16.51	13.570	20.10	13.570	13.40	13.580	16.27	13.620	16.73
26	13.570	18.92	13.530	14.24 *	13.570	21.91	13.590	14.12	13.570	13.90	13.630	21.60 *
27	13.570	20.12	13.540	14.97 *	13.590	17.11	13.600	15.96	13.570	13.77	13.620	15.51
28	13.550	18.90	13.510	15.41	13.580	17.84	13.590	13.92	13.580	17.90 *	13.610	13.20
29	13.520	16.12	13.500	14.27			13.590	14.95	13.610	16.50	13.610	12.24
30	13.590	18.63 *	13.500	14.41			13.600	16.50	13.600	16.25	13.650	19.68
31	13.570	15.61	13.500	14.88			13.590	18.63 *			13.650	19.61
Ten-Daily Mean												
I Ten-Daily	13.661	26.77	13.568	18.59	13.560	18.55	13.577	17.20	13.576	13.38	13.642	18.27
II Ten-Daily	13.665	29.42	13.557	19.55	13.599	19.03	13.601	16.90	13.577	14.79	13.727	28.60
III Ten-Daily	13.593	21.65	13.516	16.16	13.576	19.22	13.591	16.07	13.584	16.09	13.625	16.82
Monthly												
Min.	13.520	15.61	13.500	14.24	13.510	15.39	13.560	13.24	13.540	9.625	13.600	11.78
Max.	13.740	38.15	13.610	26.78	13.700	26.86	13.630	26.08	13.610	18.63	14.170	63.57
Mean	13.638	25.81	13.546	18.04	13.579	18.91	13.590	16.7	13.579	14.75	13.664	21.09

Peak Computed Discharge = 63.57 cumecs on 12/05/2019

Corres. Water Level :14.17 m

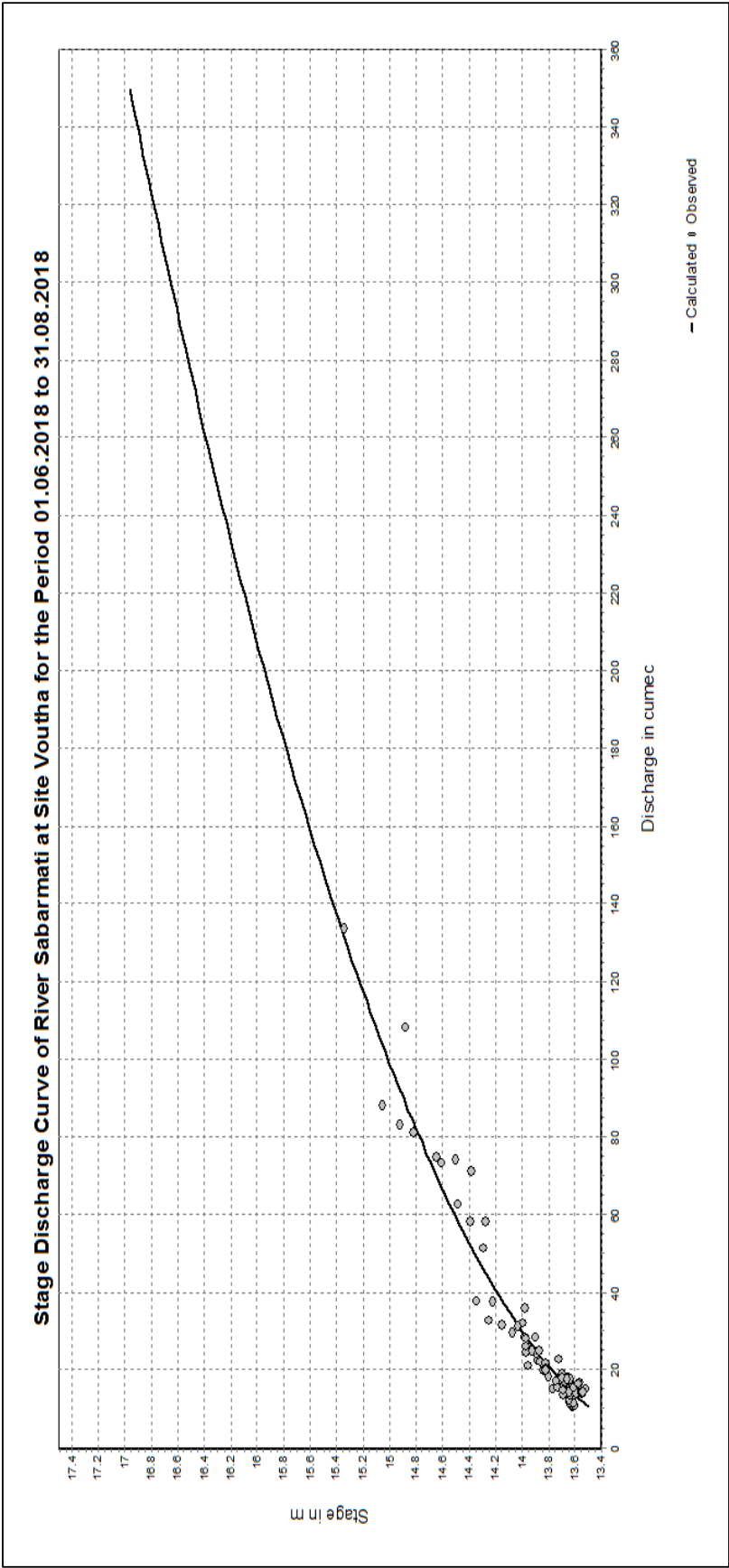
Lowest Computed Discharge = 12.97 cumecs on 15/08/2018

Corres. Water Level :13.58 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

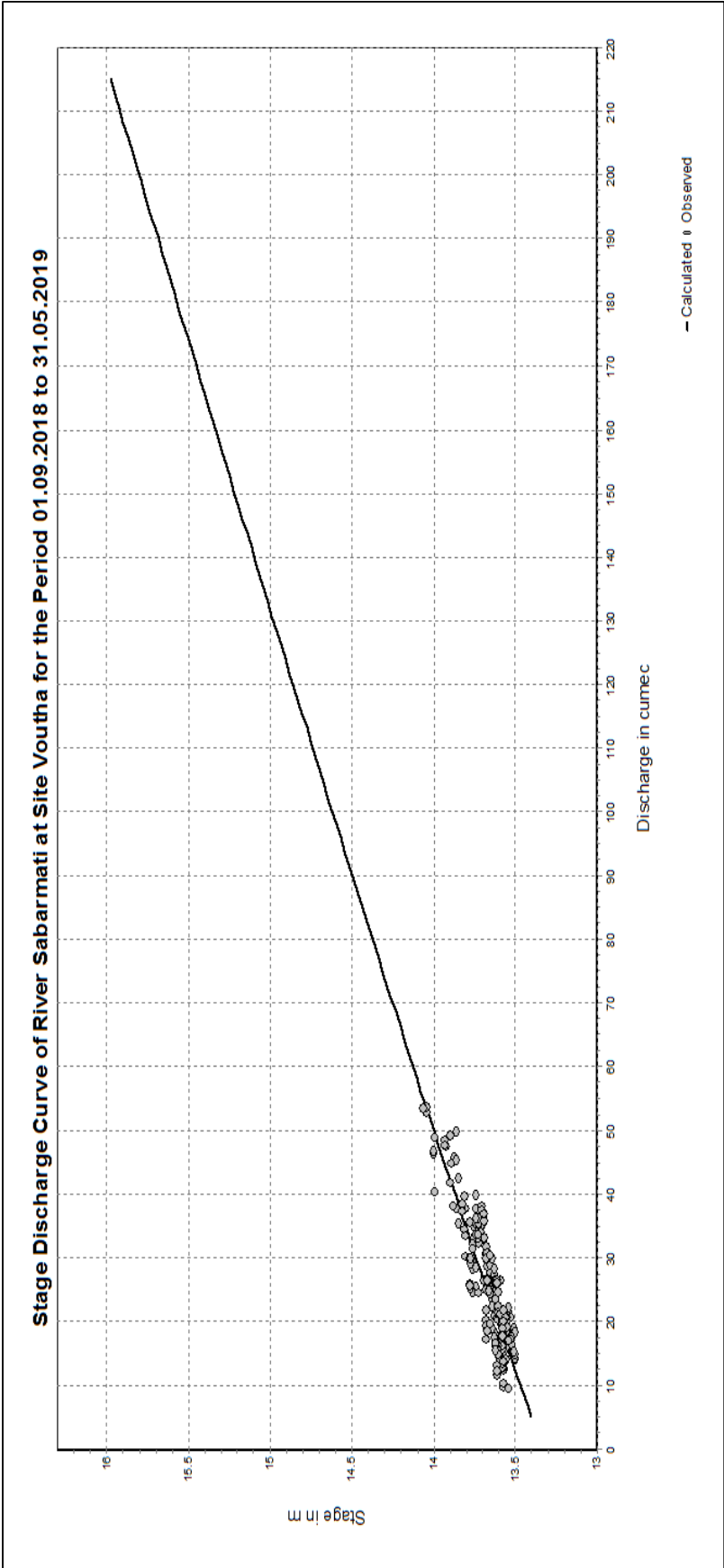


Procedure-Standard

Equation Type-Power

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

LB	UB	a	b	c
13.5	17	-12.77	2.003	19.783



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

LB	UB	a	b	c
13.4	16	-13.32	1.07	75.639

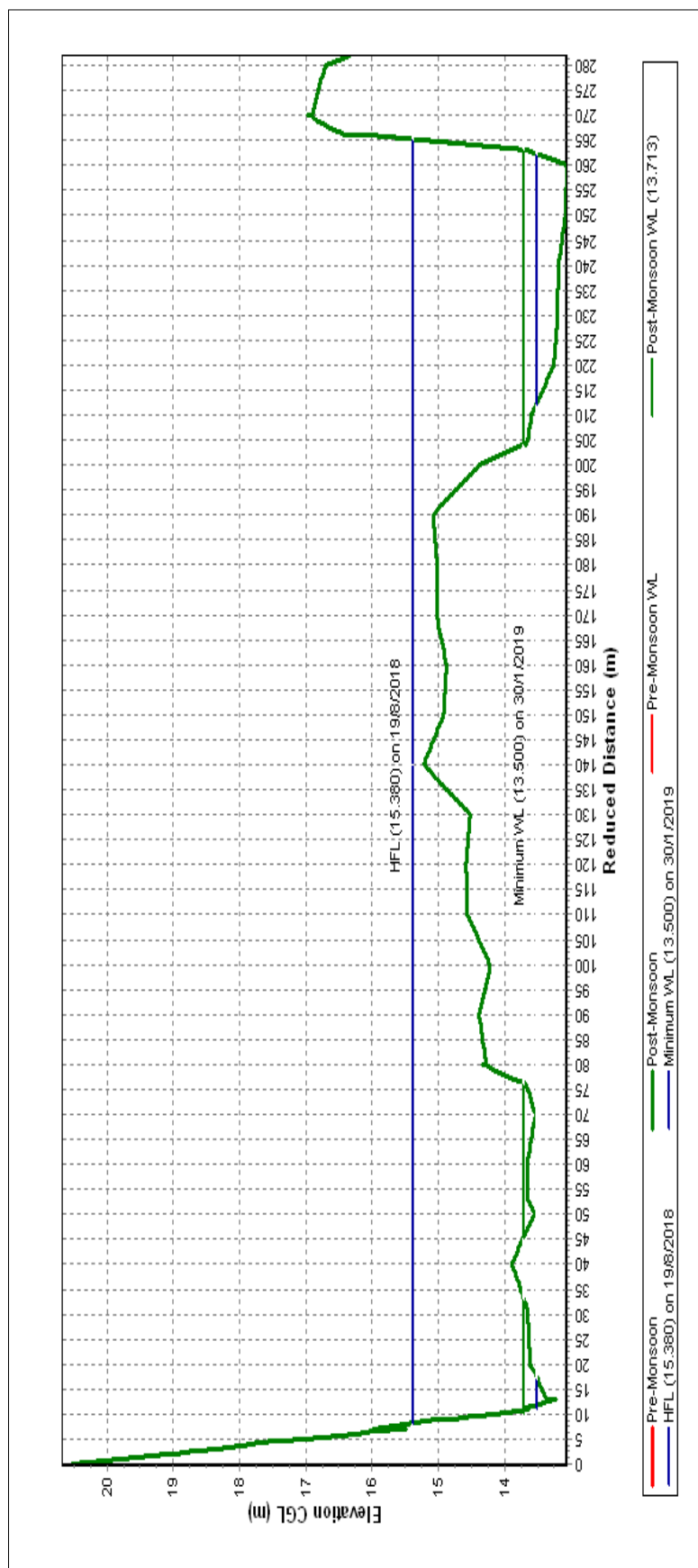
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 - 21.27m on 20.07.2017 at 0000 hrs

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

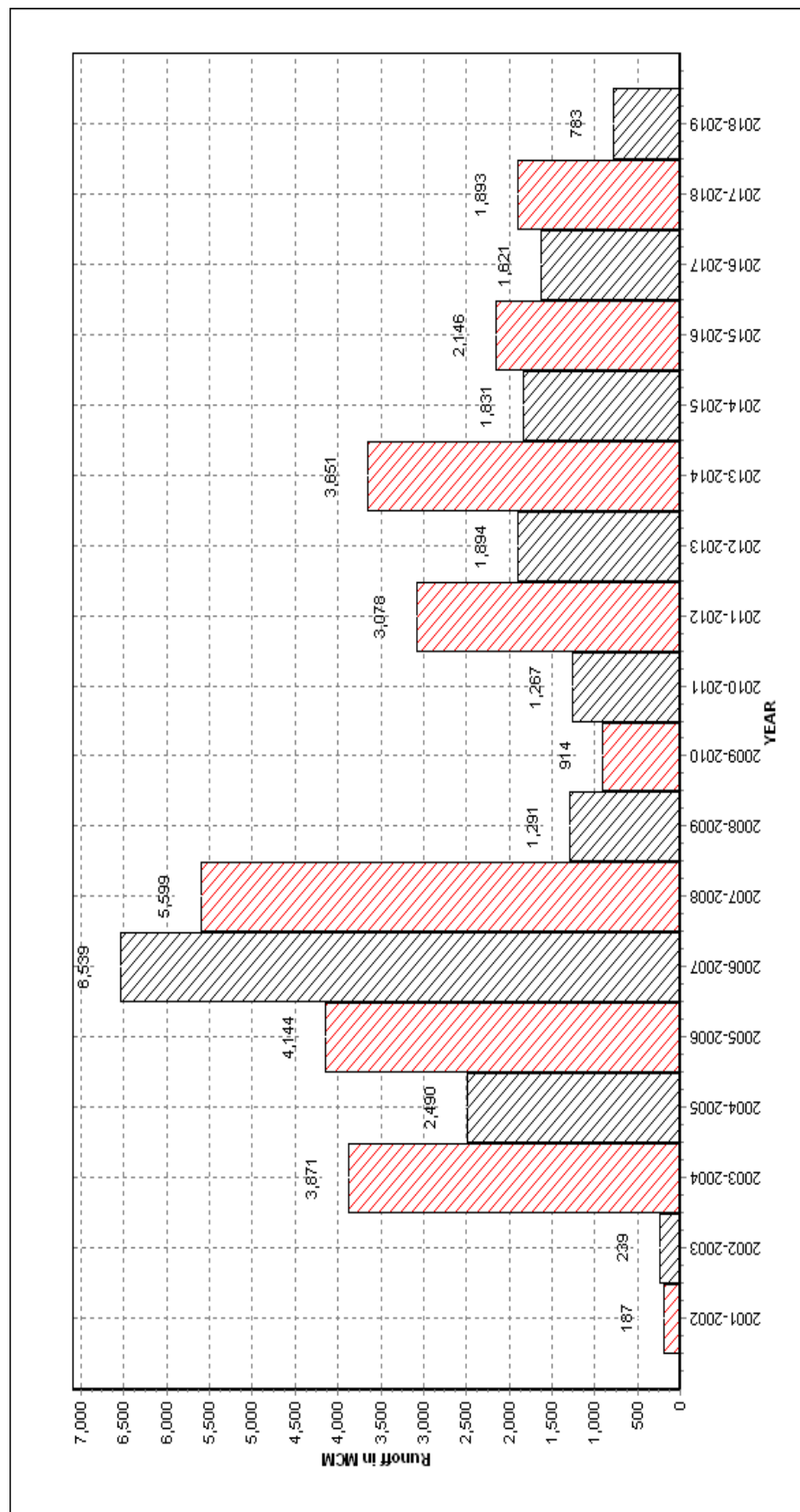
Annual Runoff Values for the period: 2001 - 2019

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

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

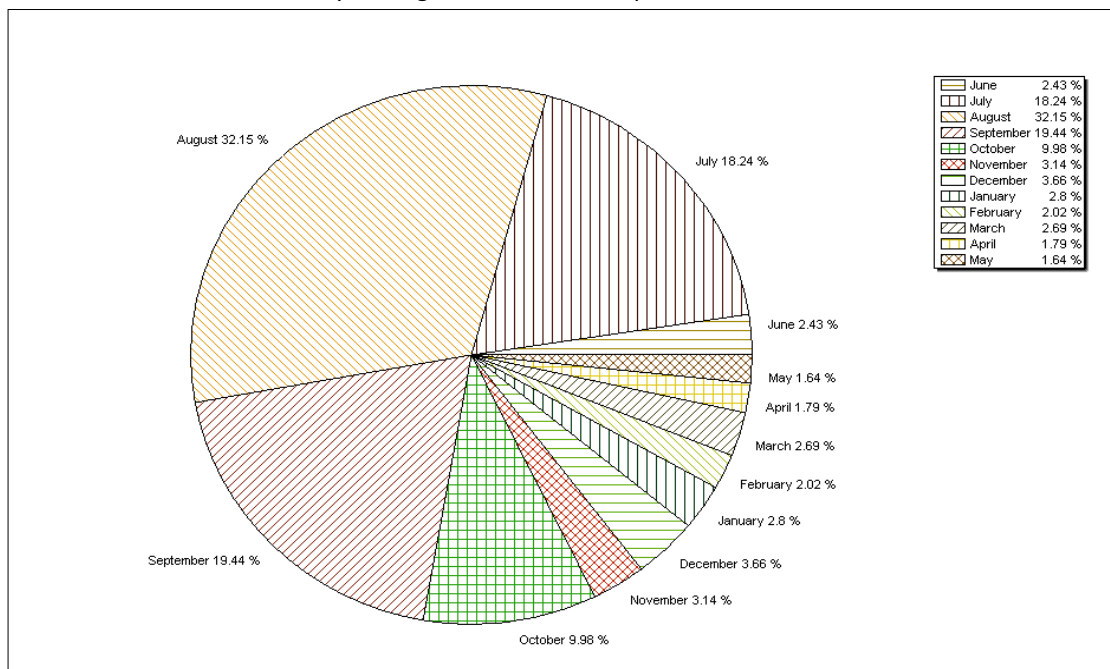


Note: Missing values have not been considered while arriving at Annual Runoff

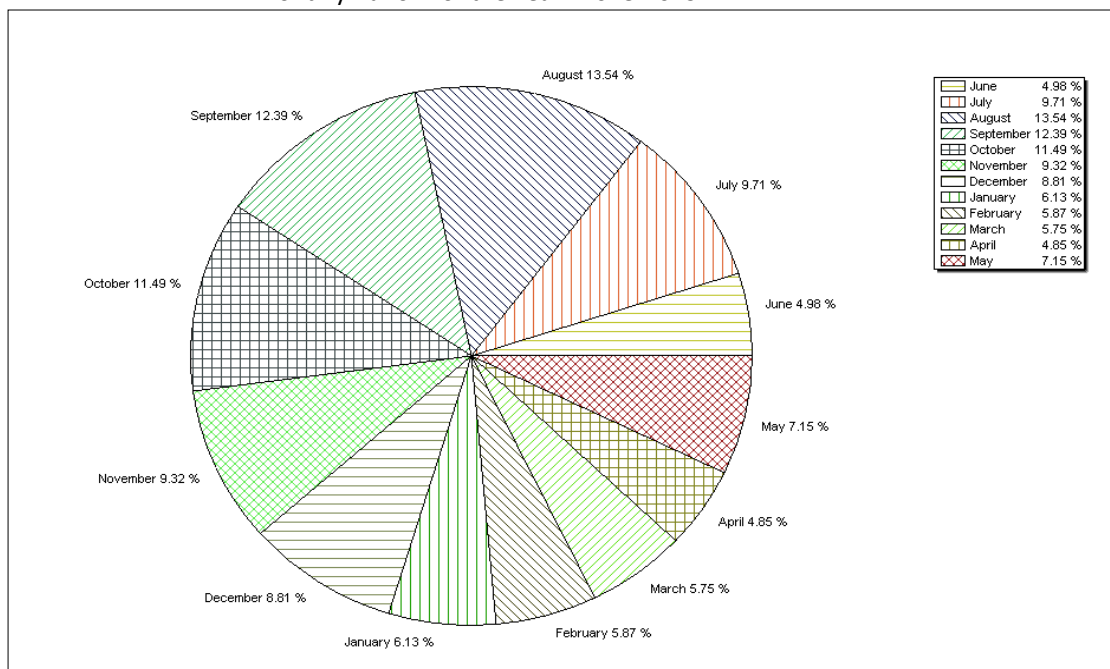
Station Name : Sabarmati at Voutha (01 02 12 013)
Local River : Sabarmati

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

Monthly Average Runoff based on period : 2001-2018



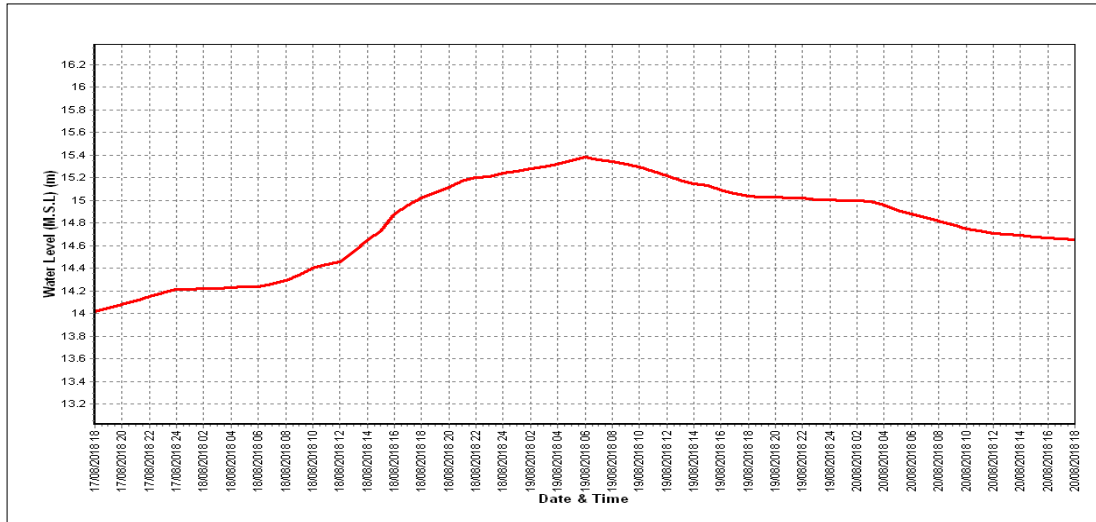
Monthly Runoff for the Year : 2018-2019



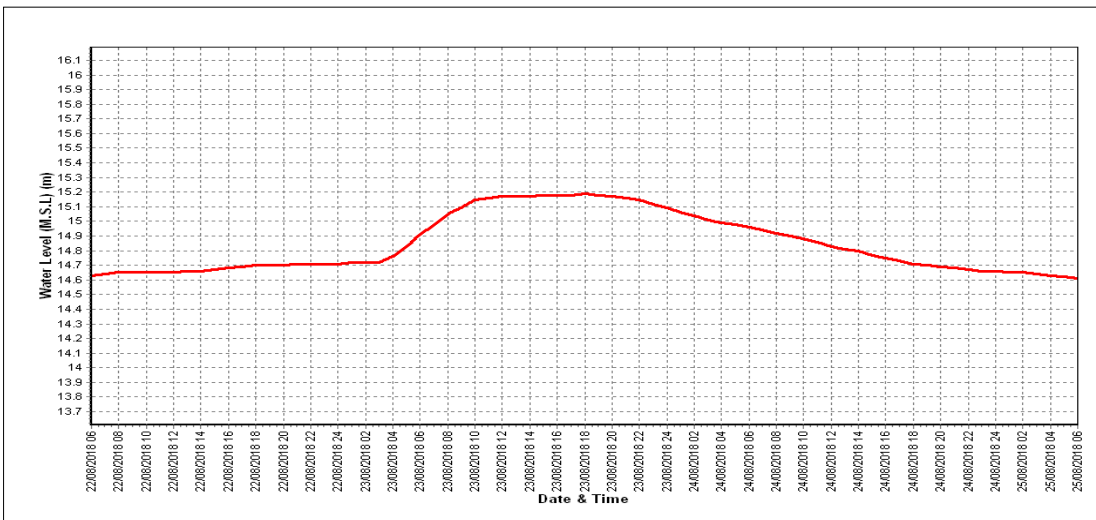
Station Name : Sabarmati at Voutha (01 02 12 013)
Local River : Sabarmati

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

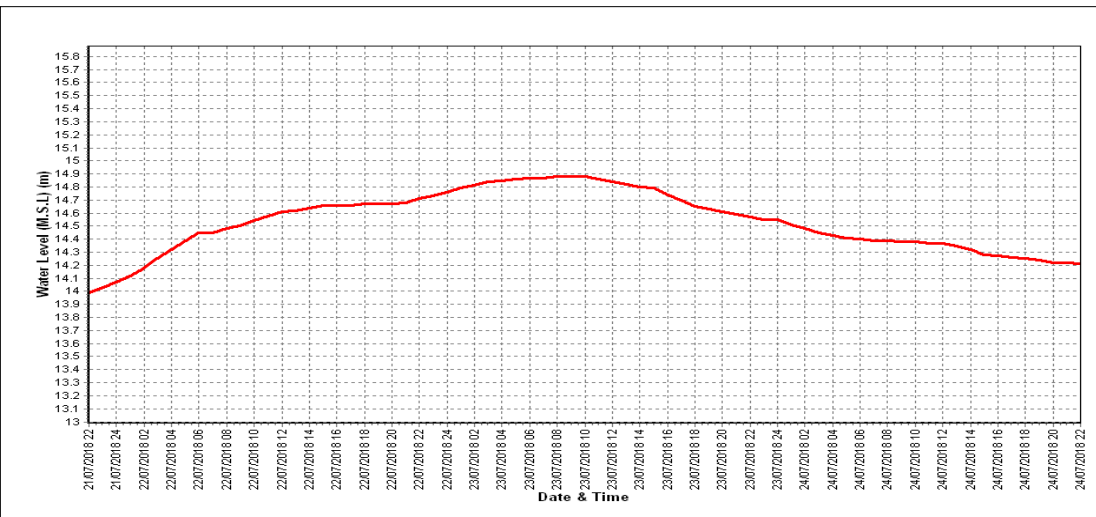
Water Level vs. Time - Graph of the Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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		
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	Date
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
2018-2019	23.78	19.470	23/07/2018	0.000	18.1	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	18.100	0.000	18.320	0.000	18.280	0.000	18.280	0.000	18.640	3.243	18.530	0.000
2	18.100	0.000	18.250	0.000	18.280	0.000	18.280	0.330 *	18.520	2.578	18.530	0.000
3	18.100	0.000	18.230	0.000	18.280	0.000	18.420	1.414 *	18.480	2.449	18.510	0.000
4	18.100	0.000	18.230	0.000	18.270	0.000	18.360	0.698	18.440	2.191	18.490	0.000
5	18.100	0.000	18.250	0.000	18.270	0.000	18.350	0.659	18.510	2.537	18.430	0.000
6	18.100	0.000	18.520	0.000	18.260	0.000	18.340	0.653	18.500	2.454	18.510	0.000
7	18.100	0.000	18.350	0.000	18.260	0.000	18.330	0.603	18.370	0.959 *	18.550	0.000
8	18.100	0.000	18.330	0.000	18.250	0.000	18.320	0.575	18.540	2.504	18.530	0.000
9	18.100	0.000	18.300	0.000	18.250	0.000	18.320	0.577 *	18.380	2.216 #	18.540	0.000
10	18.100	0.000	18.290	0.000	18.250	0.000	18.300	0.000	18.360	2.248 #	18.530	0.000
11	18.100	0.000	18.290	0.000	18.240	0.000	18.290	0.000	18.340	2.235 #	18.510	0.000
12	18.100	0.000	18.360	0.000	18.240	0.000	18.280	0.000	18.300	0.467	18.490	0.000
13	18.100	0.000	18.740	0.000	18.240	0.000	18.270	0.000	18.300	0.000	18.450	0.000
14	18.100	0.000	18.700	0.000	18.240	0.000	18.270	0.000	18.300	0.000	18.400	0.000
15	18.100	0.000	18.570	0.000	18.240	0.000	18.270	0.000	18.290	0.000	18.470	0.000
16	18.100	0.000	18.410	0.000	18.240	0.000	18.260	0.000	18.290	0.000	18.460	0.000
17	18.100	0.000	18.450	0.000	18.270	0.000	18.250	0.000	18.280	0.000	18.450	0.000
18	18.100	0.000	18.530	0.000	19.500	0.000	18.250	0.000	18.280	0.000	18.430	0.000
19	18.100	0.000	18.340	0.000	19.530	0.000	18.250	0.000	18.480	2.464	18.530	0.000
20	18.100	0.000	18.390	0.000	19.180	0.000	18.250	0.000	18.520	3.392	18.520	0.000
21	18.100	0.000	18.360	0.000	19.180	0.000	18.240	0.000	18.520	2.523 *	18.510	0.000
22	18.100	0.000	19.450	0.000	19.160	0.000	18.240	0.000	18.730	4.595	18.490	0.000
23	18.100	0.000	19.470	23.78	19.660	0.000	18.270	0.000	18.600	4.022	18.430	0.000
24	18.190	0.000	18.960	9.536	19.230	0.000	18.270	0.000	18.590	3.598	18.400	0.000
25	18.190	0.000	18.820	13.32 #	19.080	0.000	18.390	0.000	18.600	4.062	18.370	0.000
26	18.190	0.000	18.550	2.668	18.970	0.000	18.510	0.000	18.500	2.946	18.320	0.000
27	18.242	0.000	18.450	1.874	18.880	0.000	18.890	18.48 #	18.550	3.064	18.290	0.000
28	18.650	0.000	18.390	0.832	18.750	0.000	18.770	18.41 #	18.560	3.035 *	18.280	0.000
29	18.600	0.000	18.340	0.720 *	18.630	0.000	18.800	22.25 #	18.570	3.365	18.210	0.000
30	18.460	0.000	18.290	0.457	18.450	0.000	18.730	3.646	18.560	3.147	18.190	0.000
31			18.280	0.284	18.280	0.000			18.530	2.688		
Ten-Daily Mean												
I Ten-Daily	18.100	0.000	18.307	0.000	18.265	0.000	18.330	0.551	18.474	2.338	18.515	0.000
II Ten-Daily	18.100	0.000	18.478	0.000	18.592	0.000	18.264	0.000	18.338	0.856	18.471	0.000
III Ten-Daily	18.282	0.000	18.669	4.861	18.934	0.000	18.511	6.279	18.574	3.368	18.349	0.000
Monthly												
Min.	18.100	0.000	18.230	0.000	18.240	0.000	18.240	0.000	18.280	0.000	18.190	0.000
Max.	18.650	0.000	19.470	23.78	19.660	0.000	18.890	22.25	18.730	4.595	18.550	0.000
Mean	18.161	0.000	18.491	1.725	18.608	0.000	18.368	2.277	18.465	2.225	18.445	0.000

Annual Runoff in MCM = 16 Annual Runoff in mm = 2

Peak Observed Discharge = 23.78 cumecs on 23/07/2018 Corres. Water Level :19.47 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018 Corres. Water Level :18.1 m

River was in pooling condition from 01/06/2018 to 22/07/2018, 01/08/2018 to 03/09/2018, 10/09/2018 to 26/09/2018, 13/10/2018 to 18/10/2018 and 01/11/2018 to 31/05/2019

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 2018 - 2019

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	18.180	0.000	18.160	0.000	18.170	0.000	18.170	0.000	18.230	0.000	18.180	0.000
2	18.170	0.000	18.190	0.000	18.170	0.000	18.170	0.000	18.240	0.000	18.180	0.000
3	18.170	0.000	18.190	0.000	18.170	0.000	18.170	0.000	18.240	0.000	18.180	0.000
4	18.160	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.240	0.000	18.180	0.000
5	18.550	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.230	0.000	18.170	0.000
6	18.540	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.230	0.000	18.170	0.000
7	18.440	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.230	0.000	18.170	0.000
8	18.370	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.230	0.000	18.170	0.000
9	18.280	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.220	0.000	18.170	0.000
10	18.230	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.220	0.000	18.170	0.000
11	18.250	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.220	0.000	18.170	0.000
12	18.310	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.210	0.000	18.230	0.000
13	18.310	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.210	0.000	18.220	0.000
14	18.390	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.220	0.000
15	18.370	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.220	0.000
16	18.340	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.220	0.000
17	18.330	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.210	0.000
18	18.310	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.210	0.000
19	18.280	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.210	0.000
20	18.270	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.200	0.000	18.200	0.000
21	18.230	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.200	0.000
22	18.200	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.200	0.000
23	18.180	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.200	0.000
24	18.180	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.200	0.000
25	18.170	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.200	0.000
26	18.170	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.200	0.000
27	18.170	0.000	18.170	0.000	18.170	0.000	18.170	0.000	18.190	0.000	18.190	0.000
28	18.170	0.000	18.170	0.000	18.170	0.000	18.220	0.000	18.190	0.000	18.190	0.000
29	18.170	0.000	18.170	0.000			18.230	0.000	18.190	0.000	18.190	0.000
30	18.170	0.000	18.170	0.000			18.230	0.000	18.180	0.000	18.190	0.000
31	18.160	0.000	18.170	0.000			18.230	0.000			18.190	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	18.309	0.000	18.180	0.000	18.170	0.000	18.170	0.000	18.231	0.000	18.174	0.000
II Ten-Daily	18.316	0.000	18.177	0.000	18.170	0.000	18.170	0.000	18.204	0.000	18.211	0.000
III Ten-Daily	18.179	0.000	18.170	0.000	18.170	0.000	18.191	0.000	18.189	0.000	18.195	0.000
<u>Monthly</u>												
Min.	18.160	0.000	18.160	0.000	18.170	0.000	18.170	0.000	18.180	0.000	18.170	0.000
Max.	18.550	0.000	18.190	0.000	18.170	0.000	18.230	0.000	18.240	0.000	18.230	0.000
Mean	18.265	0.000	18.175	0.000	18.170	0.000	18.177	0.000	18.208	0.000	18.194	0.000

Peak Computed Discharge = 3.035 cumecs on 28/10/2018

Corres. Water Level :18.56 m

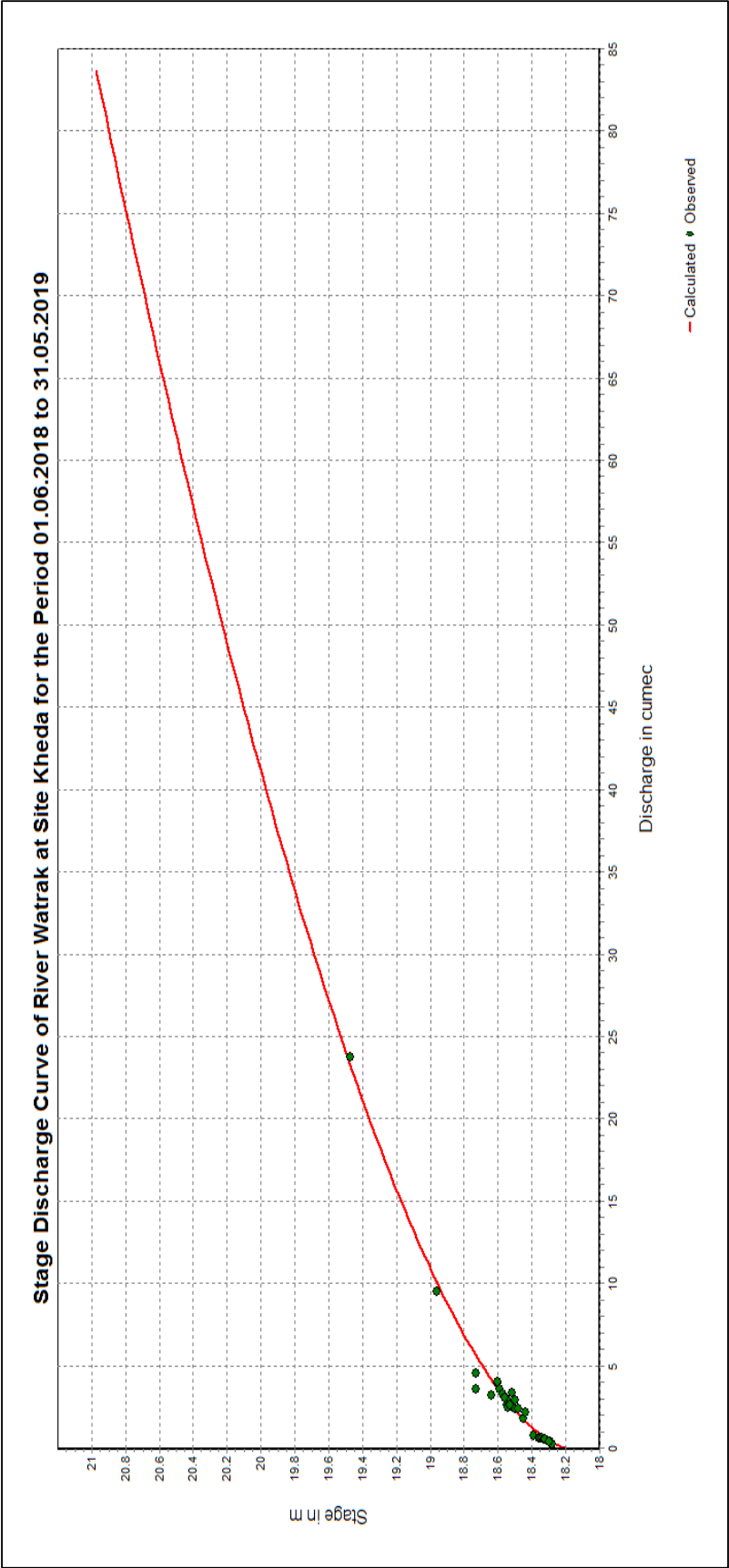
Lowest Computed Discharge = 0.330 cumecs on 02/09/2018

Corres. Water Level :18.28 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
18.2	21	-18.18	1.663	15.172

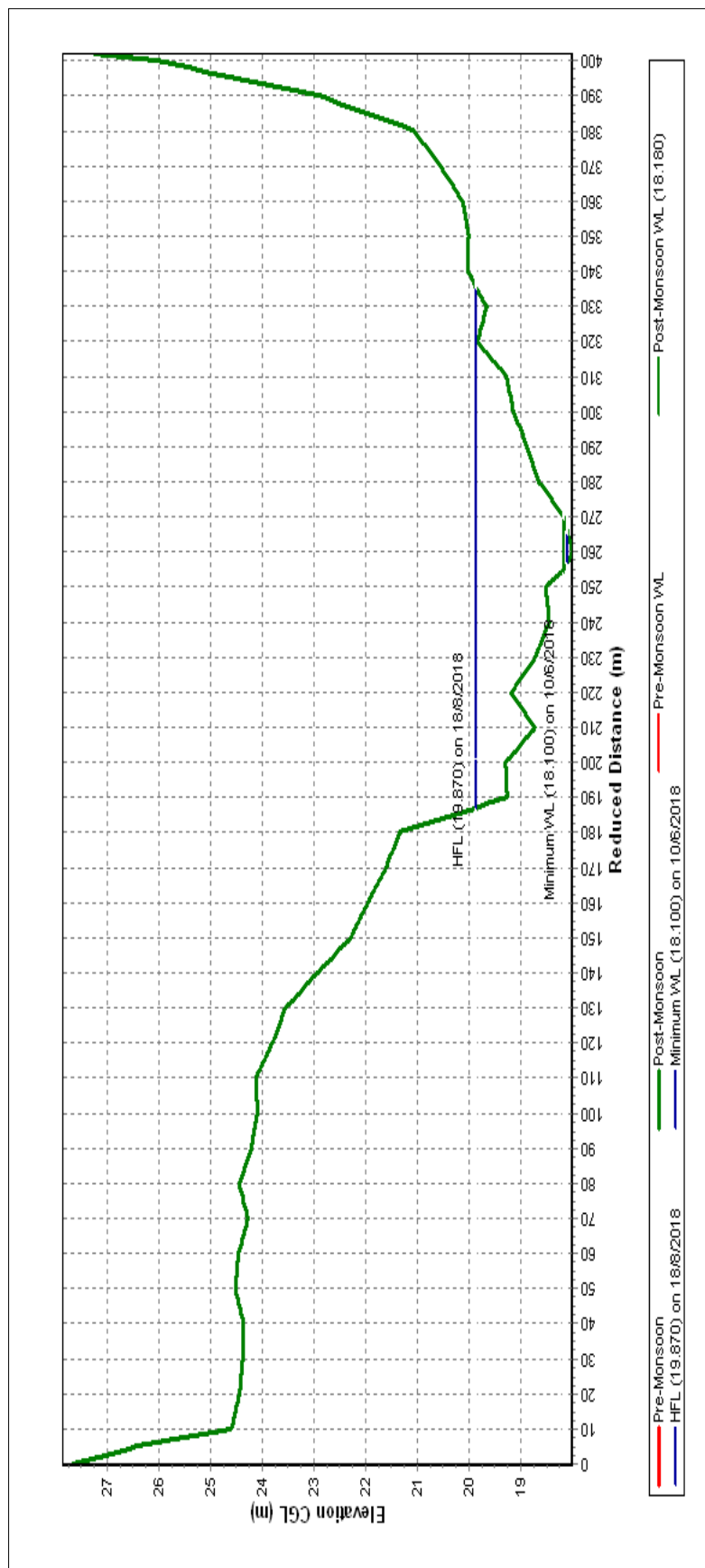
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 2018-2019

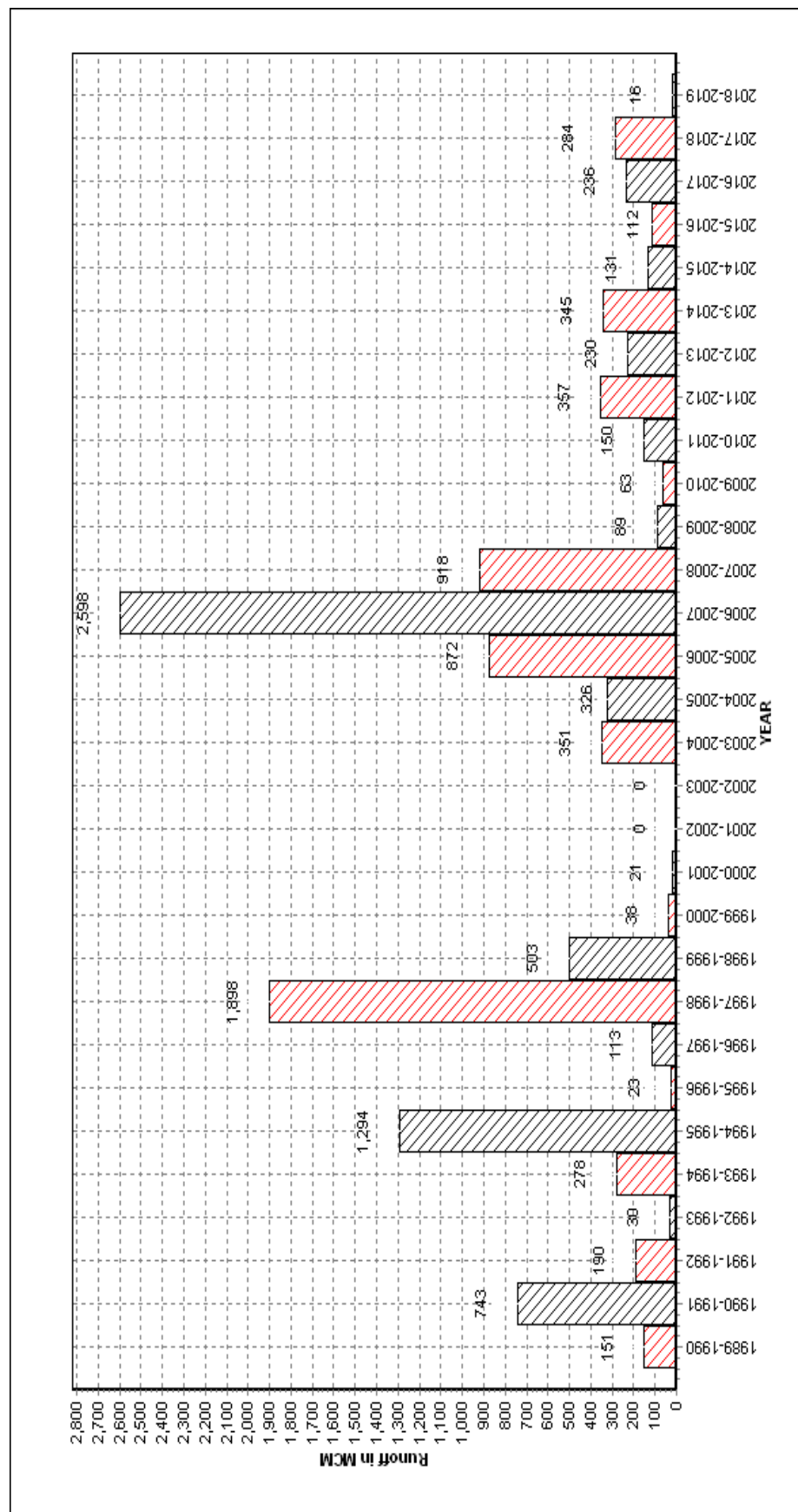
Annual Runoff Values for the period: 1989 - 2019

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

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

Monthly Average Runoff based on period : 1989-2018

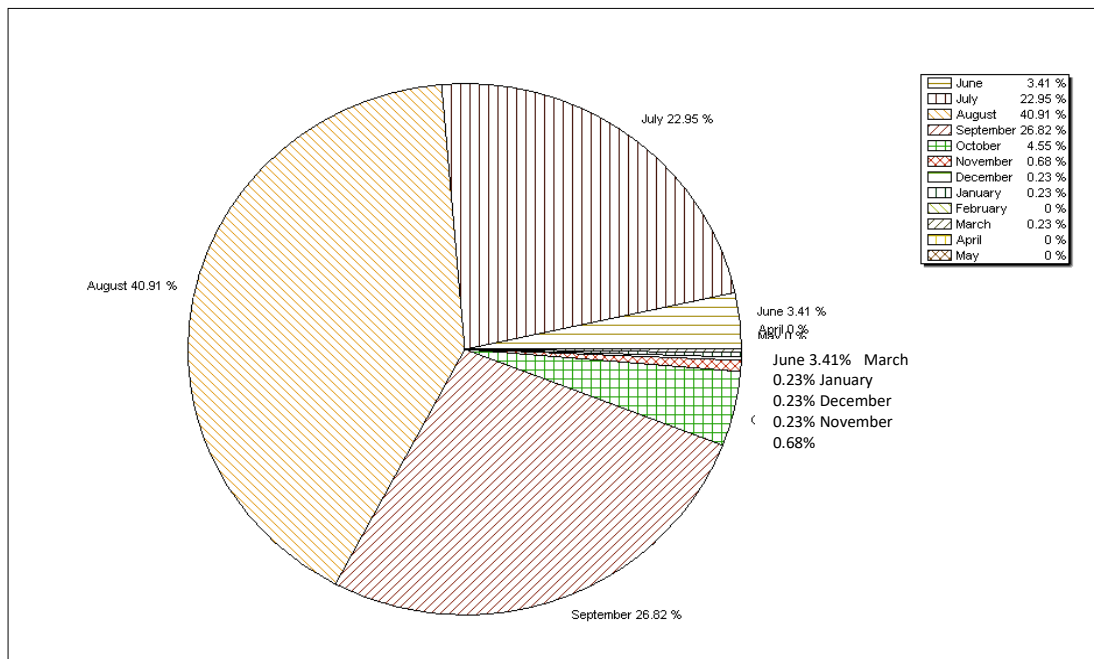
Station Name : Watrak at Kheda (01 02 12 012)

Division : Mahi Division, Gandhinagar

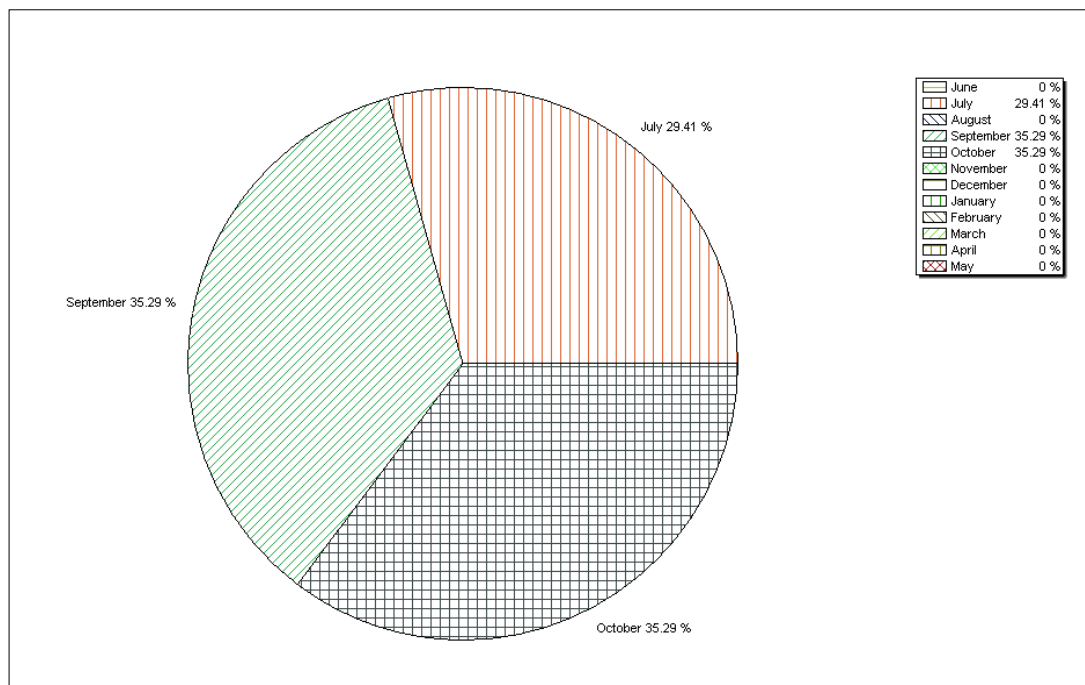
Local River : Watrak

Sub-Division : Sabarmati Sub Divn., Ahmedabad

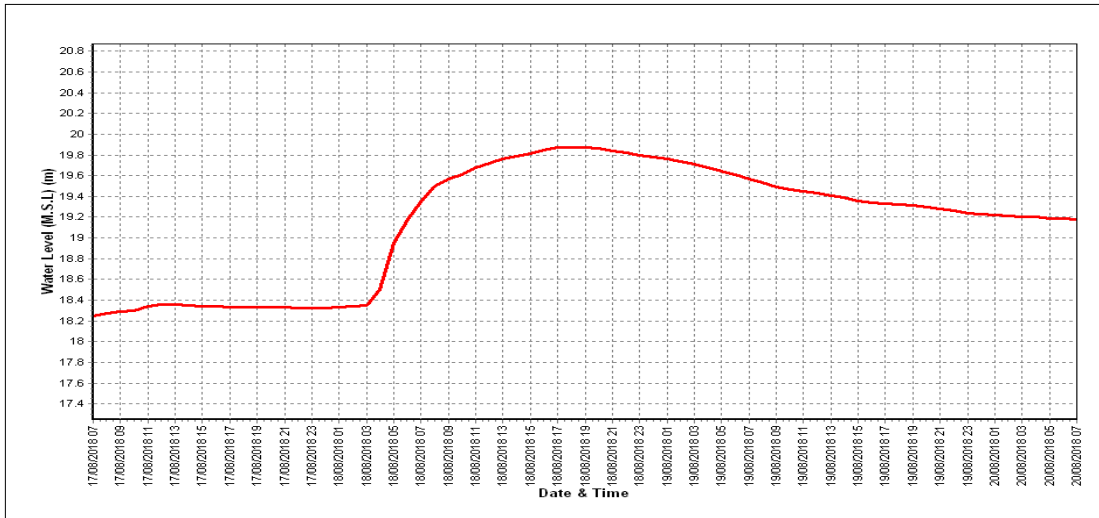
Monthly Average Runoff based on period : 1989-2019



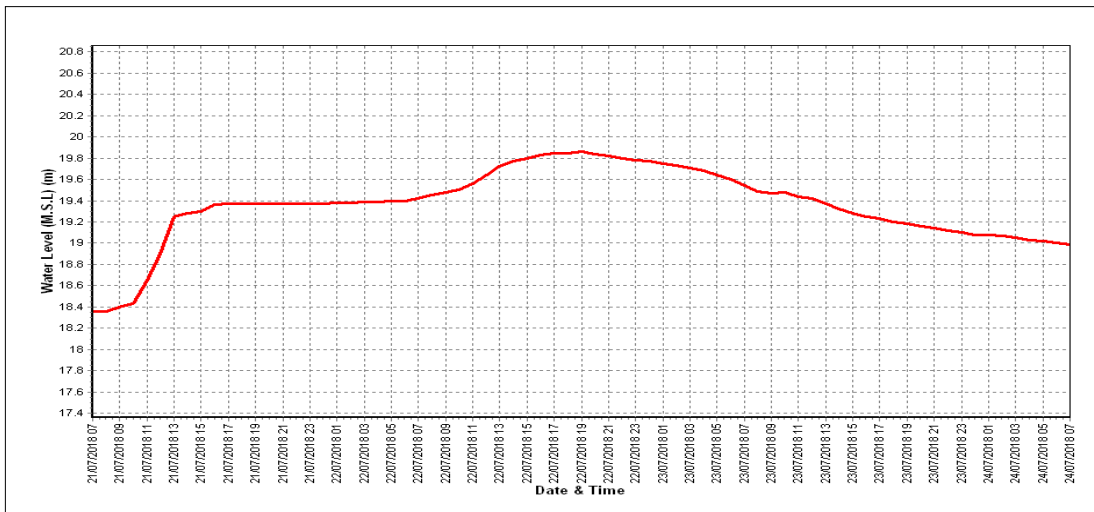
Monthly Runoff for the Year : 2018-2019



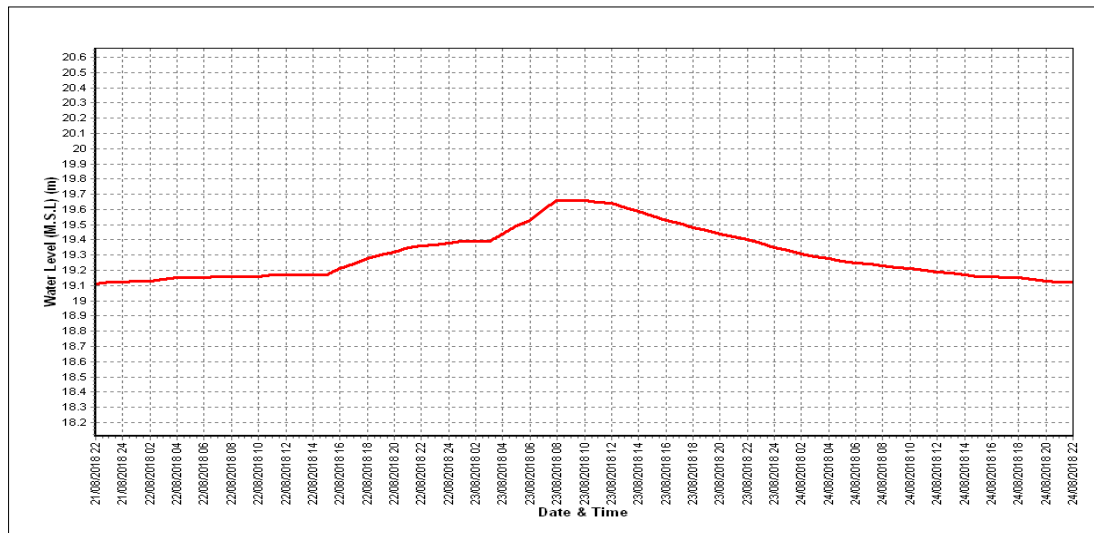
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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
2018-2019	24.53	37.650	26/09/2018	0.000	River Dry	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	37.020	1.533 *	37.280	10.72	37.190	7.982	36.760	0.000
2	R. Dry	0.000	R. Dry	0.000	37.010	1.214 *	37.180	6.856 *	37.160	6.176 *	36.760	0.000
3	R. Dry	0.000	R. Dry	0.000	37.010	1.214 *	37.160	6.176 *	37.140	4.637	36.740	0.000
4	R. Dry	0.000	R. Dry	0.000	37.010	1.214 *	37.130	5.162 *	37.100	3.046	36.730	0.000
5	R. Dry	0.000	R. Dry	0.000	37.000	0.899 *	37.110	4.490 *	37.070	2.569	36.730	0.000
6	R. Dry	0.000	R. Dry	0.000	37.000	0.899 *	37.100	4.156 *	37.020	2.237	36.720	0.000
7	R. Dry	0.000	R. Dry	0.000	37.000	0.899 *	37.080	3.491 *	37.000	0.899 *	36.720	0.000
8	R. Dry	0.000	R. Dry	0.000	37.000	0.899 *	37.080	3.491 *	36.990	0.589 *	36.710	0.000
9	R. Dry	0.000	R. Dry	0.000	37.000	0.899 *	37.060	2.831 *	36.970	0.000	36.700	0.000
10	R. Dry	0.000	R. Dry	0.000	36.990	0.589 *	37.060	2.831 *	36.950	0.000	36.700	0.000
11	R. Dry	0.000	R. Dry	0.000	36.990	0.589 *	37.050	2.503 *	36.920	0.000	36.700	0.000
12	R. Dry	0.000	R. Dry	0.000	36.990	0.589 *	37.040	2.178 *	36.900	0.000	36.700	0.000
13	R. Dry	0.000	R. Dry	0.000	36.990	0.589 *	37.030	1.854 *	36.880	0.000	36.690	0.000
14	R. Dry	0.000	R. Dry	0.000	36.980	0.286 *	37.030	1.854 *	36.870	0.000	36.690	0.000
15	R. Dry	0.000	R. Dry	0.000	36.980	0.286 *	37.020	1.533 *	36.860	0.000	36.690	0.000
16	R. Dry	0.000	R. Dry	0.000	36.980	0.286 *	37.020	1.533 *	36.840	0.000	36.680	0.000
17	R. Dry	0.000	R. Dry	0.000	36.980	0.286 *	37.020	1.533 *	36.830	0.000	36.680	0.000
18	R. Dry	0.000	R. Dry	0.000	37.200	7.539 *	37.010	1.214 *	36.820	0.000	36.680	0.000
19	R. Dry	0.000	R. Dry	0.000	37.300	10.99 *	37.000	0.899 *	36.820	0.000	36.680	0.000
20	R. Dry	0.000	37.050	2.503 *	37.200	7.539 *	36.980	0.286 *	36.810	0.000	36.670	0.000
21	R. Dry	0.000	37.900	32.42 *	37.150	5.837 *	36.980	0.286 *	36.810	0.000	36.670	0.000
22	R. Dry	0.000	38.350	48.95 *	37.180	6.856 *	36.950	0.000	36.800	0.000	36.660	0.000
23	R. Dry	0.000	37.590	5.074 #	37.210	7.882 *	36.940	0.000	36.800	0.000	36.660	0.000
24	R. Dry	0.000	37.300	1.824 #	37.230	8.569 *	37.020	1.533 *	36.790	0.000	36.660	0.000
25	R. Dry	0.000	37.290	10.64 *	37.230	8.569 *	37.650	20.28	36.790	0.000	36.650	0.000
26	R. Dry	0.000	37.180	6.856 *	37.190	7.197 *	37.650	24.53	36.780	0.000	36.650	0.000
27	R. Dry	0.000	37.140	5.500 *	37.160	6.176 *	37.510	23.36	36.780	0.000	36.650	0.000
28	R. Dry	0.000	37.110	4.490 *	37.130	5.162 *	37.360	15.06	36.780	0.000	36.650	0.000
29	R. Dry	0.000	37.090	3.823 *	37.080	3.491 *	37.260	8.018	36.770	0.000	36.650	0.000
30	R. Dry	0.000	37.070	3.160 *	37.100	4.156 *	37.230	8.569 *	36.770	0.000	36.640	0.000
31	R. Dry	0.000	37.040	2.178 *	37.380	14.64			36.770	0.000		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	R. Dry	0.000	37.004	1.026	37.124	5.020	37.059	3.517	36.727	0.000
II Ten-Daily	R. Dry	0.000	37.050	2.503	37.059	2.898	37.020	1.539	36.855	0.000	36.686	0.000
III Ten-Daily	R. Dry	0.000	37.369	11.36	37.185	7.140	37.255	12.70	36.785	0.000	36.654	0.000
Monthly												
Min.	R. Dry	0.000	37.040	1.824	36.980	0.286	36.940	0.286	36.770	0.589	36.640	0.000
Max.	R. Dry	0.000	38.350	48.95	37.380	14.64	37.650	24.53	37.190	7.982	36.760	0.000
Mean	R. Dry	0.000	37.342	10.62	37.086	3.799	37.133	5.972	36.896	3.517	36.689	0.000

Annual Runoff in MCM = 38 Annual Runoff in mm = 13

Peak Observed Discharge = 24.53 cumecs on 26/09/2018 Corres. Water Level :37.65 m

Lowest Observed Discharge = 1.824 cumecs on 24/07/2018 Corres. Water Level :37.3 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 2018 - 2019

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	36.640	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	36.630	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	36.630	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	36.630	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	36.630	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	36.620	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	36.620	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	36.620	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	36.620	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	36.620	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	36.610	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	36.610	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	36.610	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	36.626	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	10.983	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.	0.000	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	36.640	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	15.358	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 = 48.95 cumecs on 22/07/2018

Corres. Water Level :38.35 m

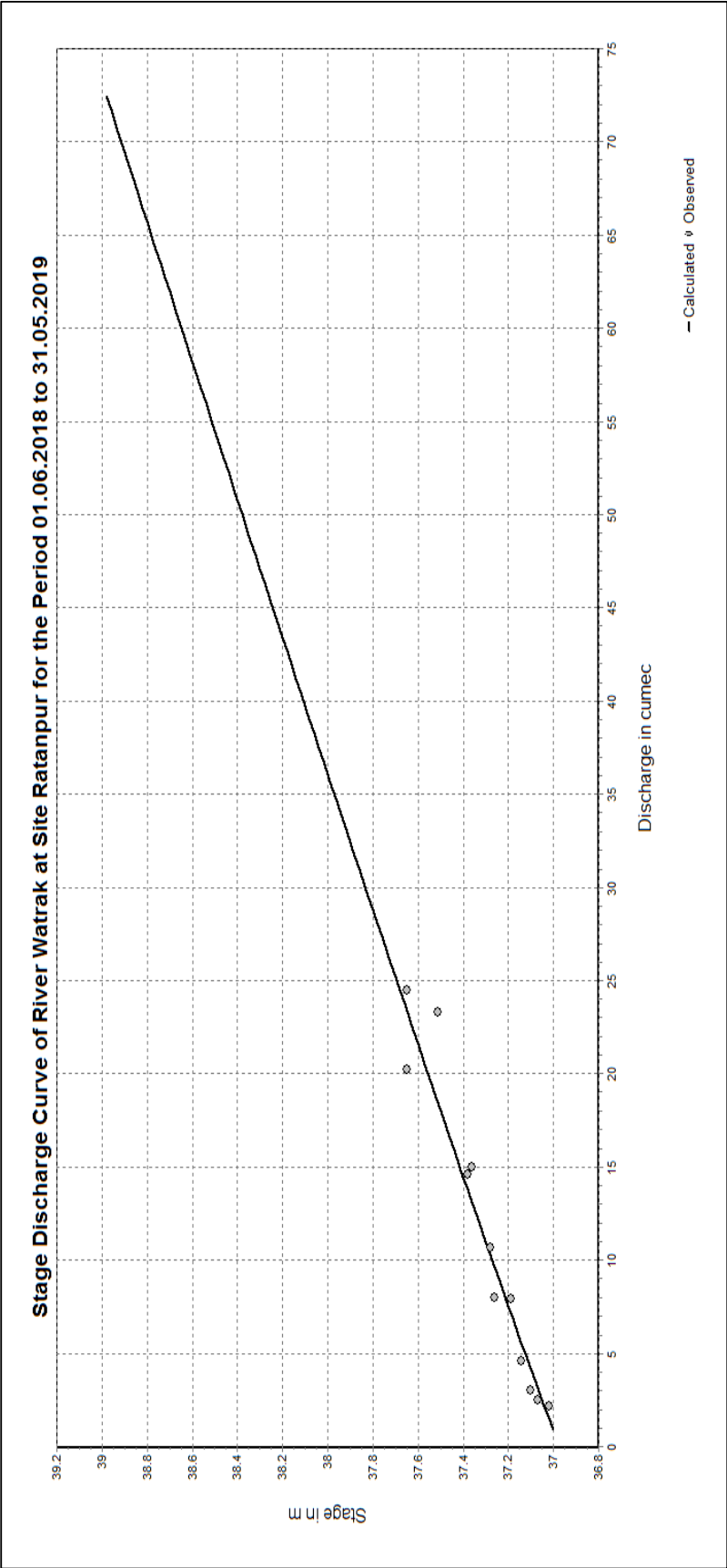
Lowest Computed Discharge = 0.286 cumecs on 14/08/2018

Corres. Water Level :36.98 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
37	39	-36.97	1.044	34.969

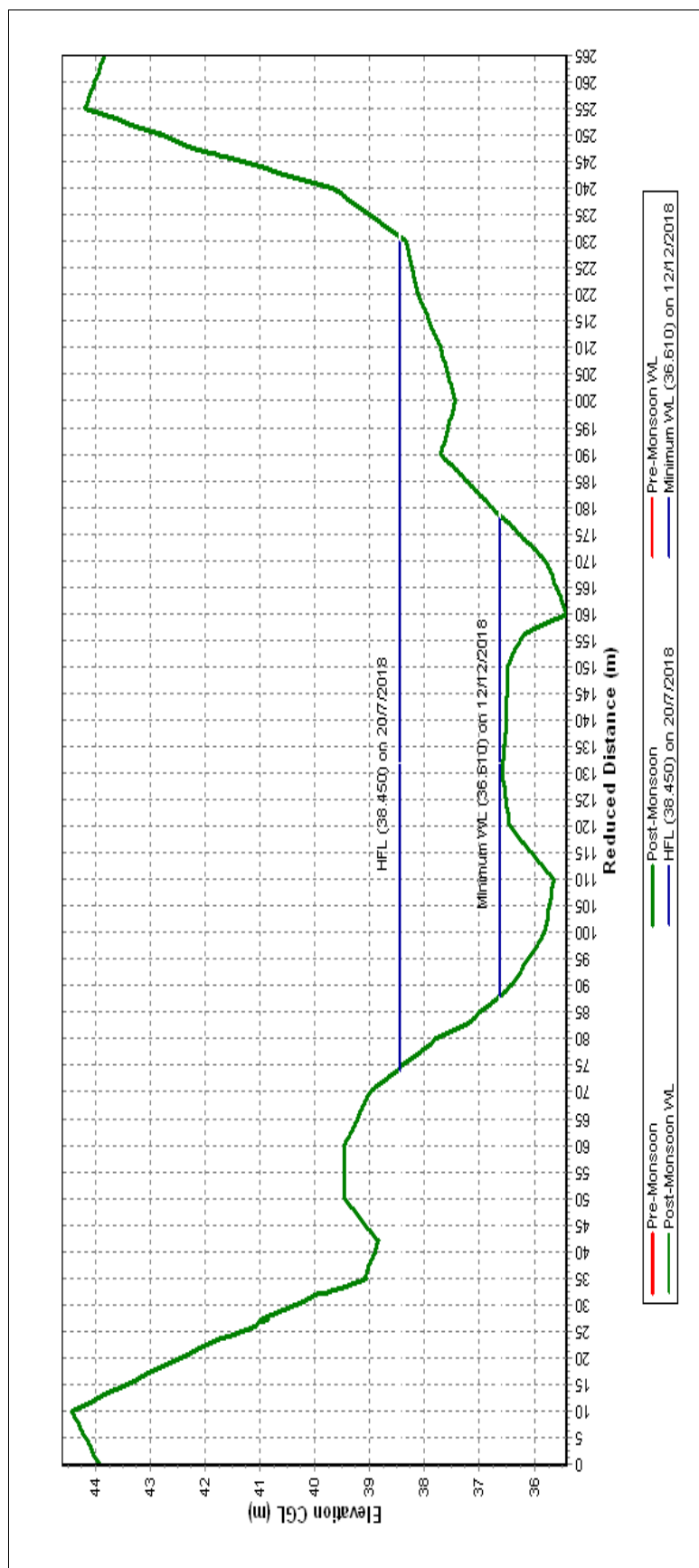
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Watrak

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



Historic Flood Level - 48.200m on 28.07.1997 at 0200 hrs

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

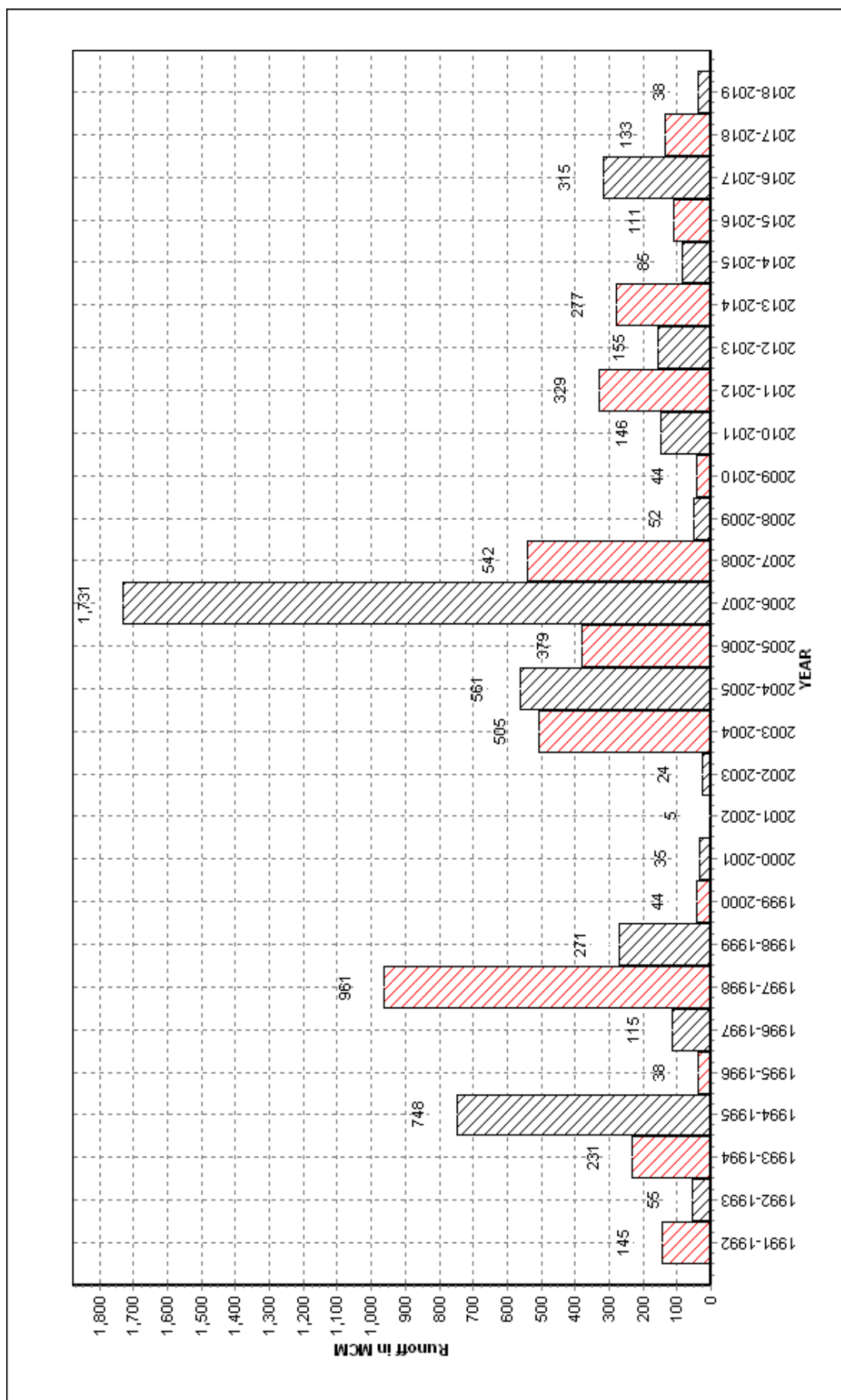
Annual Runoff Values for the period: 1991 - 2019

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

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

Local River : Watrak

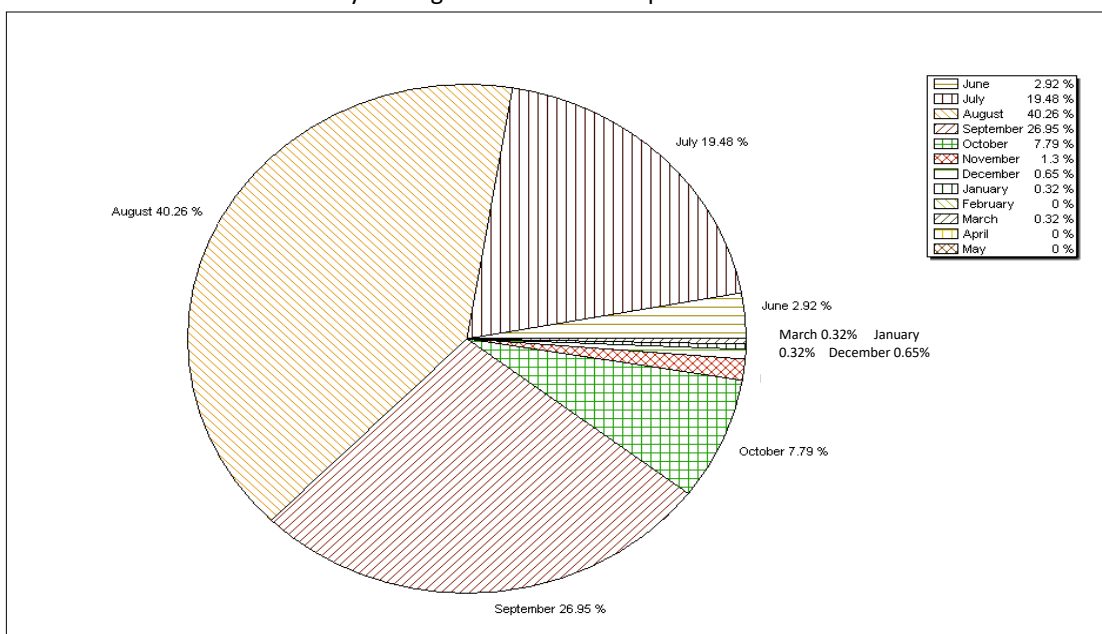


Note: Missing values have not been considered while arriving at Annual Runoff

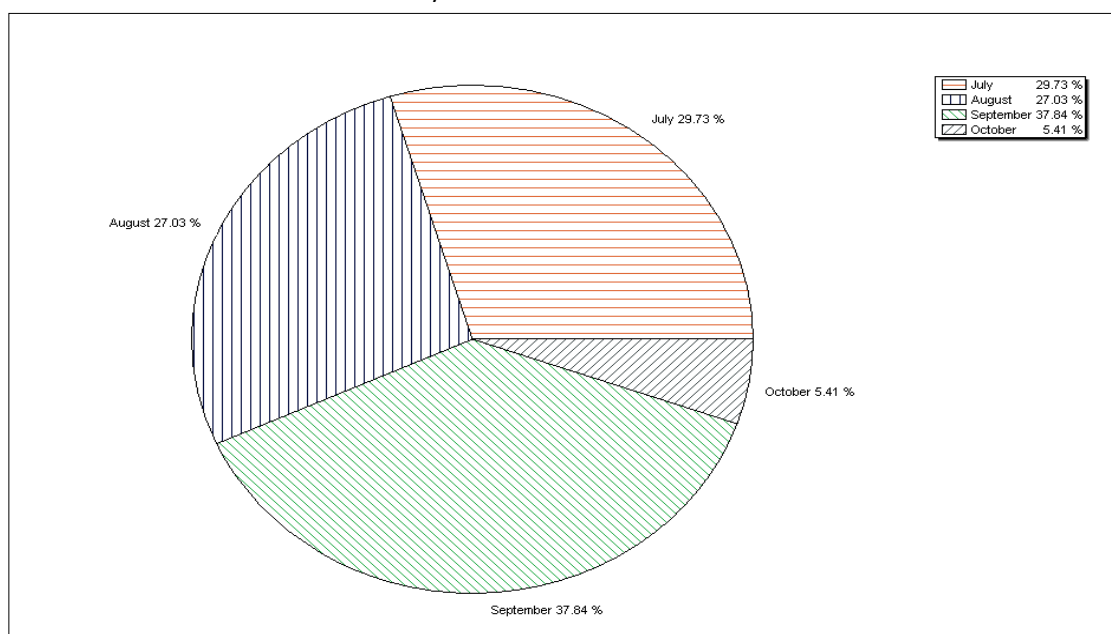
Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)
Local River : Watrak

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

Monthly Average Runoff based on period : 1991-2018



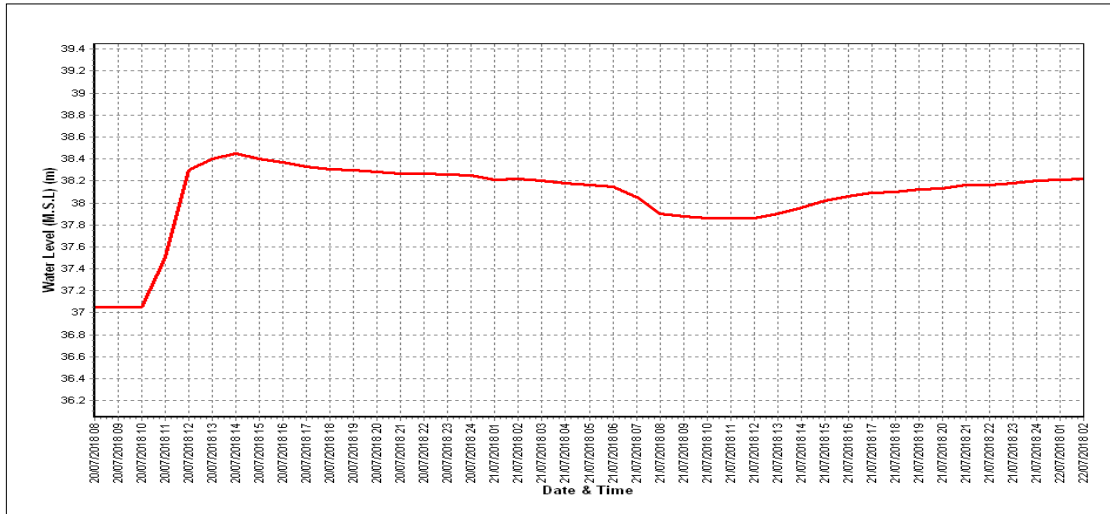
Monthly Runoff for the Year : 2018-2019



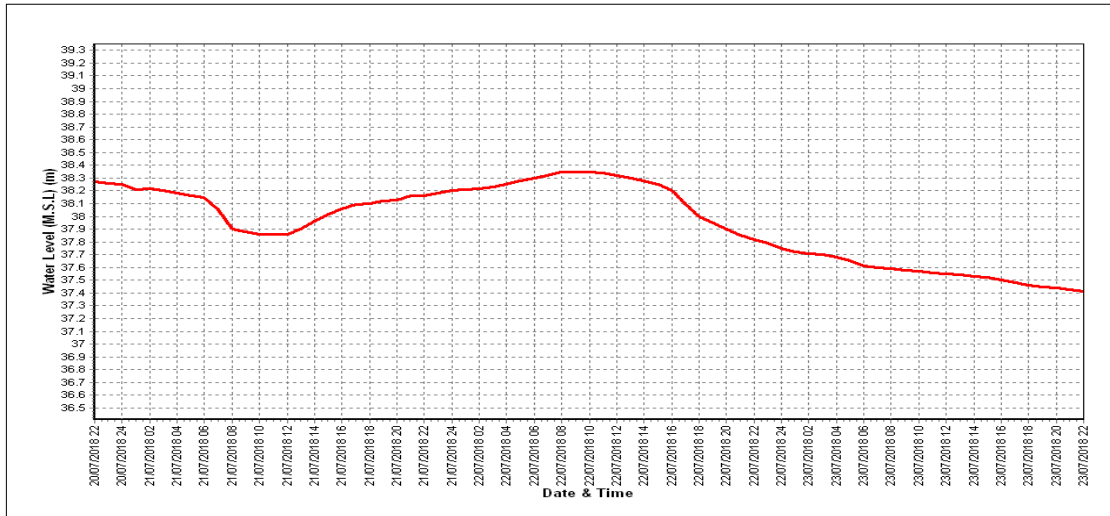
Station Name : Watrak at Gadvel (Ratanpur) (01 02 12 010)
Local River : Watrak

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

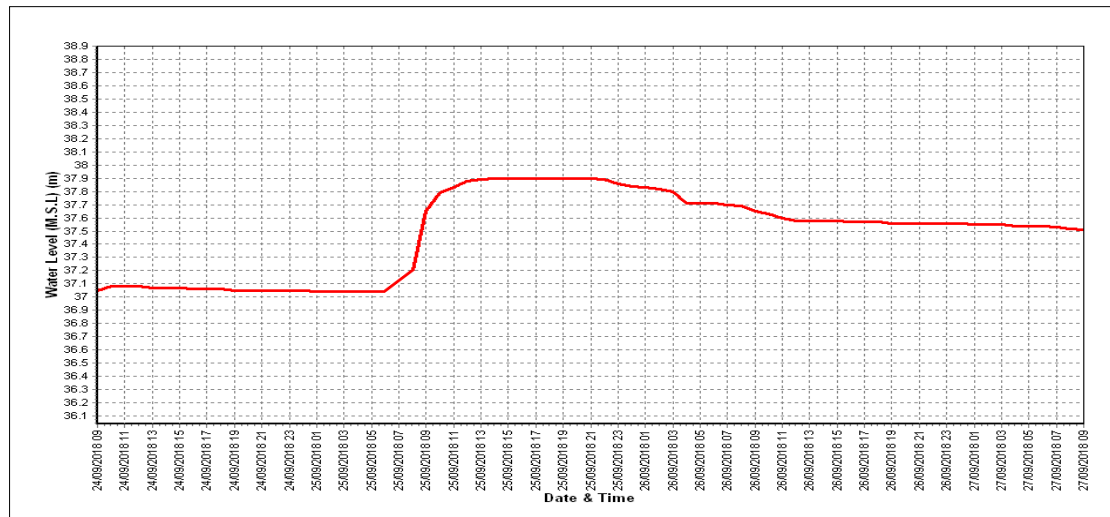
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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
Gauge : 19/08/1980

Closing Date

Discharge : 01/06/1991

Sediment : 25/09/1992

Water
Quality : 15/07/1992

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

Year	Maximum			Minimum		Date
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	
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
2018-2019	25.45	87.775	24/09/2018	0.000	87.010	29/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	87.180	2.539 *	87.000	0.000	87.090	1.262 *	87.110	1.503 *	87.070	1.044 *	R. Dry	0.000
2	87.180	2.539 *	87.000	0.000	87.075	1.096 *	87.100	1.379 *	87.070	1.044 *	R. Dry	0.000
3	87.180	2.539 *	87.000	0.457 *	87.065	0.993 *	87.100	1.379 *	87.060	0.943 *	R. Dry	0.000
4	87.180	2.539 *	87.000	0.457 *	87.060	0.943 *	87.100	1.379 *	87.060	0.943 *	R. Dry	0.000
5	87.180	2.539 *	87.020	0.597 *	87.050	0.848 *	87.100	1.379 *	87.050	0.848 *	R. Dry	0.000
6	87.170	2.372 *	87.050	0.848 *	87.040	0.759 *	87.100	1.379 *	87.050	0.848 *	R. Dry	0.000
7	87.160	2.212 *	87.050	0.848 *	87.030	0.676 *	87.100	1.379 *	87.040	0.759 *	R. Dry	0.000
8	87.130	1.768 *	87.050	0.848 *	87.030	0.676 *	87.090	1.262 *	87.040	0.759 *	R. Dry	0.000
9	87.100	1.379 *	87.050	0.848 *	87.020	0.597 *	87.090	1.262 *	87.030	0.676 *	R. Dry	0.000
10	87.080	1.150 *	87.020	0.597 *	87.010	0.525 *	87.090	1.262 *	87.000	0.457 *	R. Dry	0.000
11	87.080	1.150 *	87.020	0.597 *	87.010	0.525 *	87.090	1.262 *	87.000	0.457 *	R. Dry	0.000
12	87.060	0.943 *	87.010	0.525 *	87.010	0.525 *	87.080	1.150 *	87.000	0.457 *	R. Dry	0.000
13	87.060	0.943 *	87.010	0.525 *	87.010	0.525 *	87.080	1.150 *	87.000	0.457 *	R. Dry	0.000
14	87.050	0.848 *	87.000	0.457 *	87.010	0.525 *	87.070	1.044 *	87.000	0.457 *	R. Dry	0.000
15	87.050	0.848 *	87.000	0.457 *	87.010	0.525 *	87.050	0.848 *	87.000	0.457 *	R. Dry	0.000
16	87.050	0.848 *	87.140	1.910 *	87.000	0.457 *	87.030	0.676 *	87.000	0.457 *	R. Dry	0.000
17	87.050	0.848 *	87.165	2.292 *	87.000	0.457 *	87.020	0.597 *	87.000	0.457 *	R. Dry	0.000
18	87.050	0.848 *	87.160	2.212 *	87.030	0.676 *	87.010	0.525 *	87.000	0.457 *	R. Dry	0.000
19	87.040	0.759 *	87.140	1.910 *	87.060	0.943 *	87.010	0.525 *	87.000	0.457 *	R. Dry	0.000
20	87.040	0.759 *	87.130	1.768 *	87.080	1.150 *	87.000	0.457 *	87.000	0.457 *	R. Dry	0.000
21	87.040	0.759 *	89.000	170.4 *	87.070	1.044 *	87.000	0.457 *	87.000	0.457 *	R. Dry	0.000
22	87.040	0.759 *	87.500	11.48 *	87.070	1.044 *	87.000	0.457 *	87.000	0.457 *	R. Dry	0.000
23	87.040	0.759 *	87.290	4.330	87.070	1.044 *	87.010	0.525 *	87.000	0.457 *	R. Dry	0.000
24	87.040	0.759 *	87.230	2.966	87.130	1.768 *	87.775	25.45	87.000	0.457 *	R. Dry	0.000
25	87.040	0.759 *	87.190	2.332	87.140	1.910 *	87.295	5.956	87.000	0.457 *	R. Dry	0.000
26	87.040	0.759 *	87.155	2.102	87.120	1.633 *	87.175	3.233	87.000	0.457 *	R. Dry	0.000
27	87.030	0.675 *	87.140	1.782	87.130	1.768 *	87.130	2.189	87.000	0.457 *	R. Dry	0.000
28	87.010	0.525 *	87.125	1.173	87.110	1.503 *	87.110	1.795	87.000	0.457 *	R. Dry	0.000
29	87.010	0.000	87.100	1.379 *	87.110	1.503 *	87.090	1.262 *	87.000	0.457 *	R. Dry	0.000
30	87.000	0.000	87.100	1.379 *	87.110	1.503 *	87.080	1.150 *	87.000	0.457 *	R. Dry	0.000
31			87.090	1.262 *	87.110	1.503 *			87.000	0.457 *		
Ten-Daily Mean												
I Ten-Daily	87.154	2.158	87.024	0.641	87.047	0.838	87.098	1.356	87.047	0.832	R. Dry	0.000
II Ten-Daily	87.053	0.879	87.077	1.265	87.022	0.631	87.044	0.823	87.000	0.457	R. Dry	0.000
III Ten-Daily	87.029	0.674	87.356	18.24	87.106	1.475	87.166	4.247	87.000	0.457	R. Dry	0.000
Monthly												
Min.	87.000	0.457	87.000	0.457	87.000	0.457	87.000	0.457	87.000	0.457	R. Dry	0.000
Max.	87.180	2.539	89.000	170.4	87.140	1.910	87.775	25.45	87.070	1.044	R. Dry	0.000
Mean	87.079	1.237	87.159	7.086	87.060	0.997	87.103	2.142	87.015	0.578	R. Dry	0.000

Annual Runoff in MCM = 32 Annual Runoff in mm = 5

Peak Observed Discharge = 25.45 cumecs on 24/09/2018 Corres. Water Level :87.775 m

Lowest Observed Discharge = 0.000 cumecs on 29/06/2018 Corres. Water Level :87.01 m

River was in pooling condition from 29/06/2018 to 02/07/2018

River was in Negligible flow condition from 01/06/2018 to 28/06/2018, 03/07/2018 to 22/07/2018, 01/08/2018 to 23/09/2018, 29/08/2018 to 31/10/2018

Stage-Discharge Data for the period 2018 - 2019

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

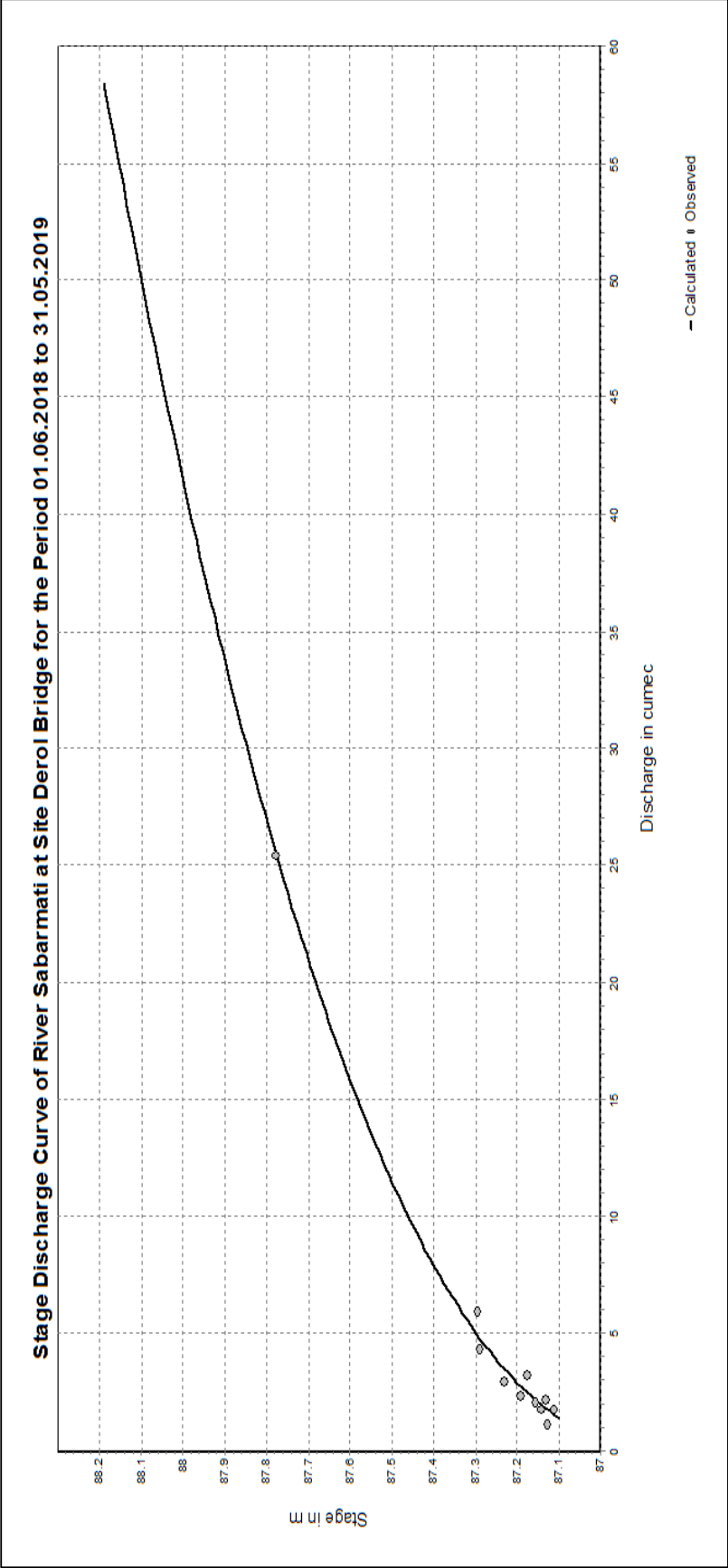
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
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
<u>Ten-Daily Mean</u>												
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
<u>Monthly</u>												
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 = 170.4 cumecs on 21/07/2018

Corres. Water Level :89 m

Lowest Computed Discharge = 0.457 cumecs on 03/07/2018

Corres. Water Level :87 m



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

LB	UB	a	b	c
87.1	88.2	-86.84	2.275	29.552

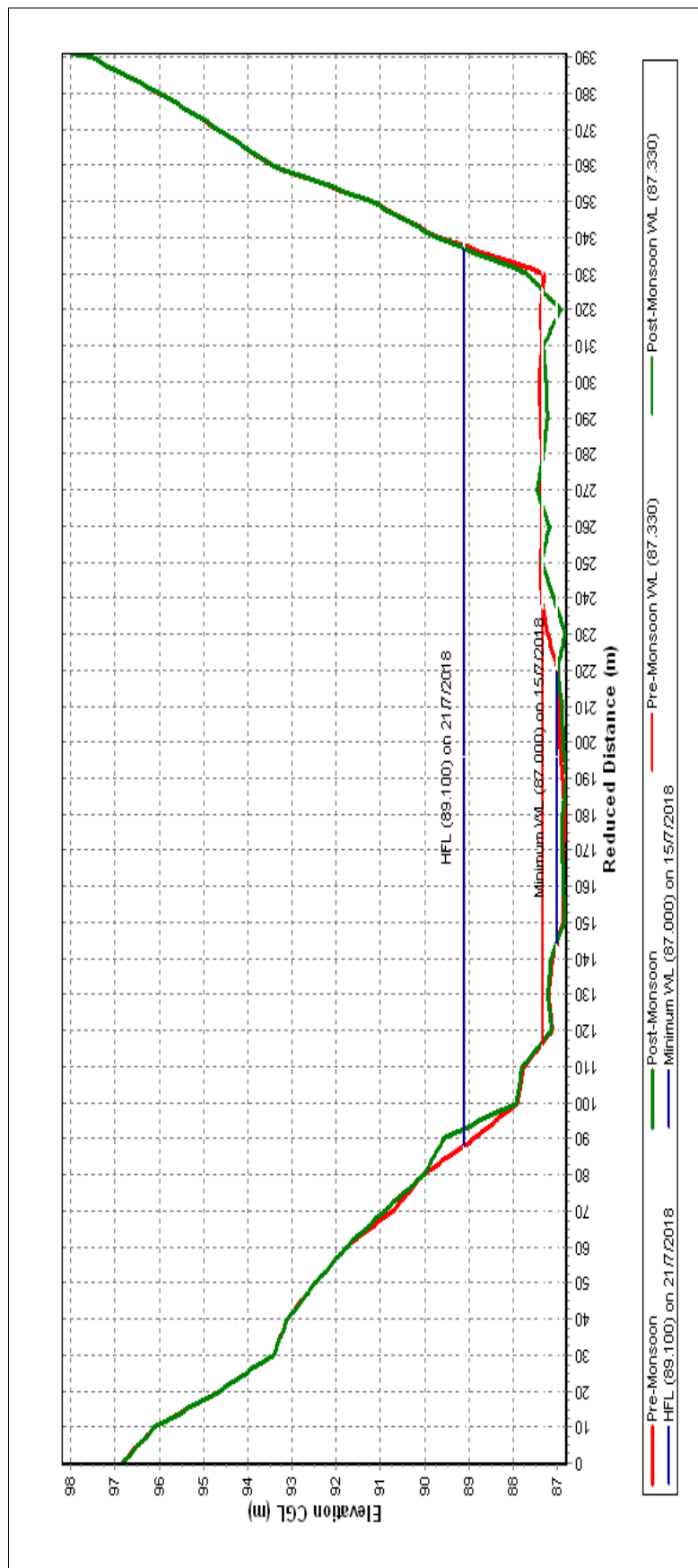
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

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



Historic Flood Level - 95.83 m on 17.07.1993 at 1800 hrs

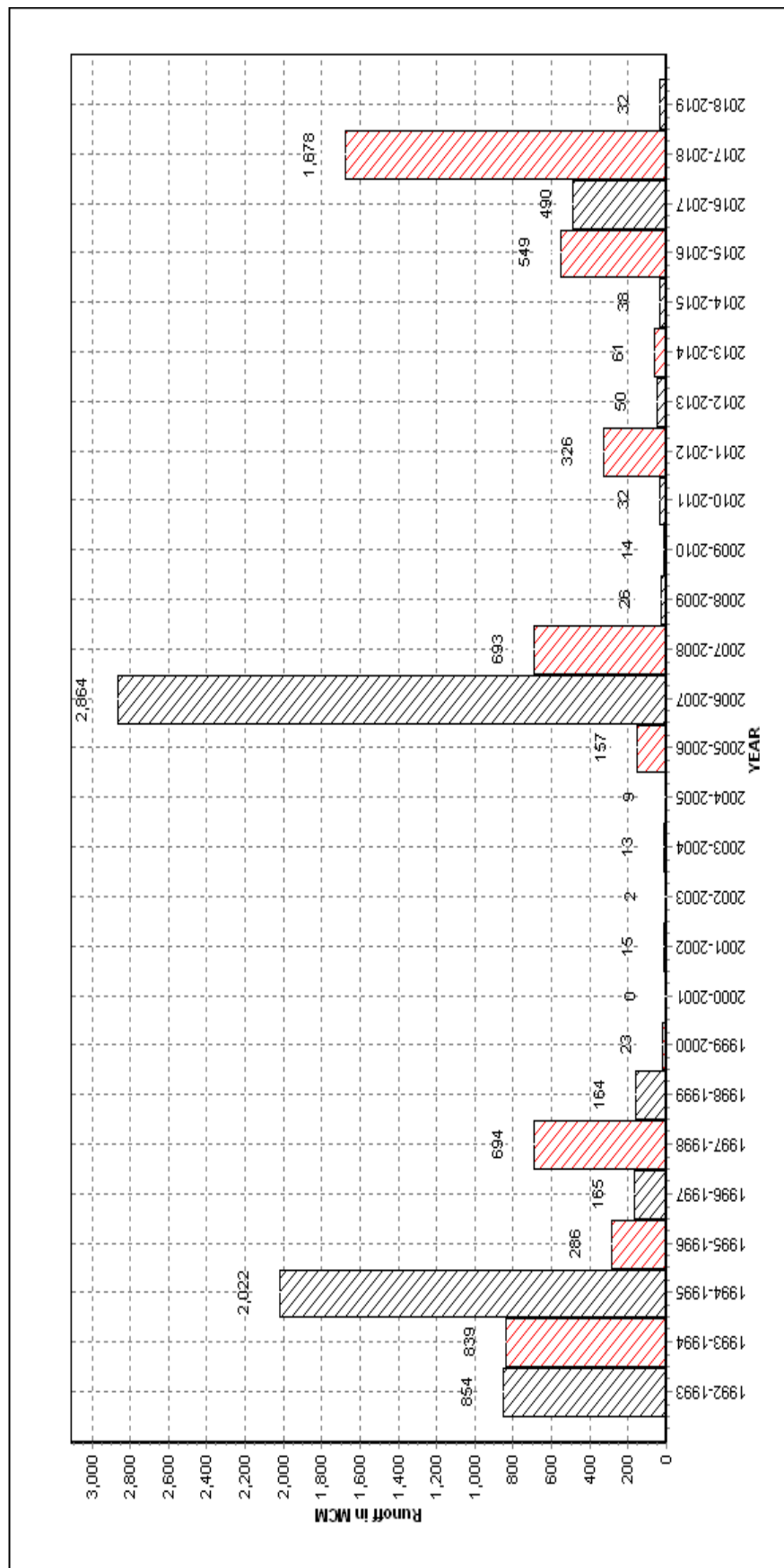
Note: HFL marked on graph denotes Maximum Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1992 - 2019

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

Local River : Sabarmati

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

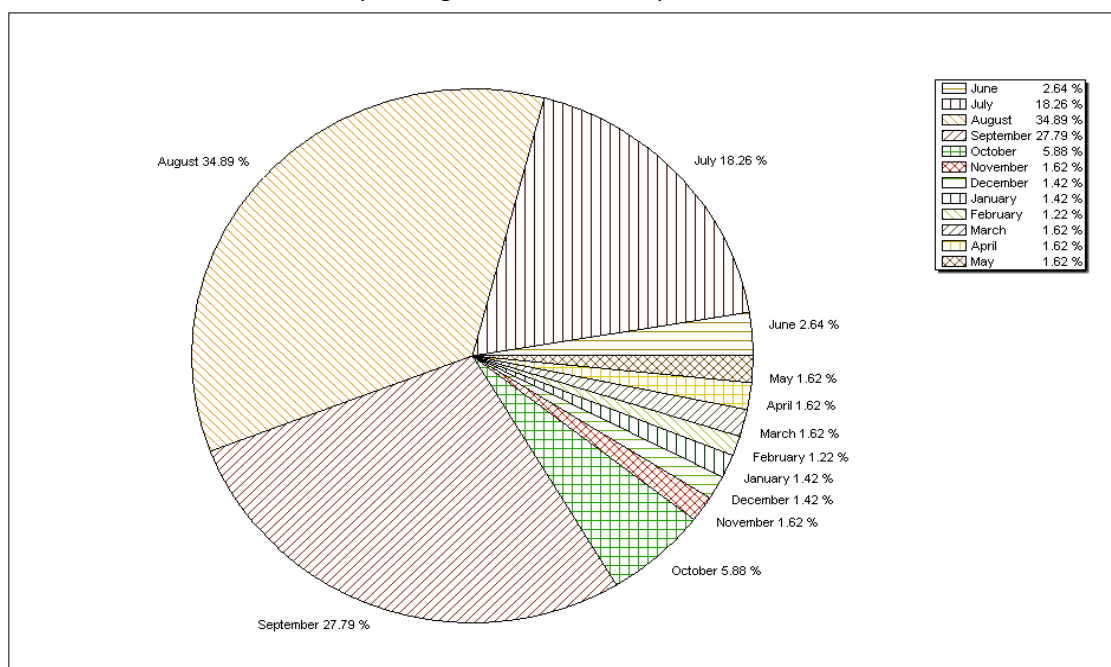


Note: Missing values have not been considered while arriving at Annual Runoff

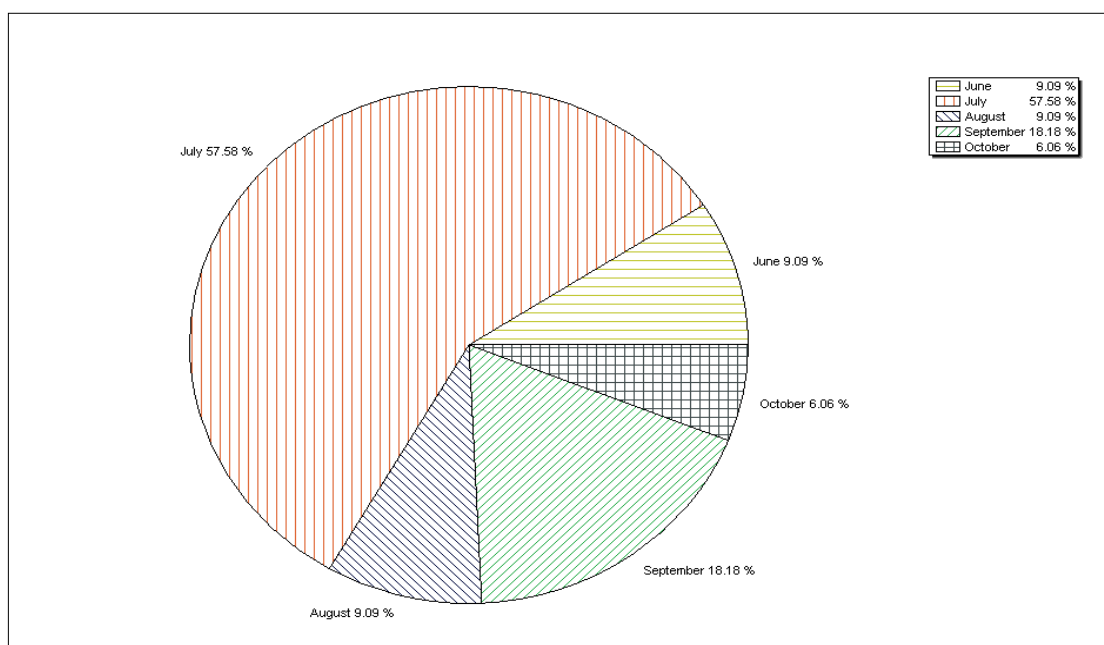
Station Name : Sabarmati at Derol Bridge (01 02 12 006)
Local River : Sabarmati

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

Monthly Average Runoff based on period : 1992-2019



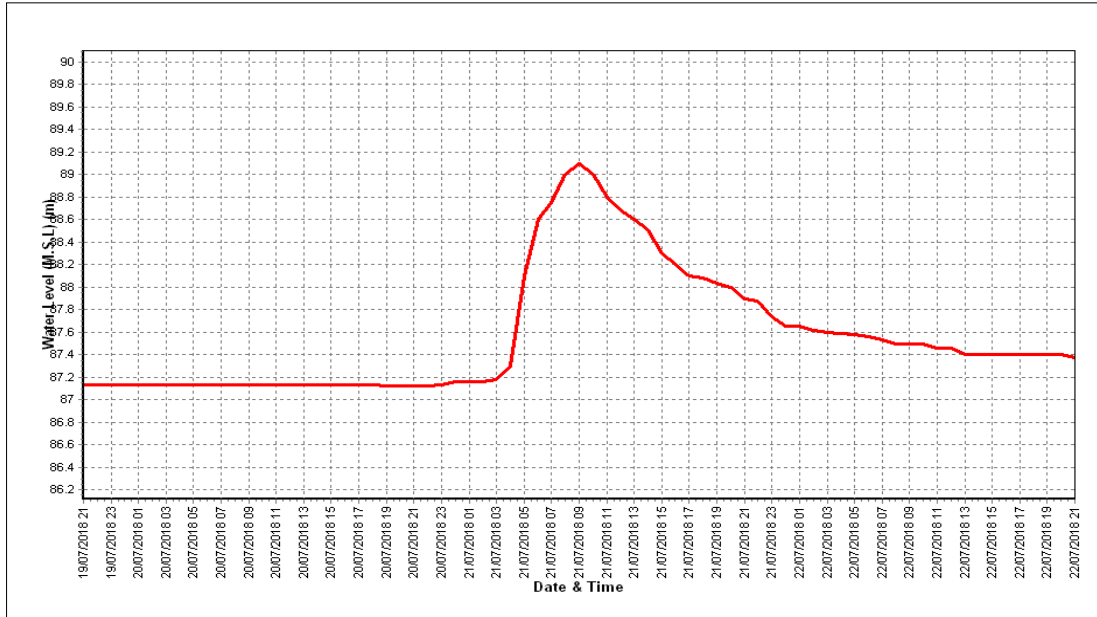
Monthly Runoff for the Year : 2018-2019



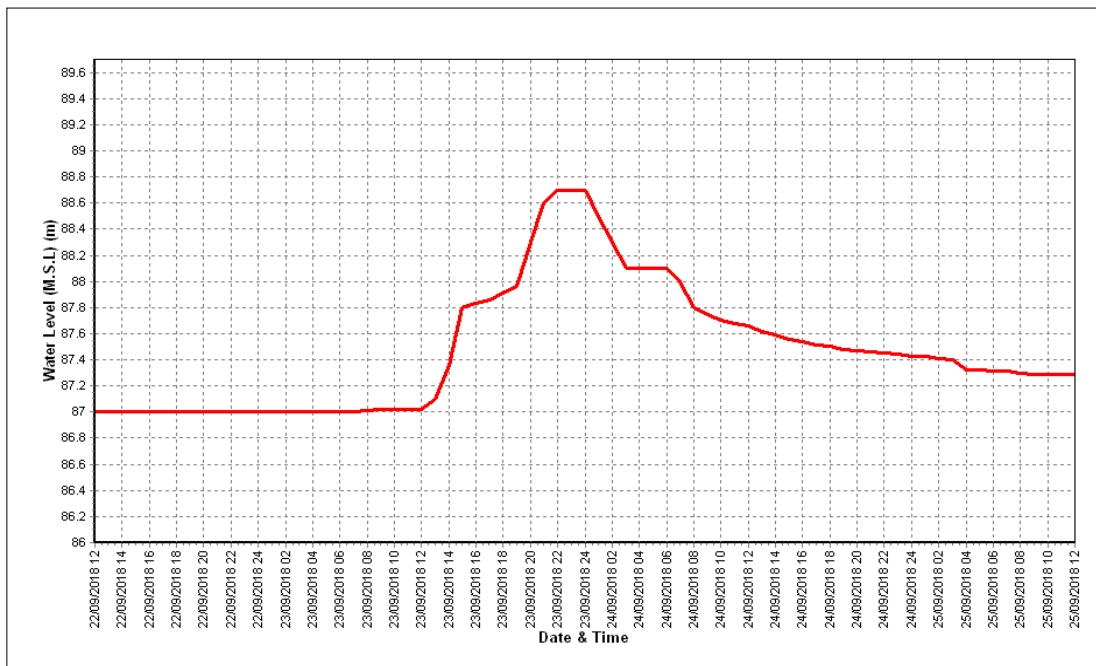
Station Name : Sabarmati at Derol Bridge (01 02 12 006)
Local River : Sabarmati

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

Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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)
211.68 (m.s.l)
210.5 (m.s.l)
208 (m.s.l)

01/01/1981 - 31/12/1987
01/01/1988 - 30/06/1993
01/07/1993 - 16/07/2003
17/07/2003 -

Opening Date
Gauge : 01/06/1981
Discharge : 22/06/1992
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
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
2018-2019	46.91	210.110	20/07/2018	0.000	River Dry	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	209.810	10.01 *	209.730	4.297	209.800	9.377	209.700	1.424	209.600	0.000
2	R. Dry	0.000	209.740	5.062	209.710	2.654	209.780	7.283 *	209.690	1.811 *	209.600	0.000
3	R. Dry	0.000	209.720	4.625	209.700	2.120	209.760	5.722 *	209.690	0.984	209.600	0.000
4	R. Dry	0.000	209.740	5.045	209.690	1.304	209.745	5.142	209.680	1.005	209.590	0.000
5	R. Dry	0.000	209.730	4.271	209.680	1.441 *	209.750	5.060	209.670	1.205	209.590	0.000
6	R. Dry	0.000	210.120	67.33 *	209.670	0.586	209.740	4.888	209.660	0.714	209.590	0.000
7	R. Dry	0.000	210.050	49.53 *	209.650	0.000	209.730	4.378	209.660	0.836 *	209.590	0.000
8	R. Dry	0.000	209.810	10.01 *	209.660	0.836 *	209.720	3.858	209.660	0.908	209.590	0.000
9	R. Dry	0.000	209.760	6.409	209.660	0.836 *	209.740	4.362 *	209.660	0.791	209.580	0.000
10	R. Dry	0.000	209.740	4.135	209.670	0.557	209.740	5.376	209.650	0.556	209.580	0.000
11	R. Dry	0.000	209.710	3.021	209.670	1.117 *	209.750	6.687	209.650	0.632	209.580	0.000
12	R. Dry	0.000	209.680	1.533	209.660	0.836 *	209.750	6.955	209.650	0.578	209.580	0.000
13	R. Dry	0.000	209.670	0.705	209.660	0.836 *	209.750	5.018 *	209.640	0.477	209.580	0.000
14	R. Dry	0.000	209.660	0.000	209.660	0.836 *	209.735	4.780	209.640	0.403 *	209.580	0.000
15	R. Dry	0.000	209.900	21.05 *	209.660	0.836 *	209.720	4.084	209.640	0.349	209.580	0.000
16	R. Dry	0.000	209.890	19.61 *	209.660	0.836 *	209.720	3.199 *	209.630	0.306	209.570	0.000
17	R. Dry	0.000	209.880	18.22 *	209.730	3.246	209.710	2.936	209.630	0.251	209.570	0.000
18	R. Dry	0.000	209.820	11.15	209.970	32.73 *	209.700	2.142	209.630	0.280	209.570	0.000
19	R. Dry	0.000	209.860	15.07	209.810	10.00 *	209.700	1.914	209.630	0.248 *	209.570	0.000
20	R. Dry	0.000	210.110	46.91	209.770	8.162	209.690	1.187	209.620	0.233	209.570	0.000
21	R. Dry	0.000	210.340	142.9 *	209.760	6.250	209.690	1.811 *	209.620	0.133 *	209.560	0.000
22	R. Dry	0.000	210.010	40.66 *	209.770	6.477 *	209.680	0.867	209.620	0.171	209.560	0.000
23	R. Dry	0.000	209.860	16.00	209.770	7.955	209.690	1.811 *	209.620	0.235 #	209.550	0.000
24	R. Dry	0.000	209.820	11.57	209.760	6.882	209.760	5.718	209.620	0.146	209.550	0.000
25	R. Dry	0.000	209.790	8.737	209.760	6.807	209.815	8.401	209.620	0.133 *	209.540	0.000
26	210.120	67.33 *	209.770	7.852	209.760	5.722 *	209.810	8.355	209.610	0.000	209.540	0.000
27	209.780	7.283 *	209.770	7.044	209.760	6.455	209.770	6.091	209.610	0.000	209.530	0.000
28	210.200	91.32 *	209.770	6.783	209.750	5.867	209.745	4.168	209.610	0.000	209.480	0.000
29	209.820	10.82	209.760	5.723 *	210.060	40.01	209.730	3.148	209.610	0.000	209.480	0.000
30	209.920	24.11 *	209.760	6.302	209.840	13.68	209.710	2.689 *	209.610	0.000	209.470	0.000
31			209.740	4.971	209.850	15.43			209.600	0.000		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	209.822	16.64	209.682	1.463	209.750	5.545	209.672	1.023	209.591	0.000
II Ten-Daily	R. Dry	0.000	209.818	13.73	209.725	5.943	209.722	3.890	209.636	0.376	209.575	0.000
III Ten-Daily	209.968	40.17	209.854	23.51	209.804	11.05	209.740	4.306	209.614	0.074	209.526	0.000
Monthly												
Min.	R. Dry	0.000	209.660	0.000	209.650	0.000	209.680	0.867	209.600	0.000	209.470	0.000
Max.	210.200	91.32	210.340	142.9	210.060	40.01	209.815	9.377	209.700	1.811	209.600	0.000
Mean	209.968	40.17	209.832	18.14	209.739	6.31	209.738	4.58	209.640	0.478	209.564	0

Annual Runoff in MCM = 96 Annual Runoff in mm = 26

Peak Observed Discharge = 46.91 cumecs on 20/07/2018 Corres. Water Level :210.11 m

Lowest Observed Discharge = 0.000 cumecs on 14/07/2018 Corres. Water Level :209.66 m

River was in pooling condition from 11/11/2018 to 17/02/2019

River was in Negligible flow condition from 25/10/2018 to 10/11/2018

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 2018 - 2019

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	209.460	0.000	209.730	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	209.450	0.000	209.080	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	209.440	0.000	209.060	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	209.440	0.000	209.040	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	209.430	0.000	209.010	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	209.420	0.000	208.990	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	209.420	0.000	208.960	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	209.410	0.000	208.940	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	209.400	0.000	208.920	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	209.390	0.000	208.890	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	209.380	0.000	208.870	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	209.360	0.000	208.850	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	209.350	0.000	208.820	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
14	209.330	0.000	208.790	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
15	209.310	0.000	208.760	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
16	209.300	0.000	208.730	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
17	209.290	0.000	208.700	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
18	209.270	0.000	208.660	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
19	209.260	0.000	208.630	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
20	209.250	0.000	208.610	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
21	209.240	0.000	208.560	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
22	209.230	0.000	208.560	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
23	209.220	0.000	208.510	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
24	209.190	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
25	209.180	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
26	209.170	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
27	209.160	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
28	209.140	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
29	209.120	0.000	208.490	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
30	209.110	0.000	208.490	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
31	209.110	0.000	208.490	0.000			R. Dry	0.000			R. Dry	0.000
Ten-Daily Mean												
I Ten-Daily	209.426	0.000	209.062	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
II Ten-Daily	209.310	0.000	208.742	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	209.170	0.000	208.505	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	209.110	0.000	208.490	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	209.460	0.000	209.730	0.000	208.490	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	209.298	0	208.761	0	208.490	0	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000

Peak Computed Discharge = 142.9 cumecs on 21/07/2018

Corres. Water Level :210.34 m

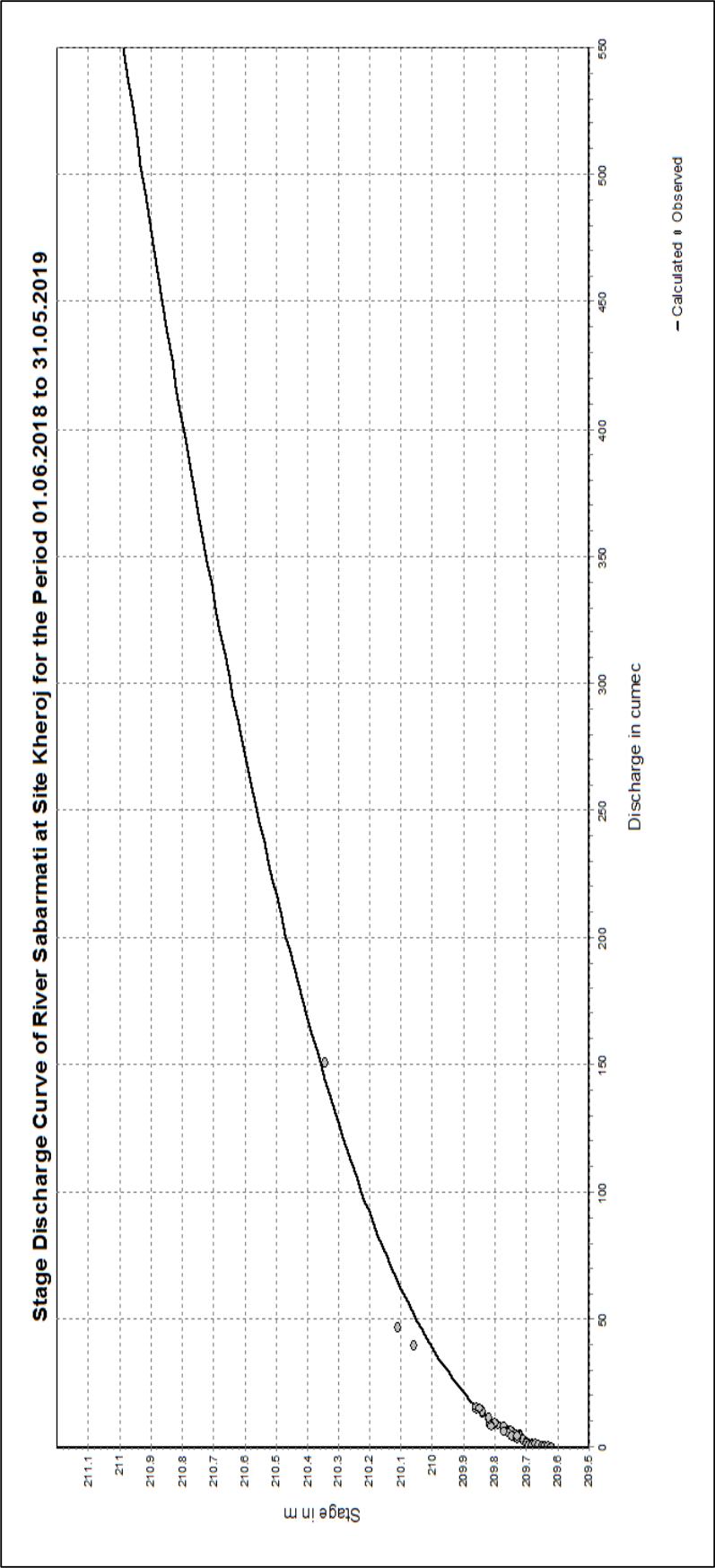
Lowest Computed Discharge = 0.133 cumecs on 21/10/2018

Corres. Water Level :209.62 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
209.6	211	-209.59	2.168	266.67

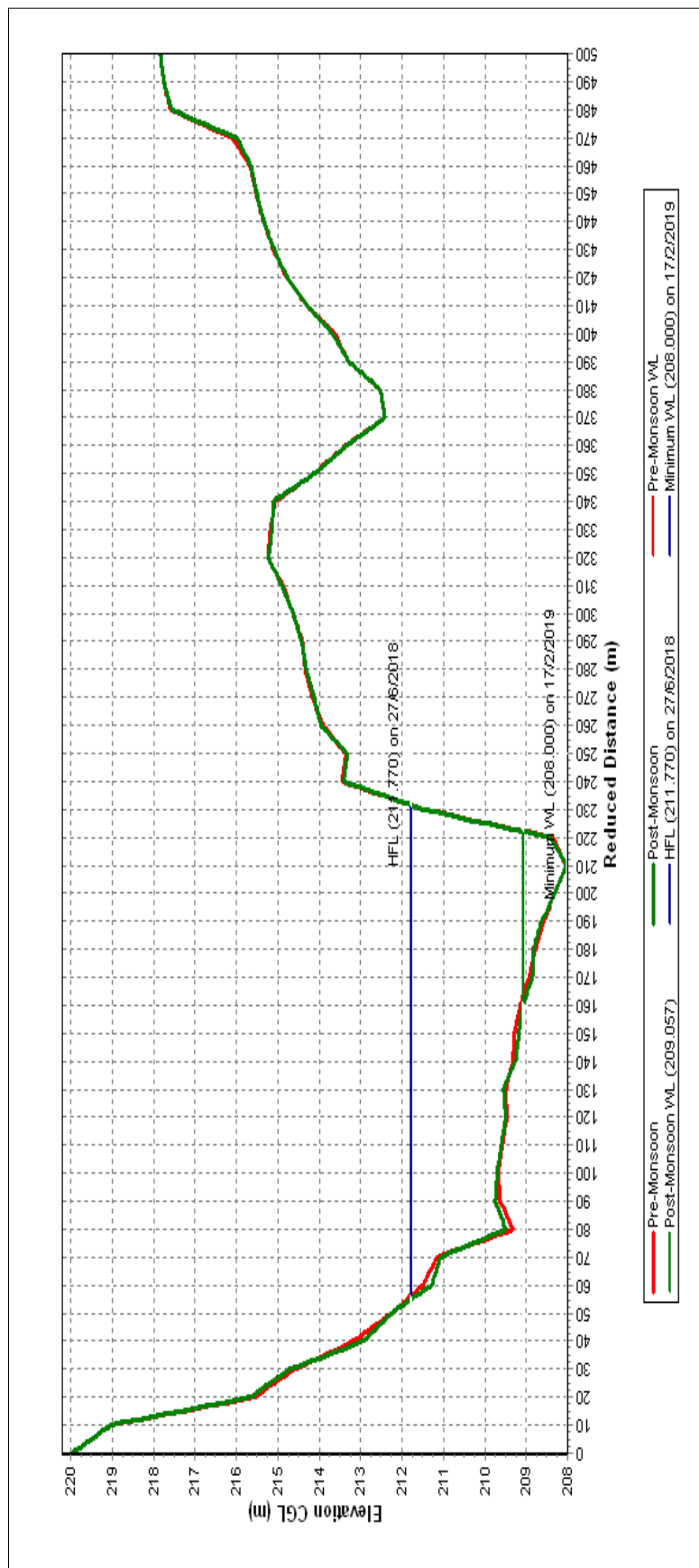
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Sabarmati

Division : Mahi Division, Gandhinagar

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



Historic Flood Level - 218.000m on 19.08.2006 at 1600 hrs

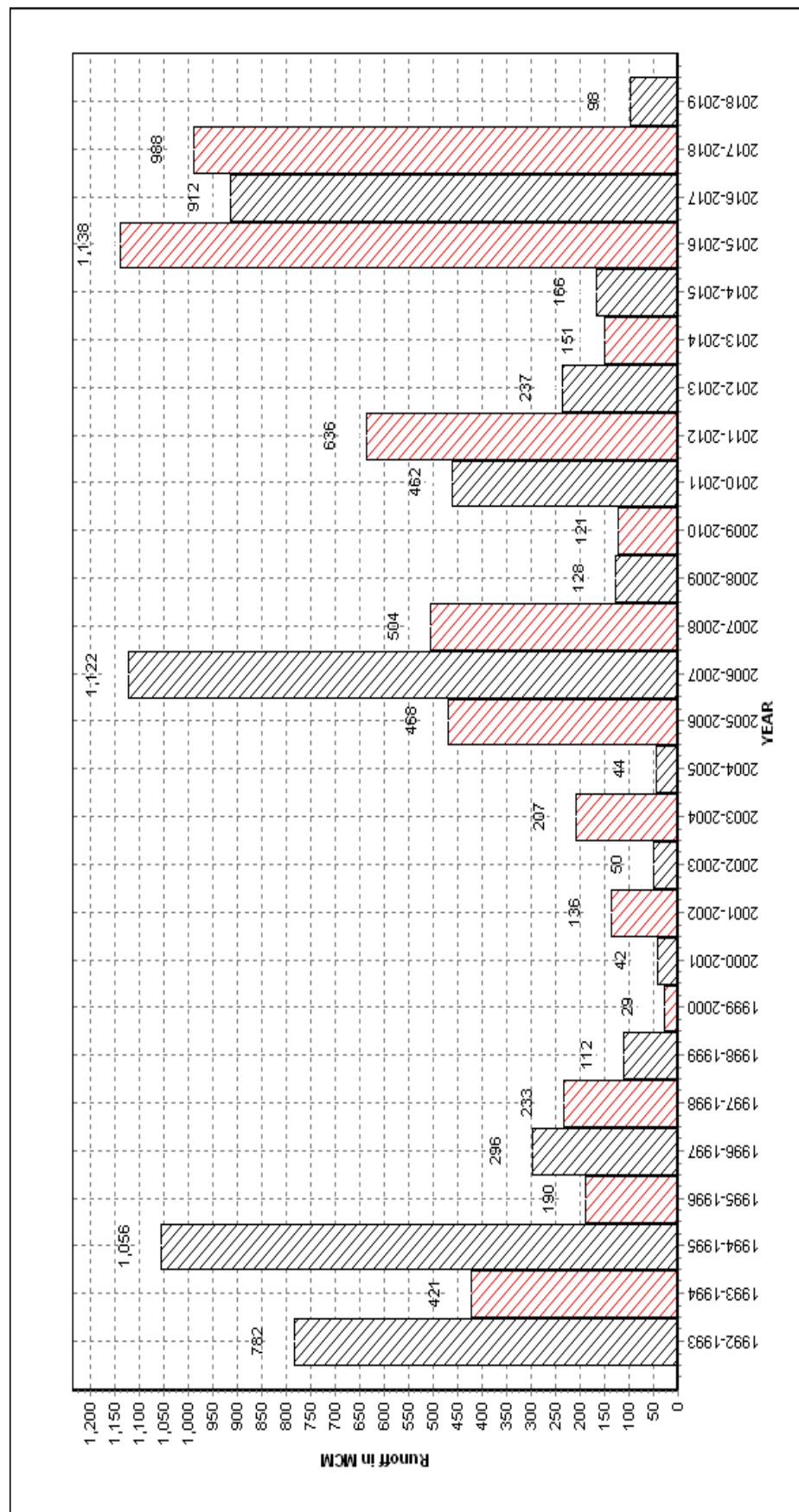
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1992 - 2019

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

Local River : Sabarmati

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

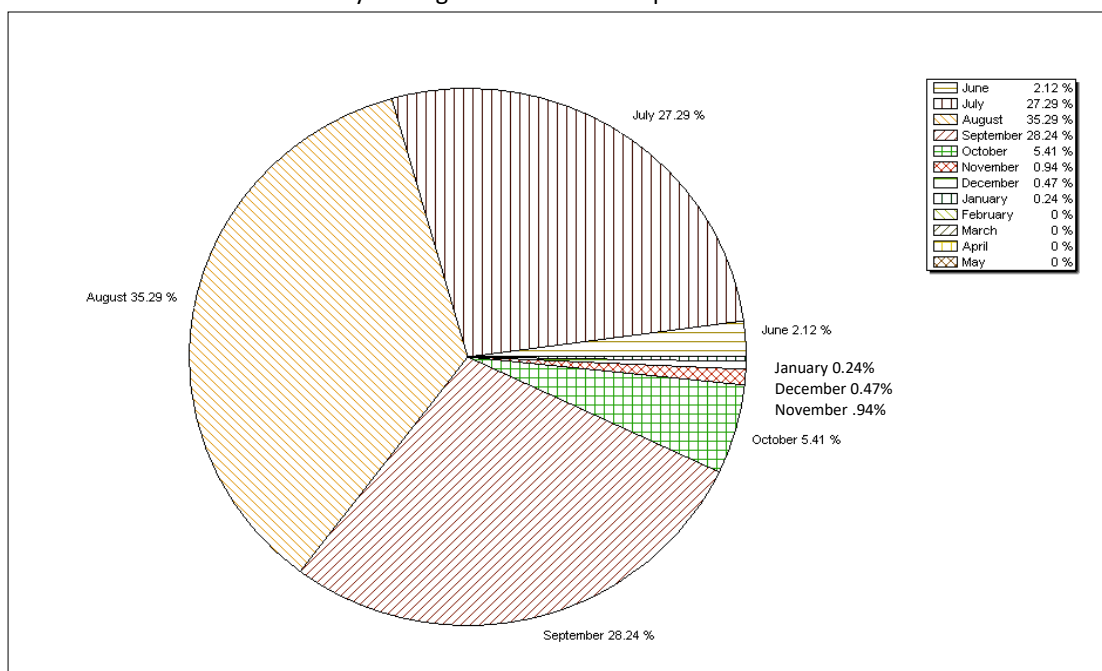


Note: Missing values have not been considered while arriving at Annual Runoff

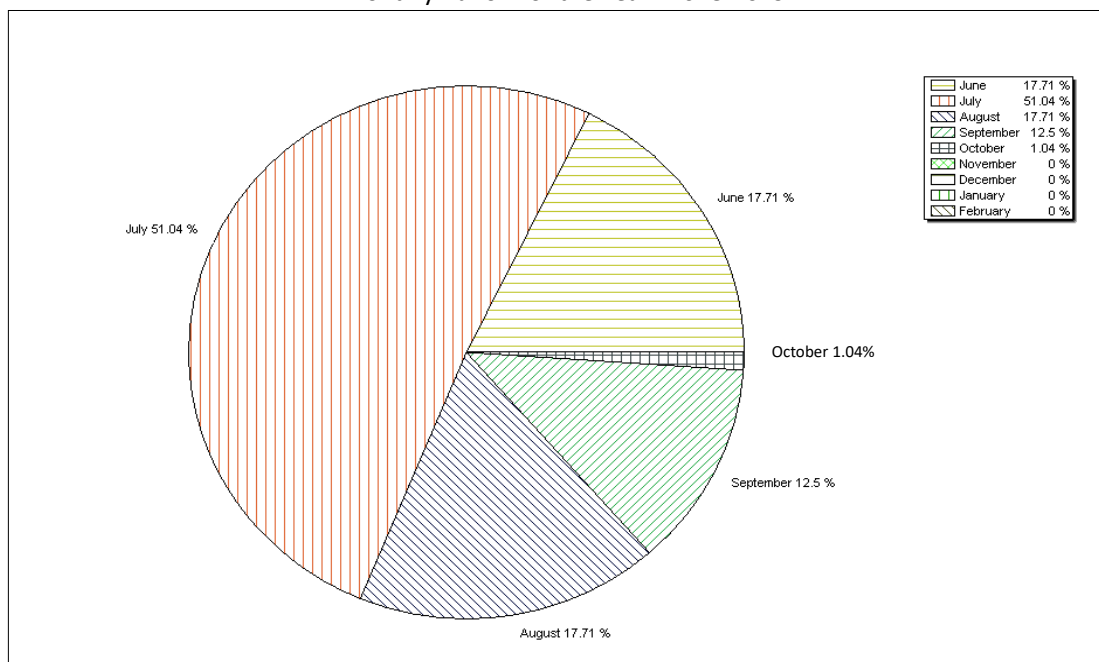
Station Name : Sabarmati at Kheroj (01 02 12 003)
Local River : Sabarmati

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

Monthly Average Runoff based on period : 1992-2018



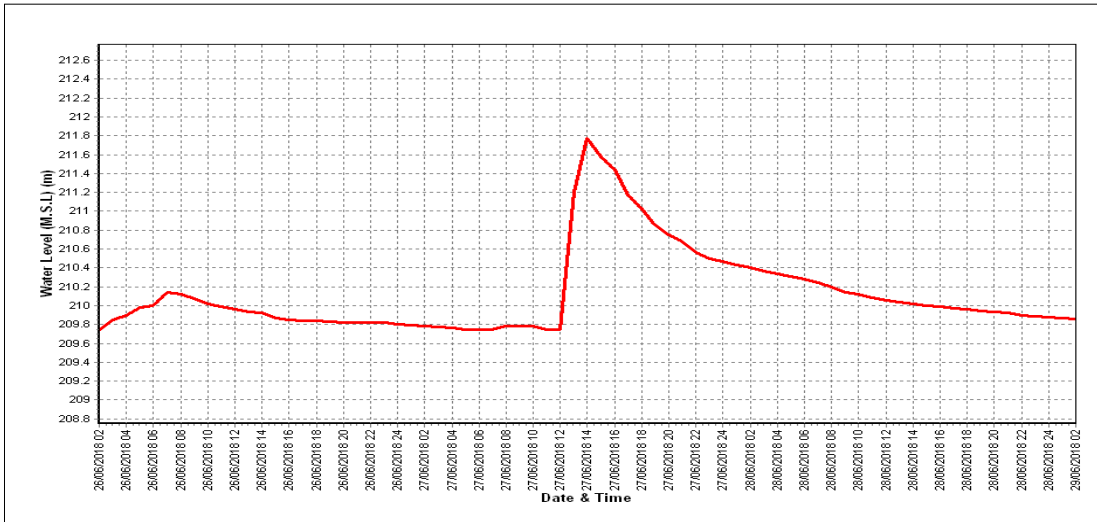
Monthly Runoff for the Year : 2018-2019



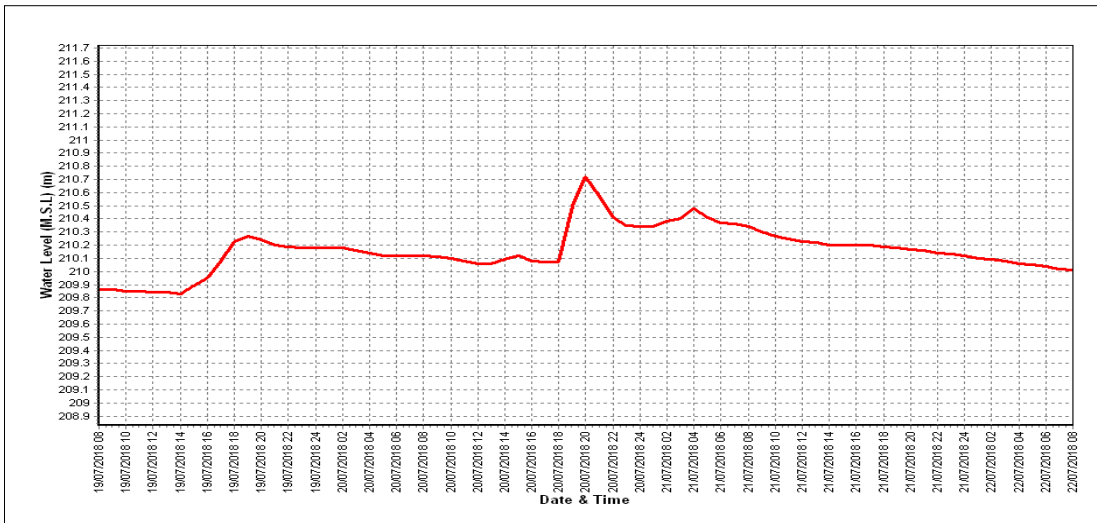
Station Name : Sabarmati at Kheroj (01 02 12 003)
Local River : Sabarmati

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

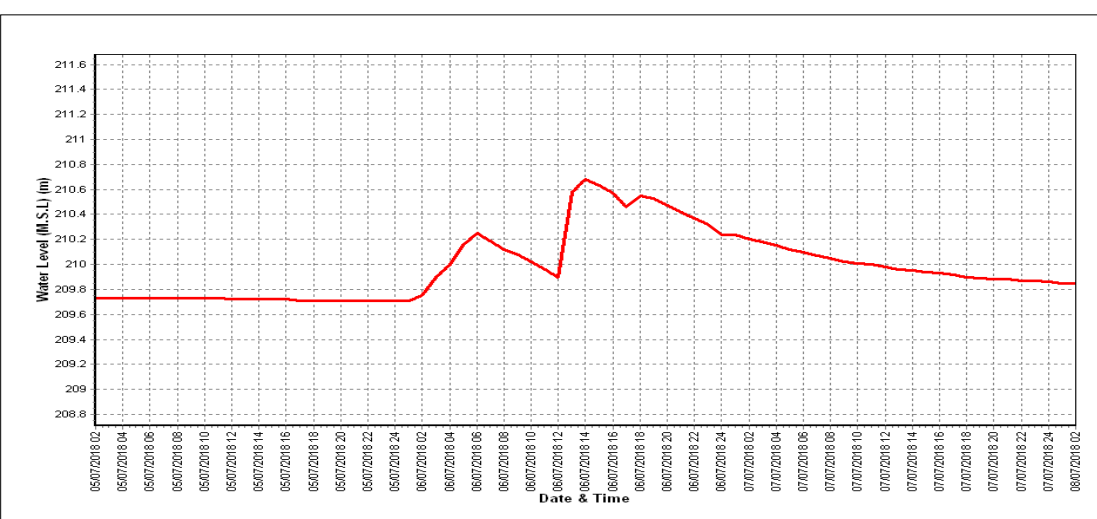
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

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
2018-2019	33.17	287.220	16/07/2018	0.000	286.680	10/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	286.720	0.000	287.080	10.04 *	286.930	2.952 *	287.020	7.110	286.930	2.952 *	286.760	0.221 *
2	286.710	0.000	287.040	7.398	286.920	2.663 *	287.000	5.570 *	286.920	2.663 *	286.760	0.221 *
3	286.700	0.000	286.920	2.743	286.910	2.488	286.980	4.709 *	286.910	2.359	286.760	0.221 *
4	286.700	0.000	286.910	2.393 *	286.900	2.103	286.970	3.902	286.900	2.142	286.760	0.221 *
5	286.690	0.000	286.890	1.899	286.900	2.142 *	286.960	3.624	286.890	1.993	286.760	0.221 *
6	286.680	0.000	287.830	186.6 *	286.890	1.747	286.950	3.382	286.880	1.849	286.760	0.221 *
7	286.680	0.000	287.080	10.27	286.890	1.707	286.940	3.111	286.870	1.494 *	286.760	0.221 *
8	286.680	0.000	287.030	7.047 *	286.890	1.909 *	286.940	3.155	286.860	1.533	286.760	0.221 *
9	286.680	0.000	286.940	2.877	286.890	1.790	286.960	3.941 *	286.860	1.490	286.760	0.221 *
10	286.680	0.000	286.900	2.348	286.900	2.070	286.970	4.093	286.850	1.257	286.750	0.171 *
11	286.680	0.000	286.880	1.693 *	286.900	1.963	286.970	4.014	286.850	1.181	286.750	0.171 *
12	286.680	0.000	286.880	1.595	286.890	5.128 *	286.970	3.965	286.840	0.985	286.750	0.171 *
13	286.680	0.000	286.870	1.385	286.890	1.692	286.960	3.422	286.840	0.958	286.750	0.171 *
14	286.680	0.000	286.870	1.380	286.890	1.831	286.950	3.188	286.830	0.853 *	286.750	0.171 *
15	286.680	0.000	286.880	1.693 *	286.890	1.909 *	286.940	2.975	286.830	0.777	286.750	0.171 *
16	286.680	0.000	287.220	33.17	286.880	1.534	286.930	2.952 *	286.830	0.765	286.750	0.171 *
17	286.680	0.000	287.070	9.600	286.900	2.091	286.920	2.635	286.820	0.757	286.750	0.171 *
18	286.680	0.000	287.080	10.04 *	287.050	8.241	286.920	2.308	286.820	0.768	286.750	0.171 *
19	R.Dry	0.000	287.050	8.402	286.990	5.128 *	286.910	2.178	286.820	0.727 *	286.750	0.171 *
20	R.Dry	0.000	287.190	28.02	286.970	3.563	286.900	2.001	286.820	0.727	286.740	0.129 *
21	R.Dry	0.000	287.220	31.66	286.950	3.169	286.900	2.142 *	286.810	0.615 *	286.740	0.129 *
22	R.Dry	0.000	287.110	12.19 *	287.010	6.037 *	286.890	1.868	286.810	0.705	286.740	0.129 *
23	R.Dry	0.000	287.050	8.195	286.990	5.216	286.950	3.591 *	286.810	0.669	286.740	0.129 *
24	R.Dry	0.000	287.020	5.791	286.980	5.048	287.040	7.203	286.800	0.736 #	286.740	0.129 *
25	286.710	0.000	287.000	5.570 *	286.970	4.006	287.080	10.20	286.800	0.563	286.740	0.129 *
26	286.920	0.000	286.980	5.017	286.960	3.941 *	287.060	8.461	286.790	0.508	286.740	0.129 *
27	286.930	0.000	286.980	4.878	286.950	3.622	287.000	5.308	286.790	0.478	286.740	0.129 *
28	287.125	13.69	286.970	3.851	286.940	3.207	286.980	4.845	286.780	0.348 *	286.740	0.129 *
29	287.020	5.836	286.970	4.314 *	287.125	12.80	286.960	3.448	286.780	0.410	286.740	0.129 *
30	287.120	13.69	286.950	3.289	287.130	14.45	286.940	3.261 *	286.770	0.352	286.740	0.129 *
31			286.940	3.261 *	287.060	9.501			286.770	0.287		
Ten-Daily Mean												
I Ten-Daily	286.692	0.000	287.062	23.36	286.902	2.157	286.969	4.260	286.887	1.973	286.759	0.216
II Ten-Daily	286.680	0.000	286.999	9.698	286.925	3.308	286.937	2.964	286.830	0.850	286.749	0.167
III Ten-Daily	286.971	5.536	287.017	8.001	287.006	6.454	286.980	5.033	286.792	0.515	286.740	0.129
Monthly												
Min.	286.680	0.000	286.870	1.380	286.880	1.534	286.890	1.868	286.770	0.287	286.740	0.129
Max.	287.125	13.69	287.830	186.6	287.130	14.45	287.080	10.20	286.930	2.952	286.760	0.221
Mean	286.758	1.384	287.026	13.5	286.946	4.053	286.962	4.085	286.835	1.094	286.749	0.171

Annual Runoff in MCM = 64 Annual Runoff in mm = 45

Peak Observed Discharge = 33.17 cumecs on 16/07/2018 Corres. Water Level :287.22 m

Lowest Observed Discharge = 0.000 cumecs on 10/06/2018 Corres. Water Level :286.68 m

River was in pooling condition from 10/06/2018 to 18/06/2018 and 25/06/2018 to 27/06/2018

River was in Negligible flow condition from 01/11/2018 to 06/12/2018

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 2018 - 2019

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	286.740	0.129 *	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
2	286.730	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
3	286.730	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
4	286.730	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
5	286.730	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
6	286.730	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	286.732	0.022	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.	286.730	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Max.	286.740	0.129	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Mean	286.732	0.022	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000

Peak Computed Discharge = 186.6 cumecs on 06/07/2018

Corres. Water Level :287.83 m

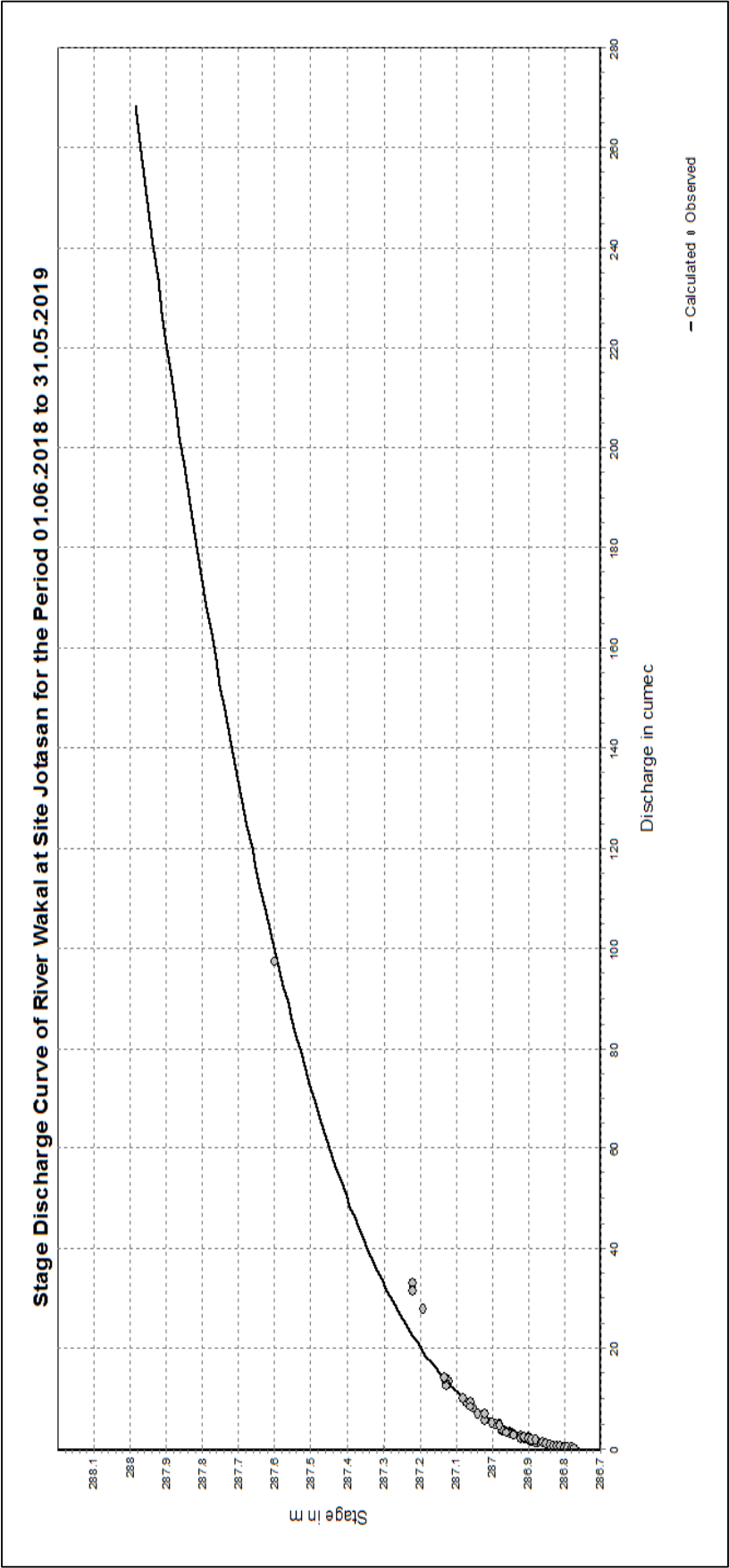
Lowest Computed Discharge = 0.129 cumecs on 20/11/2018

Corres. Water Level :286.74 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-Power $Q=c*(h+a)^b$

LB	UB	a	b	c
286.76	288	-286.64	2.937	111.945

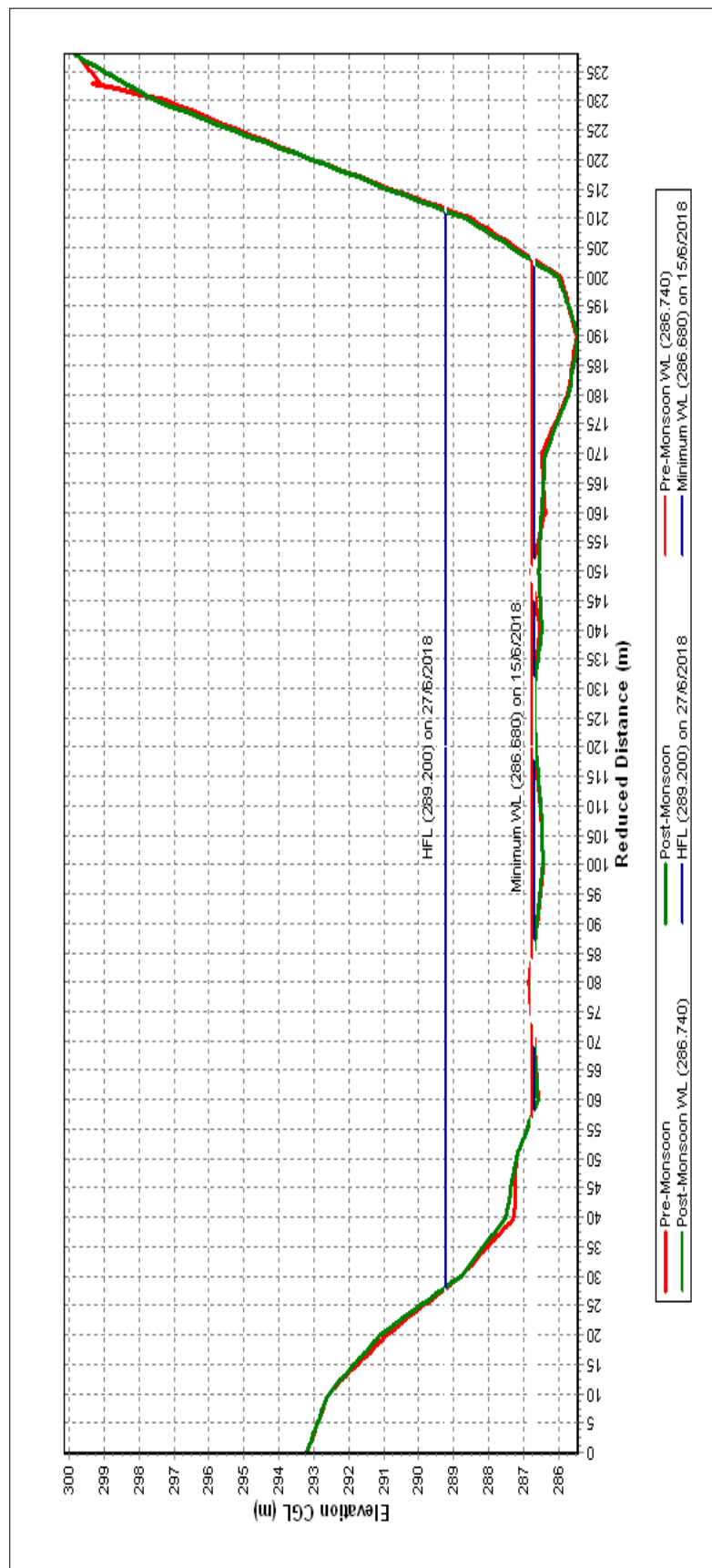
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

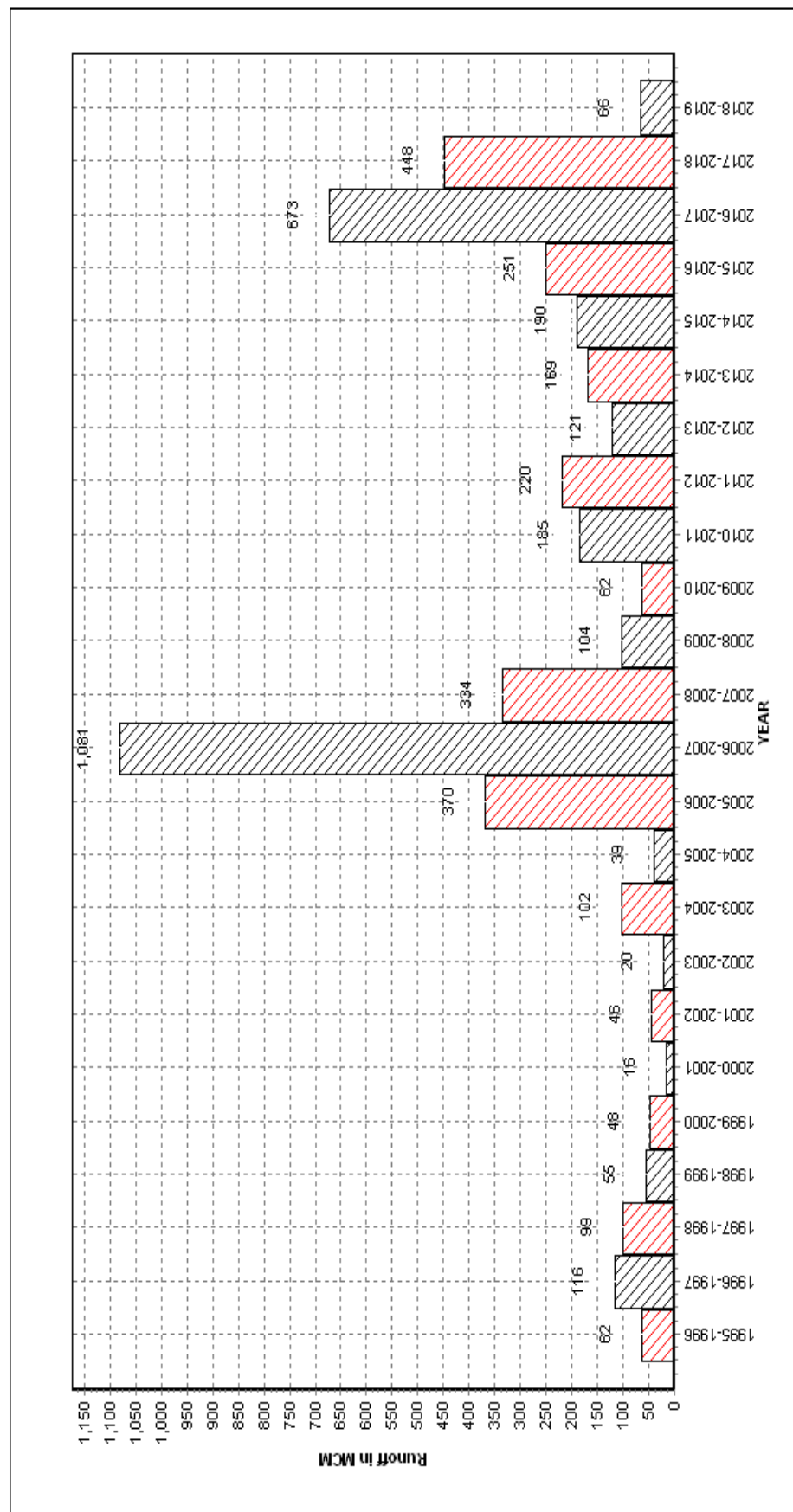
Note: HFL marked on graph denotes Maximum WaterLevel observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1995 - 2019

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

Monthly Average Runoff based on period : 1995-2018

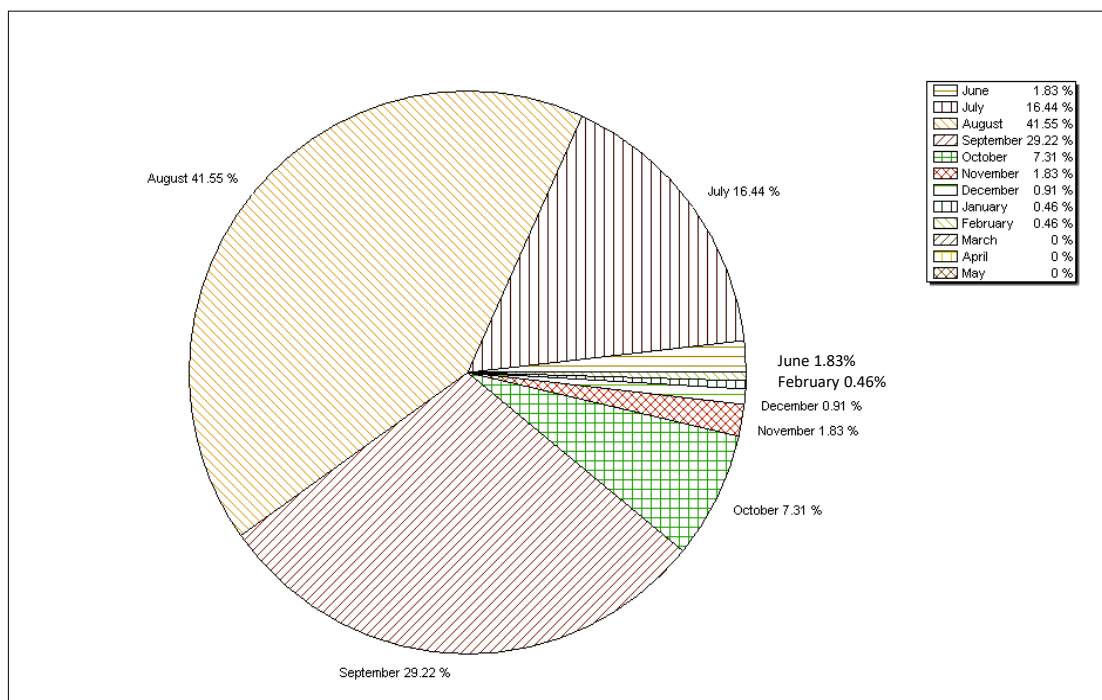
Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)

Local River : Wakal

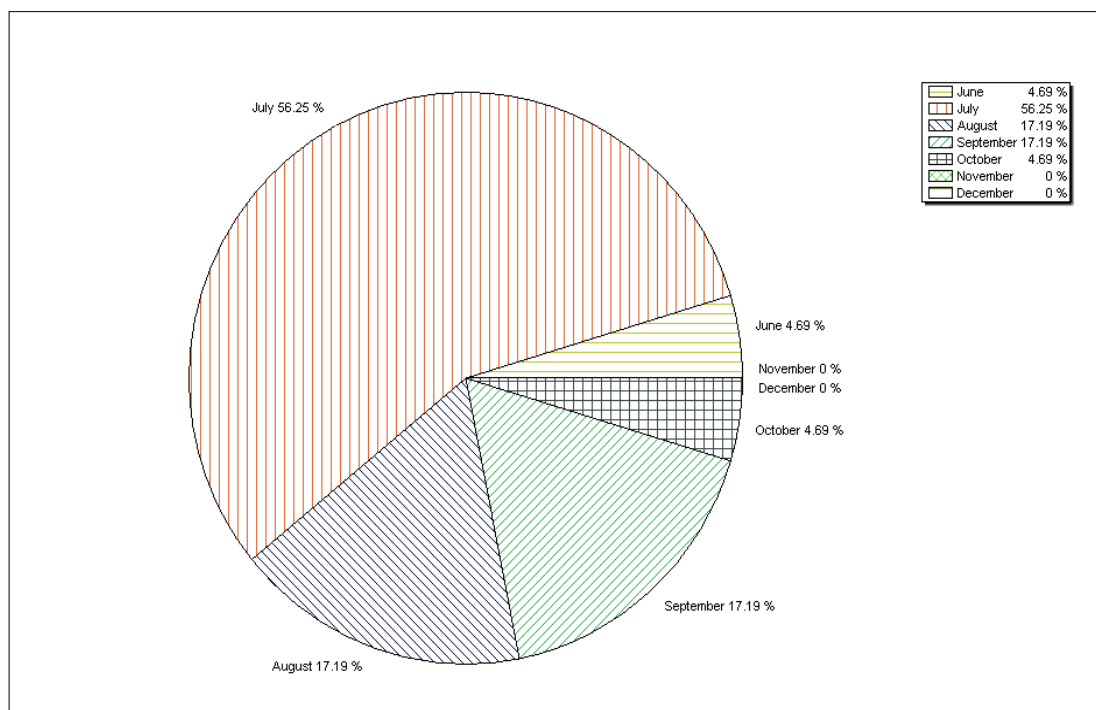
Division : Mahi Division, Gandhinagar

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

Monthly Average Runoff based on period : 1995-2019



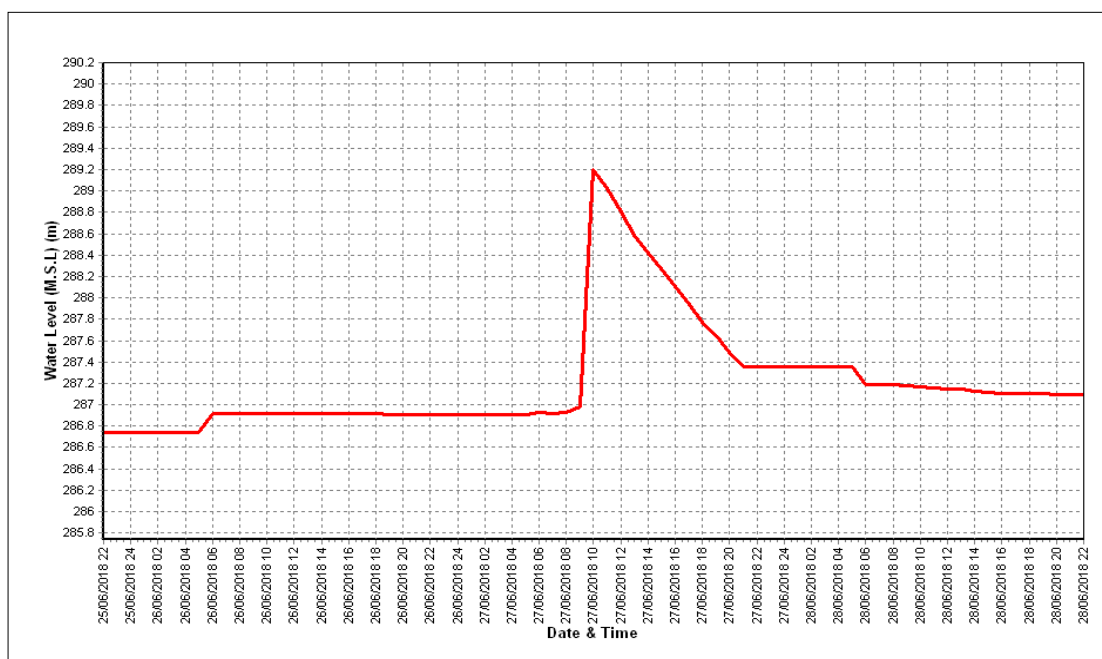
Monthly Runoff for the Year : 2018-2019



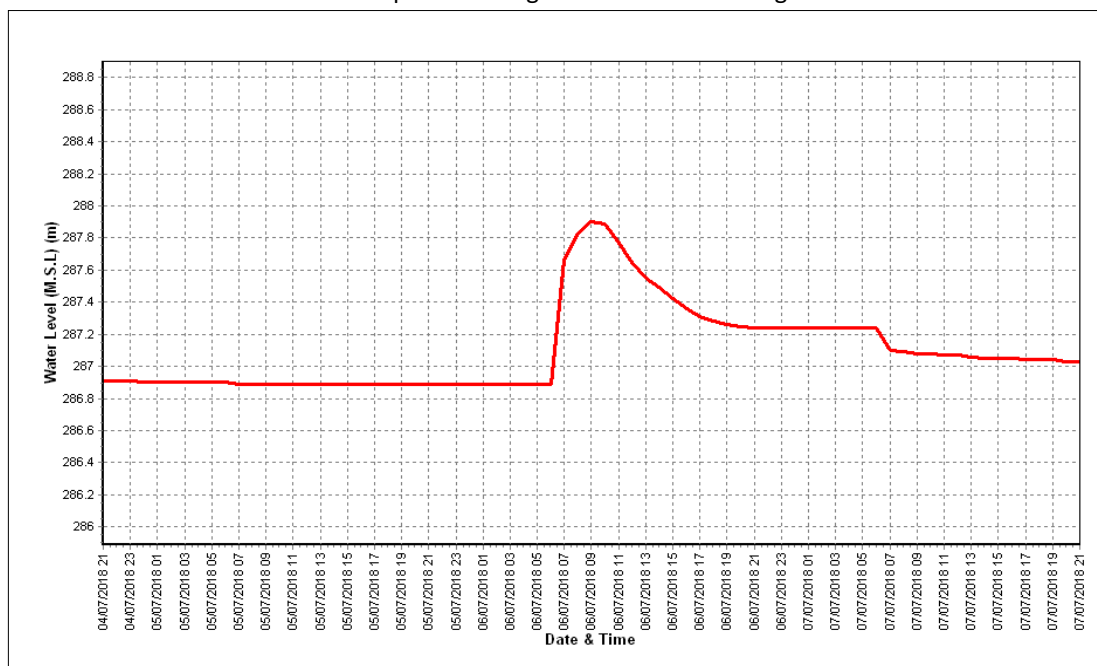
Station Name : Wakal at Kotra(Jotasan) (01 02 12 001)
Local River : Wakal

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

Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19
Site : Luni at Gandhav
Code : 01 02 01 002
 State : Rajasthan District Barmer
 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
 : Palanpur
 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
2018-2019	River Dry					

Stage-Discharge Data for the period 2018 - 2019

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	R. Dry	Barmer	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..	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	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	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	R. Dry	0.000
31			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

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

Stage-Discharge Data for the period 2018 - 2019

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

Division : Mahi Division, Gandhinagar

Local River : Luni

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

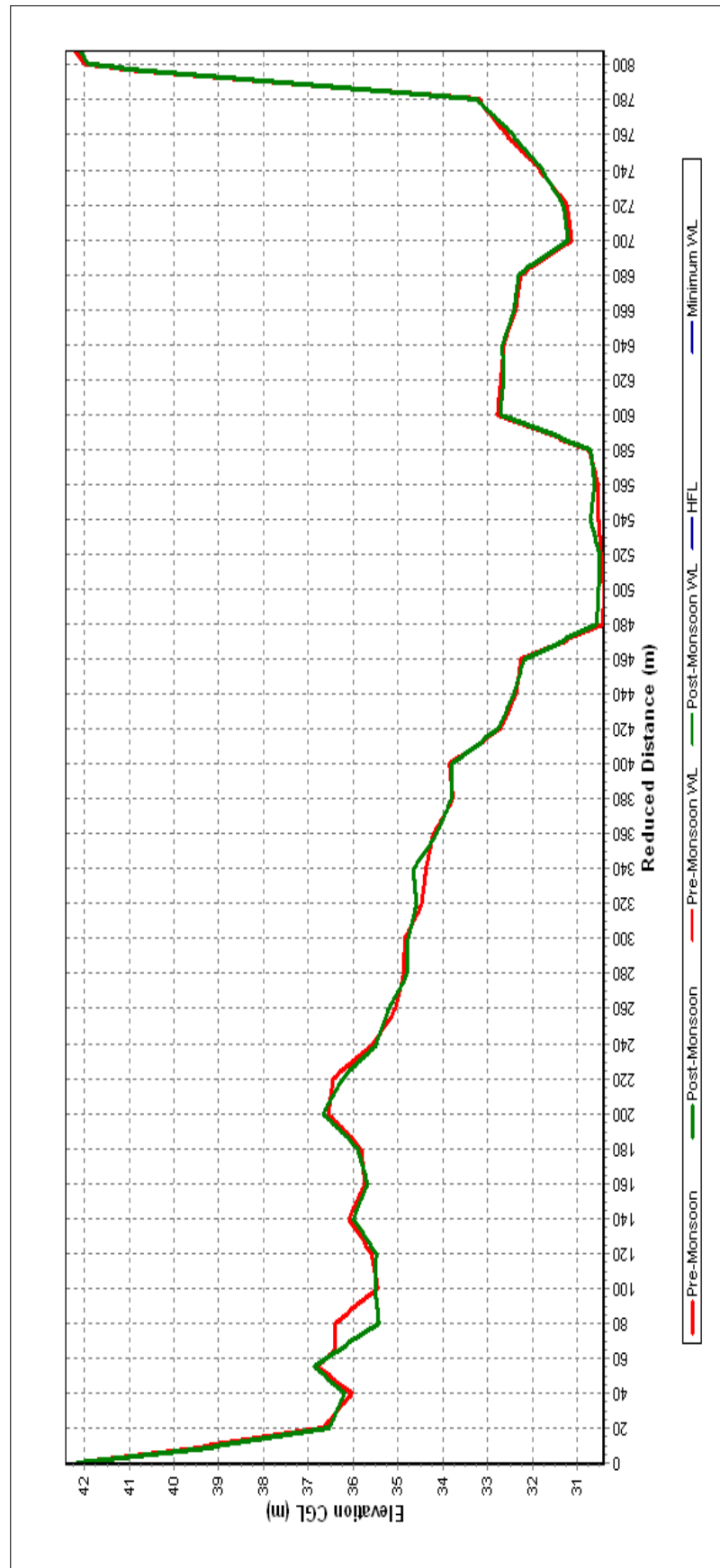
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
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

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 - 37.625m on 07.07.1990 at 2100 hrs

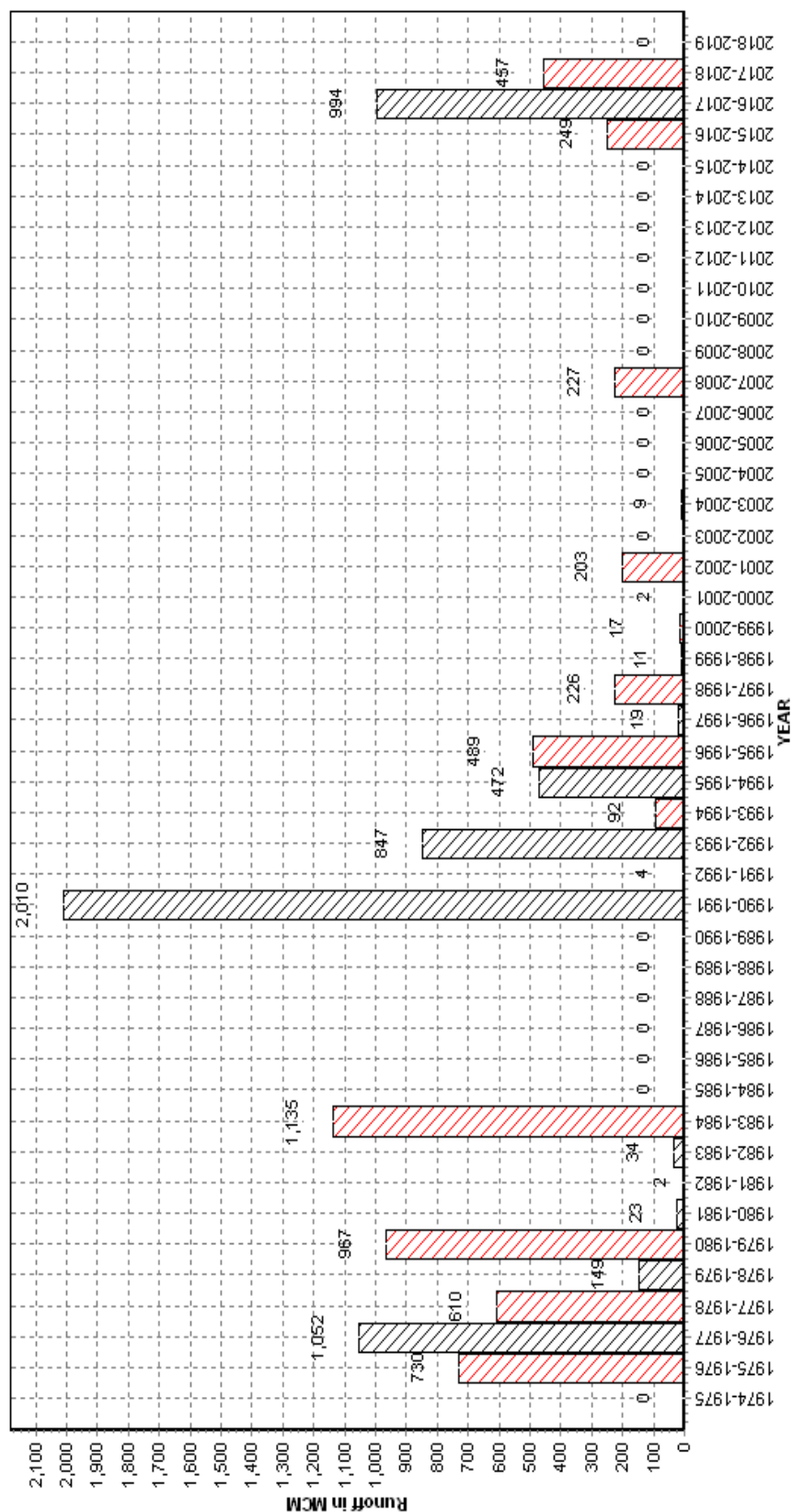
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1974 - 2019

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

Local River : Luni

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

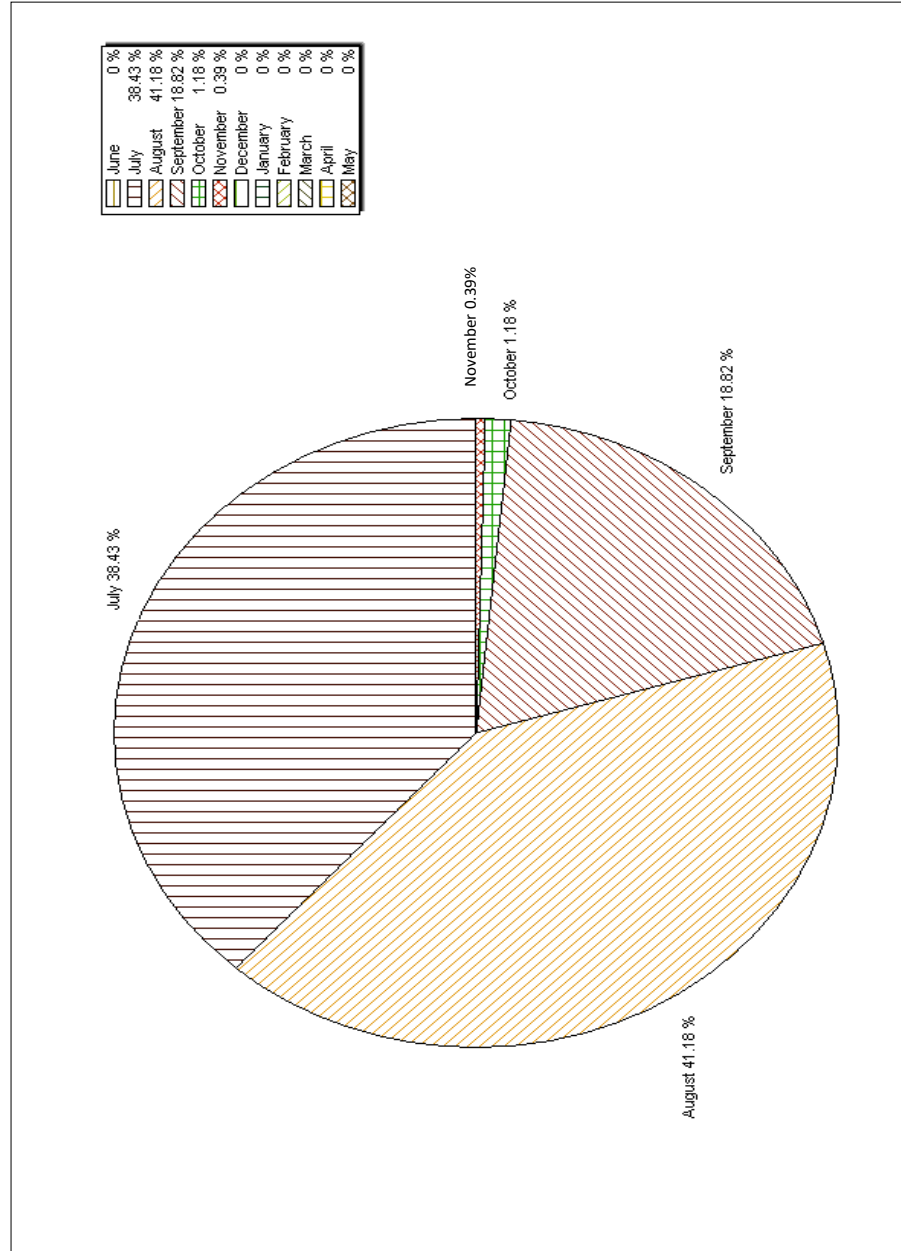


Note: Missing values have not been considered while arriving at Annual Runoff

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 : 1974-2018



HISTORY SHEET

Water Year : 2018-19

Site : Luni at Balotra

Code : 01 02 01 001

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 : B.L.Sub Divn, Palanpur

Drainage

Area : 19000 Sq. Km.

Bank : Left

Latitude : 25°49'19" N

Longitude : 72°13'23" E

Zero of

Gauge (m) : 102 (m.s.l)

05/07/1990 -

Opening Date

Closing Date

Gauge : 05/07/1990

Discharge : 05/07/1990

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
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
2018-2019	River Dry					

Stage-Discharge Data for the period 2018 - 2019

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	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	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	R. Dry	0.000
31			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

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

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 2018 - 2019

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	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	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/Compu

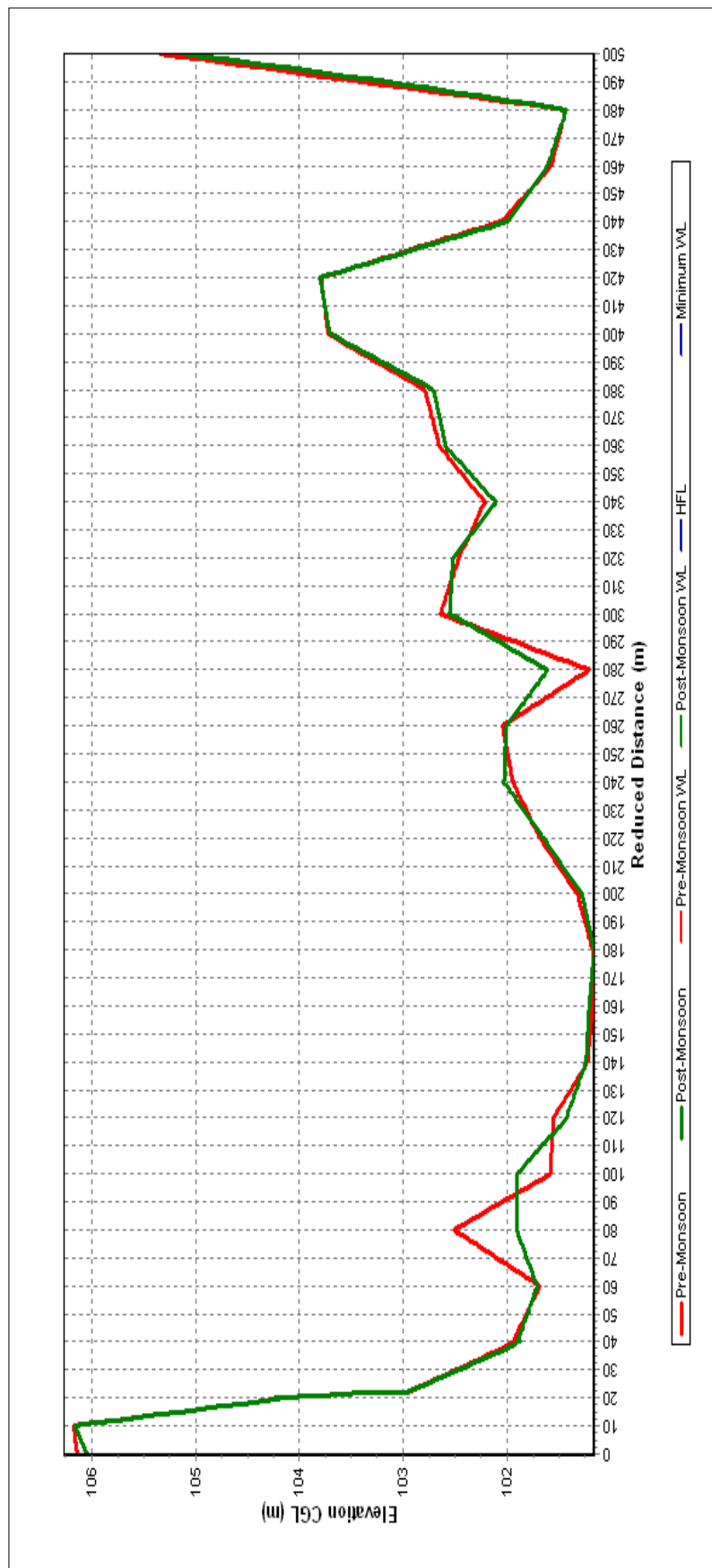
Note:Missing values:

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 -108.755m on 18.07.1979

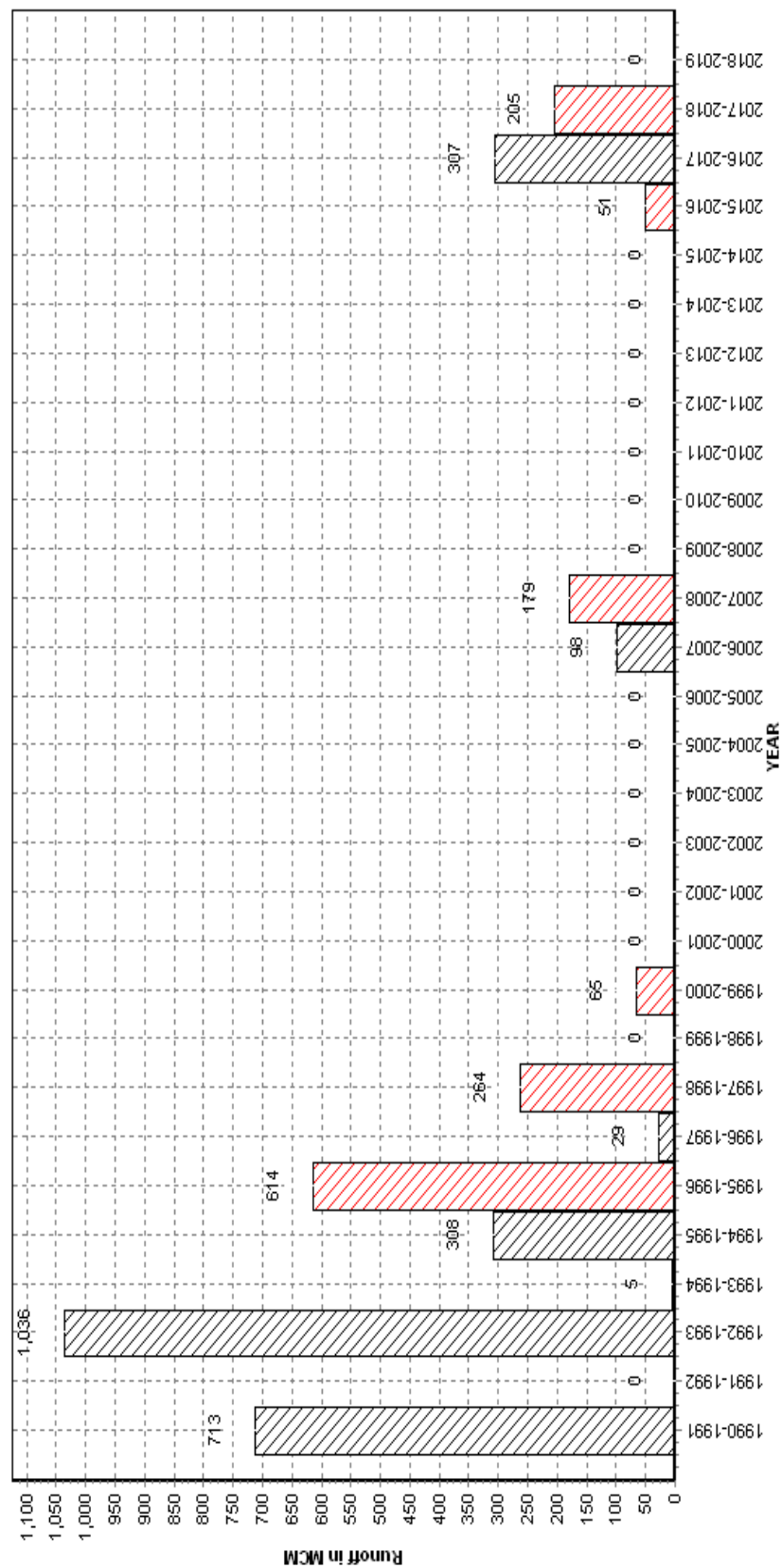
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1990 - 2019

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

Local River : Luni

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

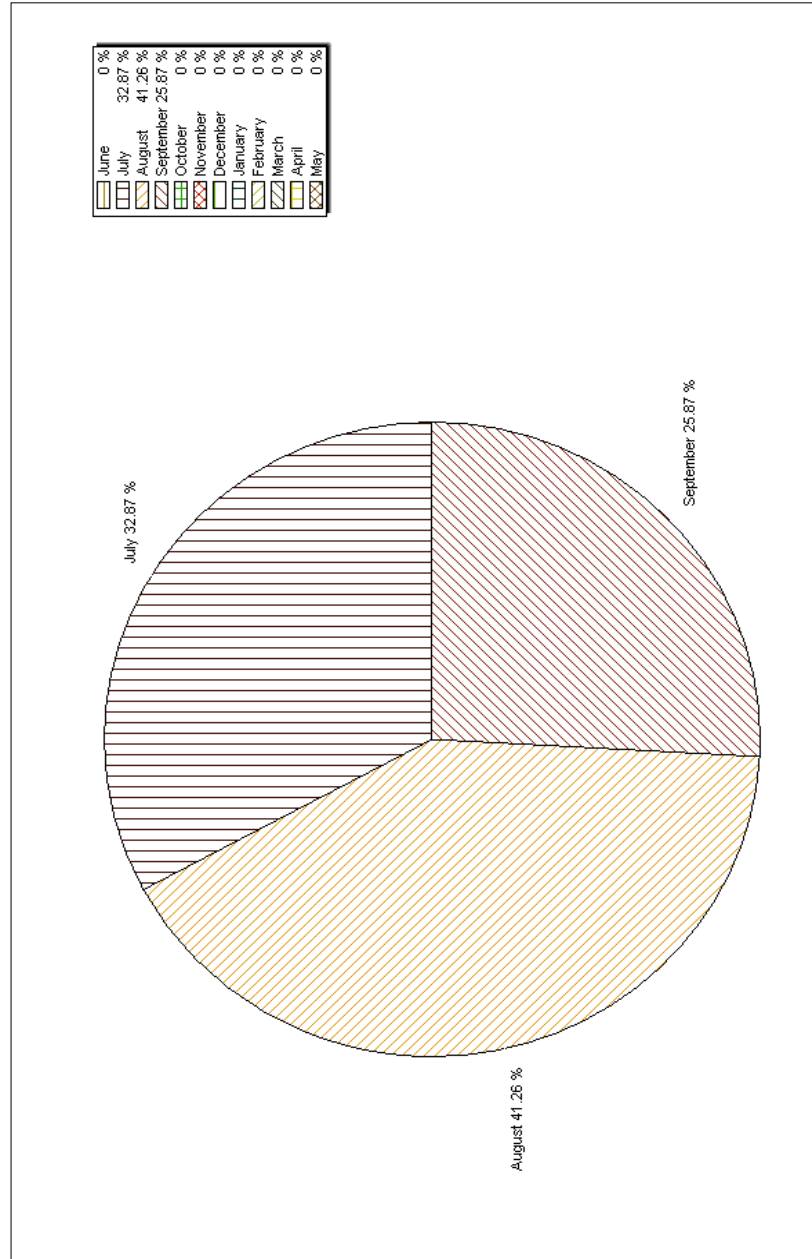


Note: Missing values have not been considered while arriving at Annual Runoff

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 : 1990-2018



HISTORY SHEET

Water Year : 2018-19

Site : Banas at Kamalpur State : Gujarat Basin : WFR of Kach.-Saur. & Luni Tributary : - Sub-Sub Tributary : Division : Mahi Division, Gandhinagar Drainage Area : 6960 Sq. Km. Latitude : 23°47'59" N Zero of Gauge (m) : 34 (m.s.l) Opening Date Gauge : 21/07/1971 Discharge : 25/07/1971 Sediment : 25/08/1973 Water Quality : 01/06/1977	Code : 01 02 02 007 District : Banaskantha Independent River : Banas Sub Tributary : Local River : Banas Sub-Division : B.L.Sub Divn, Palanpur Bank : Right Longitude : 71°45'00" E 01/06/1970 - 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
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
2018-2019	River Dry					

Stage-Discharge Data for the period 2018 - 2019

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	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	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	R. Dry	0.000
31			R. Dry	0.000	R. Dry	0.000			R. Dry	0.000		
<u>Ten-Daily Mean</u>												
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
<u>Monthly</u>												
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

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

Stage-Discharge Data for the period 2018 - 2019

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

Division : Mahi Division, Gandhinagar

Local River : Banas

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

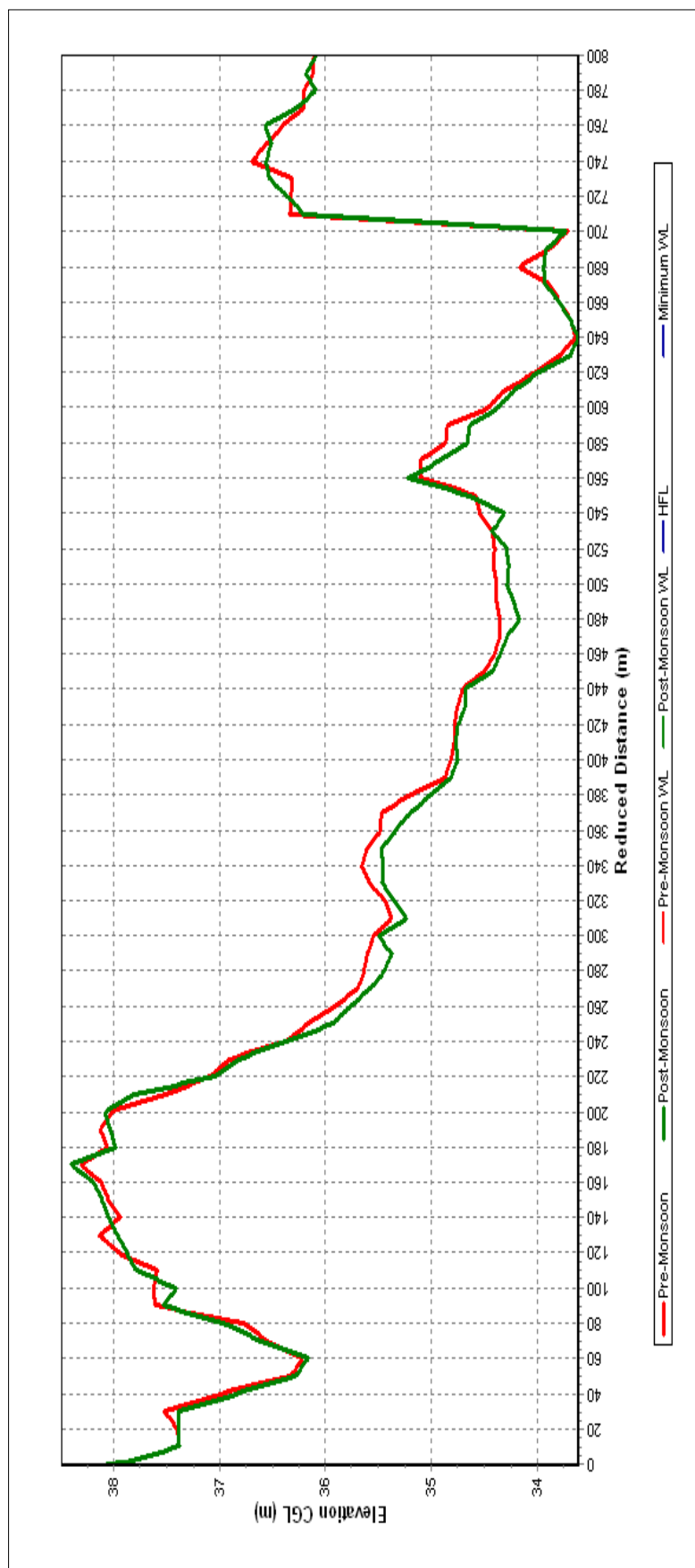
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
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
<u>Ten-Daily Mean</u>												
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
<u>Monthly</u>												
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

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Banas

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



Historic Flood Level - 38.980m on 08.09.1992 at 1700 hrs

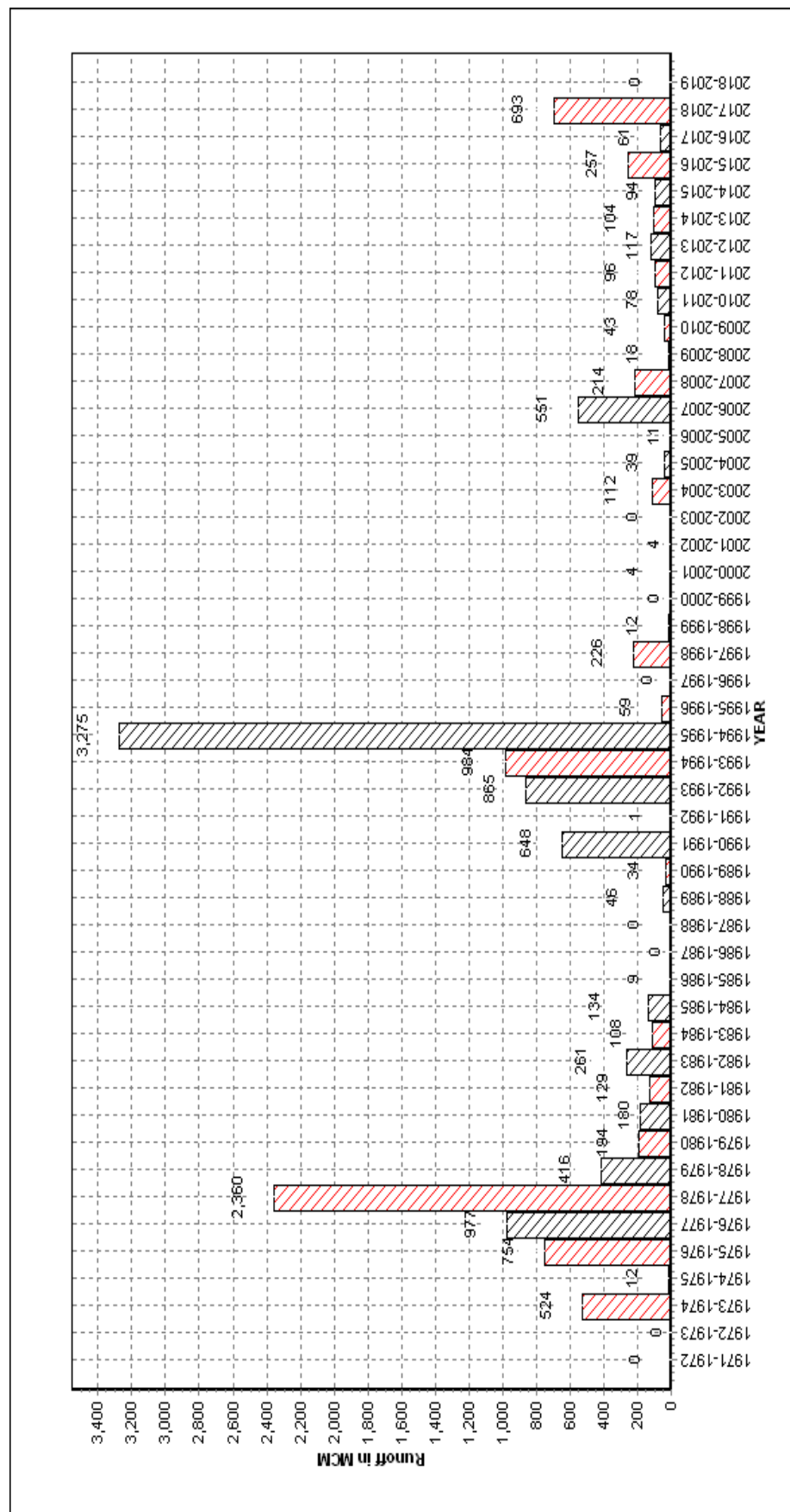
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1971 - 2019

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

Local River : Banas

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

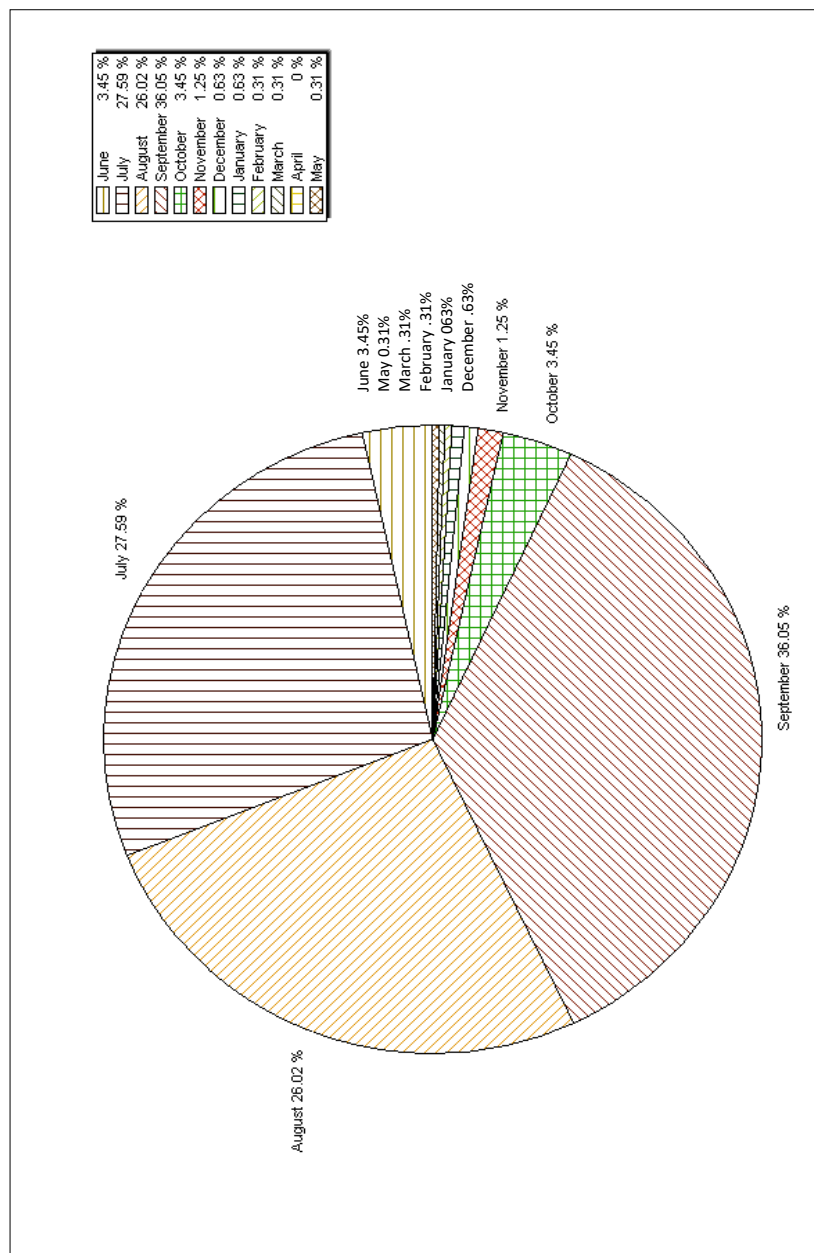


Note: Missing values have not been considered while arriving at Annual Runoff

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 : 1971-2018



HISTORY SHEET

Water Year : 2018-2019

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"

Longitude : 72°29'54"

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 Quality : 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	129.50	185.700	04/07/1990	0.000	R.Dry	25/01/1991
1991-1992	17.13	185.150	31/07/1991	0.000	R.Dry	26/01/1992
1992-1993	274.80	186.750	08/09/1992	0.000	R.Dry	16/02/1993
1993-1994	99.91	185.264	10/07/1993	0.000	R.Dry	25/01/1994
1994-1995	119.30	185.725	20/08/1994	0.000	184.070	16/05/1995
1995-1996	156.70	185.510	27/08/1995	0.000	184.430	26/01/1996
1996-1997	10.01	185.000	29/07/1996	0.000	184.050	25/01/1997
1997-1998	17.22	185.300	11/09/1997	0.000	184.180	25/01/1998
1998-1999	9.50	185.325	29/08/1998	0.000	184.290	25/01/1999
1999-2000	2.51	184.940	03/10/1999	0.000	R.Dry	26/01/2000
2000-2001	1.10	184.500	16/07/2000	0.000	R.Dry	25/01/2001
2001-2002	20.90	185.230	24/07/2001	0.000	184.000	25/01/2002
2002-2003	2.10	184.690	29/06/2002	0.000	184.000	25/01/2003
2003-2004	10.50	185.000	10/07/2003	0.000	184.000	26/01/2004
2004-2005	1.58	185.580	12/08/2004	0.000	184.000	25/01/2005
2005-2006	8.67	185.720	16/09/2005	0.000	184.000	25/01/2006
2006-2007	127.20	186.750	19/08/2006	0.000	185.550	25/01/2007
2007-2008	40.71	186.285	05/08/2007	0.000	R.Dry	26/01/2008
2008-2009	7.00	185.980	15/08/2008	0.000	R.Dry	25/01/2009
2009-2010	30.40	186.335	23/07/2009	0.000	R.Dry	25/01/2010
2010-2011	23.48	186.460	25/07/2010	0.000	185.640	19/12/2010
2011-2012	268.60	187.120	12/09/2011	0.000	185.650	17/02/2012

2012-2013	7.52	186.100	11/07/2012	0.000	185.600	21/02/2013
2013-2014	39.62	186.365	29/09/2013	0.000	185.670	28/01/2014
2014-2015	9.33	186.100	12/09/2014	0.000	185.660	28/11/2014
2015-2016	625.50	188.100	29/07/2015	0.000	185.410	26/10/2015
2016-2017	28.28	185.850	24/08/2016	0.000	R.Dry	28/06/2016
2017-2018	507.70	187.900	25/07/2017	0.000	185.550	09/04/2018
2018-2019	R.Dry					

Stage-Discharge Data for the period 2018 - 2019

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	185.54	0.000	185.57	0.000	185.62	0.000	185.66	0.000	185.61	0.000	185.60	0.000
2	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
3	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
4	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
5	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
6	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
7	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
8	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
9	185.54	0.000	185.57	0.000	185.62	0.000	185.63	0.000	185.60	0.000	185.60	0.000
10	185.54	0.000	185.57	0.000	185.62	0.000	185.63	0.000	185.60	0.000	185.59	0.000
11	185.54	0.000	185.57	0.000	185.62	0.000	185.65	0.000	185.60	0.000	185.59	0.000
12	185.54	0.000	185.57	0.000	185.62	0.000	185.65	0.000	185.60	0.000	185.59	0.000
13	185.54	0.000	185.57	0.000	185.62	0.000	185.65	0.000	185.60	0.000	185.59	0.000
14	185.54	0.000	185.57	0.000	185.62	0.000	185.65	0.000	185.60	0.000	185.59	0.000
15	185.54	0.000	185.58	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.59	0.000
16	185.54	0.000	185.58	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.59	0.000
17	185.54	0.000	185.59	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.59	0.000
18	185.54	0.000	185.59	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.59	0.000
19	185.54	0.000	185.59	0.000	185.64	0.000	185.64	0.000	185.60	0.000	185.59	0.000
20	185.54	0.000	185.68	0.000	185.64	0.000	185.63	0.000	185.60	0.000	185.59	0.000
21	185.54	0.000	185.65	0.000	185.64	0.000	185.63	0.000	185.60	0.000	185.59	0.000
22	185.54	0.000	185.63	0.000	185.64	0.000	185.63	0.000	185.60	0.000	185.59	0.000
23	185.54	0.000	185.62	0.000	185.64	0.000	185.63	0.000	185.60	0.000	185.59	0.000
24	185.54	0.000	185.62	0.000	185.64	0.000	185.63	0.000	185.60	0.000	185.59	0.000
25	185.54	0.000	185.62	0.000	185.63	0.000	185.62	0.000	185.60	0.000	185.58	0.000
26	185.54	0.000	185.62	0.000	185.63	0.000	185.62	0.000	185.60	0.000	185.58	0.000
27	185.54	0.000	185.62	0.000	185.63	0.000	185.62	0.000	185.60	0.000	185.58	0.000
28	185.54	0.000	185.62	0.000	185.63	0.000	185.61	0.000	185.60	0.000	185.58	0.000
29	185.54	0.000	185.62	0.000	185.63	0.000	185.61	0.000	185.60	0.000	185.57	0.000
30	185.59	0.000	185.62	0.000	185.65	0.000	185.61	0.000	185.60	0.000	185.57	0.000
31			185.62	0.000	185.67	0.000			185.60	0.000		
<u>Ten-Daily Mean</u>												
I Ten-Daily	185.54	0.000	185.57	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.60	0.000
II Ten-Daily	185.54	0.000	185.59	0.000	185.62	0.000	185.64	0.000	185.60	0.000	185.59	0.000
III Ten-Daily	185.55	0.000	185.62	0.000	185.64	0.000	185.62	0.000	185.60	0.000	185.58	0.000
<u>Monthly</u>												
Min.	185.54	0.000	185.57	0.000	185.62	0.000	185.61	0.000	185.60	0.000	185.57	0.000
Max.	185.59	0.000	185.68	0.000	185.67	0.000	185.66	0.000	185.61	0.000	185.60	0.000
Mean	185.54	0.000	185.60	0.000	185.63	0.000	185.63	0.000	185.60	0.000	185.59	0.000

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

River was in pooling condition/Negligible flow from 01/06/2018 to 19/05/2019

Stage-Discharge Data for the period 2018 - 2019

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

Division : Mahi Division, Gandhinagar

Local River : Balaram

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

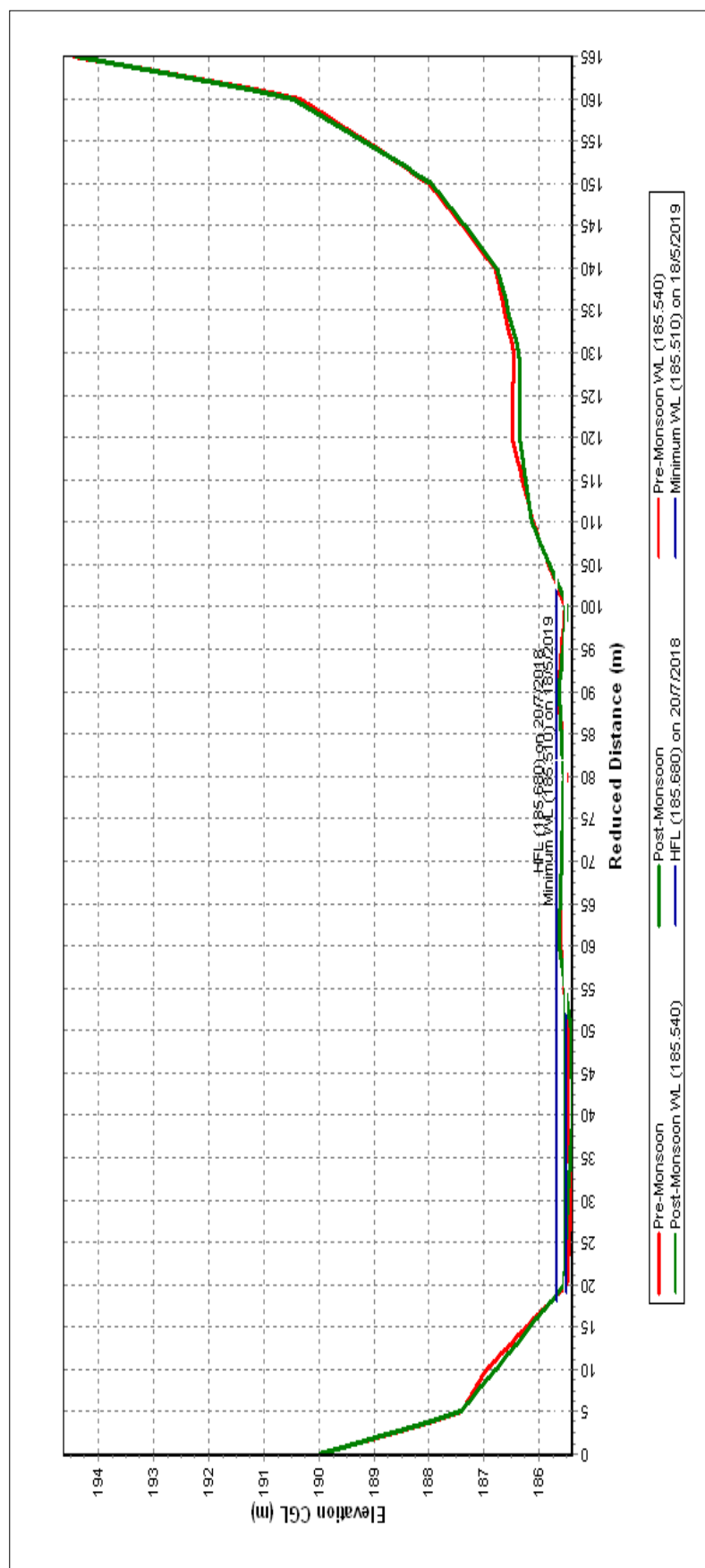
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
2	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
3	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
4	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
5	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
6	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
7	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
8	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
9	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
10	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
11	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
12	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
13	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
14	185.56	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
15	185.56	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
16	185.56	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
17	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.52	0.000
18	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.51	0.000
19	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.51	0.000
20	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
21	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
22	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
23	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
24	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
25	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
26	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
27	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
28	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
29	185.55	0.000	185.54	0.000			185.54	0.000	185.52	0.000	184.00	0.000
30	185.55	0.000	185.54	0.000			185.54	0.000	185.52	0.000	184.00	0.000
31	185.55	0.000	185.54	0.000			185.54	0.000			184.00	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
II Ten-Daily	185.56	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	185.37	0.000
III Ten-Daily	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
<u>Monthly</u>												
Min.	185.55	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000	184.00	0.000
Max.	185.57	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.52	0.000
Mean	185.56	0.000	185.54	0.000	185.54	0.000	185.54	0.000	185.53	0.000	184.93	0.000

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 -190.77m on 29.07.2015

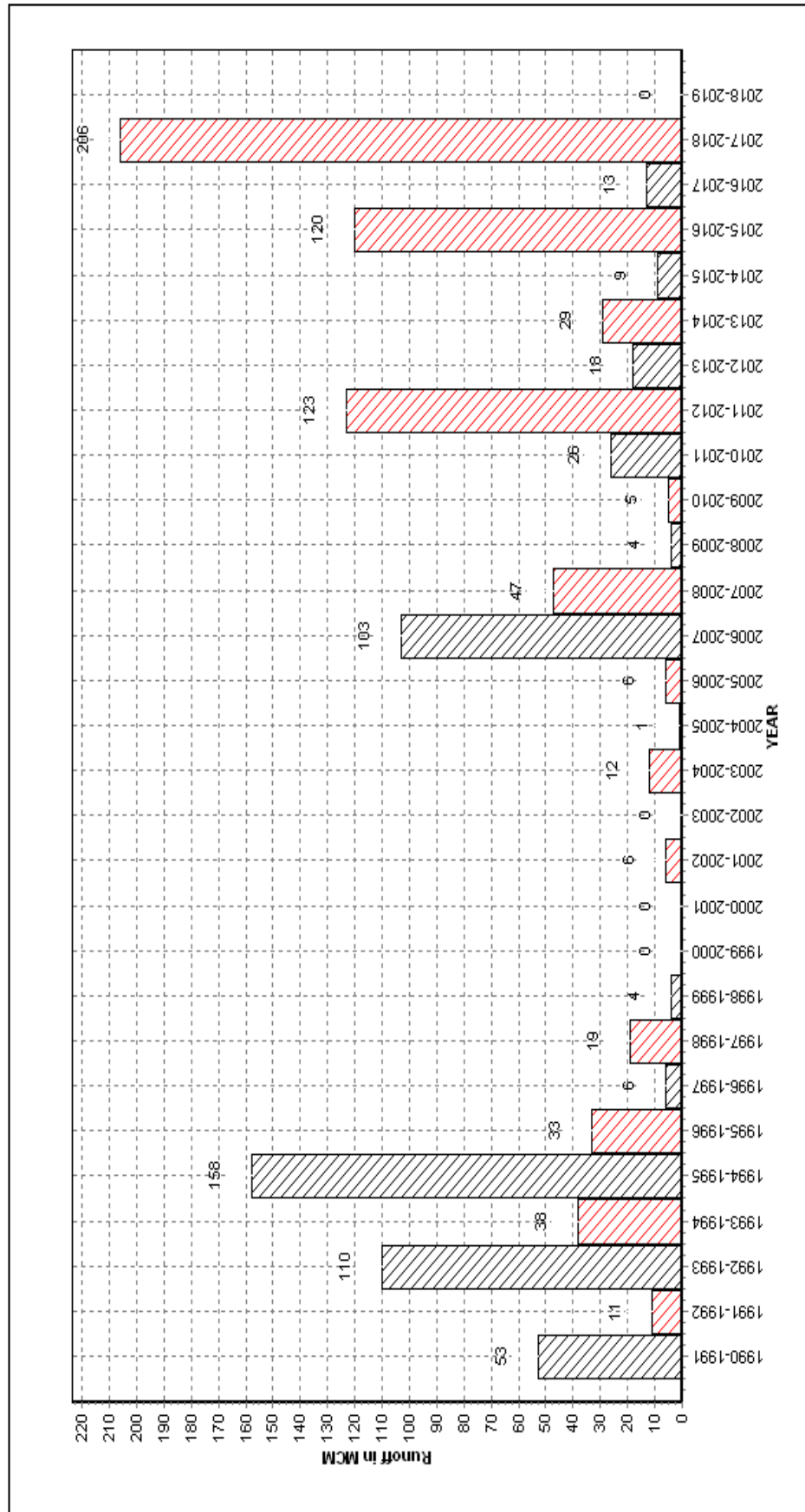
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1990 - 2019

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

Local River : Balaram

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



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

Monthly Average Runoff based on period : 1990-2018

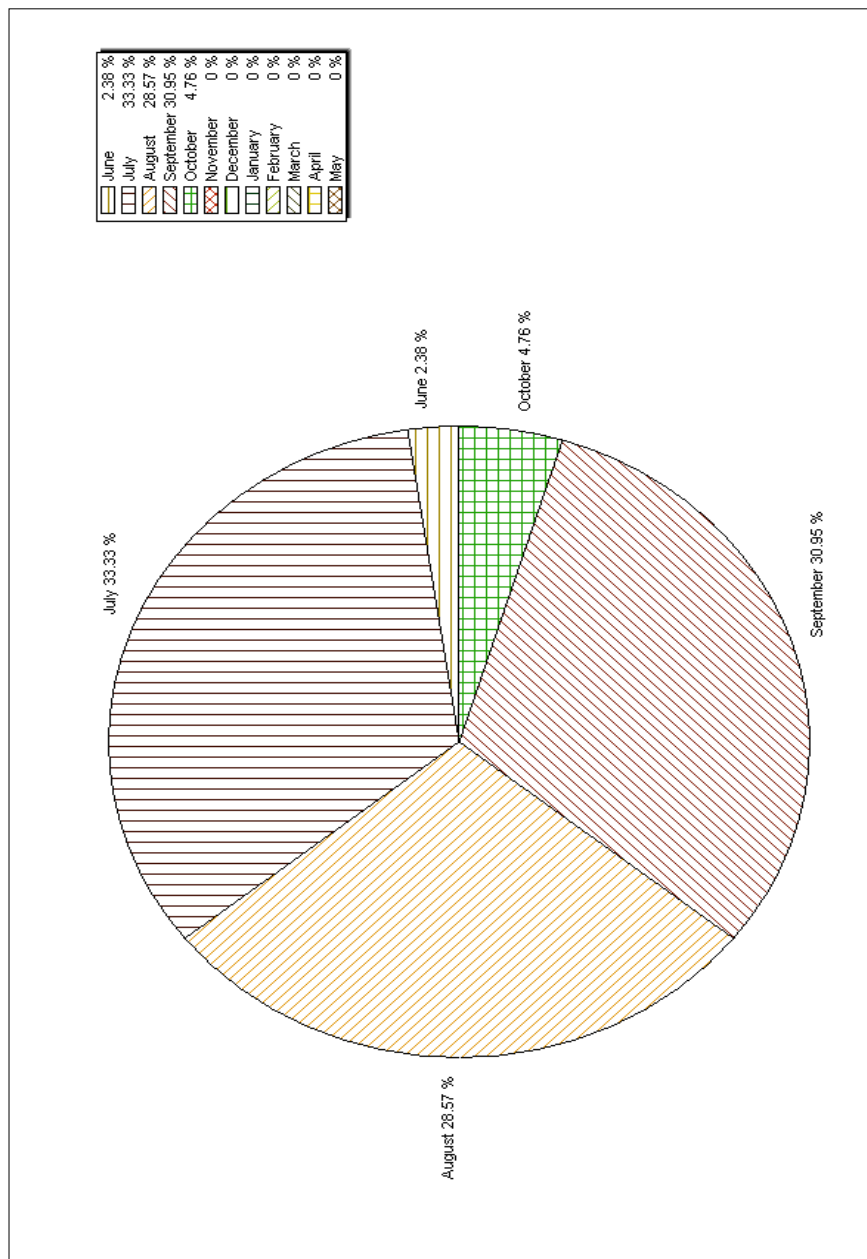
Station Name : Balaram at Chitrasani (01 02 02 004)

Local River : Balaram

Division : Mahi Division, Gandhinagar

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

Monthly Average Runoff based on period : 1990-2019



HISTORY SHEET

Water Year : 2018-19

Site : Banas at Sarotry **Code** : 01 02 02 003
State : Gujarat **District** : Banaskantha
Basin : WFR of Kach.-Saur. & Luni **Independent**
Tributary : - **River** : Banas
Sub-Sub : **Local River** : Banas
Tributary : **Sub**
Division : Mahi Division, Gandhinagar **Tributary** :
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		Date
	Q (cumecs)	WL (m)	Date	Q (cumecs)	WL (m)	
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
2018-2019	35.03	186.800	21/07/2018	0.000	186.120	25/09/2018

Stage-Discharge Data for the period 2018 - 2019

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	186.310	2.710	186.270	1.075	186.353	4.211	186.100	0.000	R. Dry	0.000
2	R. Dry	0.000	186.200	0.615	186.250	1.037	186.320	2.619 *	186.100	0.000	R. Dry	0.000
3	R. Dry	0.000	186.135	0.390	186.230	0.762	186.300	2.152 *	186.100	0.000	R. Dry	0.000
4	R. Dry	0.000	186.050	0.000	186.200	0.726	186.280	1.562	186.090	0.000	R. Dry	0.000
5	R. Dry	0.000	186.040	0.000	186.190	0.491 *	186.280	1.425	186.090	0.000	R. Dry	0.000
6	R. Dry	0.000	186.030	0.000	186.190	0.626	186.270	1.056	186.080	0.000	R. Dry	0.000
7	R. Dry	0.000	186.010	0.000	186.180	0.549	186.250	0.975	186.080	0.000	R. Dry	0.000
8	R. Dry	0.000	186.050	0.000	186.150	0.208 *	186.240	0.921	186.080	0.000	R. Dry	0.000
9	R. Dry	0.000	186.000	0.000	186.150	0.208 *	186.230	0.932 *	186.080	0.000	R. Dry	0.000
10	R. Dry	0.000	186.000	0.000	186.150	0.208 *	186.220	0.896	186.070	0.000	R. Dry	0.000
11	R. Dry	0.000	186.000	0.000	186.150	0.208 *	186.210	0.866	186.070	0.000	R. Dry	0.000
12	R. Dry	0.000	186.000	0.000	186.150	0.208 *	186.200	0.758	186.070	0.000	R. Dry	0.000
13	R. Dry	0.000	186.000	0.000	186.150	0.208 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
14	R. Dry	0.000	186.000	0.000	186.140	0.159 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
15	R. Dry	0.000	186.000	0.000	186.140	0.159 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
16	R. Dry	0.000	186.000	0.000	186.140	0.159 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
17	R. Dry	0.000	186.000	0.000	186.140	0.159 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
18	R. Dry	0.000	186.000	0.000	186.150	0.208 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
19	R. Dry	0.000	186.000	0.000	186.350	3.426 *	186.180	0.406 *	186.060	0.000	R. Dry	0.000
20	R. Dry	0.000	186.760	30.660	186.315	2.410	186.180	0.406 *	186.050	0.000	R. Dry	0.000
21	R. Dry	0.000	186.800	35.030	186.264	1.793	186.160	0.265 *	R. Dry	0.000	R. Dry	0.000
22	R. Dry	0.000	186.600	16.060 *	186.240	0.696	186.160	0.265 *	R. Dry	0.000	R. Dry	0.000
23	R. Dry	0.000	186.473	9.514	186.230	0.696	186.130	0.118 *	R. Dry	0.000	R. Dry	0.000
24	R. Dry	0.000	186.400	6.760	186.190	0.505	186.130	0.118 *	R. Dry	0.000	R. Dry	0.000
25	R. Dry	0.000	186.350	3.998	186.180	0.406 *	186.120	0.000	R. Dry	0.000	R. Dry	0.000
26	R. Dry	0.000	186.350	3.376	186.170	0.331 *	186.120	0.000	R. Dry	0.000	R. Dry	0.000
27	R. Dry	0.000	186.323	2.746	186.170	0.331 *	186.120	0.000	R. Dry	0.000	R. Dry	0.000
28	R. Dry	0.000	186.293	2.536	186.190	0.491 *	186.100	0.000	R. Dry	0.000	R. Dry	0.000
29	R. Dry	0.000	186.280	1.740 *	186.190	0.491 *	186.100	0.000	R. Dry	0.000	R. Dry	0.000
30	186.510	17.900	186.280	1.740 *	186.190	0.491 *	186.100	0.000	R. Dry	0.000	R. Dry	0.000
31			186.280	1.202	186.370	4.569						
Ten-Daily Mean												
I Ten-Daily			186.083	1.238	186.196	0.589	186.274	1.675	186.087	0.000	R. Dry	0.000
II Ten-Daily			186.076	30.660	186.182	0.730	186.185	0.487	186.061	0.000	R. Dry	0.000
III Ten-Daily	186.510	17.900	186.403	7.701	186.217	0.982	186.124	0.077			R. Dry	0.000
Monthly												
Min.	186.510	17.900	186.000	0.390	186.140	0.159	186.100	0.000	186.050	0.000	R. Dry	0.000
Max.	186.510	17.900	186.800	35.030	186.370	4.569	186.353	4.211	186.100	0.000	R. Dry	0.000
Mean	186.510	17.900	186.194	7.939	186.199	0.774	186.194	0.746	186.074	0.000	R. Dry	0.000

Annual Runoff in MCM = 16 Annual Runoff in mm = 7

Peak Observed Discharge = 35.03 cumecs on 21/07/2018 Corres. Water Level :186.8 m

Lowest Observed Discharge = 0.000 cumecs on 25/09/2018 Corres. Water Level :186.12 m

Stage-Discharge Data for the period 2018 - 2019

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

Division : Mahi Division, Gandhinagar

Local River : Banas

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

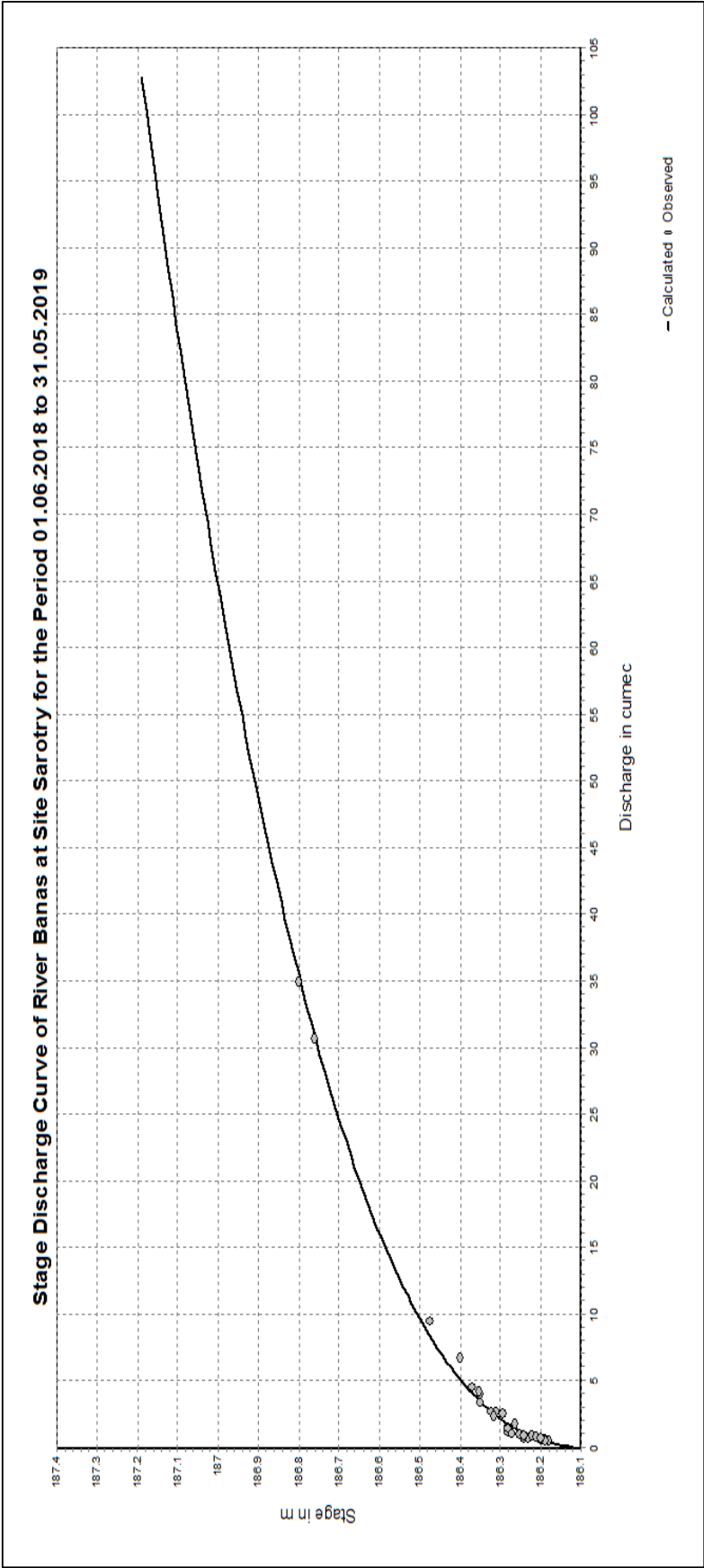
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
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 = 16.06 cumecs on 22/07/2018

Corres. Water Level :186.6 m

Lowest Computed Discharge = 0.118 cumecs on 23/09/2018

Corres. Water Level :186.13 m



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

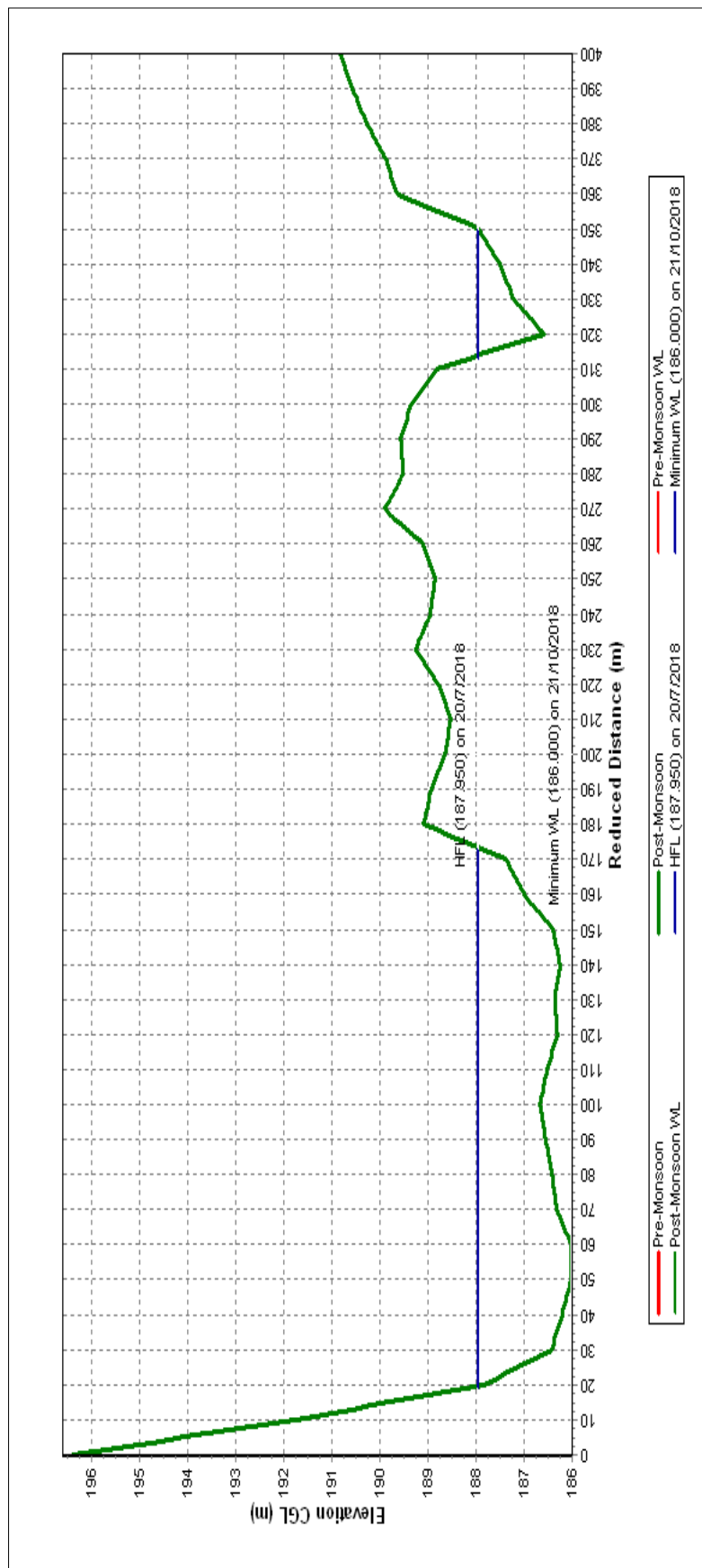
LB	UB	a	b	c
186.12	187.2	-186.05	2.549	73.727

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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

Local River : Banas

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



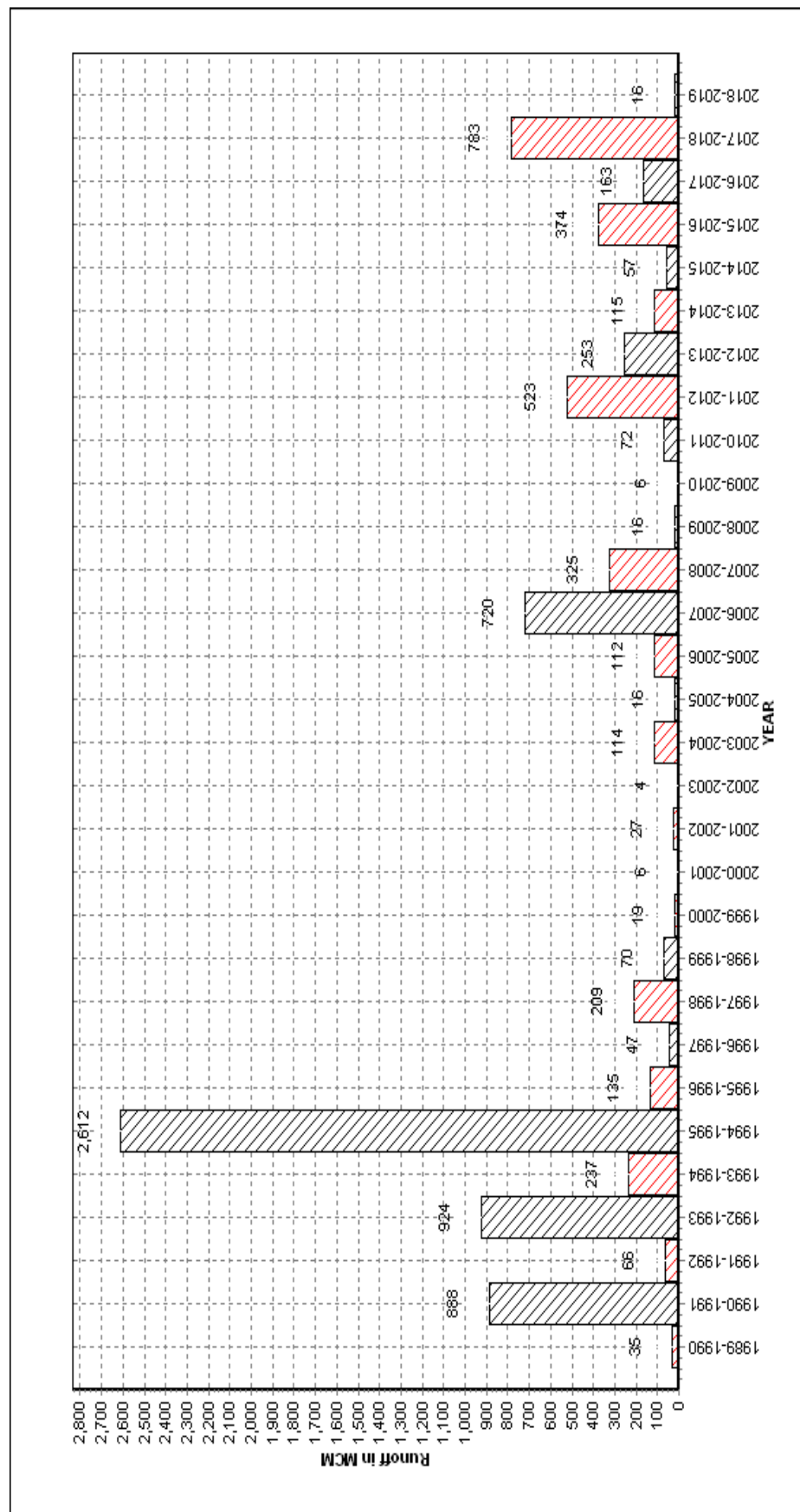
Historic Flood Level - 194.31m on 01.09.1973

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1989 - 2019

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

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

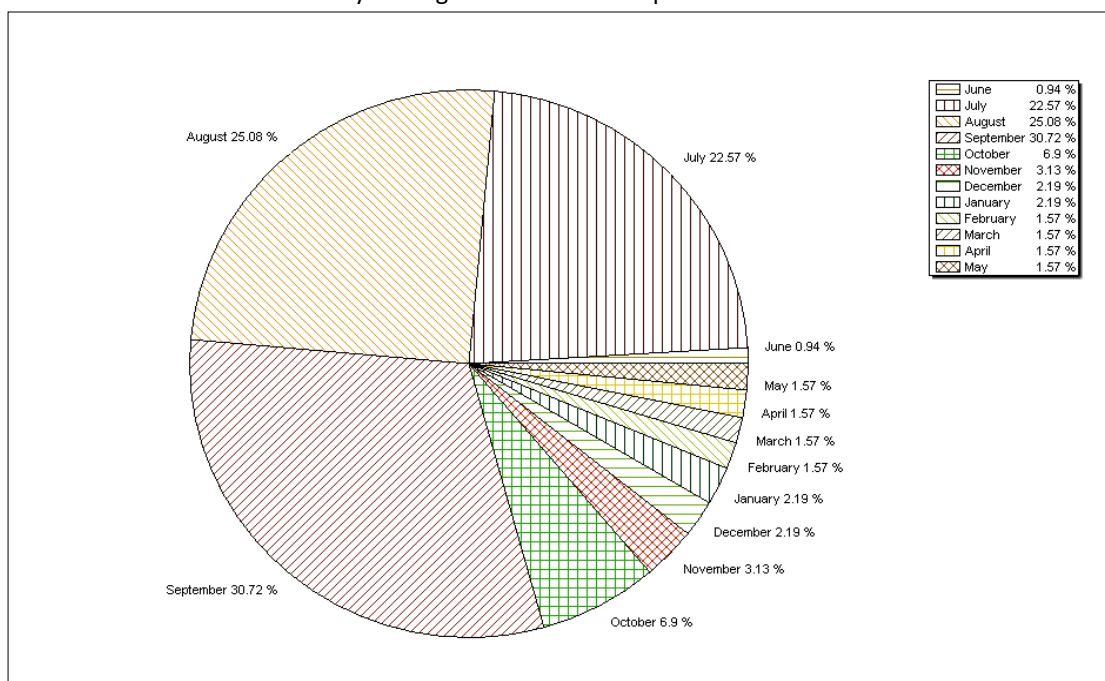


Note: Missing values have not been considered while arriving at Annual Runoff

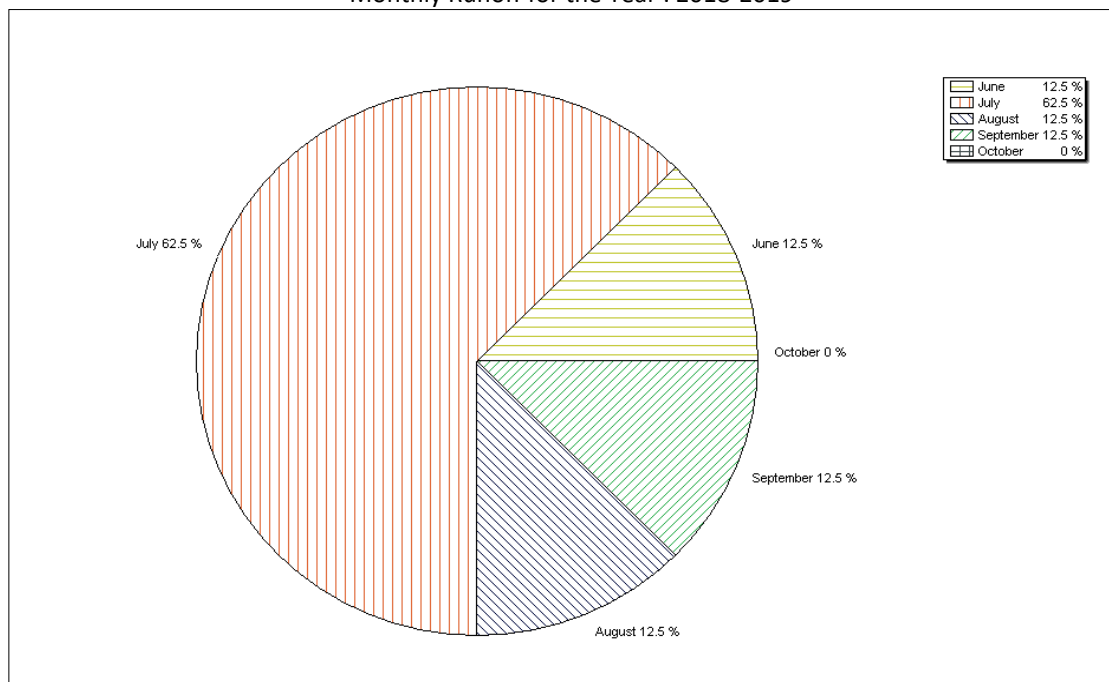
Station Name : Banas at Sarotry (01 02 02 003)
Local River : Banas

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

Monthly Average Runoff based on period : 1989-2018



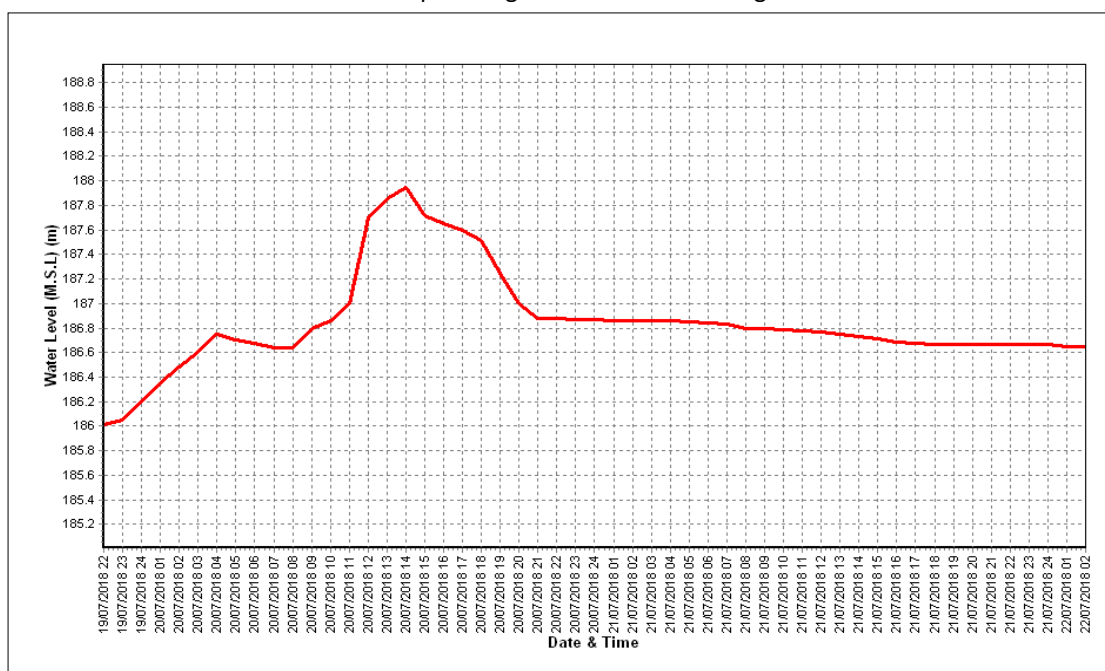
Monthly Runoff for the Year : 2018-2019



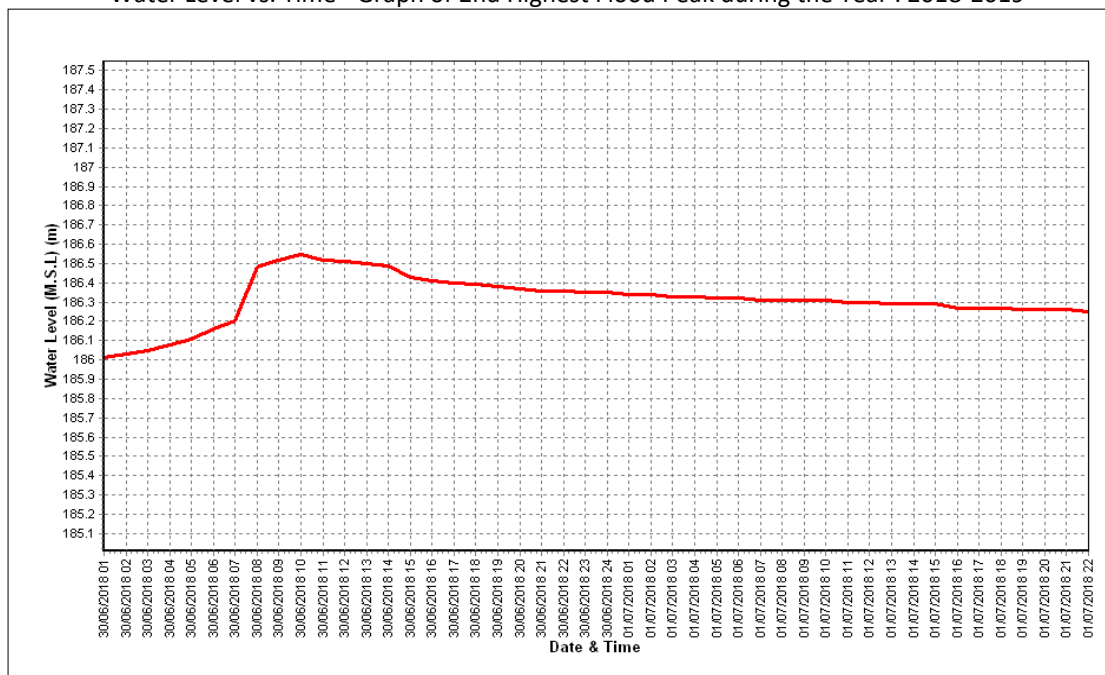
Station Name : Banas at Sarotry (01 02 02 003)
Local River : Banas

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

Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



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 : 2018-19 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
--	---

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
2018-2019	9.382	254.470	29/08/2018	0.000	River Dry	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	253.880	0.873 *	253.770	0.269 *	253.950	1.664	253.685	0.000	253.590	0.000
2	R. Dry	0.000	253.770	0.269 *	253.770	0.269 *	253.930	1.485	253.685	0.000	253.590	0.000
3	R. Dry	0.000	253.750	0.195 *	253.770	0.283	253.920	1.384	253.680	0.000	253.590	0.000
4	R. Dry	0.000	253.725	0.119 *	253.760	0.244	253.910	1.089	253.680	0.000	253.590	0.000
5	R. Dry	0.000	253.700	0.000	253.760	0.245	253.900	0.969	253.680	0.000	253.590	0.000
6	R. Dry	0.000	253.710	0.000	253.750	0.217	253.890	0.948	253.650	0.000	253.590	0.000
7	R. Dry	0.000	253.680	0.000	253.750	0.197	253.880	0.884	253.640	0.000	253.590	0.000
8	R. Dry	0.000	253.680	0.000	253.730	0.172	253.870	0.858	253.620	0.000	253.590	0.000
9	R. Dry	0.000	253.670	0.000	253.730	0.164	253.850	0.763	253.620	0.000	253.590	0.000
10	R. Dry	0.000	253.660	0.000	253.720	0.155	253.840	0.726	253.620	0.000	253.590	0.000
11	R. Dry	0.000	253.660	0.000	253.730	0.152 *	253.840	0.673	253.620	0.000	253.590	0.000
12	R. Dry	0.000	253.650	0.000	253.680	0.000	253.830	0.636	253.620	0.000	253.590	0.000
13	R. Dry	0.000	253.650	0.000	253.680	0.000	253.830	0.636 *	253.620	0.000	253.590	0.000
14	R. Dry	0.000	253.640	0.000	253.670	0.000	253.820	0.416	253.620	0.000	253.590	0.000
15	R. Dry	0.000	253.630	0.000	253.670	0.000	253.810	0.351	253.610	0.000	253.590	0.000
16	R. Dry	0.000	253.640	0.000	253.670	0.000	253.800	0.290	253.610	0.000	253.590	0.000
17	R. Dry	0.000	253.650	0.000	253.700	0.000	253.800	0.290	253.600	0.000	253.590	0.000
18	R. Dry	0.000	253.630	0.000	253.700	0.000	253.790	0.256	253.600	0.000	253.590	0.000
19	R. Dry	0.000	253.640	0.000	254.045	0.000	253.765	0.163	253.600	0.000	253.590	0.000
20	R. Dry	0.000	254.400	7.980 *	253.950	0.000	253.765	0.250 *	253.600	0.000	253.590	0.000
21	R. Dry	0.000	254.660	14.04 *	253.900	1.000	253.755	0.213 *	253.600	0.000	253.590	0.000
22	R. Dry	0.000	254.200	4.440 *	253.890	0.998	253.745	0.178 *	253.600	0.000	253.590	0.000
23	R. Dry	0.000	253.800	0.401 *	253.885	0.509	253.720	0.106 *	253.600	0.000	253.580	0.000
24	R. Dry	0.000	253.780	0.310 *	253.880	0.873 *	253.710	0.000	253.600	0.000	253.580	0.000
25	R. Dry	0.000	253.895	0.980 *	253.880	0.873 *	253.695	0.000	253.600	0.000	253.580	0.000
26	252.000	0.000	253.795	0.377 *	253.820	0.502 *	253.690	0.000	253.590	0.000	253.580	0.000
27	252.000	0.000	253.795	0.377 *	253.820	0.502 *	253.690	0.000	253.590	0.000	253.580	0.000
28	252.000	0.000	253.795	0.377 *	253.820	0.417	253.690	0.000	253.590	0.000	253.580	0.000
29	253.795	0.377 *	253.780	0.310 *	254.470	9.382	253.685	0.000	253.590	0.000	253.580	0.000
30	254.000	1.901 #	253.780	0.310 #	254.250	6.166	253.685	0.000	253.590	0.000	253.580	0.000
31			253.780	0.310 *	254.032	2.689			253.590	0.000		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	253.722	0.146	253.751	0.221	253.894	1.077	253.656	0.000	253.590	0.000
II Ten-Daily	R. Dry	0.000	253.719	0.798	253.749	0.015	253.805	0.396	253.610	0.000	253.590	0.000
III Ten-Daily	252.759	0.456	253.915	2.021	253.968	2.174	253.706	0.050	253.595	0.000	253.582	0.000
Monthly												
Min.	252.000	0.000	253.630	0.000	253.670	0.000	253.685	0.000	253.590	0.000	253.580	0.000
Max.	254.000	1.901	254.660	14.04	254.470	9.382	253.950	1.664	253.685	0.000	253.590	0.000
Mean	252.759	0.456	253.790	1.022	253.827	0.848	253.802	0.508	253.619	0.000	253.587	0.000

Annual Runoff in MCM = 7 Annual Runoff in mm = 4

Peak Observed Discharge = 9.382 cumecs on 29/08/2018 Corres. Water Level :254.47 m

Lowest Observed Discharge = 0.000 cumecs on 26/06/2018 Corres. Water Level :252 m

River was in pooling condition/Negligible flow from 26/06/2018 to28/06/2018, 12/08/2018 to 20/08/2018 and 20/09/2018 to 19/02/2019

Stage-Discharge Data for the period 2018 - 2019

Station Name : Banas at Abu Road (01 02 02 002)

Division : Mahi Division, Gandhinagar

Local River : Banas

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

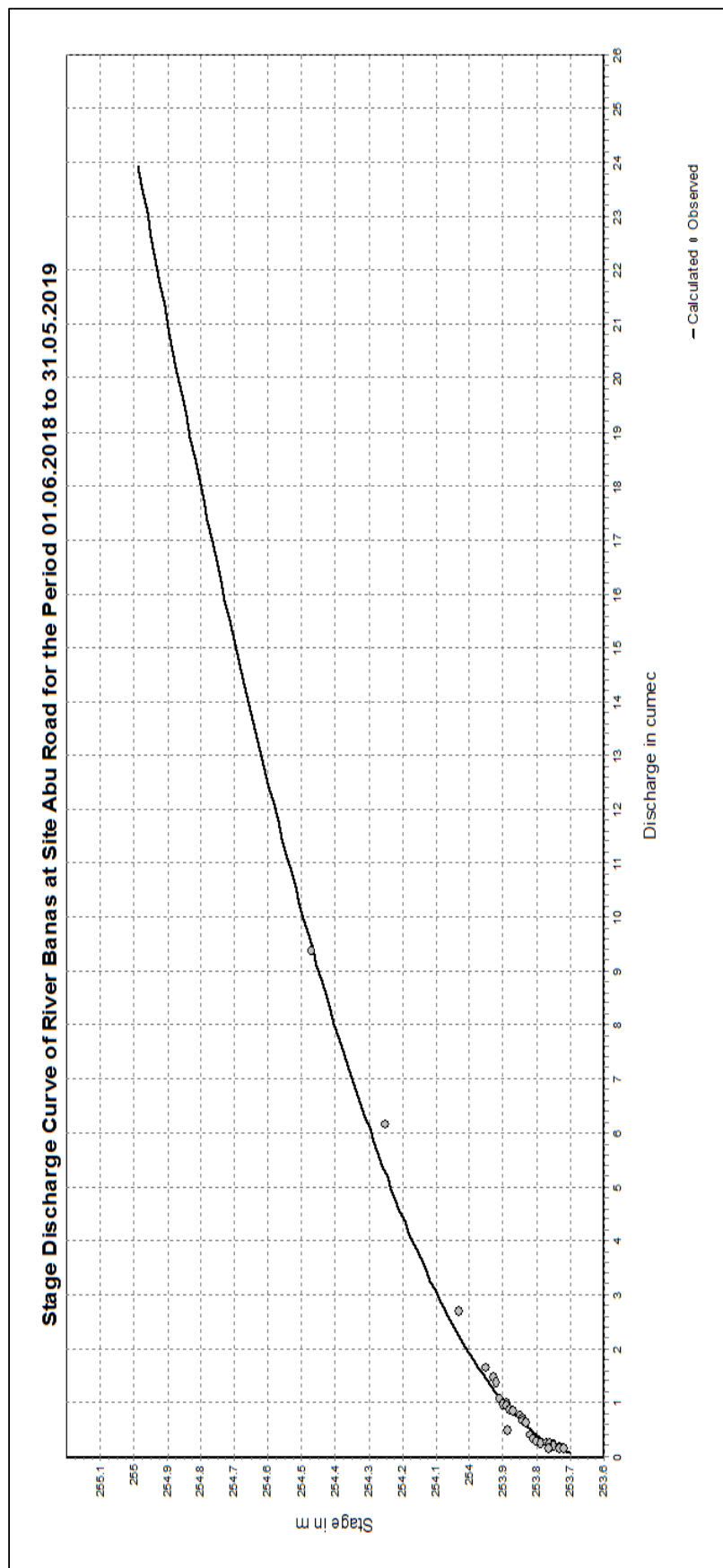
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	253.580	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	253.580	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	253.580	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	253.570	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	253.560	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
14	253.560	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
15	253.550	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
16	253.550	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
17	253.550	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
18	253.540	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
19	253.540	0.000	253.540	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
20	253.540	0.000	253.540	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
21	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
22	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
23	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
24	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
25	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
26	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
27	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
28	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
29	253.540	0.000	253.535	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
30	253.540	0.000	253.535	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
31	253.540	0.000	253.535	0.000			R. Dry	0.000			R. Dry	0.000
Ten-Daily Mean												
I Ten-Daily	253.573	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
II Ten-Daily	253.553	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Monthly												
Min.	253.540	0.000	253.535	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	253.580	0.000	253.540	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	253.555	0.000	253.538	0.000	253.535	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000

Peak Computed Discharge = 14.04 cumecs on 21/07/2018

Corres. Water Level :254.66 m

Lowest Computed Discharge = 0.000 cumecs on 01/10/2018

Corres. Water Level :253.685 m



Procedure-Standard

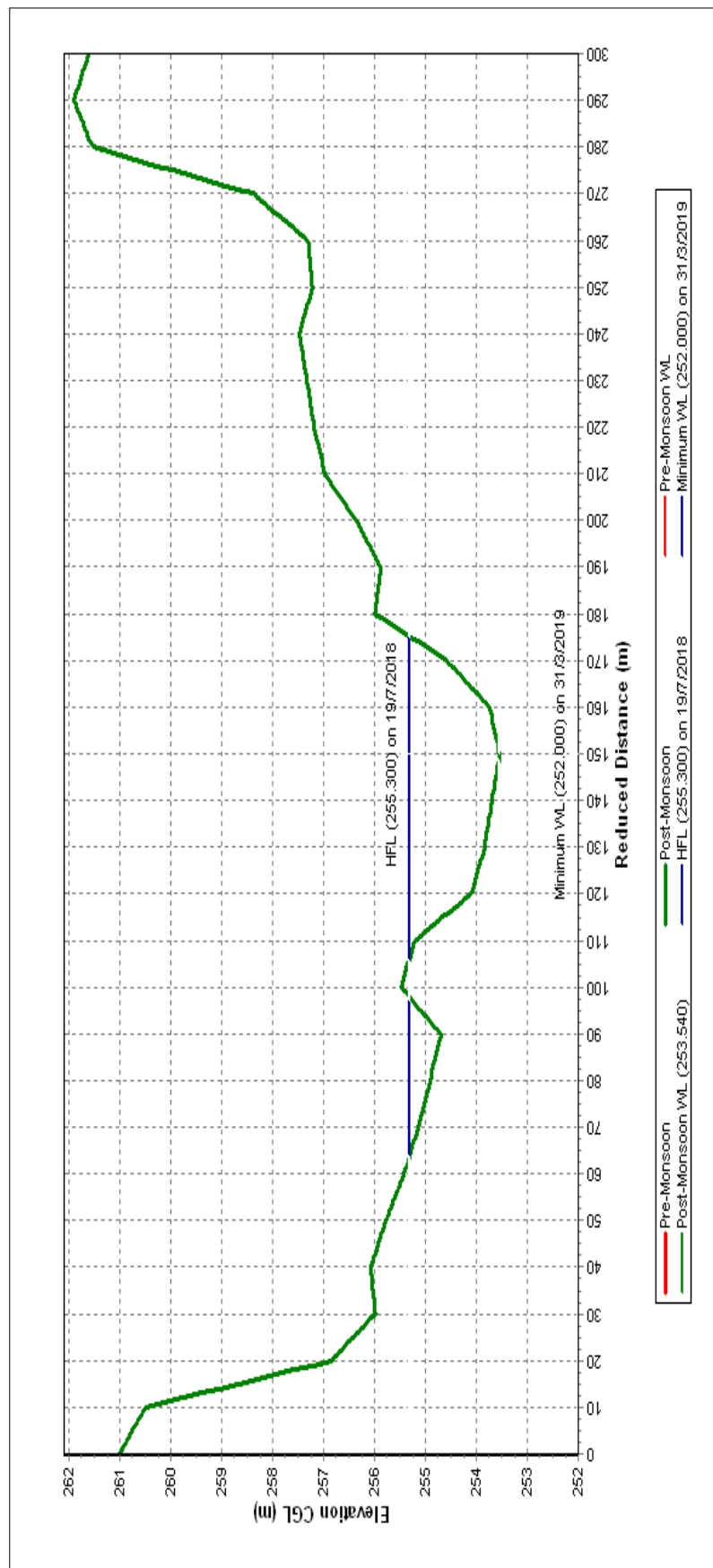
Equation Type-Parabolic		$Q=(a+bh+ch^2)$		
LB	UB	a	b	c
253.7	255	-253.64	1.92	13.515

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

Station Name : Banas at Abu Road (01 02 02 002)

Local River : Banas

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



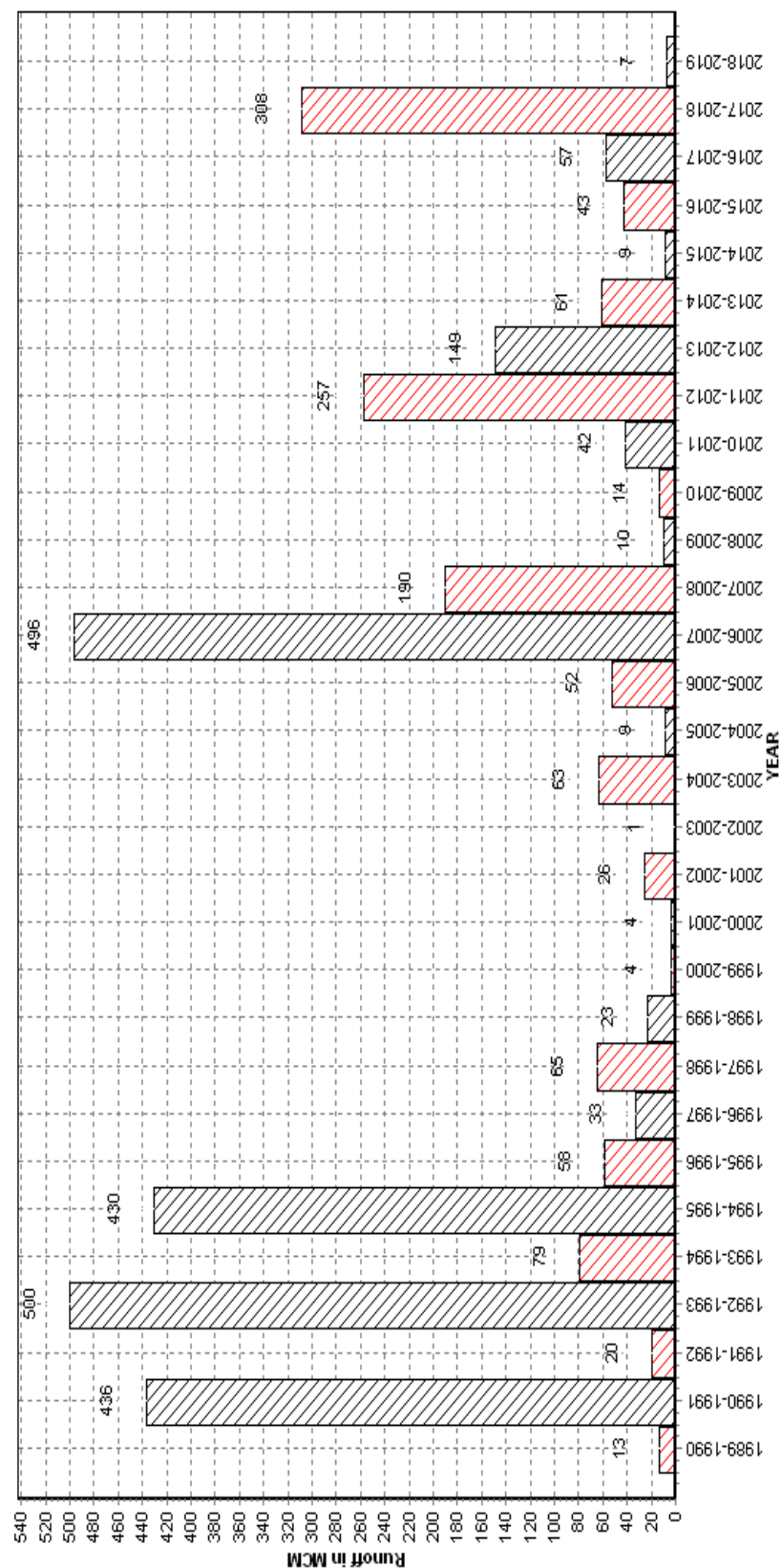
Historic Flood Level -265.400m on 31.08.1973

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1989 - 2019

Station Name : Banas at Abu Road (01 02 02 002)
Local River : Banas

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

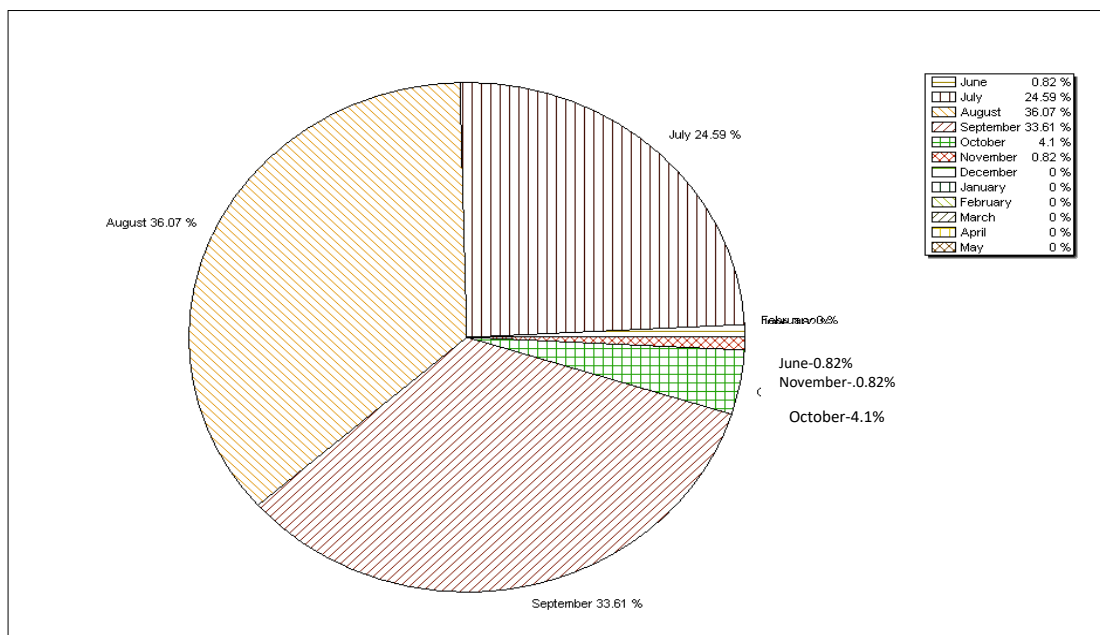


Note: Missing values have not been considered while arriving at Annual Runoff

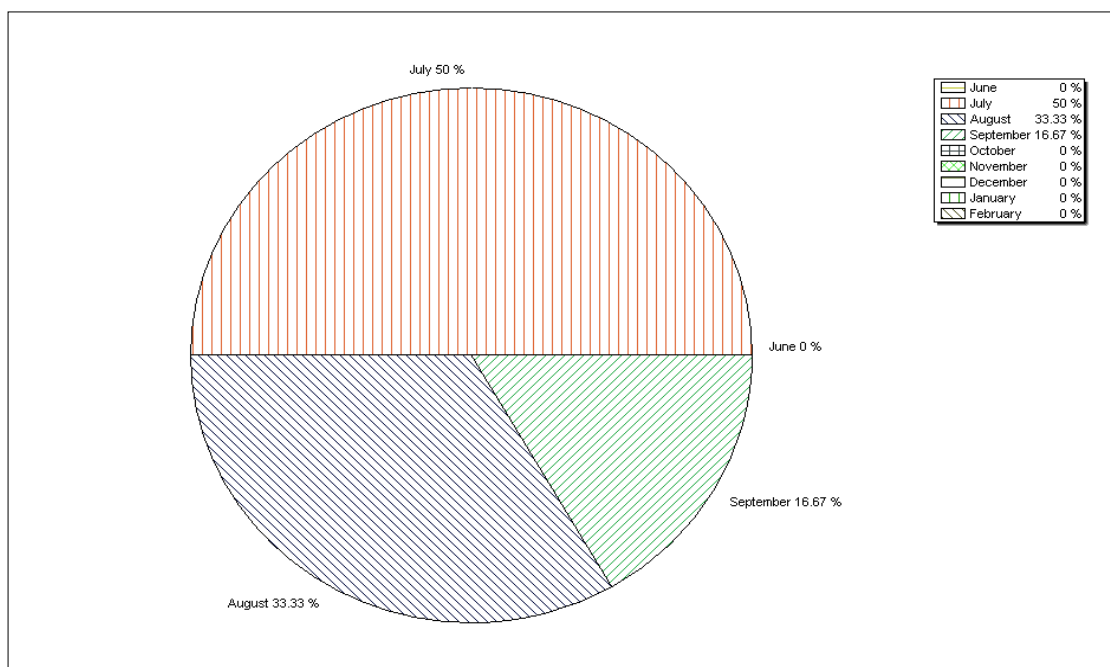
Station Name : Banas at Abu Road (01 02 02 002)
Local River : Banas

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

Monthly Average Runoff based on period : 1989-2019



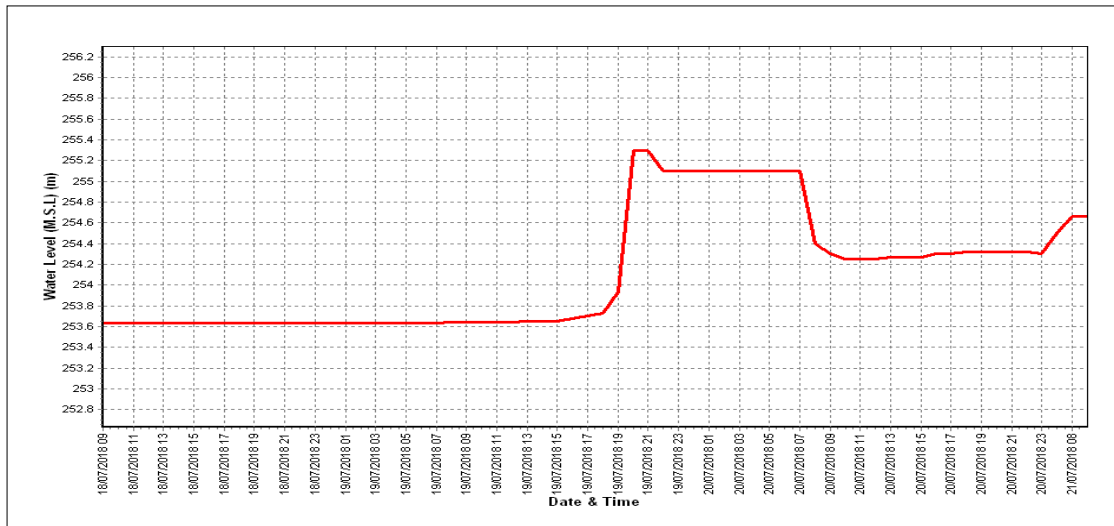
Monthly Runoff for the Year : 2018-2019



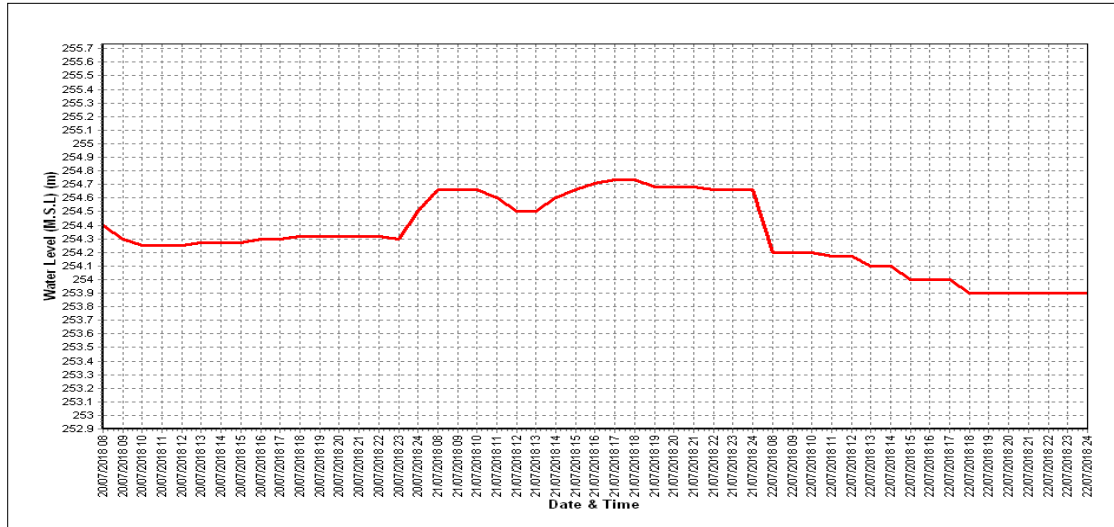
Station Name : Banas at Abu Road (01 02 02 002)
Local River : Banas

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

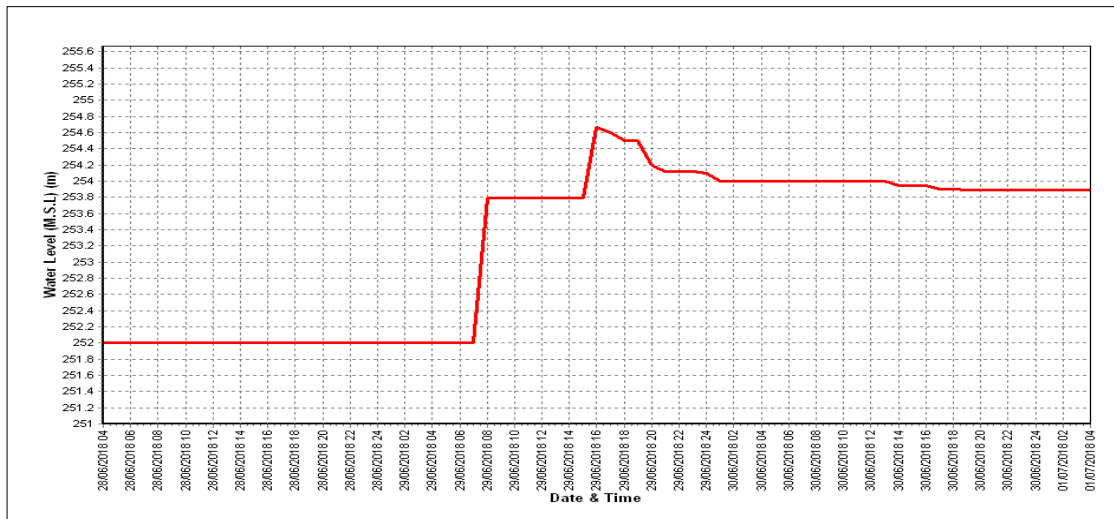
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-19

Site : Shetrunji at Lowara

Code : 01 02 09 001

State : Gujarat

District Bhavnagar

Basin : WFR of Kach.-Saur. & Luni

Independent : Shetrunji River

Tributary : Shetrunji

Sub Tributary :

Sub-Sub Tributary :

Local River : Shetrunji

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Drainage Area : 3953 Sq. Km.

Bank : Left

Latitude : 21°26'36" N

Longitude : 71°33'42" E

Zero of Gauge (m) : 56 (m.s.l)

01/02/1991 - -

Opening Date

Closing Date

Gauge : 29/11/1970

Discharge : 29/11/1970

Sediment : 25/07/1973

Water

Quality : 01/07/1977

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
2018-2019	River Dry					

Stage-Discharge Data for the period 2018 - 2019

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	R.Dry	0.000	56.000	0.000	56.370	0.000	56.340	0.000	56.250	0.000	56.110	0.000
2	R.Dry	0.000	56.000	0.000	56.370	0.000	56.340	0.000	56.250	0.000	56.110	0.000
3	R.Dry	0.000	56.000	0.000	56.360	0.000	56.340	0.000	56.240	0.000	56.100	0.000
4	R.Dry	0.000	56.600	0.000	56.360	0.000	56.350	0.000	56.240	0.000	56.100	0.000
5	R.Dry	0.000	56.480	0.000	56.350	0.000	56.350	0.000	56.240	0.000	56.100	0.000
6	R.Dry	0.000	56.380	0.000	56.350	0.000	56.340	0.000	56.240	0.000	56.090	0.000
7	R.Dry	0.000	56.350	0.000	56.350	0.000	56.340	0.000	56.240	0.000	56.090	0.000
8	R.Dry	0.000	56.330	0.000	56.350	0.000	56.340	0.000	56.240	0.000	56.090	0.000
9	R.Dry	0.000	57.800	0.000	56.340	0.000	56.340	0.000	56.240	0.000	56.090	0.000
10	R.Dry	0.000	57.900	0.000	56.340	0.000	56.330	0.000	56.230	0.000	56.080	0.000
11	R.Dry	0.000	56.680	0.000	56.340	0.000	56.330	0.000	56.230	0.000	56.080	0.000
12	R.Dry	0.000	56.540	0.000	56.340	0.000	56.320	0.000	56.220	0.000	56.080	0.000
13	R.Dry	0.000	60.300	0.000	56.340	0.000	56.320	0.000	56.220	0.000	56.070	0.000
14	R.Dry	0.000	57.600	0.000	56.340	0.000	56.310	0.000	56.220	0.000	56.070	0.000
15	R.Dry	0.000	57.700	0.000	56.340	0.000	56.310	0.000	56.210	0.000	56.070	0.000
16	R.Dry	0.000	58.000	0.000	56.340	0.000	56.310	0.000	56.210	0.000	56.060	0.000
17	R.Dry	0.000	58.350	0.000	56.330	0.000	56.310	0.000	56.210	0.000	56.060	0.000
18	R.Dry	0.000	57.300	0.000	56.360	0.000	56.310	0.000	56.200	0.000	56.060	0.000
19	R.Dry	0.000	56.750	0.000	56.370	0.000	56.310	0.000	56.200	0.000	56.050	0.000
20	R.Dry	0.000	56.660	0.000	56.380	0.000	56.300	0.000	56.190	0.000	56.050	0.000
21	R.Dry	0.000	56.540	0.000	56.380	0.000	56.300	0.000	56.190	0.000	56.050	0.000
22	R.Dry	0.000	56.500	0.000	56.380	0.000	56.290	0.000	56.180	0.000	56.040	0.000
23	R.Dry	0.000	56.490	0.000	56.380	0.000	56.280	0.000	56.180	0.000	56.040	0.000
24	R.Dry	0.000	56.460	0.000	56.370	0.000	56.270	0.000	56.170	0.000	56.040	0.000
25	R.Dry	0.000	56.440	0.000	56.360	0.000	56.260	0.000	56.170	0.000	56.030	0.000
26	R.Dry	0.000	56.420	0.000	56.360	0.000	56.250	0.000	56.150	0.000	56.030	0.000
27	R.Dry	0.000	56.400	0.000	56.360	0.000	56.250	0.000	56.140	0.000	56.030	0.000
28	R.Dry	0.000	56.400	0.000	56.360	0.000	56.250	0.000	56.140	0.000	56.020	0.000
29	R.Dry	0.000	56.390	0.000	56.350	0.000	56.250	0.000	56.130	0.000	56.020	0.000
30	R.Dry	0.000	56.380	0.000	56.350	0.000	56.250	0.000	56.120	0.000	56.020	0.000
31			56.370	0.000	56.350	0.000			56.120	0.000		
Ten-Daily Mean												
I Ten-Daily	R.Dry	0.000	56.584	0.000	56.354	0.000	56.341	0.000	56.241	0.000	56.096	0.000
II Ten-Daily	R.Dry	0.000	57.588	0.000	56.348	0.000	56.313	0.000	56.211	0.000	56.065	0.000
III Ten-Daily	R.Dry	0.000	56.435	0.000	56.364	0.000	56.265	0.000	56.154	0.000	56.032	0.000
Monthly												
Min.	R.Dry	0.000	56.000	0.000	56.330	0.000	56.250	0.000	56.120	0.000	56.020	0.000
Max.	R.Dry	0.000	60.300	0.000	56.380	0.000	56.350	0.000	56.250	0.000	56.110	0.000
Mean	R.Dry	0.000	56.855	0.000	56.355	0.000	56.306	0.000	56.200	0.000	56.064	0.000

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

River was in pooling condition/Negligible flow from 01.08.2018 to 07.12.2018

Stage-Discharge Data for the period 2018 - 2019

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	56.020	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
2	56.020	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
3	56.010	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
4	56.010	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
5	56.010	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
6	56.010	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	56.013	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.	56.010	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Max.	56.020	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000
Mean	56.013	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000	R.Dry	0.000

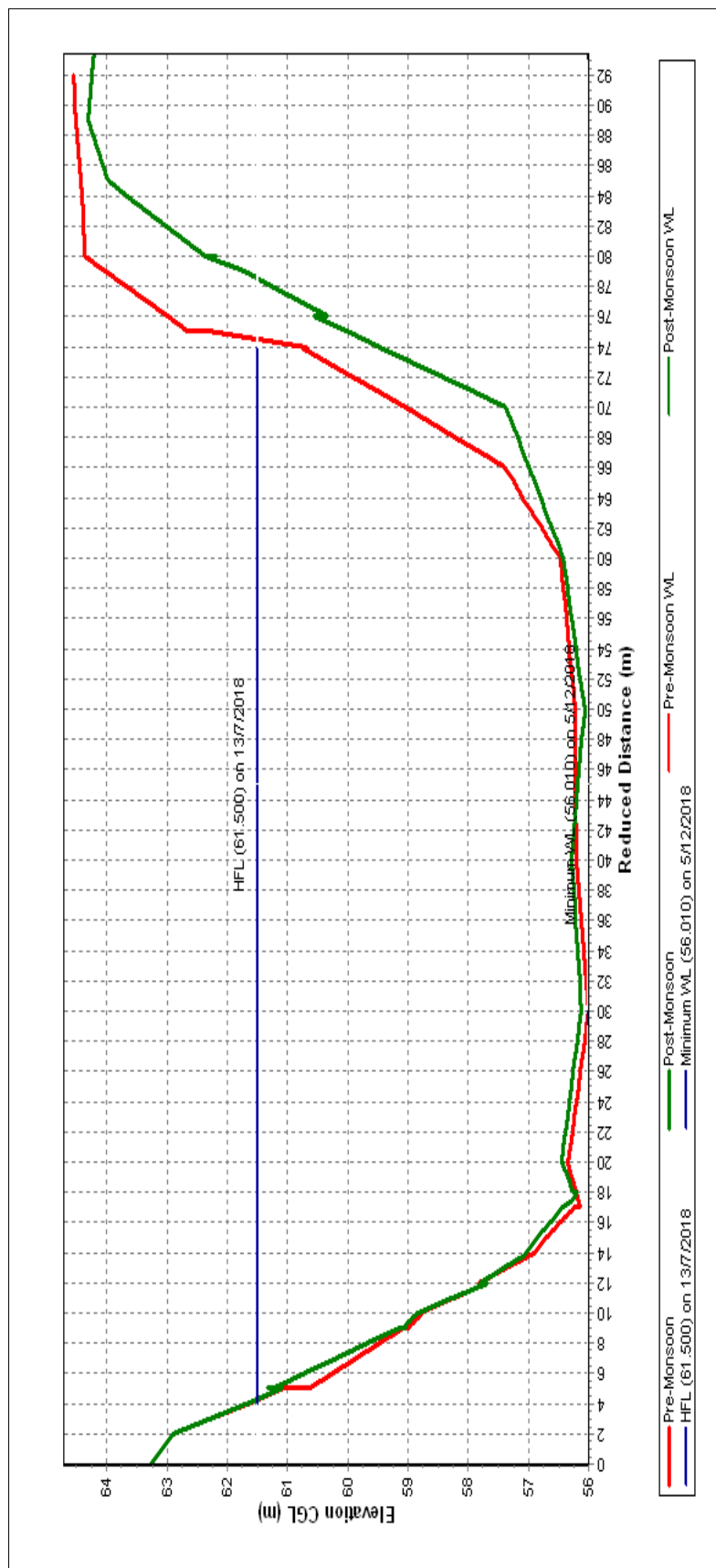
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 - 66.93m on 09.11.1982 at 0800 hrs

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

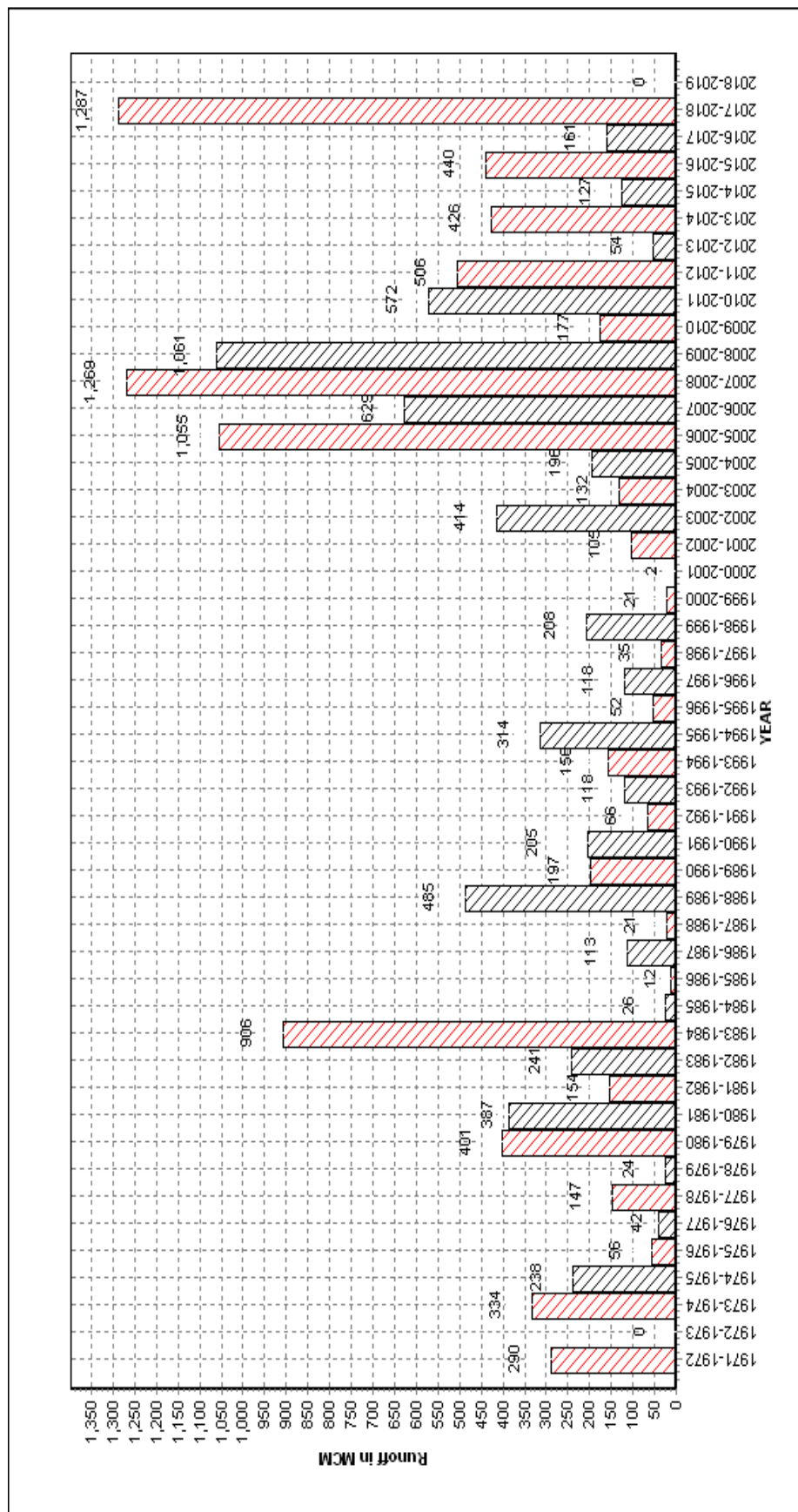
Annual Runoff Values for the period: 1971 - 2019

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

Local River : Shetrunji

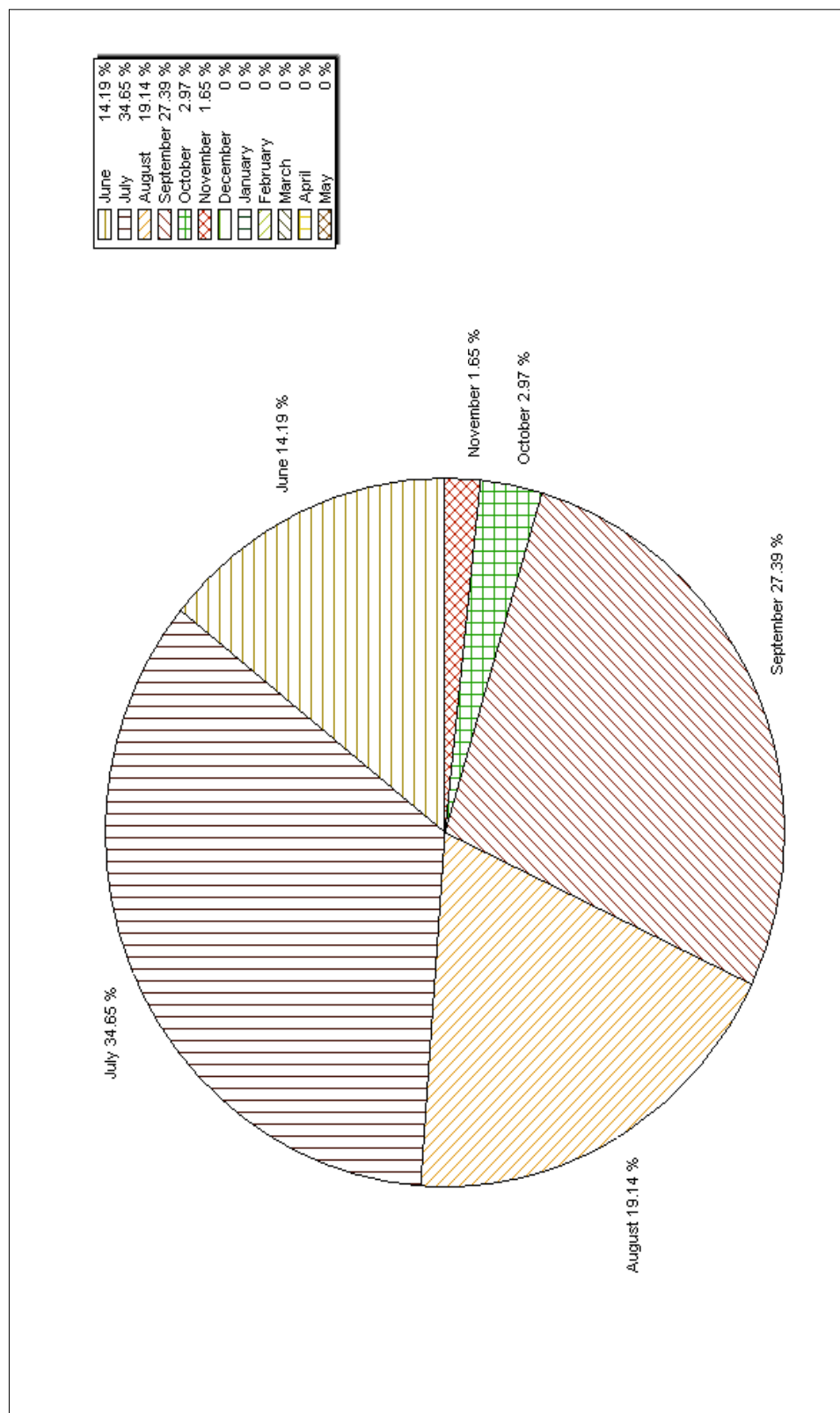
Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



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

Monthly Average Runoff based on period : 1971-2019



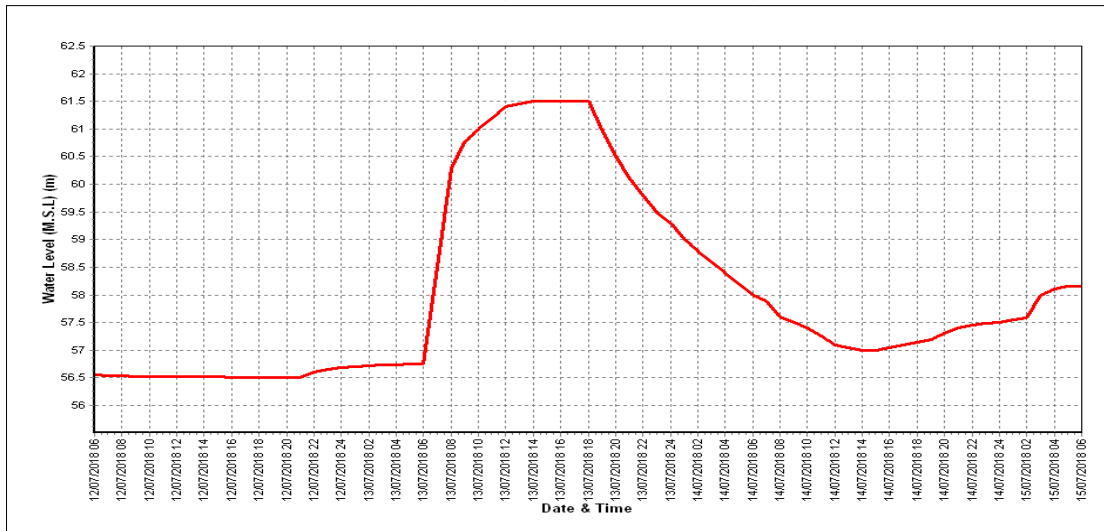
Station Name : Shetrunji at Lowara (01 02 09 001)

Local River : Shetrunji

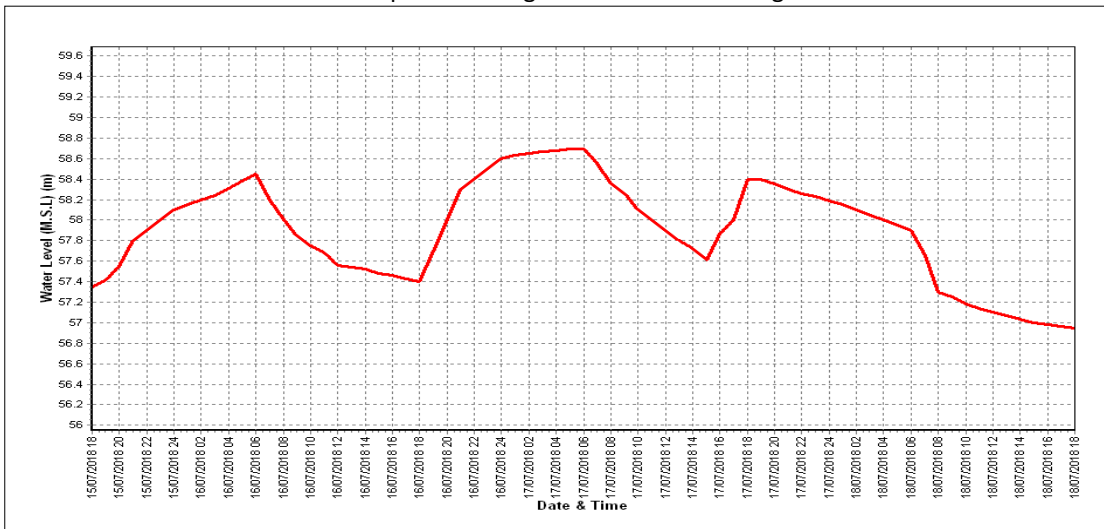
Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

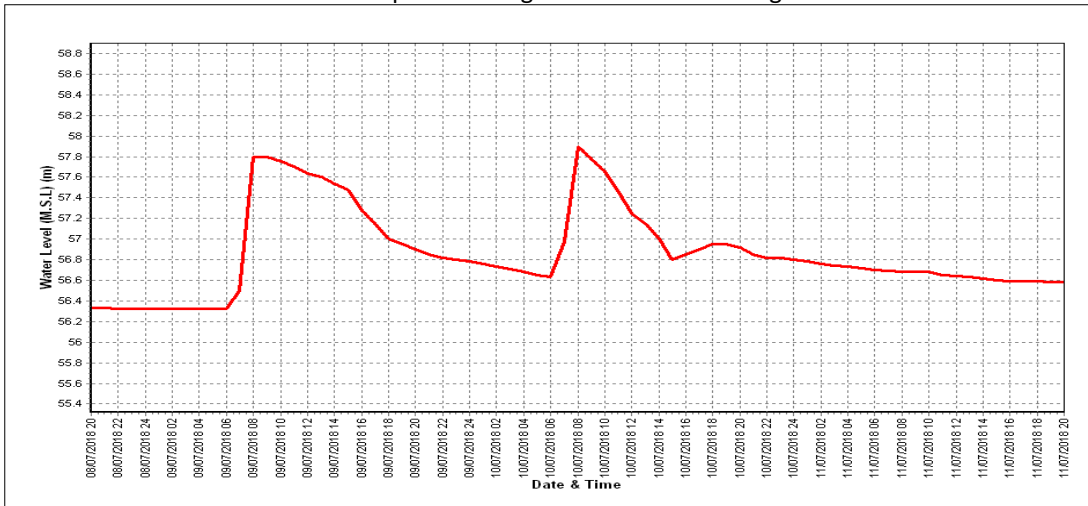
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-2019

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"

Longitude : 70°10'52"

Zero of Gauge (m) : 26 (m.s.l)

14/11/1970

Opening Date

Closing Date

Gauge : 14/11/1970

Discharge :

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	26.830	23/05/1972
1972-1973	1230	31.600	30/06/1972	0.000	0.000	28/01/1973
1973-1974	362.0	29.030	10/07/1973	0.000	0.000	25/01/1974
1974-1975	229.3	28.300	30/09/1974	0.000	0.000	25/01/1975
1975-1976	244.5	28.625	12/07/1975	0.000	0.000	19/06/1975
1976-1977	1048	31.080	16/07/1976	0.000	0.000	04/07/1976
1977-1978	526.0	30.400	04/09/1977	0.000	26.865	27/05/1978
1978-1979	210.5	28.965	30/08/1978	0.000	0.000	26/04/1979
1979-1980	4098	33.330	11/08/1979	0.000	0.000	21/07/1979
1980-1981	2977	33.320	04/07/1980	0.000	26.430	16/04/1981
1981-1982	926.2	29.860	11/07/1981	0.000	0.000	25/06/1981
1982-1983	380.0	29.400	09/11/1982	0.000	0.000	20/05/1983
1983-1984	2750	34.100	22/06/1983	0.000	0.000	06/05/1984
1984-1985	2315	32.110	14/09/1984	0.000	0.000	04/05/1985
1985-1986	47.70	27.060	19/07/1985	0.000	0.000	25/01/1986
1986-1987	192.3	27.630	08/08/1986	0.000	0.000	25/01/1987
1987-1988	29.91	26.845	20/11/1987	0.000	0.000	26/01/1988
1988-1989	4160	33.120	27/07/1988	0.000	0.000	14/05/1989
1989-1990	751.5	29.125	25/07/1989	0.000	0.000	25/01/1990
1990-1991	1016	30.190	18/08/1990	0.000	0.000	25/01/1991
1991-1992	382.0	28.345	28/07/1991	0.000	0.000	26/01/1992
1992-1993	699.3	31.500	30/07/1992	0.000	0.000	25/01/1993

1993-1994	174.5	27.680	10/07/1993	0.000	0.000	25/01/1994
1994-1995	2594	33.030	14/07/1994	0.000	0.000	13/02/1995
1995-1996	70.52	27.190	31/07/1995	0.000	0.000	26/01/1996
1996-1997	3526	33.000	20/06/1996	0.000	0.000	25/01/1997
1997-1998	248.0	28.460	13/09/1997	0.000	0.000	25/01/1998
1998-1999	75.40	27.410	29/06/1998	0.000	0.000	25/01/1999
1999-2000	48.20	27.275	14/07/1999	0.000	0.000	26/01/2000
2000-2001	36.79	26.960	26/08/2000	0.000	0.000	25/01/2001
2001-2002	654.2	28.995	05/07/2001	0.000	26.000	25/01/2002
2002-2003	734.0	30.095	29/06/2002	0.000	26.000	25/01/2003
2003-2004	263.2	27.900	07/08/2003	0.000	26.000	25/01/2004
2004-2005	75.36	27.007	11/08/2004	0.000	26.000	25/01/2005
2005-2006	455.7	28.580	12/09/2005	0.000	26.000	24/01/2006
2006-2007	2728	31.810	30/07/2006	0.000	26.100	25/01/2007
2007-2008	3474	33.295	08/08/2007	0.000	26.000	01/04/2008
2008-2009	1902	32.160	16/09/2008	0.000	River Dry	19/01/2009
2009-2010	1102	29.600	24/07/2009	0.000	River Dry	25/01/2010
2010-2011	1932	30.850	01/09/2010	0.000	25.010	13/12/2010
2011-2012	183.0	27.950	06/09/2011	23.36	24.070	22/10/2011
2012-2013	0.000		08/10/2012	0.000	River Dry	22/12/2012
2013-2014	1477	30.050	27/09/2013	0.000	River Dry	27/01/2014
2014-2015	0.000	26.720	18/11/2014	0.000	26.230	12/07/2014
2015-2016	2030	29.950	25/06/2015	0.000	26.500	12/10/2015
2016-2017	2164	29.800	05/08/2016	0.000	26.090	18/04/2017
2017-2018	341.6	27.855	23/07/2017	0.000	25.780	25/01/2018
2018-2019	River Dry					

Stage-Discharge Data for the period 2018 - 2019

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	23.470	0.000	23.470	0.000	27.100	0.000	26.720	0.000	26.020	0.000	27.090	0.000
2	23.425	0.000	23.425	0.000	27.090	0.000	26.720	0.000	26.000	0.000	27.060	0.000
3	23.380	0.000	23.380	0.000	27.090	0.000	26.750	0.000	25.970	0.000	27.030	0.000
4	23.330	0.000	23.335	0.000	27.080	0.000	26.750	0.000	25.940	0.000	27.020	0.000
5	23.280	0.000	23.280	0.000	27.070	0.000	26.740	0.000	25.910	0.000	27.000	0.000
6	23.250	0.000	23.245	0.000	27.050	0.000	26.740	0.000	25.880	0.000	27.110	0.000
7	23.210	0.000	23.210	0.000	27.020	0.000	26.740	0.000	25.850	0.000	27.110	0.000
8	23.160	0.000	23.160	0.000	26.990	0.000	26.740	0.000	25.820	0.000	27.080	0.000
9	23.120	0.000	23.125	0.000	26.970	0.000	26.740	0.000	25.780	0.000	27.060	0.000
10	23.080	0.000	23.085	0.000	26.940	0.000	26.740	0.000	25.750	0.000	27.030	0.000
11	23.060	0.000	23.060	0.000	26.920	0.000	26.730	0.000	25.720	0.000	27.010	0.000
12	23.020	0.000	23.020	0.000	26.890	0.000	26.720	0.000	25.680	0.000	26.990	0.000
13	22.990	0.000	22.990	0.000	26.870	0.000	26.700	0.000	25.650	0.000	26.970	0.000
14	22.950	0.000	22.960	0.000	26.850	0.000	26.650	0.000	25.590	0.000	26.960	0.000
15	22.910	0.000	22.915	0.000	26.820	0.000	26.630	0.000	25.560	0.000	26.950	0.000
16	22.880	0.000	27.130	0.000	26.790	0.000	26.590	0.000	25.540	0.000	26.930	0.000
17	22.840	0.000	27.290	0.000	26.775	0.000	26.560	0.000	25.510	0.000	26.900	0.000
18	22.810	0.000	27.300	0.000	26.760	0.000	26.520	0.000	25.490	0.000	26.870	0.000
19	22.780	0.000	27.410	0.000	26.760	0.000	26.490	0.000	25.460	0.000	26.830	0.000
20	22.740	0.000	27.140	0.000	26.750	0.000	26.460	0.000	25.440	0.000	26.800	0.000
21	22.700	0.000	27.120	0.000	26.750	0.000	26.420	0.000	25.420	0.000	26.780	0.000
22	22.670	0.000	27.115	0.000	26.750	0.000	26.380	0.000	25.410	0.000	26.750	0.000
23	22.630	0.000	27.110	0.000	26.750	0.000	26.350	0.000	25.390	0.000	26.720	0.000
24	22.590	0.000	27.110	0.000	26.750	0.000	26.320	0.000	25.380	0.000	26.700	0.000
25	22.590	0.000	27.100	0.000	26.750	0.000	26.280	0.000	25.370	0.000	26.660	0.000
26	22.570	0.000	27.100	0.000	26.750	0.000	26.250	0.000	25.350	0.000	26.630	0.000
27	22.560	0.000	27.090	0.000	26.750	0.000	26.200	0.000	25.330	0.000	26.600	0.000
28	22.550	0.000	27.090	0.000	26.750	0.000	26.160	0.000	25.310	0.000	26.570	0.000
29	22.550	0.000	27.085	0.000	26.740	0.000	26.110	0.000	25.290	0.000	26.550	0.000
30	22.540	0.000	27.110	0.000	26.740	0.000	26.060	0.000	27.700	0.000	26.520	0.000
31			27.105	0.000	26.720	0.000			27.120	0.000		
Ten-Daily Mean												
I Ten-Daily	23.271	0.000	23.271	0.000	27.040	0.000	26.738	0.000	25.892	0.000	27.059	0.000
II Ten-Daily	22.898	0.000	25.122	0.000	26.819	0.000	26.605	0.000	25.564	0.000	26.921	0.000
III Ten-Daily	22.595	0.000	27.103	0.000	26.745	0.000	26.253	0.000	25.734	0.000	26.648	0.000
Monthly												
Min.	22.540	0.000	22.915	0.000	26.720	0.000	26.060	0.000	25.290	0.000	26.520	0.000
Max.	23.470	0.000	27.410	0.000	27.100	0.000	26.750	0.000	27.700	0.000	27.110	0.000
Mean	22.921	0.000	25.228	0.000	26.864	0.000	26.532	0.000	25.730	0.000	26.876	0.000

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

River was in pooling condition/Negligible flow from 01.06.2018 to 14.07.2018, 04.08.2018 to 29.10.2018, 02.11.2018 to 31.05.2019

Stage-Discharge Data for the period 2018 - 2019

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	26.500	0.000	25.700	0.000	24.810	0.000	23.800	0.000	22.820	0.000	21.910	0.000
2	26.480	0.000	25.670	0.000	24.760	0.000	23.760	0.000	22.790	0.000	21.860	0.000
3	26.440	0.000	25.640	0.000	24.710	0.000	23.720	0.000	22.770	0.000	21.820	0.000
4	26.420	0.000	25.610	0.000	24.690	0.000	23.690	0.000	22.740	0.000	21.780	0.000
5	26.400	0.000	25.580	0.000	24.650	0.000	23.650	0.000	22.720	0.000	21.750	0.000
6	26.380	0.000	25.550	0.000	24.630	0.000	23.620	0.000	22.690	0.000	21.710	0.000
7	26.350	0.000	25.520	0.000	24.610	0.000	23.590	0.000	22.670	0.000	21.650	0.000
8	26.330	0.000	25.520	0.000	24.570	0.000	23.560	0.000	22.640	0.000	21.600	0.000
9	26.310	0.000	25.480	0.000	24.530	0.000	23.530	0.000	22.620	0.000	21.550	0.000
10	26.290	0.000	25.450	0.000	24.500	0.000	23.520	0.000	22.590	0.000	21.510	0.000
11	26.260	0.000	25.440	0.000	24.460	0.000	23.480	0.000	22.560	0.000	21.460	0.000
12	26.230	0.000	25.420	0.000	24.420	0.000	23.450	0.000	22.530	0.000	21.400	0.000
13	26.210	0.000	25.400	0.000	24.380	0.000	23.420	0.000	22.510	0.000	21.370	0.000
14	26.180	0.000	25.370	0.000	24.340	0.000	23.380	0.000	22.490	0.000	21.310	0.000
15	26.150	0.000	25.340	0.000	24.300	0.000	23.340	0.000	22.450	0.000	21.260	0.000
16	26.130	0.000	25.310	0.000	24.250	0.000	23.300	0.000	22.430	0.000	21.250	0.000
17	26.110	0.000	25.290	0.000	24.200	0.000	23.260	0.000	22.400	0.000	21.230	0.000
18	26.090	0.000	25.260	0.000	24.240	0.000	23.240	0.000	22.370	0.000	21.210	0.000
19	26.060	0.000	25.230	0.000	24.140	0.000	23.220	0.000	22.340	0.000	21.190	0.000
20	26.030	0.000	25.190	0.000	24.100	0.000	23.190	0.000	22.310	0.000	21.160	0.000
21	26.000	0.000	25.170	0.000	24.070	0.000	23.160	0.000	22.290	0.000	21.140	0.000
22	25.960	0.000	25.150	0.000	24.020	0.000	23.140	0.000	22.250	0.000	21.140	0.000
23	25.920	0.000	25.130	0.000	23.990	0.000	23.120	0.000	22.200	0.000	21.130	0.000
24	25.880	0.000	25.100	0.000	23.960	0.000	23.100	0.000	22.180	0.000	21.120	0.000
25	25.850	0.000	25.010	0.000	23.930	0.000	23.070	0.000	22.140	0.000	21.120	0.000
26	25.830	0.000	25.050	0.000	23.890	0.000	23.040	0.000	22.110	0.000	21.100	0.000
27	25.810	0.000	25.010	0.000	23.860	0.000	23.000	0.000	22.060	0.000	21.090	0.000
28	25.790	0.000	24.990	0.000	23.830	0.000	22.970	0.000	22.000	0.000	21.080	0.000
29	25.770	0.000	24.950	0.000			22.930	0.000	21.980	0.000	21.070	0.000
30	25.760	0.000	24.910	0.000			22.900	0.000	21.950	0.000	21.070	0.000
31	25.730	0.000	24.860	0.000			22.860	0.000		0.000	21.060	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	26.390	0.000	25.572	0.000	24.646	0.000	23.631	0.000	22.705	0.000	21.714	0.000
II Ten-Daily	26.145	0.000	25.325	0.000	24.283	0.000	23.328	0.000	22.439	0.000	21.284	0.000
III Ten-Daily	25.845	0.000	25.030	0.000	23.944	0.000	23.026	0.000	22.116	0.000	21.102	0.000
<u>Monthly</u>												
Min.	25.730	0.000	24.860	0.000	23.830	0.000	22.860	0.000	21.950	0.000	21.060	0.000
Max.	26.500	0.000	25.700	0.000	24.810	0.000	23.800	0.000	22.820	0.000	21.910	0.000
Mean	26.118	0.000	25.300	0.000	24.316	0.000	23.308	0.000	22.420	0.000	21.358	0.000

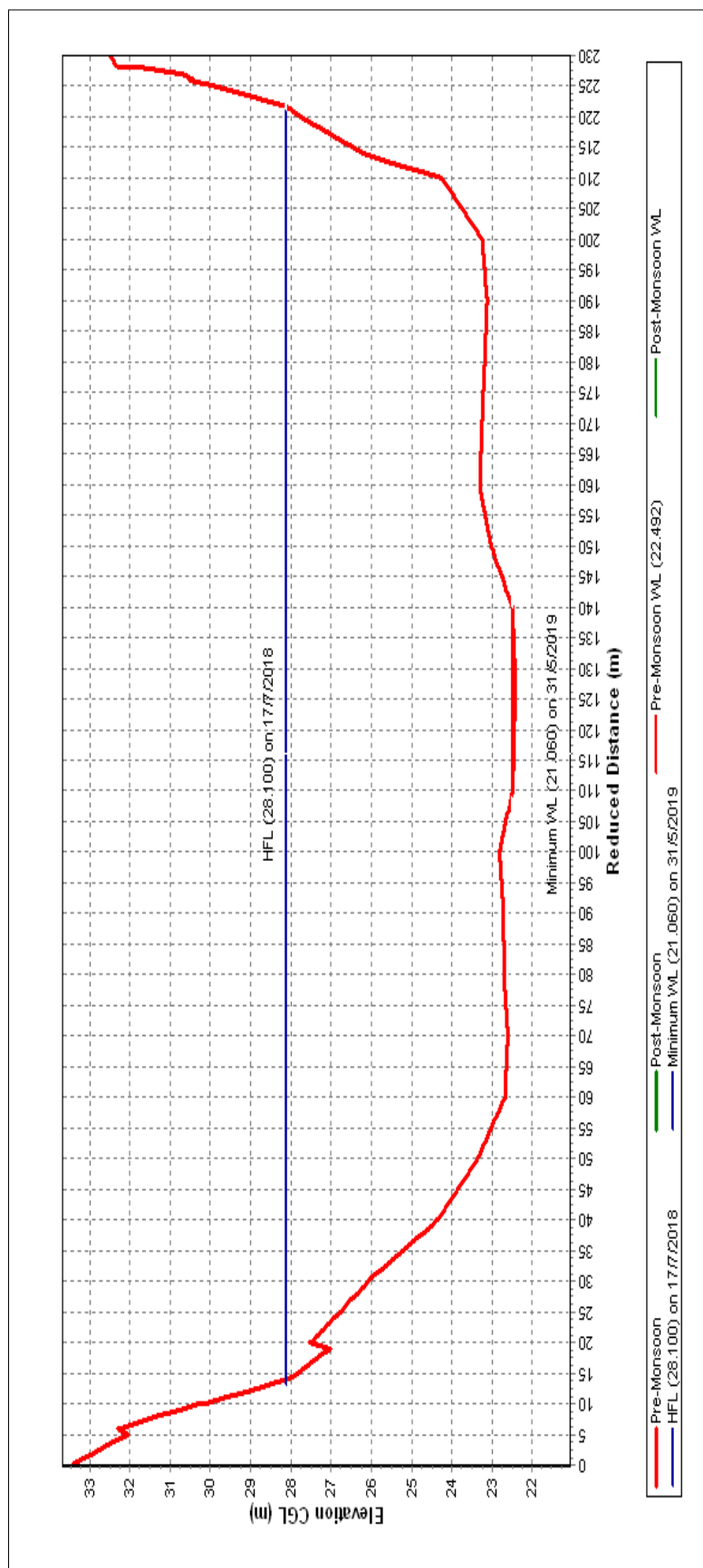
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

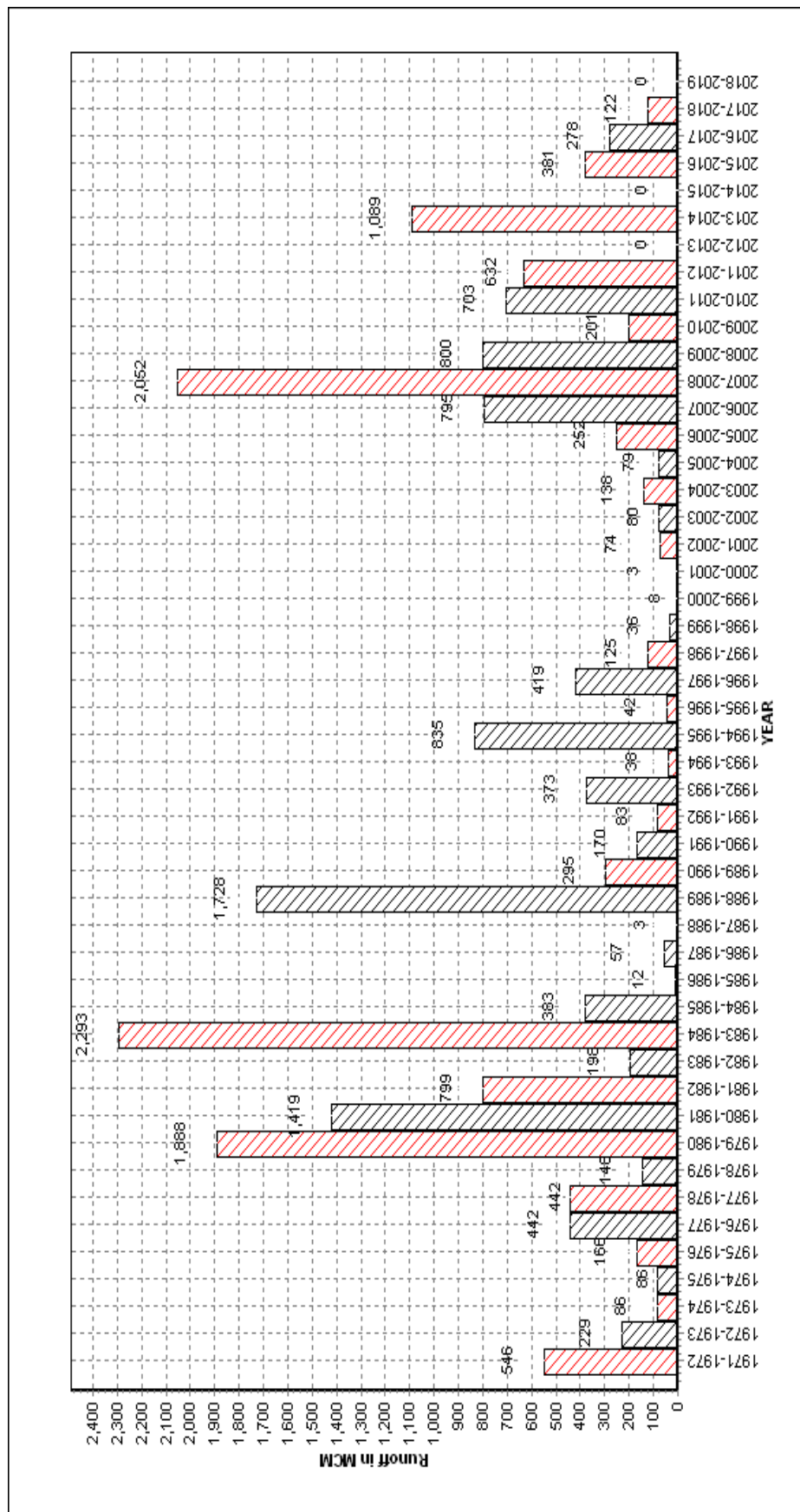
Annual Runoff Values for the period: 1971 - 2019

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

Local River : Bhadar

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



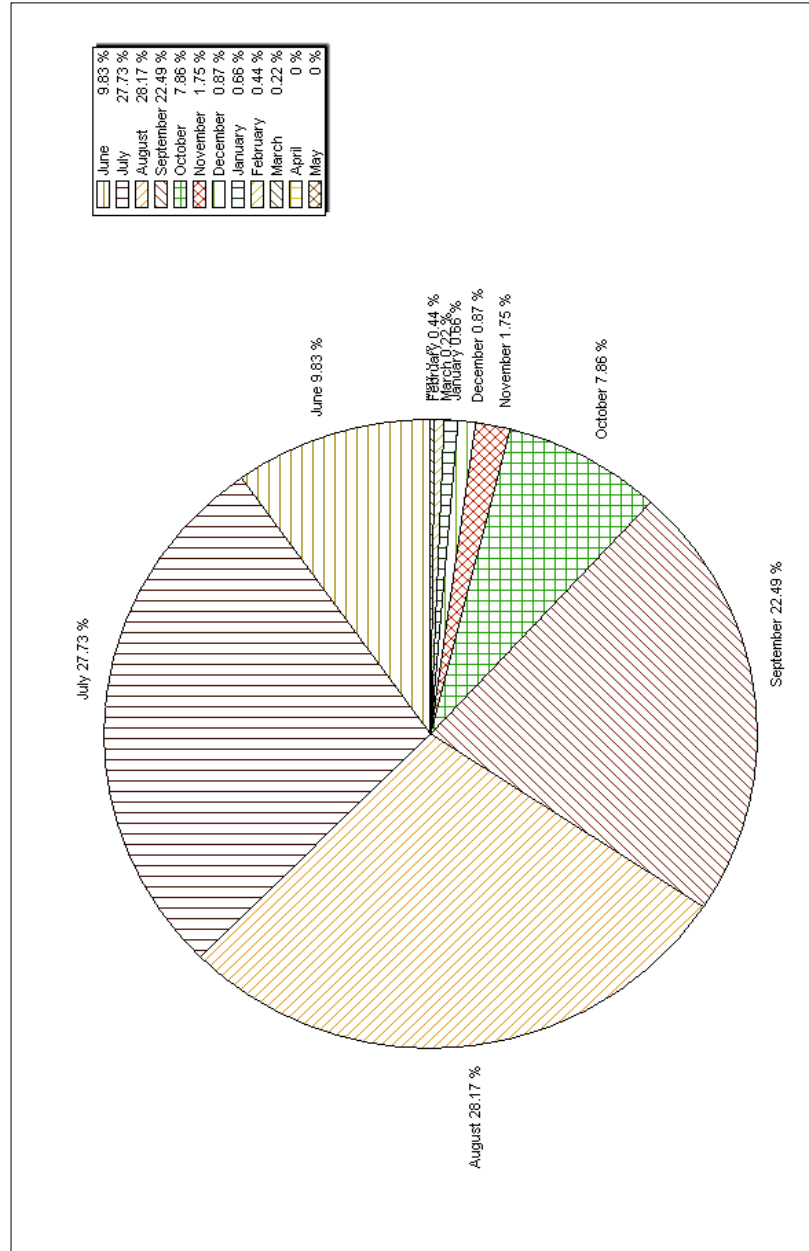
Note: Missing values have not been considered while arriving at Annual Runoff

Monthly Average Runoff based on 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

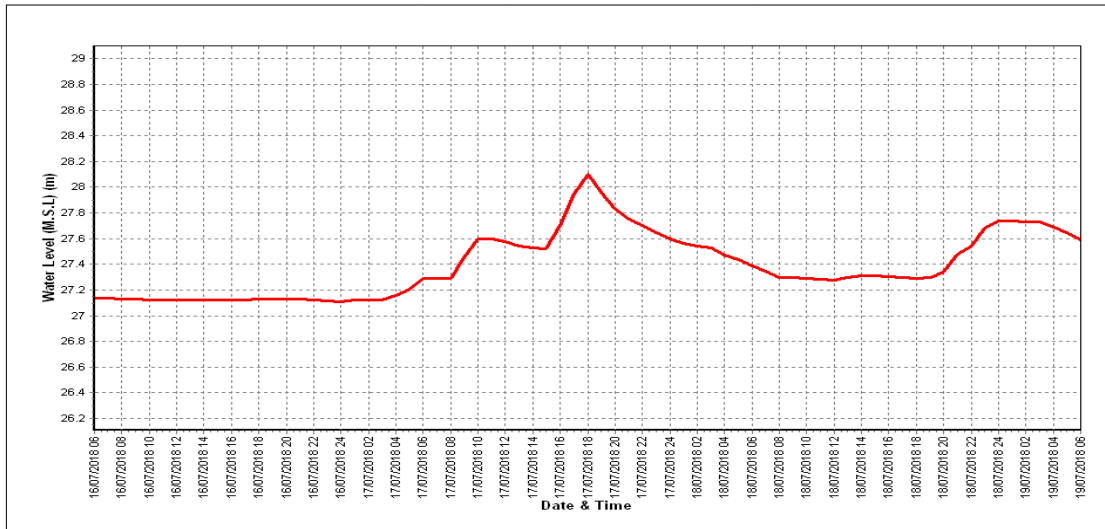
Monthly Average Runoff based on period : 1970-2019



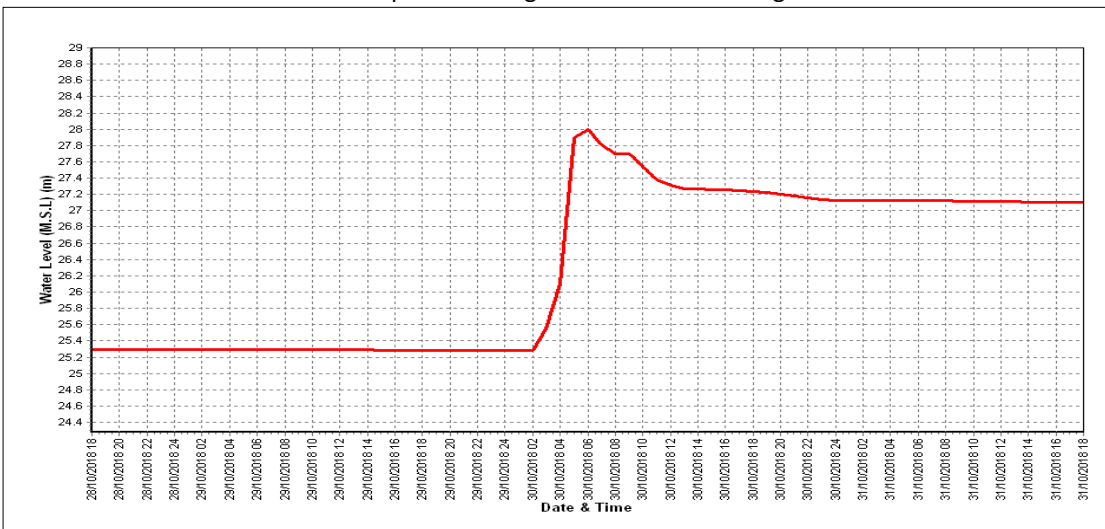
Station Name : Bhadar at Ganod (01 02 07 001)
Local River : Bhadar

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

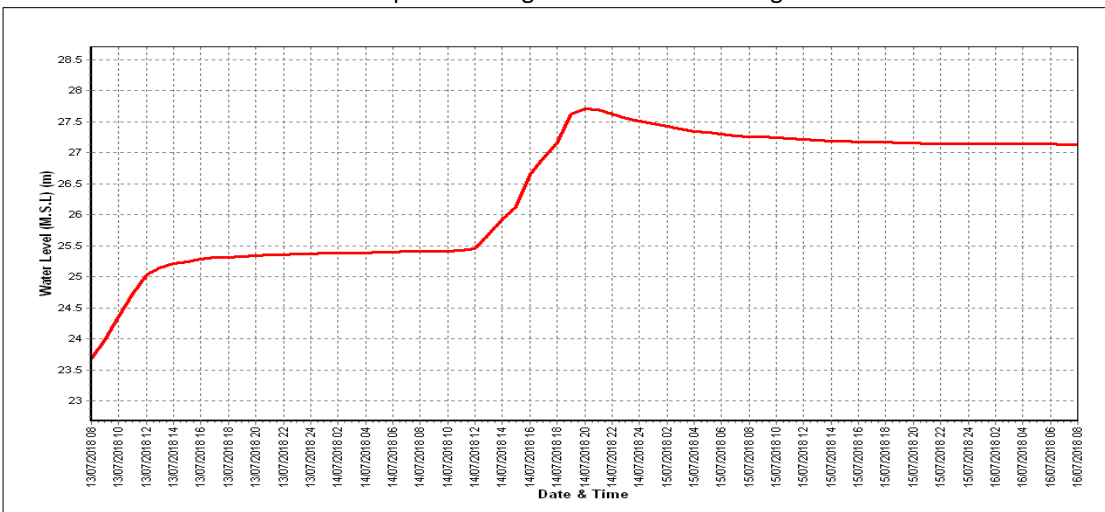
Water Level vs. Time - Graph of Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 2nd Highest Flood Peak during the Year : 2018-2019



Water Level vs. Time - Graph of 3rd Highest Flood Peak during the Year : 2018-2019



HISTORY SHEET

Water Year : 2018-2019

Site : Machhu at Gungan

Code : 01 02 03 001

State : Gujarat

District : Rajkot

Basin : WFR of Kach.-Saur. & Luni

Independent River : Machhu

Tributary : Machhu

Sub Tributary :

Sub-Sub Tributary :

Local River : Machhu

Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad

Drainage Area : 2137 Sq. Km.

Bank : Right

Latitude : 22°57'42"

Longitude : 70°45'52"

Zero of Gauge (m) : 8 (m.s.l)
8 (m.s.l)

13/09/1970
14/11/1970

Opening Date

Closing Date

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	29/01/1972
1972-1973	47.02	9.585	08/07/1972	0.000	River Dry	31/01/1973
1973-1974	0.000		10/10/1973	0.000	0.000	25/01/1974
1974-1975	0.900	0.000	27/09/1974	0.000	0.000	25/01/1975
1975-1976	279.4	10.645	15/07/1975	0.000	0.000	14/02/1976
1976-1977	1805	14.075	30/08/1976	0.000	0.000	01/06/1976
1977-1978	726.0	13.120	27/07/1977	0.000	9.340	07/05/1978
1978-1979	95.70	10.670	31/08/1978	0.000	9.465	14/06/1978
1979-1980	79.00	10.375	28/06/1979	0.000	River Dry	01/08/1979
1980-1981	1645	15.700	28/06/1980	0.000	0.000	10/02/1981
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	0.000	18/03/1983
1983-1984	1498	13.850	08/08/1983	0.000	0.000	26/01/1984
1984-1985	475.3	11.645	14/09/1984	0.000	9.495	14/11/1984
1985-1986	160.7	10.965	17/07/1985	0.000	0.000	25/05/1986
1986-1987	407.7	11.760	09/08/1986	0.000	0.000	13/11/1986
1987-1988	80.98	10.530	16/07/1987	0.000	0.000	26/01/1988
1988-1989	2681	15.973	28/07/1988	0.000	0.000	25/01/1989
1989-1990	1781	13.850	25/07/1989	0.000	0.000	25/01/1990
1990-1991	195.4	10.765	25/08/1990	0.000	9.175	14/05/1991
1991-1992	9.854	10.070	20/07/1991	0.000	0.000	26/01/1992

1992-1993	131.6	10.950	31/07/1992	0.000	8.945	25/01/1993
1993-1994	5.395	10.250	10/07/1993	0.000	0.000	25/01/1994
1994-1995	1657	13.880	15/07/1994	0.000	9.300	01/05/1995
1995-1996	96.96	10.790	26/07/1995	0.000	9.130	26/01/1996
1996-1997	179.0	11.180	21/06/1996	0.000	0.000	25/01/1997
1997-1998	990.0	16.000	24/06/1997	0.000	9.235	25/01/1998
1998-1999	50.09	11.125	17/10/1998	0.000	8.795	25/01/1999
1999-2000	3.300	9.980	13/10/1999	0.000	8.710	26/01/2000
2000-2001	50.00	11.005	15/07/2000	0.000	8.260	25/01/2001
2001-2002	20.16	10.290	11/07/2001	0.000	8.000	25/01/2002
2002-2003	70.80	10.625	28/06/2002	0.000	8.000	26/01/2003
2003-2004	70.16	11.135	24/07/2003	0.000	8.260	25/01/2004
2004-2005	76.00	11.765	11/08/2004	0.000	8.545	25/01/2005
2005-2006	394.0	12.910	20/09/2005	0.000	8.000	25/01/2006
2006-2007	531.2	12.810	31/07/2006	0.000	9.215	25/01/2007
2007-2008	1524	12.875	09/08/2007	0.000	9.770	26/01/2008
2008-2009	1689	14.975	18/09/2008	0.000	9.725	21/07/2008
2009-2010	13.48	10.520	31/08/2009	0.000	9.285	26/01/2010
2010-2011	1699	14.720	30/08/2010	0.000	9.895	27/11/2010
2011-2012	2650	16.505	19/07/2011	0.000	9.705	13/02/2012
2012-2013	0.000	9.705	21/02/2013	0.000	9.745	28/06/2012
2013-2014	289.6	12.175	28/09/2013	0.000	9.935	29/11/2013
2014-2015	52.54	10.870	11/09/2014	0.000	9.480	05/12/2014
2015-2016	228.9	11.900	29/07/2015	0.000	8.920	24/06/2015
2016-2017	19.66	10.630	04/09/2016	0.130	9.940	11/09/2016
2017-2018	3020	16.750	22/07/2017	0.000	9.960	29/01/2018
2018-2019	0.000	9.74	01/06/2018	0.000	9.740	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

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	9.740	0.000	9.860	0.000	9.550	0.000	9.700	0.000	9.440	0.000	8.960	0.000
2	9.740	0.000	9.850	0.000	9.720	0.000	9.700	0.000	9.430	0.000	8.950	0.000
3	9.740	0.000	9.830	0.000	9.720	0.000	9.700	0.000	9.410	0.000	8.940	0.000
4	9.740	0.000	9.810	0.000	9.720	0.000	9.700	0.000	9.400	0.000	8.930	0.000
5	9.740	0.000	9.710	0.000	9.720	0.000	9.700	0.000	9.390	0.000	8.920	0.000
6	9.740	0.000	9.530	0.000	9.720	0.000	9.690	0.000 *	9.380	0.000	8.940	0.000
7	9.740	0.000	9.520	0.000	9.720	0.000	9.690	0.000	9.370	0.000	8.940	0.000
8	9.740	0.000	9.510	0.000	9.720	0.000	9.680	0.000	9.370	0.000	8.940	0.000
9	9.740	0.000	9.500	0.000	9.720	0.000	9.670	0.000	9.360	0.000	8.940	0.000
10	9.740	0.000	9.490	0.000	9.720	0.000	9.660	0.000	9.360	0.000	8.940	0.000
11	9.950	0.000	9.490	0.000	9.720	0.000	9.750	0.000	9.350	0.000	8.940	0.000
12	9.940	0.000	9.480	0.000	9.720	0.000	9.750	0.000	9.350	0.000	8.940	0.000
13	9.930	0.000	9.470	0.000	9.720	0.000	9.750	0.000	9.340	0.000	8.940	0.000
14	9.930	0.000	9.470	0.000	9.710	0.000	9.750	0.000	9.330	0.000	8.940	0.000
15	9.930	0.000	9.460	0.000	9.710	0.000	9.730	0.000	9.330	0.000	8.940	0.000
16	9.930	0.000	9.460	0.000	9.710	0.000	9.730	0.000	9.320	0.000	8.940	0.000
17	9.930	0.000	9.470	0.000	9.710	0.000	9.720	0.000	9.310	0.000	8.940	0.000
18	9.920	0.000	9.550	0.000	9.710	0.000	9.680	0.000	9.310	0.000	8.940	0.000
19	9.920	0.000	9.550	0.000	9.710	0.000	9.610	0.000	9.300	0.000	8.940	0.000
20	9.910	0.000	9.550	0.000	9.710	0.000	9.570	0.000	9.300	0.000	8.940	0.000
21	9.910	0.000	9.550	0.000	9.710	0.000	9.570	0.000	9.290	0.000	8.940	0.000
22	9.900	0.000	9.550	0.000	9.710	0.000	9.800	0.000	9.280	0.000	8.940	0.000
23	9.900	0.000	9.550	0.000	9.710	0.000	9.800	0.000	9.280	0.000	8.940	0.000
24	9.890	0.000	9.550	0.000	9.710	0.000	9.750	0.000	9.240	0.000	8.940	0.000
25	9.890	0.000	9.550	0.000	9.710	0.000	9.710	0.000	9.140	0.000	8.940	0.000
26	9.880	0.000	9.550	0.000	9.710	0.000	9.590	0.000	9.080	0.000	8.940	0.000
27	9.880	0.000	9.550	0.000	9.710	0.000	9.570	0.000	9.040	0.000	8.940	0.000
28	9.870	0.000	9.550	0.000	9.710	0.000	9.550	0.000	9.010	0.000	8.940	0.000
29	9.870	0.000	9.550	0.000	9.700	0.000	9.510	0.000	9.000	0.000	8.940	0.000
30	9.860	0.000	9.550	0.000	9.700	0.000	9.460	0.000	8.980	0.000	8.940	0.000
31			9.550	0.000	9.700	0.000			8.970	0.000		
<u>Ten-Daily Mean</u>												
I Ten-Daily	9.740	0.000	9.661	0.000	9.703	0.000	9.689	0.000	9.391	0.000	8.940	0.000
II Ten-Daily	9.929	956.3	9.495	0.000	River Dry	0.000	9.704	0.000	9.324	0.000	8.940	0.000
III Ten-Daily	9.885	0.000	9.550	0.000	River Dry	0.000	9.631	0.000	9.119	0.000	8.940	0.000
<u>Monthly</u>												
Min.	9.740	0.000	9.460	0.000	9.550	0.000	9.460	0.000	8.970	0.000	8.920	0.000
Max.	9.950	0.000	9.860	0.000	9.720	0.000	9.800	0.000	9.440	0.000	8.960	0.000
Mean	9.851	0	9.568	0	9.708	0	9.675	0	9.273	0	8.940	0

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

Peak Observed Discharge = 0.000 cumecs on 01/06/2018

Corres. Water Level :9.74 m

Lowest Observed Discharge = 0.000 cumecs on 01/06/2018

Corres. Water Level :9.74 m

River was in pooling condition from 01/06/2018 to 31/10/2018.

Stage-Discharge Data for the period 2018 - 2019

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	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000
2	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000
3	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
4	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
5	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
6	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
7	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
8	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
9	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
10	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
11	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
12	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.950	0.000
13	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
14	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
15	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
16	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
17	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
18	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
19	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
20	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
21	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
22	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
23	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
24	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
25	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
26	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
27	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
28	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
29	8.960	0.000	8.960	0.000			8.960	0.000	8.960	0.000	R. Dry	0.000
30	8.960	0.000	8.960	0.000			8.960	0.000	8.960	0.000	R. Dry	0.000
31	8.960	0.000	8.960	0.000			8.960	0.000			R. Dry	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	8.946	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.952	0.000
II Ten-Daily	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	1.790	0.000
III Ten-Daily	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	R. Dry	0.000
<u>Monthly</u>												
Min.	8.940	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	0.000	0.000
Max.	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000	8.960	0.000
Mean	8.955	0	8.960	0	8.960	0	8.960	0	8.960	0	3.465	0

Peak Computed Discharge = 0.000 cumecs on 06/09/2018

Corres. Water Level :9.69 m

Lowest Computed Discharge = 0.000 cumecs on 06/09/2018

Corres. Water Level :9.69 m

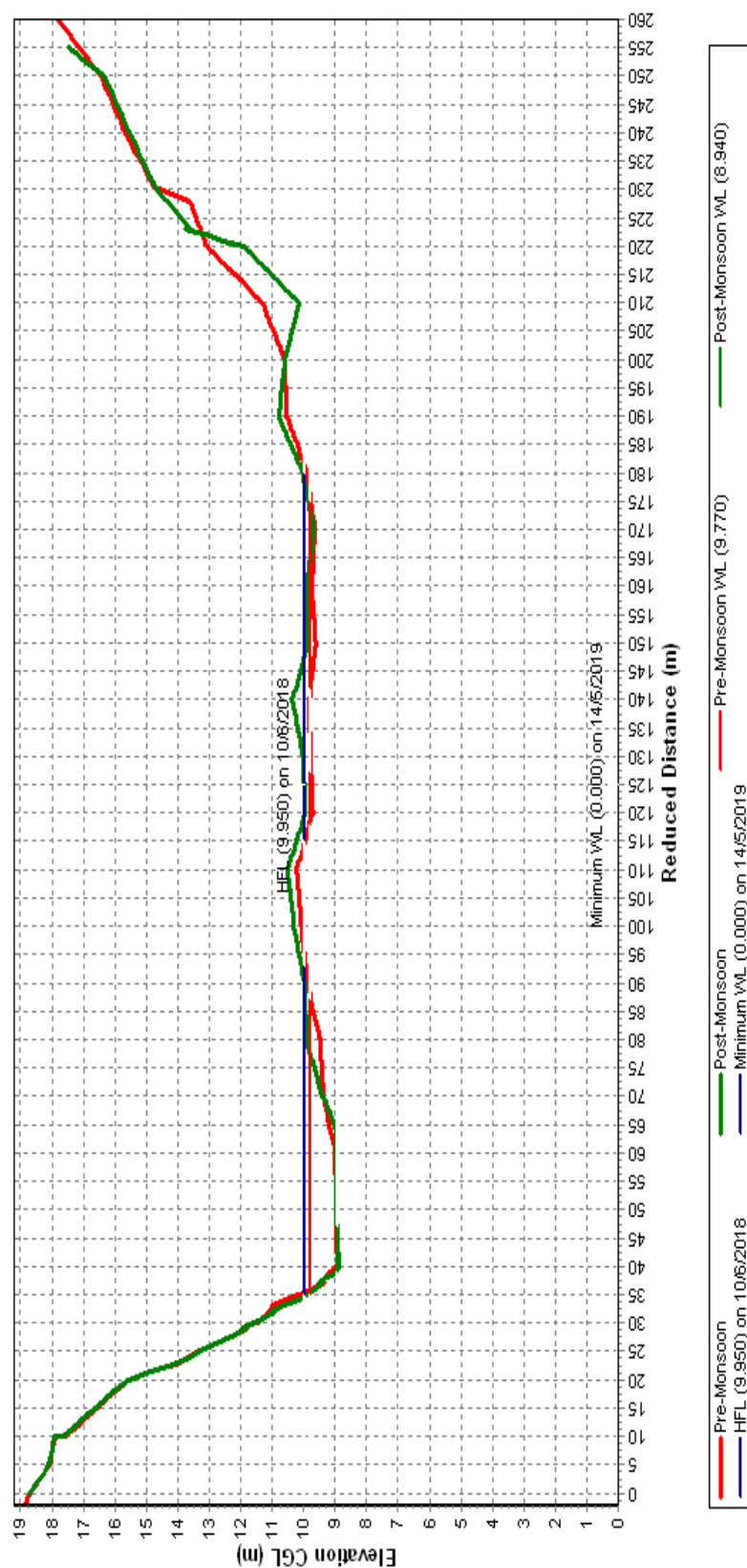
Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

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 2018-2019

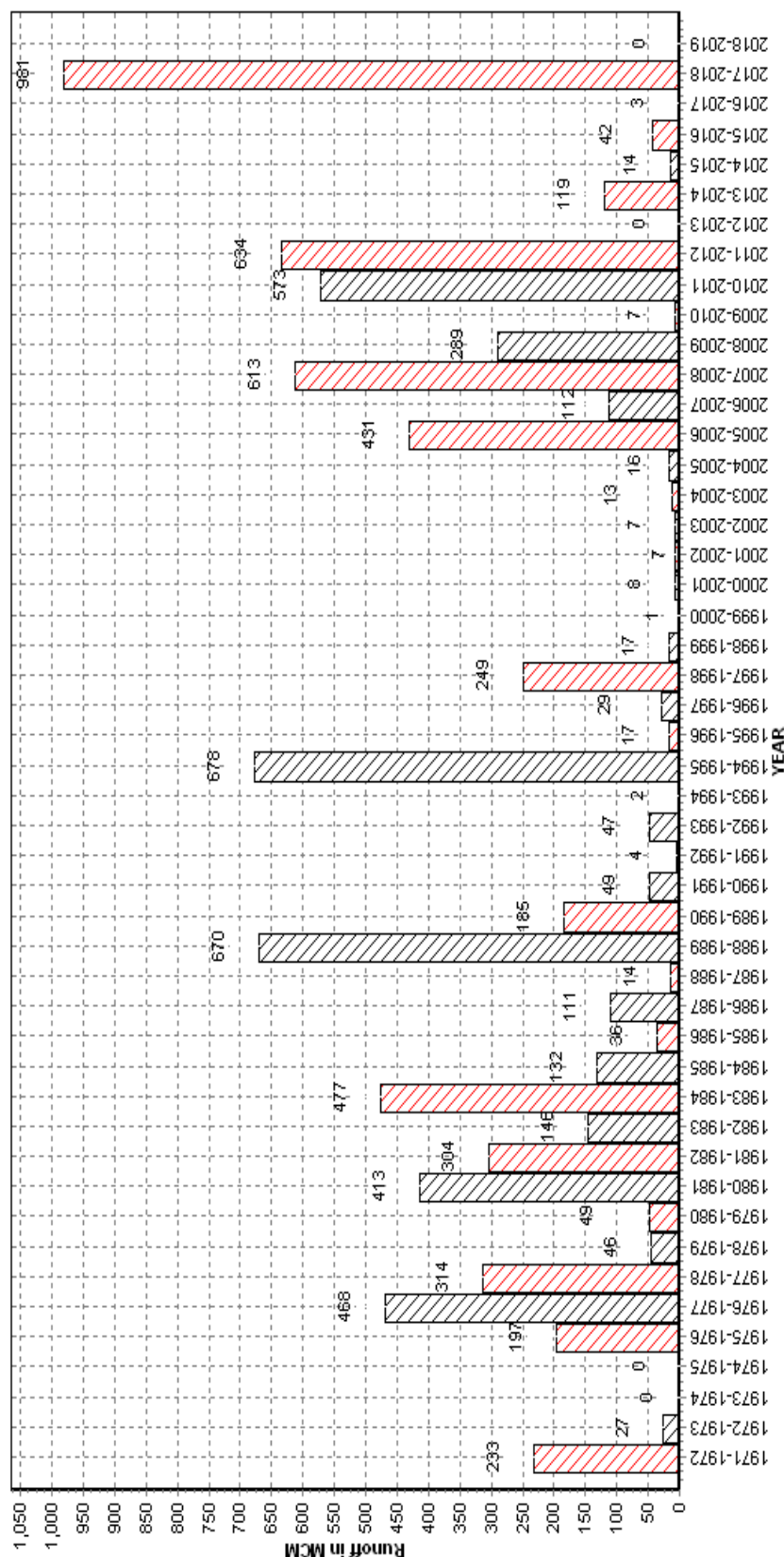
Annual Runoff Values for the period: 1971 - 2019

Station Name : Machhu at Gungan (01 02 03 001)

Local River : Machhu

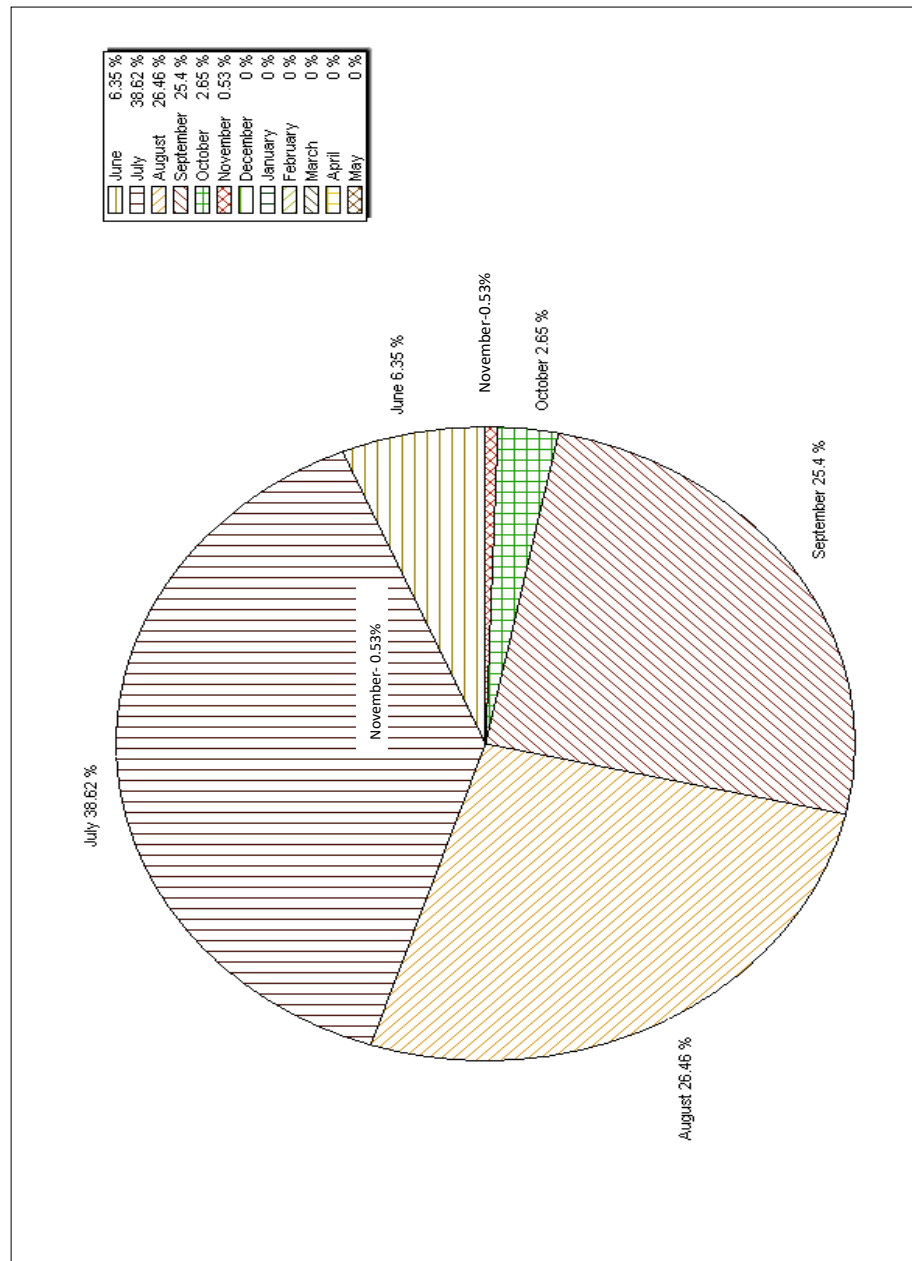
Division : Mahi Division, Gandhinagar

Sub-Division : Sabarmati Sub Divn., Ahmedabad



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

Monthly Average Runoff based on period : 1971-2019



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 : 2018-19 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
---	--

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
2018-2019	R Dry					

Stage-Discharge Data for the period 2018 - 2019

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	R. Dry	0.000	35.840	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
4	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
5	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
6	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
7	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
8	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
9	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
10	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
11	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
12	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
13	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
14	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
15	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
16	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
17	R. Dry	0.000	R. Dry	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
18	R. Dry	0.000	35.910	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
19	R. Dry	0.000	35.890	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
20	R. Dry	0.000	35.950	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
21	R. Dry	0.000	35.980	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
22	R. Dry	0.000	35.920	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
23	R. Dry	0.000	35.900	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
24	R. Dry	0.000	35.890	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
25	R. Dry	0.000	35.890	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
26	R. Dry	0.000	35.890	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
27	R. Dry	0.000	35.870	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
28	R. Dry	0.000	35.860	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
29	R. Dry	0.000	35.860	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
30	R. Dry	0.000	35.850	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
31			35.850	0.000	36.000	0.000			36.000	0.000		
<u>Ten-Daily Mean</u>												
I Ten-Daily	R. Dry		R. Dry	0.000	35.984	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
II Ten-Daily	R. Dry		35.975	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
III Ten-Daily	R. Dry		35.887	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
<u>Monthly</u>												
Min.	R. Dry		35.850	0.000	35.840	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
Max.	R. Dry		36.000	0.000	36.000	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000
Mean	R. Dry		35.932	0.000	35.995	0.000	36.000	0.000	36.000	0.000	R. Dry	0.000

Annual Runoff in MCM = 0 Annual Runoff in mm = 0

Stage-Discharge Data for the period 2018 - 2019

Station Name : Rupen at Sapawada (01 02 04 001)

Division : Mahi Division, Gandhinagar

Local River : Rupen

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

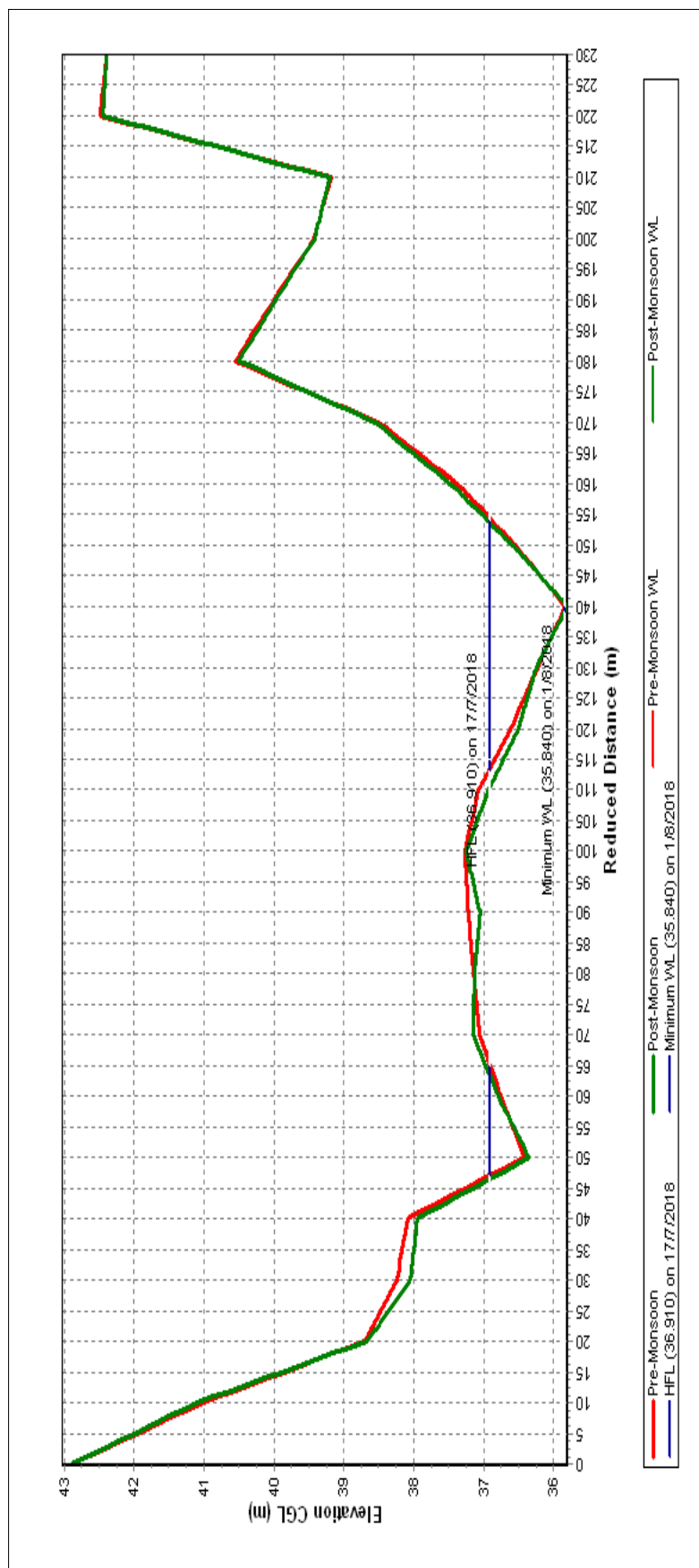
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
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

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

Station Name : Rupen at Sapawada (01 02 04 001)

Local River : Rupen

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



Historic Flood Level - 43.00m on 27.08.1997 at 0800 hrs

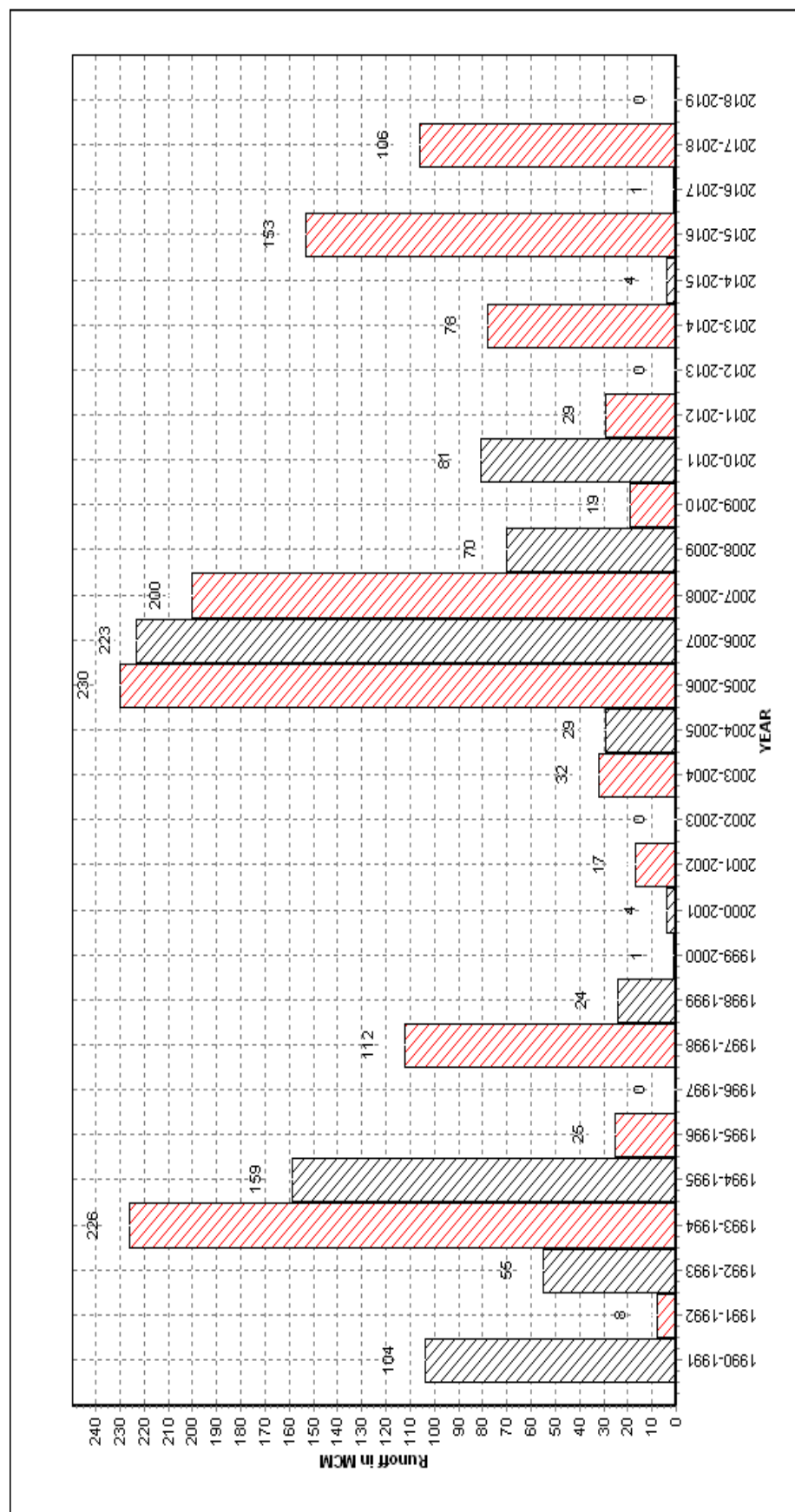
Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

Annual Runoff Values for the period: 1990 - 2019

Station Name : Rupen at Sapawada (01 02 04 001)

Local River : Rupen

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

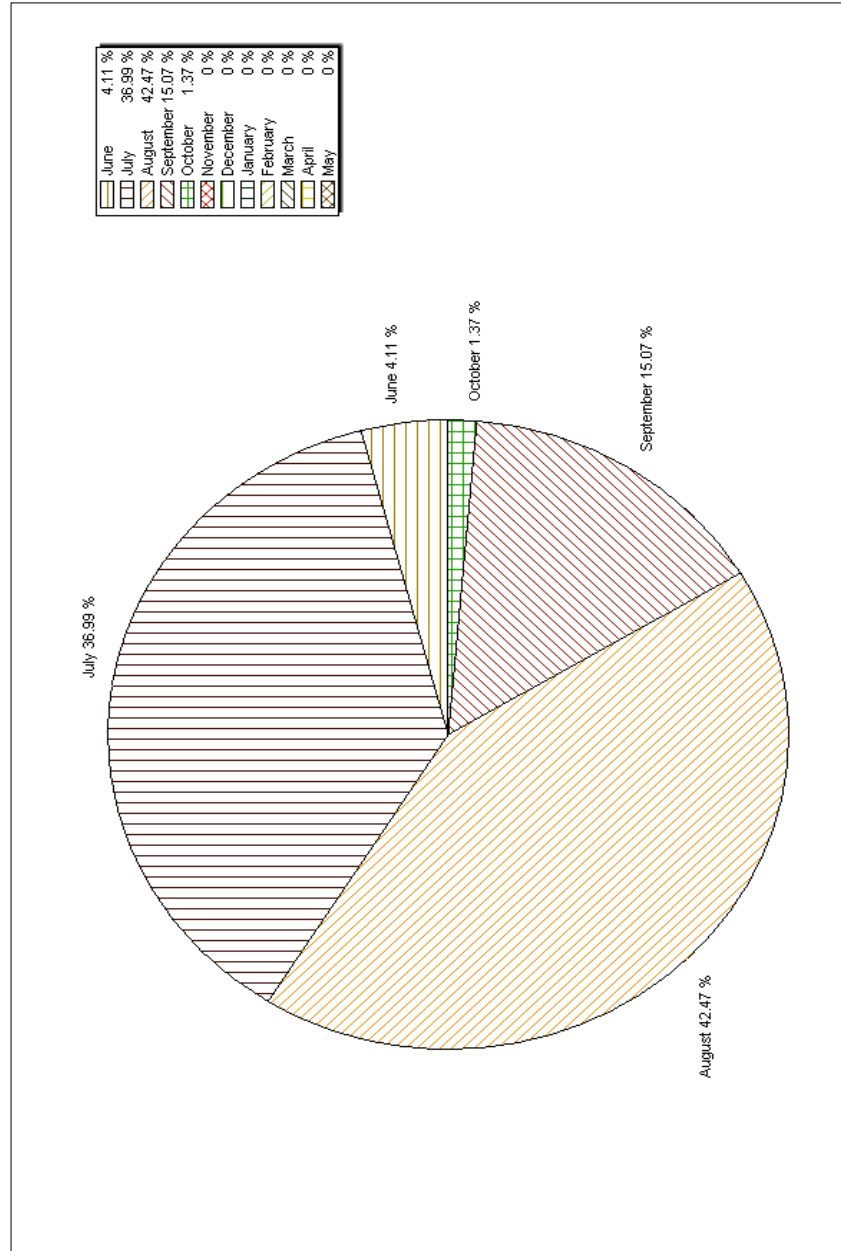


Note: Missing values have not been considered while arriving at Annual Runoff

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 : 1990-2018



HISTORY SHEET

Water Year : 2018-2019

Site : Machhundri at Una

Code : 01 02 09 002

State : Gujarat

District : Panchmahal

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°49'42"

Longitude : 71°02'51"

Zero of Gauge (m) : 15.5 (m.s.l)

26/07/2014

Opening Date

Closing Date

Gauge : 26/07/2014

Discharge : 26/07/2014

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	16.380	03/07/2017
2018 - 2019	6.623	16.560	16/08/2018	0.000	River Dry	01/06/2018

Stage-Discharge Data for the period 2018 - 2019

Station Name : Machhundri at Una (01 02 09 002)

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	16.730	13.94 *	16.510	3.848	16.365	0.670	16.300	0.257
2	R. Dry	0.000	R. Dry	0.000	16.705	12.44 *	16.510	3.687 *	16.365	0.531 *	16.300	0.229
3	R. Dry	0.000	R. Dry	0.000	16.695	11.87 *	16.530	5.183	16.360	0.640	16.305	0.221
4	R. Dry	0.000	R. Dry	0.000	16.695	11.87 *	16.540	5.163	16.360	0.560	16.305	0.000
5	R. Dry	0.000	R. Dry	0.000	16.690	11.59 *	16.545	4.788	16.360	0.548	16.305	0.227
6	R. Dry	0.000	R. Dry	0.000	16.690	11.59 *	16.515	4.007	16.355	0.584	16.305	0.201
7	R. Dry	0.000	R. Dry	0.000	16.680	11.03 *	16.495	3.207	16.355	0.419 *	16.300	0.000
8	R. Dry	0.000	R. Dry	0.000	16.680	11.03 *	16.490	2.937	16.360	0.503	16.300	0.268
9	R. Dry	0.000	R. Dry	0.000	16.675	10.76 *	16.480	3.406	16.360	0.546	16.300	0.236
10	R. Dry	0.000	R. Dry	0.000	16.650	9.450 *	16.485	3.031	16.360	0.520	16.300	0.239
11	R. Dry	0.000	16.680	11.03 *	16.630	8.463 *	16.505	3.698	16.358	0.570	16.300	0.000
12	R. Dry	0.000	16.645	9.198 *	16.640	8.949 *	16.495	3.731	16.370	0.655	16.300	0.177
13	R. Dry	0.000	18.010	204.3 *	16.600	6.234	16.490	3.280	16.355	0.559	16.300	0.176
14	R. Dry	0.000	16.805	18.94 *	16.575	5.779	16.480	3.120	16.350	0.368 *	16.300	0.159
15	R. Dry	0.000	17.010	36.52 *	16.565	5.633 *	16.480	2.795	16.335	0.355	16.295	0.111
16	R. Dry	0.000	16.690	11.59 *	16.560	6.623	16.475	2.663 *	16.330	0.351	16.290	0.061
17	R. Dry	0.000	19.360	646.7 *	16.555	6.222	16.465	1.875	16.330	0.440	16.290	0.065
18	R. Dry	0.000	18.410	309.5 *	16.555	6.062	16.465	2.056	16.330	0.389	16.290	0.000
19	R. Dry	0.000	17.790	155.7 *	16.550	5.061 *	16.445	1.702	16.330	0.198 *	16.290	0.105
20	R. Dry	0.000	17.335	76.11 *	16.550	4.597	16.440	1.751	16.330	0.352	16.290	0.105
21	R. Dry	0.000	16.805	18.94 *	16.550	5.261	16.440	1.806 *	16.330	0.198 *	16.290	0.132
22	R. Dry	0.000	16.830	20.78 *	16.545	5.091	16.455	2.097	16.330	0.352	16.290	0.127
23	R. Dry	0.000	16.820	20.03 *	16.540	5.085	16.450	2.034 *	16.320	0.333	16.290	0.000
24	R. Dry	0.000	16.980	33.59 *	16.540	4.644	16.450	1.957	16.315	0.312	16.290	0.087
25	R. Dry	0.000	16.870	23.90 *	16.540	4.615	16.425	1.352	16.310	0.000	16.290	0.000
26	R. Dry	0.000	16.810	19.30 *	16.540	4.697 *	16.390	0.785	16.310	0.279	16.290	0.085
27	R. Dry	0.000	16.800	18.59 *	16.540	4.163	16.375	0.667	16.300	0.223	16.290	0.075
28	R. Dry	0.000	16.790	17.88 *	16.535	4.168	16.370	0.731	16.300	0.000	16.290	0.105
29	R. Dry	0.000	16.780	17.19 *	16.530	4.322	16.370	0.605	16.300	0.234	16.290	0.101
30	R. Dry	0.000	16.760	15.85 *	16.520	4.165	16.370	0.592 *	16.300	0.186	16.290	0.090
31			16.750	15.20 *	16.520	4.285			16.300	0.000		
Ten-Daily Mean												
I Ten-Daily	R. Dry	0.000	R. Dry	0.000	16.689	11.56	16.510	3.926	16.360	0.552	16.302	0.188
II Ten-Daily	R. Dry	0.000	17.473	148.0	16.578	6.362	16.474	2.667	16.342	0.424	16.295	0.096
III Ten-Daily	R. Dry	0.000	16.818	20.11	16.536	4.591	16.409	1.263	16.310	0.192	16.290	0.080
Monthly												
Min.	R. Dry	0.000	16.645	9.198	16.520	4.163	16.370	0.592	16.300	0.000	16.290	0.000
Max.	R. Dry	0.000	19.360	646.7	16.730	13.94	16.545	5.183	16.370	0.670	16.305	0.268
Mean	R. Dry	0.000	17.130	80.99	16.599	7.409	16.464	2.618	16.337	0.383	16.296	0.121

Annual Runoff in MCM = 175 Annual Runoff in mm = 443

Peak Observed Discharge = 6.623 cumecs on 16/08/2018 Corres. Water Level :16.56 m

Lowest Observed Discharge = 0.000 cumecs on 25/10/2018 Corres. Water Level :16.31 m

Stage-Discharge Data for the period 2018 - 2019

Station Name : Machhundri at Una (01 02 09 002)

Division : E.E., Ahmedabad

Local River : Machhundri

Sub-Division : Ahmedabad

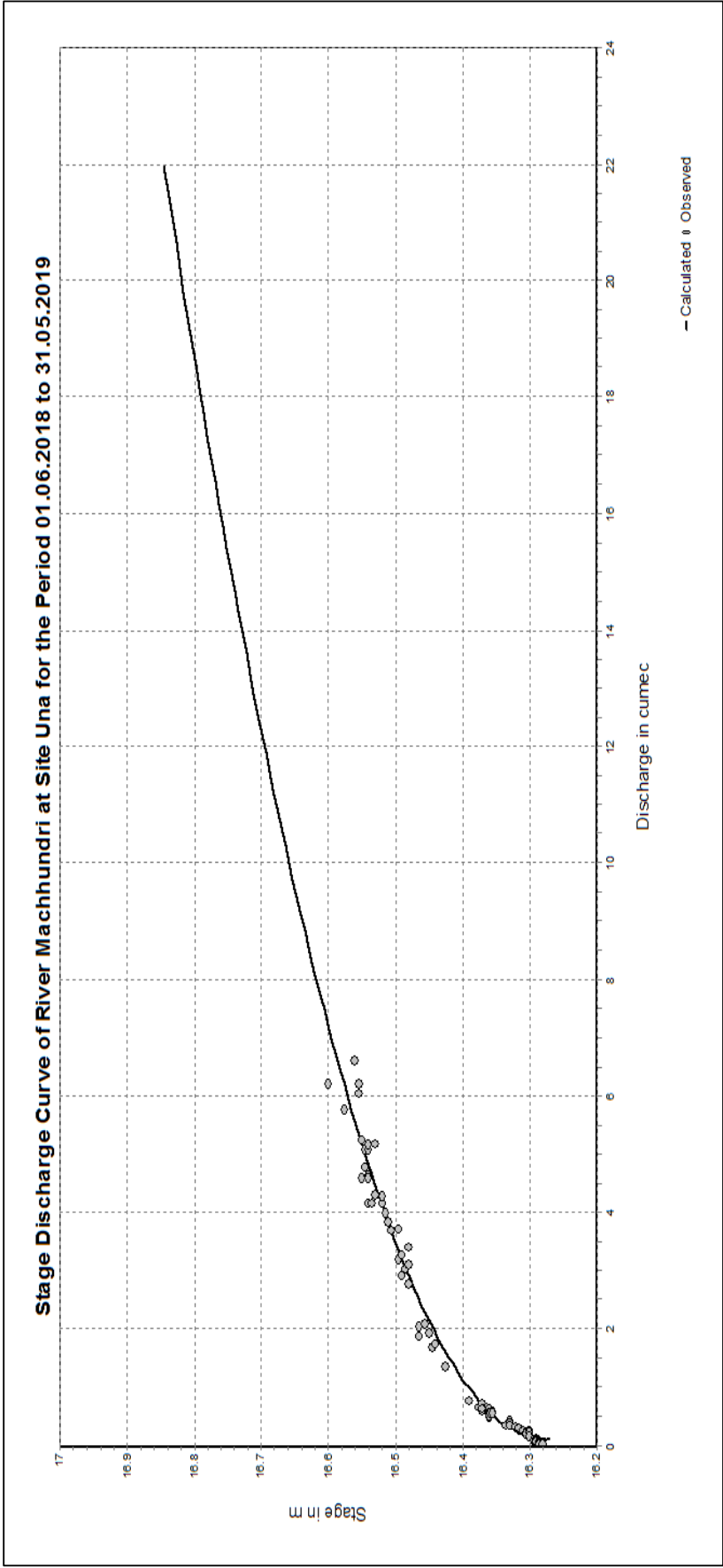
Day	Dec		Jan		Feb		Mar		Apr		May	
	W.L	Q	WL	Q	WL	Q	WL	Q	WL	Q	WL	Q
1	16.290	0.079	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
2	16.290	0.000	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
3	16.285	0.086	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
4	16.285	0.069	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
5	16.285	0.068	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
6	16.285	0.076	16.265	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
7	16.285	0.063	16.265	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
8	16.285	0.039	16.265	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
9	16.285	0.000	16.265	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
10	16.280	0.038	16.260	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
11	16.280	0.000	16.260	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
12	16.275	0.000	16.260	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
13	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
14	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
15	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
16	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
17	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
18	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
19	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
20	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
21	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
22	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
23	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
24	16.275	0.000	16.250	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
25	16.275	0.000	16.255	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
26	16.275	0.000	16.245	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
27	16.275	0.000	16.190	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
28	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
29	16.270	0.000	R. Dry	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
30	16.270	0.000	R. Dry	0.000			R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
31	16.270	0.000	R. Dry	0.000			R. Dry	0.000			R. Dry	0.000
<u>Ten-Daily Mean</u>												
I Ten-Daily	16.286	0.052	16.267	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
II Ten-Daily	16.275	0.000	16.256	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
III Ten-Daily	16.273	0.000	16.244	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
<u>Monthly</u>												
Min.	16.270	0.000	16.190	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Max.	16.290	0.086	16.270	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000
Mean	16.278	0.017	16.257	0	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000	R. Dry	0.000

Peak Computed Discharge = 646.7 cumecs on 17/07/2018

Corres. Water Level :19.36 m

Lowest Computed Discharge = 0.198 cumecs on 19/10/2018

Corres. Water Level :16.33 m



Procedure-Standard
Equation Type-Parabolic $Q=(a+bh+ch^2)$

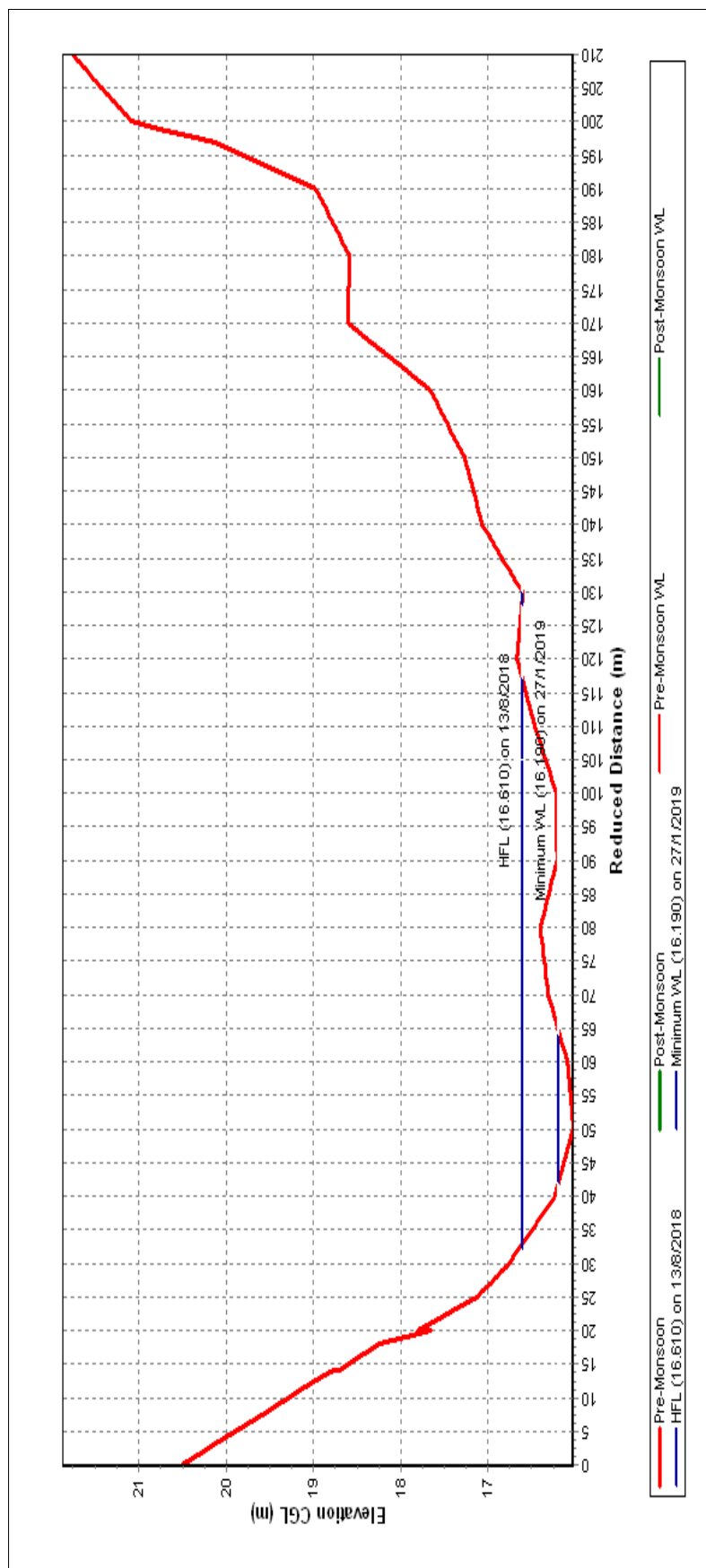
LB	UB	a	b	c
16.27	16.85	18033.48	-2215.74	68.061

Pre-Monsoon & Post-Monsoon X-Section for Water Year : 2018-2019

Station Name : Machhundri at Una (01 02 09 002)

Local River : Machhundri

Division : E.E., Ahmedabad
Sub-Division : Ahmedabad



Historic Flood Level - Sufficient Data not available

Note: HFL marked on graph denotes Max Water Level observed during the Water Year 2018-2019

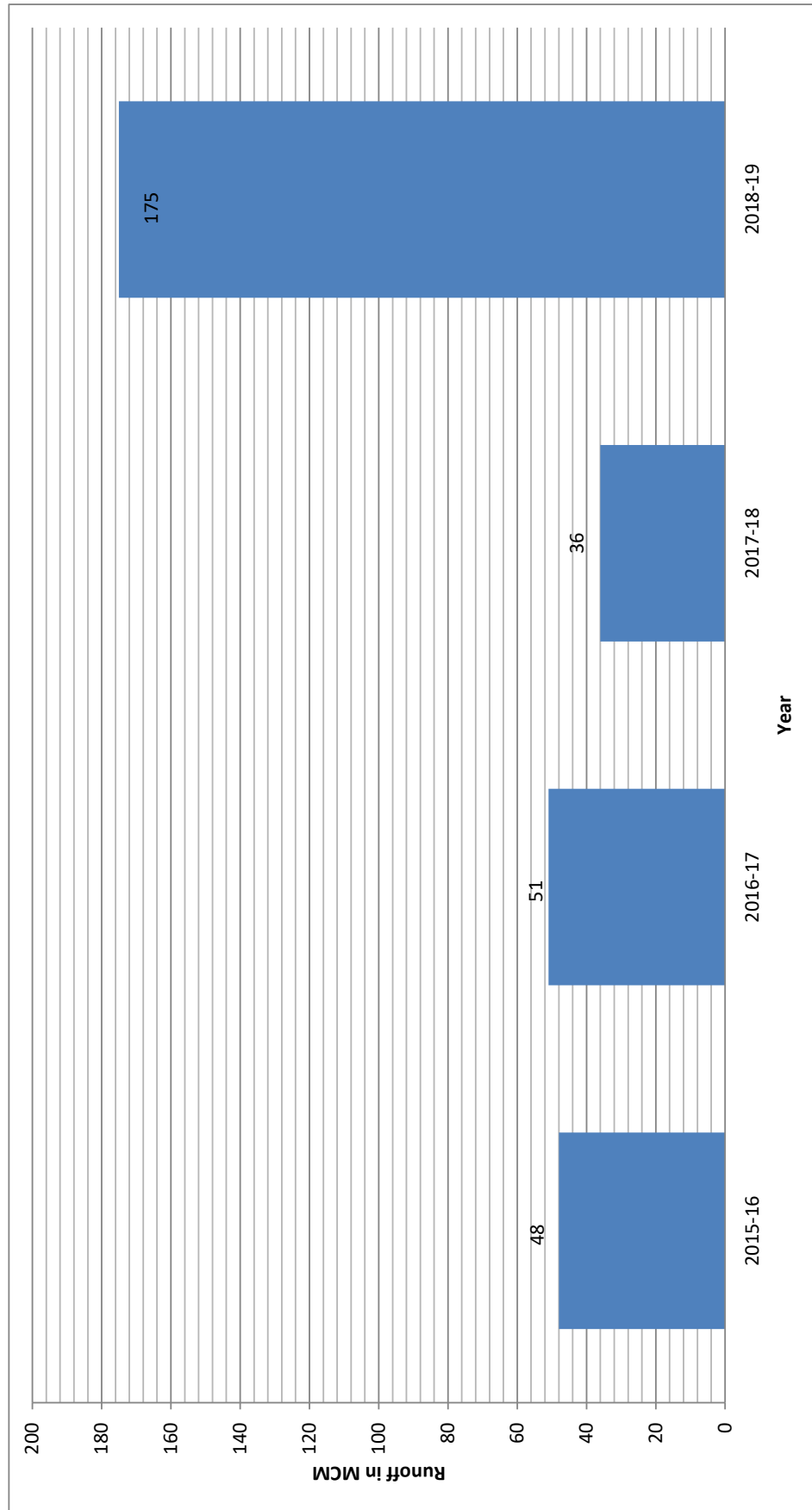
Annual Runoff Values for the period: 2016 - 2019

Station Name : Machhundri at Una (01 02 09 002)

Local River : Machhundri

Division : E.E., Ahmedabad

Sub-Division : Ahmedabad

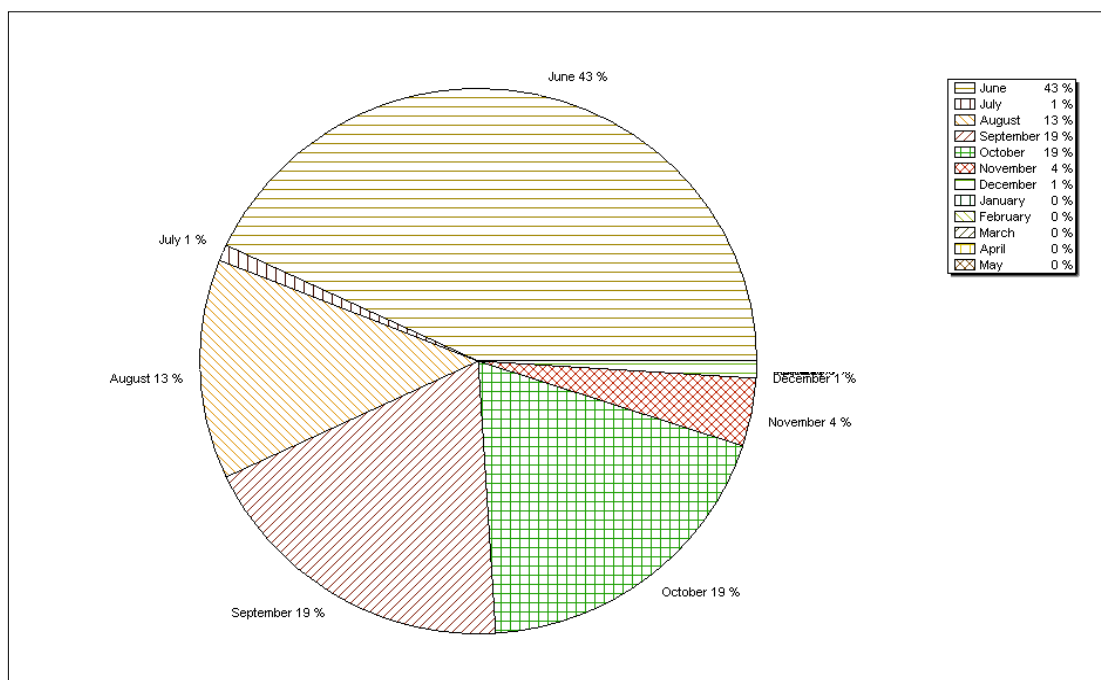


Note: Missing values have not been considered while arriving at Annual Runoff

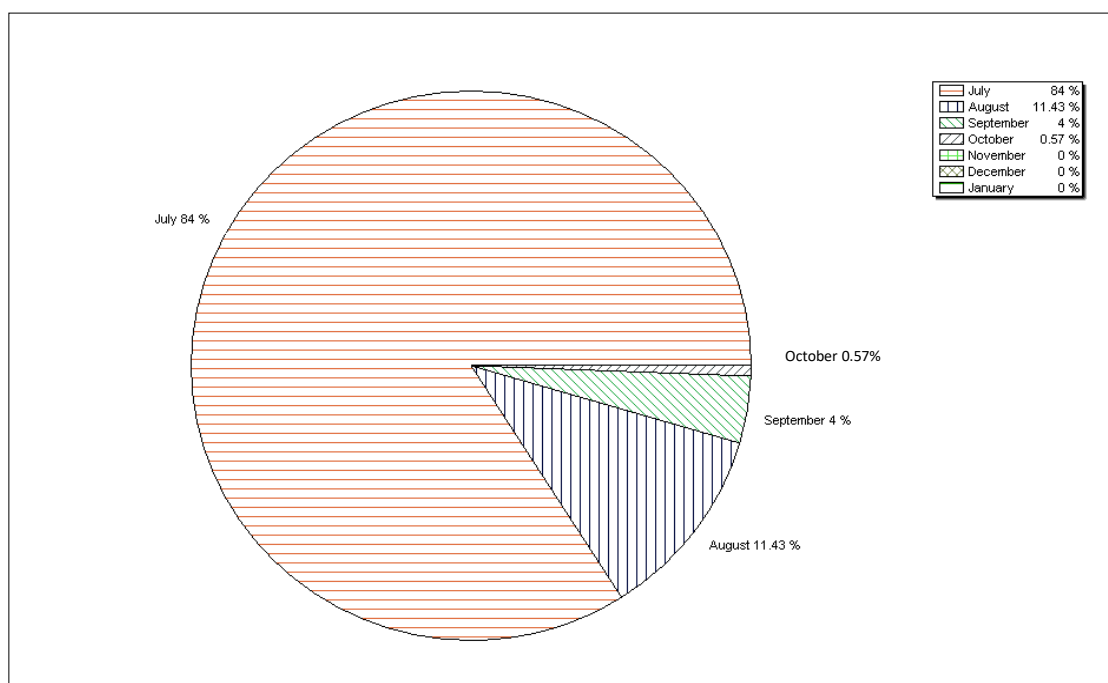
Station Name : Machhundri at Una (01 02 09 002)
Local River : Machhundri

Division : E.E., Ahmedabad
Sub-Division : Ahmedabad

Monthly Average Runoff based on period : 2014 -2019



Monthly Runoff for the Year : 2018-2019



The graph displays the water level (M.S.L.) in meters over a 72-hour period. The y-axis ranges from 15.8 to 20.6 meters with major grid lines every 0.2 meters. The x-axis shows dates and times from 15/07/2018 01 to 18/07/2018 01. The water level remains relatively stable at approximately 17.8m until 15/07/2018 07, then drops to about 17.0m. It continues to decrease slowly, reaching a minimum of approximately 16.7m around 15/07/2018 19. Following this, the water level rises sharply, peaking at approximately 19.7m around 16/07/2018 13. After the peak, it gradually declines, reaching approximately 17.7m by 18/07/2018 01.

Date & Time	Water Level (M.S.L.) (m)
15/07/2018 01	17.8
15/07/2018 03	17.8
15/07/2018 05	17.8
15/07/2018 07	17.8
15/07/2018 09	17.0
15/07/2018 11	16.9
15/07/2018 13	16.8
15/07/2018 15	16.75
15/07/2018 17	16.7
15/07/2018 19	16.7
15/07/2018 21	16.7
15/07/2018 23	16.7
16/07/2018 01	16.7
16/07/2018 03	16.7
16/07/2018 05	16.7
16/07/2018 07	16.7
16/07/2018 09	17.3
16/07/2018 11	18.8
16/07/2018 13	19.7
16/07/2018 15	19.4
16/07/2018 17	19.0
16/07/2018 19	18.9
16/07/2018 21	18.9
16/07/2018 23	18.9
17/07/2018 01	19.0
17/07/2018 03	19.0
17/07/2018 05	19.0
17/07/2018 07	19.3
17/07/2018 09	18.8
17/07/2018 11	18.4
17/07/2018 13	18.2
17/07/2018 15	17.9
17/07/2018 17	17.7
17/07/2018 19	17.7
17/07/2018 21	17.7
17/07/2018 23	17.7
18/07/2018 01	18.2

The graph displays the water level (M.S.L.) in meters over a 36-hour period. The y-axis ranges from 16.4 to 19.4 meters with major grid lines every 0.2 meters. The x-axis shows dates and times from 17/07/2018 12 to 19/07/2018 24 in 2-hour increments. The water level starts at approximately 18.35m at 17/07/2018 12, decreases to about 17.65m by 18/07/2018 02, then rises sharply to 18.4m. It remains at 18.4m until 18/07/2018 06, then slightly increases to 18.45m. From 18/07/2018 08, it gradually decreases to 18.2m by 18/07/2018 12, then to 18.0m by 18/07/2018 16. It stays at 18.0m until 18/07/2018 20, then drops to 17.95m. From 18/07/2018 22, it decreases to 17.75m by 19/07/2018 02, then to 17.65m by 19/07/2018 06. It remains at 17.65m until 19/07/2018 10, then drops to 17.55m by 19/07/2018 14. Finally, it settles at 17.3m by 19/07/2018 18 and remains constant until 19/07/2018 24.

Date & Time	Water Level (M.S.L.) (m)
17/07/2018 12	18.35
17/07/2018 14	18.25
17/07/2018 16	18.05
17/07/2018 18	17.75
17/07/2018 20	17.65
17/07/2018 22	17.65
17/07/2018 24	17.65
18/07/2018 02	18.40
18/07/2018 04	18.40
18/07/2018 06	18.40
18/07/2018 08	18.45
18/07/2018 10	18.45
18/07/2018 12	18.42
18/07/2018 14	18.40
18/07/2018 16	18.35
18/07/2018 18	18.20
18/07/2018 20	18.20
18/07/2018 22	18.20
18/07/2018 24	18.20
19/07/2018 02	17.95
19/07/2018 04	17.95
19/07/2018 06	17.95
19/07/2018 08	17.75
19/07/2018 10	17.65
19/07/2018 12	17.55
19/07/2018 14	17.45
19/07/2018 16	17.35
19/07/2018 18	17.30
19/07/2018 20	17.30
19/07/2018 22	17.30
19/07/2018 24	17.30

The graph displays the water level (M.S.L.) in meters over a period of approximately 10 days. The y-axis ranges from 15.6 to 19.0 meters, and the x-axis shows dates from 11/07/2018 to 14/07/2018. The water level remains relatively stable around 16.55m until 13/07/2018, where it spikes to a peak of approximately 17.8m. It then drops to around 17.0m and remains stable until 14/07/2018, where it spikes again to a peak of approximately 17.5m before dropping back to around 16.9m.

Date & Time	Water Level (M.S.L.) (m)
11/07/2018 20:00	16.55
11/07/2018 22:00	16.55
11/07/2018 24:00	16.55
12/07/2018 02:00	16.55
12/07/2018 04:00	16.55
12/07/2018 06:00	16.55
12/07/2018 08:00	16.65
12/07/2018 10:00	16.75
12/07/2018 12:00	16.75
12/07/2018 14:00	16.75
12/07/2018 16:00	16.75
12/07/2018 18:00	16.75
12/07/2018 20:00	16.75
12/07/2018 22:00	16.75
12/07/2018 24:00	16.75
13/07/2018 02:00	16.85
13/07/2018 04:00	16.85
13/07/2018 06:00	16.85
13/07/2018 08:00	17.65
13/07/2018 10:00	17.80
13/07/2018 12:00	17.30
13/07/2018 14:00	17.05
13/07/2018 16:00	17.05
13/07/2018 18:00	17.05
13/07/2018 20:00	16.95
13/07/2018 22:00	16.95
13/07/2018 24:00	16.95
14/07/2018 02:00	16.80
14/07/2018 04:00	16.80
14/07/2018 06:00	16.80
14/07/2018 08:00	16.80
14/07/2018 10:00	16.90
14/07/2018 12:00	17.40
14/07/2018 14:00	17.50
14/07/2018 16:00	17.50
14/07/2018 18:00	16.90
14/07/2018 20:00	16.90