



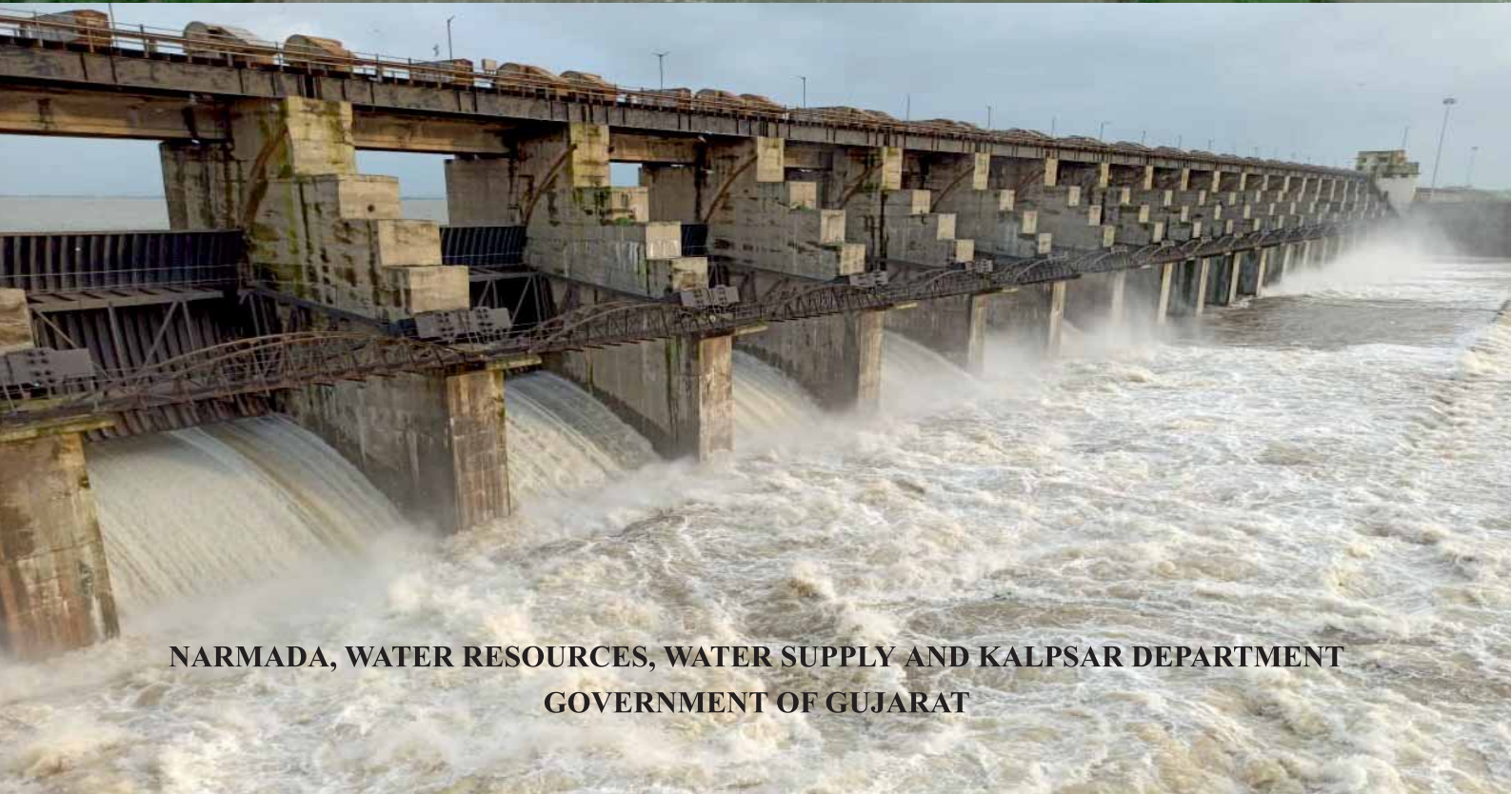
GOVERNMENT OF GUJARAT



Disaster Management Plan

2021

(Flood Warning Arrangements-2021)



NARMADA, WATER RESOURCES, WATER SUPPLY AND KALPSAR DEPARTMENT
GOVERNMENT OF GUJARAT

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GOVERNMENT OF GUJARAT

Disaster Management Plan 2021

(Flood Warning Arrangements-2021)

**NARMADA, WATER RESOURCES, WATER SUPPLY
AND KALPSAR DEPARTMENT**

**FLOOD CONTROL CELL,
1ST FLOOR, STATE WATER DATA CENTER BUILDING,
SECTOR - 8, GANDHINAGAR**

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P R E F A C E

There are 18 major dams in the Gujarat State and six interstate river basins namely Tapi basin, Narmada basin, Damanganga basin, Mahi basin, Sabarmati basin and Banas basin in the State. Narmada, Water Resources, Water Supply and Kalpasar Department every year updates the information in this publication which provides information for flood warning arrangements during monsoon. Relief activities are not incorporated in this document as they are not supposed to be dealt with by the personnel of the Water Resources Department.

This disaster management plan includes information and terminology regarding cyclone warning specified by India Meteorological department, guide lines for maintenance of flood embankments, circulars regarding precautionary measures before monsoon, alerting concerned departments, details of wireless stations, type of warning and affected villages. The information in this volume is updated based on the suggestions received from various field officers related the flood warning arrangements.

Secretary (WR)

I N D E X

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ABBREVIATION

Pri. Secy.	Principal Secretary
Secy.	Secretary
N.W.R.W.S. & K. Dept.	Narmada, Water Resources, Water Supply and Kalpsar Department
R & B	Roads and Building Department
Addl. Secy.	Additional Secretary
D.S.P.	District Superintendent of Police
U.S.	Under Secretary
D.S.	Deputy Secretary
O.S.D.	Officer on Special Duty
I.M.D.	India Meteorological Department
IST	Indian Standard Time
UTC/GMT	Universal Time Code / (Greenwich Mean Time)
CWDS	Cyclone Warning Dissemination System
D.E.E.	Deputy Executive Engineer
S.I.C.	Surat Irrigation Circle
P.P.C.	Panam Project Circle
H.I.P.C.	Himmatnagar Irrigation Project Circle
K.P.C.	Kadana Project Circle
R.I.C.	Rajkot Irrigation Circle
R.I.P.C.	Rajkot Irrigation Project Circle.
V.I.C.	Vadodara Irrigation Circle.
W.R.I.C.	Water Resources and Investigation Circle
U.T.	Union Territory
G.E.B.	Gujarat Electricity Board
V.M.C.	Vadodara Municipal Corporation
I.P.Sub. Dn.	Irrigation Project Sub Division
Ft./ Mt.	Feet / Meter
CUM/CUS	Cumecs / Cusecs
C.W.C.	Central Water Commission
MDDL	Minimum Draw Down Level
C.A.D.	Command Area Development
D'Ganga	Damanganga
C.D.	Civil Defense
R.H.	Rest House
C.D.O.	Central Designs Organisation
S.D.O.	Sub Divisional Officer
B.D.O.	Block Development Officer
R.L.	Reduced Level
F.R.L.	Full Reservoir Level
H.F.L.	High Flood Level
P.W.L.	Present Water Level
D.G.S.	Design Gross Storage
D.L.S.	Design Live Storage
D.D.S.	Design Dead Storage
U/s, D/s	Up Stream, Down Stream

ABBREVIATION

Disc.	Discharge
D.S.R.P.	Dam Safety Review Panel
Max. / Min.	Maximum / Minimum
Inf.	Inflow
Sch. No.	Scheme No.
RF	Rainfall
CRF	Cumulative Rainfall
Kts.	Knot (Unit of Measurement for wind Speed)
Lat / Long.	Latitude / Longitude
BOSL	Below Outlet Sill Level
Datum Level	Level with Respect to Sea Level
NA	Not Available
Gauge Height	Different between two levels
Mcm/MM ³	Million Cubic Meter
Mcft/(Mft ³)	Million Cubic Feet
(G)	Gated Scheme
(UG)	Un Gated Scheme
(FG)	Fuse Gated Scheme
High Alert	The dam/reservoir filled more than 90% with respect to its Design Gross Storage
Alert	The dam/reservoir filled more than 80% and upto 90% with respect to its Design Gross Storage
Warning	The dam/reservoir filled more than 70% and upto 80% with respect to its Design Gross Storage
NG	North Gujarat
SG	South Gujarat
CG	Central Gujarat
Gross Storage	(Live Storage + Dead Storage)
Dead Storage	(Gross Storage - Live Storage)
Live Storage	(Gross Storage - Dead Storage)
IBPT	Irrigation Bye-pass Tunnel
Cumecs	Unit of measurement of Discharge in Metric System (Cubic Meter per Second)
Cusecs	Unit of Measurement of Discharge in British System (Cubic Feet per Second)
Rule Level	A Rule level is a pre-defined level on a specified date to be maintained in the reservoir to fill the reservoir in stages during on-going monsoon season considering conservation and flood control aspects.
White Signal	Alert Condition
Blue Signal	Ready for Evacuation
Red Signal	Immediate Evacuation
HOC	Hydrological Observation Circle
NTBO	Narmada and Tapi Basin Organisation
BBY	Bombay (Mumbai)
SRT	Surat
EOC	Emergency Operation Cell
ERC	Emergency Response Cell

INFORMATION AND TERMINOLOGY REGARDING CYCLONE WARNING AND COASTAL BULLETINS SPECIFIED BY INDIA METEOROLOGICAL DEPARTMENT

FAVOURABLE WEATHER PARAMETERS FOR FORMATION OF CYCLONE :-

1. Large sea area with sea surface temperature 27°C or more
2. Minimum vertical wind shear.
3. Minimum value of coriolis parameter. (Generally originates between 5° to 22° North Latitude.)
4. Upper air divergence.
5. Sufficient moisture in the lower and middle troposphere.

TERMINOLOGIES FOR TROPICAL CYCLONE :-

The classification adopted by India Meteorological Department to classify such disturbances is based on maximum strength of sustained wind in the circulation.

Type of Disturbance.	Associated wind speed.
Low Pressure area	Less than 17 kts.
Depression	17-27 kts.
Deep Depression	28-33 kts.
Cyclonic Storm	34-47 kts.
Sever Cyclonic Storm	48-63 kts.
Very Severe Cyclonic Storm	64-119 kts.
Super Cyclonic Storm	120 kts. and above
(1 Knot = 1.85 kmph.)	

Expected Wind Speed	Expected Damage
60-90 kmph	Tree branches broken off; Some damage to kachcha house
90-120 kmph	Trees uprooted; Pucca houses damaged; Communication disrupted.
More than 120 kmph	Big trees uprooted; Widespread damage to houses and installation. Total disruption of communication.

FORMATION OF TROPICAL CYCLONE

Tropical cyclones generally form over the open areas where the sea surface temperature is 27° C or more.

Very cold temperatures of South Atlantic, Eastern parts of South Pacific and Eastern parts of North Pacific even during the warmest season are not congenial for formation of cyclones while in the warm Indian ocean cyclones are frequent.

A Tropical cyclone generally forms from a pre-existing low pressure area over warm Tropical oceans and air from all directions rushes the area in an anticlockwise motion in Northern hemisphere due to deflection caused by rotation of earth. Greater pressure fall, greater the speed of wind rushing inward to the vacumme - Low Pressure.

Simultaneously, in view of favorable conditions in the upper atmosphere at 6 km and above for the out flow or divergence of air, a large scale vertical motion of uprushing air takes place, as the moisture laden warm air rises, it cools and excess moisture, which it can not sustain at these warm temperatures, falls as rain. The latent heat liberated in this process supplies further energy to this low pressure system of intensification.

વાવાઝોડા - ચેતવણી પ્રચાર તંત્ર મારફત વાવાઝોડા અંગે

ભય - ચેતવણી પ્રસારણ માટેની રૂપરેખા

..... જાતેની હવામાન ખાતાની કચેરીએ તા.....ના રોજ ભારતીય માનક સમય પ્રમાણે
..... કલાકે બહાર પાડેલું વાવાઝોડા ચેતવણી બુલેટીન નંબર.....

તારીખના રોજ ભારતીય માનક સમય પ્રમાણે કલાકે(સ્થળ)
થી લગભગકિ.મી. ના અંતરેદિશામાં વાવાઝોડું ફુંકાશે ; જે વધુ તીવ્ર બનવાની
અને દિશામાં ફંટાવવાની શક્યતા છે. આના પરિણામે.....
(જિલ્લા)માં.....વાર, (તારીખ / સમય) થી ભારે થી અતિભારે
વરસાદના છુટાછવાયા ઝાપટા સાથે વ્યાપક પ્રમાણમાં વરસાદ થવાની શક્યતા છે.
વાર,(તારીખ / સમય) થી આ જિલ્લાઓના દરિયાકાઠાનાં વિસ્તારોમાં કલાક ના
..... કિ.મી. સુધીની ઝડપે તોફાની પવન ફુંકાવા માંડે તેવી શક્યતા છે. આ દરિયાકાઠાં
વિસ્તારોના માછીમારોને દરિયામાં ન જવાની સલાહ આપવામાં આવે છે.

For air station - (including BBY and SRT) and Revenue officials.

FORMAT FOR CYCLONE WARNING (SEVERE CYCLONIC STORM)

CYCLONE BULLETIN NO.....ISSUED BY CYCLONE WARNING CENTRE,
AHMEDABAD ATHRS IST OF(DATE) FOR REPEATED BROADCAST
IN GUJARATI, SINDHI, HINDI AND ENGLISH AT HOURLY / HALF HOURLY INTERVALS
(aaa) CYCLONE WARNING FOR
.....DISTRICTS (aaa) SEVERE
CYCLONIC STORM LOCATED KM (DIRECTION) OF
..... OF (TIME) LATITUDE NORTH, LONGITUDE
..... EAST, (aaa). EXPECTED TO STRIKE COAST BETWEEN AND
..... ON(DAY) (MORNING/EVENING ETC) (aaa) GALES
REACHING KMPH UPROOTING TREE,DAMAGING PUCCA HOUSE AND
DISRUPTING COMMUNICATION LIKELY
..... DISTRICTS
..... FROM (DAY) (DATE) (aaa) WIDE SPREAD RAIN
WITH SCATTERED HEAVY TO VERY HEAVY FALLS LIKELY COMMENCE FROM
..... DISTRICTS FROM (DAY) (DATE) (TIME)
(aaa) TIDAL WAVES METERS ABOVE NORMAL TIDE LIKELY INUNDATE
COASTAL AREAS OF DISTRICTS AROUND
..... (DAY/TIME) (aaa) STATE OF SEA OFF COAST (aaa) FISHERMEN
ARE ADVISED NOT TO GO OUT IN THE SEA (aaa) DANGER/GREAT DANGER
SIGNAL NO HOISTED AT PORTS (aaa) LOCAL WARNING SIGNAL NO 4 :
HOISTED AT PORTS (aaa) LOCAL CAUTIONARY
SIGNAL No : 3 HOISTED AT PORTS (aaa) ABOVE WARNINGS ARE
FOR
.....DISTRICTS (aaa)

(FOR AIR STATIONS ONLY (NOT TO BROADCAST) KINDLY MAINTAIN ROUND THE
CLOCK WATCH TO RECEIVE AND BROADCAST THE SUBSEQUENT NUMBERED
WARNING BULLETINS) (aaa)

CYCLONE ALERT

CYCLONE ALERT NO. ISSUED BY CYCLONE WARNING CENTRE
AHMEDABAD IST ON (DATE). DEPRESSION / CYCLONIC STORM
LAY AREBIAN SEA CENTREDHRS. IST
..... (DAY) (DATE) CENTRED AT LATITUDE
..... NORTH, LONGITUDE EAST, ABOUT KMS
..... (DIRECTION) OF (PLACE) aaa LIKELY INTENSIFY FURTHER AND
MOVE IN (DIRECTION) aaa UNDER ITS INFLUENCE WIDESPREAD
RAIN WITH SCATTERED HEAVY TO VERY HEAVY FALLS LIKELY COMMENCE
..... DISTRICTS FROM (DAY)
(DATE/TIME) (F/N ETC) aaa GALE WINDS SPEED REACHING KMPS LIKELY
COMMENCE A LONG COASTAL AREAS OF
.....DISTRICTS:.....
.....
.....

ભારે સંકટ અંગેની ચેતવણી ને અનુમોદન આપતા પત્રની નકલ

પ્રાદેશિક હવામાન કચેરી, અમદાવાદ ધ્વારા ભારે સંકટ અંગેની ચેતવણી તંત્ર મારફત પ્રસારિત ફરવા માટે તારીખ ના રોજ ભારતીય સમય પ્રમાણે કલાકે આપવામાં આવ્યું

..... જિલ્લાઓ માટે વાવાઝોડાની ચેતવણી દિનાંક:..... ના રોજ ભારતીય સમયાનુસાર વાગે, ની તે (સ્થળે), દિશા તરફ સુમારે કિલોમીટર દુરી પર થયેલુ વાવાઝોડુ / અતિભારે વાવાઝોડુ, સાગરનુ તોફાન તીવ્ર સ્વરૂપ ધારણ કરીને, દિશા તરફ જવાની શક્યતા છે.અને તે (દિવસ)દિનાંક (સમયે) દરિયાના કિનારાના રથળ / દરિયાપાર સ્થળ પર ત્રાટકવાની શક્યતા છે.

ભરતીના મોજાઓની ઉંચાઇ સામાન્ય મોજાની ઉંચાઇ થી મીટર ઉંચા રહેવાની સંભાવના છે. તોફાન કાંઠો ઓળંગશે ત્યારે ભરતીના મોજા સામાન્ય ભરતીના મોજાથી મીટર ઉંચા હશે જે વિનાશકારી હોવાની સંભાવના છે. જિલ્લાઓને કાંઠે સામાન્ય ભરતીના મોજાની ઉંચાઇ કરતા મીટર ઉંચા રહેશે. તેથી અગાઉ જણાવ્યા પ્રમાણેના જિલ્લાઓના કાંઠાના નિયાણવાળા વિસ્તારો ઉપર પાણી ફરી વળવાની સંભાવના છે. કાંઠાના પ્રદેશ ના લોકોને સલામત ઉંચાઇવાળા સ્થળે આશરો લેવા સલાહ આપવામાં આવે છે. જિલ્લામાં પવનનો વેગ વધીને કલાકના કિ. મી. થવાની સંભાવના છે, જેથી દરમિયાન જિલ્લામાં મોટા વૃક્ષો મુળમાંથી ઉખડી જવાની, મકાન - મિલ્કતોને તથા ઈમારતોને મોટુ નુકશાન થવાની અને સંદેશા વ્યવહાર સંપૂર્ણ પાણે ખોરવાઇ જવાની સંભાવના છે.

..... જિલ્લામાં પવનનો વેગકલાકના કિ.મી.નો થશે., જે વૃક્ષો ઉખાડી નાખશે. અને પાકા મકાનોને નુકશાન પહોંચાડશે. તેમજ સંદેશા વ્યવહાર ખોરવાઇ જવાની સંભાવના છે.

..... જિલ્લામાં પવનનો વેગ કલાકના કિ.મી.નો થશે. વૃક્ષની ડાળીઓ તુટી પડવાની અને કાચા મકાનને નુકશાન પહોંચવાની સંભાવના છે.

અતિ ભારે વરસાદથી જિલ્લાઓમાં પુર આવવાની સંભાવના છે. જિલ્લાઓમાં ભારે વરસાદ થવાની સંભાવના આપવામાં આવે છે.

વાવાઝોડાની ચેતવણી અંગેનુ બુલેટીન ક્રમાંક અહીં સમાપ્ત થાય છે.

For Air Station - (Including BBY and SRT) and Revenue Officials

FORMAT FOR CYCLONE WARNING (VERY SEVERE CYCLONIC STORM (120 KNOTS & ABOVE SUPER CYCLONIC STORM) 64 -119 KNOTS)

CYCLONE BULLETIN NO ISSUED BY CYCLONE WARNING CENTRE
AHMEDABAD AT Hrs. IST OF (DATE) FOR REPEATED
BROADCAST IN GUJARATI, SINDHI, HINDI AND ENGLISH AT HOURLY / HALF HOURLY
INTERVALS aaa CYCLONE WARNING FOR
..... DISTRICTS (aaa) HURRICANE
LOCATED K.M. (DIRECTION) OF (PLACE)
..... (TIME) LAT⁰ N LONG⁰ E (aaa) EXPECTED TO STRIKE
COAST BETWEEN ETC) aaa GALES REACHING Kmph UPROOTING TREES
AND CAUSING WIDESPREAD DAMAGE TO HOUSES AND INSTALLATION AND TOTAL
DISRUPTION OF COMMUNICATION LIKELY
.....
..... DISTRICTS FROM
(DAY) (DATE) (aaa) TIDAL WAVES METERS ABOVE NORMAL
TIDE LIKELY INUNDATE COASTAL AREAS OF
..... DISTRICTS AROUND
..... (DAY/TIME) (aaa) PEOPLE IN THESE COASTAL AREAS OF
.....
..... DISTRICTS ARE ADVISED TO TAKE SHELTER IN HIGH BUILDINGS aaa VERY
HEAVY RAIN LIKELY CAUSE FLOODS IN THE
.....
STATE OF SEA OFF COAST aaa FISHER MEN ARE ADVISED
NOT TO GO IN THE SEA aaa DANGER / GREAT DANGER SIGNAL No
..... HOISTED AT
..... PORTS (aaa) LOCAL
WARNING SIGNAL NO 4 HOISTED AT
..... PORTS (aaa) LOCAL CAUTIONARY
SIGNAL NO 3 HOISTED AT PORTS (aaa) ABOVE
WARNINGS ARE FOR
DISTRICTS (aaa)

FISHERIES WARNING BY CYCLONE WARNING CENTRE AHMEDABAD

CRITERIA FOR THE ISSUE OF FISHERIES WARNING ARE :

1. STRONG OFF SHORE AND ON SHORE (OR WITH APPROPRIATE DIRECTION) WIND - SPEED EXCEEDING 45 KMPS (25 KNOTS).
2. SQUALLY WEATHER.
3. GALES (STRONG WIND UNDER STEEP PRESSURE GRADIENT, 34-47 KNOT & 8-9 IN BEAUFORT SCALE).
4. STATE OF SEA VERY ROUGH OR WAVES OF 4 METERS OR MORE UPTO A DISTANCE OF 75 KM OFF THE COAST.

FISHERIES OFFICIALS ARE WARNED BY LAND LINE HIGH PRIORITY TELEGRAMS (INDIVIDUAL FISHERIES OFFICIALS WHO ARE ON THE WARNEES LIST OF CYCLONE WARNING CENTRE, I.M.D.,AHMEDABAD.

FISHERIES WARNINGS ARE BROADCAST FOUR TIMES A DAY BY THE STATIONS OF ALL INDIA RADIO IN THE RESPECTIVE REGIONAL LANGUAGES OF CONCERNED AREAS.

FISHERMEN WARNING

CHART UTILISED			TIME OF ISSUE		VALIDITY PERIOD FROM	
HRS	IST	UTC	HRS	IST	HRS	IST
0830	(03 Z)	MID DAY	1200	HRS	1500	24 HRS
1130 & 1430	(06 & 09 Z)	EVENING	1500	HRS	1800	24 HRS
1730	(12 Z)	MID NIGHT	2030	HRS	0800 (NEXT DAY)	24 HRS

ADDITIONAL WARNING DURING CYCLONE

2030	(18 Z)		2330	HRS	0200 (MORNING)	24 HRS
------	--------	--	------	-----	-------------------	--------

SCHEDULE OF BROADCAST OF WARNINGS FOR FISHERMEN OVER ALL INDIA RADIO IN PLAIN LANGUAGE

Name of the Station	Language of Broadcasting	Area Covered Broadcast	Time IST	Wave Length
1	2	3	4	5
Ahmedabad	Gujarati	Gujarat coast	0645	358.6 KHz
			1600	
			1530	
			(Sunday/Holiday)	
			1814	
			2310	
Vadodara	Gujarati	Gujarat coast	0635	693 KHz
			1920	
Rajkot	Gujarati	Gujarat coast	0650	693 KHz
			0945	
			1100(only Sunday)	
			1530	
			1805 (between	
			1920 & 1950)	
Bhuj	Gujarati and Gujarati North Kachchha Local dialect	Gujarat coast	0645	13.14 KHz
			1500	228.3 MTS.
			1530	
			1600 (at the end	
			Second of transmission)	
			1800	

COASTAL BULLETIN

COASTAL BULLETINES ARE MEANT FOR BENEFIT OF SHIPS PLYING MAINLY IN COASTAL AREAS i.e. SEA AREA UPTO 75 km OFF THE COAST LINE. COASTAL BULLETINES ARE BROADCAST IN MORSE CODE BY W/t FROM COASTAL RADIO STATIONS ON FREQUENCIES NORMALLY USED BY SHIPS CYCLONE WARNING CENTRE AHMEDABAD ISSUES THESE BULLETINES FOR GUJARAT COAST.

ISSUED BY	FOR RADIO STATION	COASTAL STRIP	FREQUENCY
CWC AHMEDABAD	MUMBAI	SOUTH GUJARAT	521 KHz

TIME (UTC) OF BROADCAST COASTAL RADIO STATION (FOR GUJARAT COAST)

EXTRA	2320	2330
STORM-ONE	0420	0430
DAILY – ONE	0820	0830
STORM - TWO	1220	1230
DAILY -- TWO	1620	1630
STORM - THREE	2020	2030
SPECIAL	AT ANY TIME	

COASTAL BULLETIN CHART

CODE WORD FOR COASTAL RADIO STATIONS	TYPE OF BULLETIN	WEATHER CONDITION	CHART ON WHICH BASED IST (Z)	TIME OF ISSUE HRS IST
AURORA	DAILY-ONE	UNDISTRUBED WEATHER	0830 (03 Z)	1130
BALLON	DAILY-TWO	UNDISTURBED WEATHER	1730 (12 Z)	1930
DEW DROP	EXTRA	DEPRESSION	2330 (18 Z)	0400
ELECTRON	STORM-ONE	CYCLONE	0530 (00 Z)	0930
FORMULA	STORM-TWO	CYCLONE	1430 (09 Z)	1600
GAS BAG	STORM THREE	CYCLONE	2030 (15 Z)	2330
HEXAGON	ECIAL		AT ANY TIME	

PORT WARNINGS
A UNIFORM SYSTEM OF STORM WARNING SIGNALS FOR PORTS
IS BEING USED BY INDIA METEOROLOGICAL DEPARTMENT SINCE 1898.

1. GENERAL PORTS

GENERAL PORTS USE ELEVEN SIGNALS OF WHICH 'I' AND 'II' INDICATE EXISTENCE OF DISTANT DISTURBED WEATHER.

SIGNALS 'III' TO 'X' INDICATE THE PORT ITSELF IS THREATENED BY BAD WEATHER AND 'XI' INDICATES THAT THE COMMUNICATION WITH THE FORECASTING CENTRE HAS BEEN BROKEN DOWN BUT THERE IS A DANGER OF BAD WEATHER AT THE PORT.

2. BRIEF PORTS

IT USED ONLY FIVE SIGNAL (VIZ. SIGNAL 'III, IV, VII, X AND XI').

3. PORTS WITHOUT SIGNALS.

THESE ARE MINOR PORTS WHICH GET WARNINGS SIMILAR TO BRIEF PORTS. THE WARNING MESSAGES WILL CONTAIN INFORMATION ON THE LOCATION, DIRECTION OF MOVEMENT OF DISTURBANCE AND EXPECTED WEATHER OVER PORTS.


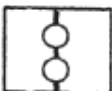

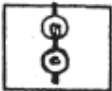
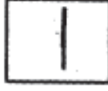




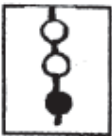

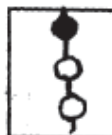



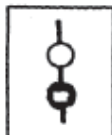
PORTS IN GUJARAT
PORTS WITH SIGNALS


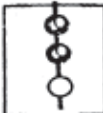




North Gujarat Coast		South Gujarat Coast	
(01)	Port of Mandvi - Kachchh (General Port)	(10)	Cyclone Managrol (General Port)
(02)	Cyclone Mundra (General Port)	(11)	Cyclone Veraval (General Port)
(03)	Cyclone New Kandla (General Port)	(12)	Cyclone Diu (Brief Port)
(04)	Port of Morbi (For Navlakhi Port) (General Port)	(13)	Cyclone Jafrabad (General Port)
(05)	Cyclone Jamnagar Bedi (General Port)	(14)	Cyclone Pipavav (Dunger/Rajula) (General Port)
(06)	Cyclone Sikka (General Port)	(15)	Port of Bhavnagar (General Port)
(07)	Cyclone Salaya (General Port)	(16)	Port of Alang (General Port)
(08)	Port of Okha (General Port)	(17)	Port Office Dahej (General Port)
(09)	Cyclone Porbandar (General Port)	(18)	Cyclone Magdalla (Surat) (General Port)
		(19)	Cyclone Daman (Brief Port)

PORTS WITHOUT SIGNALS

North Gujarat Coast		South Gujarat Coast	
(01)	Cyclone Jakhau	(03)	Port Officer Mul Dwarka
(02)	Cyclone Dwarka (Rupen)		(Dist.Junagadh via Kodinar)
		(04)	Port Officer Victor (Amreli)
		(05)	Portal Bharuch

Pictorial Form of Visual Storm Warning Signals in Use

Storm Warning	Signal No.	Day Signal	Night Signal
Distant Cautionary. There is a region of squally weather in which a storm may be forming	I		
Distant Warning. A storm has formed	II		
Local Cautionary. The port is threatened by squally* weather	III		
Local Warning. The port is threatened by a storm but it does not appear that the danger is as yet sufficiently great to justify extreme measures of precaution	IV		
Danger. Port will experience severe weather from a cyclone expected to move keeping the port to the left of its track.	V		
Danger. Port will experience severe weather from a cyclone expected to move keeping the port to the right of its track.	VI		
Danger. Port will experience severe weather from a cyclone expected to move over or close to the port. Note : This signal is also hoisted when a storm is expected to skirt the coast without (actually) crossing it.	VII		
Great Danger. Port will experience severe weather from a severe cyclone expected to move keeping the port to the left of its track.	VIII		

Storm Warning	Signal No.	Day Signal	Night Signal
Great Danger. Port will experience severe weather from a severe cyclone expected to move keeping the port to the right of its track.	IX		
Great Danger. Port will experience severe weather from a cyclone expected to move over or close to the port. Note : This signal is also hoisted when a storm is expected to skirt the coast without (actually) crossing it.	X		
Failure of Communications. Communications with the meteorological warning centres has broken down and the local officer considers that there is danger of bad weather.	XI		

Note. :-

* * * Squally weather is meant to cover occasional /frequent squalls with rain or persistent type of strong gusty winds (mean wind speed not less than 20 knots) accompanied by rain. Such conditions are associated with low pressure systems or onset and strengthening of monsoon. Mean wind speeds exceeding 33 knots associated with cyclonic storms are generally covered by signals higher than LC-III. The word generally has been added to permit hoisting of LC-III at ports outside the inner storm area where wind speed may exceed 33 knots.

Note. :-

Night signals shaded in Grey indicates Red Light.

CYCLONE WARNING DISSEMINATION SYSTEM. (CWDS)

Government of India announced a policy decision 1975 to utilise a satellite based communication network to cater to domestic requirements.

The INSAT - CWDS make use of community broadcast capability of the INSAT satellite system. The system enables the Cyclone Warning Center, CWC to directly and selectively address a particular area likely to hit by a cyclone.

The uplink to satellite is done from ACWC for disseminating the warning messages. These messages are picked up by C/S band transponder in C - band and their frequency is translated to S - band for down link purposes. A total of 150 receivers have been installed in the vulnerable coastal areas in the initial two phases. Another set of 100 receivers are being installed to augmented the density of these CWDS network. The warnings are transmitted in speech mode in both English and Local language.

CYCLONE WARNING DISSEMINATION SYSTEM CWDS STATION IN GUJARAT STATE

NO.	STATIONS	ADDRESS
1.	Ahmedabad	Director, Met. Center, Ahmedabad (Monitoring Station)
2.	Gandhinagar	Director of Relief, Sachivalaya, Gandhinagar (State Head Quarter)
3.	Surat	Collector Office, Surat Dist. Surat
4.	Bharuch	Collector office Bharuch Dist. Bharuch
5.	Bhavnagar	Collector Office Bhavnagar Dist. Bhavnagar
6.	Mahuva	Mamlatdar Office Mahuva Dist. Bhavnagar
7.	Veraval	Mamlatdar Office Veraval Dist. Junagadh
8.	Porbander	Collector Office Porbander Dist. Porbander
9.	Dwarka	Mamlatdar Office, Dwarka Dist. Jamnagar
10.	Mandvi	Mamlatdar Office, Mandvi Dist. Kachchh
11.	Okha	Police Station, Okha Dist. Jamnagar
12.	Jamnagar	Civil Defence Office, Jamnagar Dist. Jamnagar
13.	Mangrol	Mamlatdar Office, Mangrol Dist. Junagadh
14.	Diu (Union Territory)	Police Station, Diu.
15.	Jafrabad	Mamlatdar Office, Jafrabad Dist. Amreli
16.	Khambhat	Mamlatdar Office, Khambhat Dist. Anand
17.	Baroda	Collector Office Vadodara Dist. Vadodara
18.	Valsad	Collector Office, Valsad Dist. Valasad
19.	Gandhidham	Civil Defence Office, Gandhidham Dist. Kachchh
20.	Daman (Union Territory)	Port Office Daman
21.	Silvassa (Union Territory)	Mamlatdar Office, Silvassa
22.	Kandla Port	Dist. Kachchh

GENERAL TERMINOLOGY USED IN WEATHER BULLETINS

(A)	Intensity of Rainfall	Terminology Used.
1.	0.1.mm to 2.4 mm (24 hrs)	Very light rain
2.	2.5 mm to 7.5 mm "	Light rain.
3.	7.6 mm to 34.9 mm "	Light to Moderate rain
4.	35.0 mm to 64.9 mm "	Moderate rain
5.	65.0 mm to 124.9mm "	Heavy rain
6.	Exceeding 125 mm. "	Very Heavy rain.
(B)	Spatial distribution of weather phenomenon.	
	Percentage Area Covered	Terminology Used
1.	1 to 25	Isolated
2.	26 to 50	Few Places
3.	51 to 75	Many Places
4.	76 to 100	At Most Places
(C)	Emergency Situation	
1.	When water level is rising above the danger of H.F.L	
2.	When intensity of rainfall is above 65 mm /hr	
3.	When breaches are anticipated which may cause disaster.	
4.	When water levels are rising abruptly which may cause disaster.	
(D)	Evacuation	
1	White Signal -	Alert condition
2	Blue Signal -	Ready for Evacuation
3	Red Signal -	Immediate Evacuation

**POST LAND FALL OUTLOOK FROM
METEOROLOGICAL CENTER, AHMEDABAD.**

1. EVEN AFTER LANDFALL, THE SYSTEM IS LIKELY TO MAINTAIN ITS INTENSITY FOR _____ Hrs. AND WEAKEN GRADUALLY AAA UNDER ITS INFLUENCE RAINS AT MOST / MANY PLACES WITH HEAVY TO VERY HEAVY FALLS AT _____ LIKELY COMMENCE / CONTINUE IN _____ (COASTAL DISTRICTS) FROM _____ (TIME) _____ (DAY) _____ (DATE) CAUSING INUNDATION OF LOW-LYING AREAS AAA

GALE WINDS / SQUALLY WINDS SPEED REACHING _____ Kmph. LIKELY COMMENCE / CONTINUE IN _____ (COASTAL DISTRICTS) FROM _____ (TIME) ON _____ (DAY) _____ (DATE) CAUSING DAMAGES TO _____ AND _____ (VEGETATION) AND GENERAL DISRUPTION OF COMMUNICATION AND POWER SUPPLY FOR _____
2. AS THE CYCLONE MOVES IN LAND _____ INTERIOR DISTRICTS MAY ALSO EXPERIENCE HEAVY / VERY HEAVY RAIN ACCOMPAINED WITH GALE WITH SPEED REACHING _____ Kmph. COMMENCING FROM _____ (TIME) ON _____ (DAY) _____ (DATE) FOR _____ Hrs., CAUSING FLOODING OF LOW-LYING AREAS AND DAMAGE TO PROPERTY AS INDICATED IN IMD MONOGRAPH ON " DAMAGE POTENTIAL OF TROPICAL CYCLONE" (AS PER IMD INSTRUCTION)
3. PEOPLE ARE ADVISED TO REMAIN INDOORS / IN SAFE PLACES AND CO-OPERATE WITH STATE GOVERNMENT OFFICIALS AND DISASTER MANAGEMENT AGENCIES

State/Central Govt. Officials/Vital installations/Registered User

Cyclone Alert/Cyclone Warning Bulletin No.

Date and Time of Issue :

(i) Information on cyclone :

The cyclonic storm lay over _____ Arabian Sea
Center _____ Kms. _____ (Direction) of
_____ place

(ii) Forecast

Further intensification:

Direction of Movement:

Expected landfall area:

Expected time of landfall:

(iii) Weather Warning

(a) Rainfall _____ in _____ Districts (Names)

(b) Gales reaching _____ Kmph _____ in _____
Districts (Names)

(c) Gale force winds reaching _____ knots in _____ Districts

(d) Tidal waves _____ upto _____ in coastal areas of _____
Districts (Names)

(e) Sea condition:

(f) Damage: _____ , _____ , _____ Districts (Names)

(g) Likely impacts :

IMPORTANT TELEPHONE NOS. OF INDIA METEOROLOGICAL DEPARTMENT FOR CYCLONE WARNING

Sr. No.	NAME	DESIGNATION	ADDRESS	OFFICE	FAX	RESIDENCE
1.	Dr. M. Mohapatra	Director General of Meteorology	Mausam Bhavan, Lodi Road. New Delhi-3	011-24611842 011-43824253 011-43824225	011-24611792 011-24699216	011-24611792 011-24699216
2.	Dr. R.K.Jenamani	Scientist-"F" Head RSMC	Mausam Bhavan, Lodi Road. New Delhi-3	011-24652484 011-43824324	011-24623220 011-24699216	
3.	Smt.Sunitha Devi	Scientist-"E" NWFC	Mausam Bhavan, Lodi Road. New Delhi-3	011-43824324	011-24623220 011-24699216	
4.	Dr. Jayanta Sarkar	Scientist-"F" Head	R.M.C. Colaba Mumbai -400005	022-22150517	022-22150517	09426805439
5.	Smt. Shubhangi Bhute	Scientist-"E"	R.M.C. Colaba Mumbai -400005	022-22174740 022-22174716	022-22150452 022-22184937	
6.	Miss. Neetha T	Scientist "C"	R.M.C. Colaba Mumbai -400005	022-22174709	022-22160824	09745304441
7.	Dr.(Mrs.) Manorama Mohanty	Scientist-"E"	M.C. Ahmedabad	079-29705011	079-29705011	09428909340
8.	Shri Vigninlal F.	Scientist-"C"	M.C. Ahmedabad	079-22865012	079-22865449	09604465468

Sr.No.	Station	Website Address	E-mail Address
1	IMD DELHI	www.imd.gov.in / www.mausam.gov.in	dgm.hq@imd.gov.in
2	IMD MUMBAI	www.imdmumbai.gov.in	Jayantaskar2003@yahoo.co.in
3	IMD AHMEDABAD	www.imdahm.gov.in	mcahm@rediffmail.com metahm01@gmail.com mc.ahm@imd.gov.in

INTRODUCTION

1.0 INTRODUCTION

1.1 Disaster Management Plan (Flood Warning Arrangements) :

1.1.1 Disaster Management Plan (Flood Warning Arrangement) consists of flood forecasting system for various rivers of State, instructions & functions to be performed by various officers at the time of flood in the river during monsoon period. The system of flood forecasting consists of four phases viz.,

- (a) Observation and collection of operational data shall mean activities such as - Collection of field data regarding rainfall, water levels of gauge sites, etc., by different field officers at various places as described hereafter.
- (b) Transmission of data to forecast centers means:- Transmission / Email / Facsimile / Physical copy of data collected as above to the concerned officers in charge of formulation of forecast.
- (c) Formulation of forecast means :- Preparing flood forecast on the basis of the data collected above along with necessary data from the I.M.D.
- (d) Issue of forecast :- All officers formulating the forecast are authorized to issue the forecast.

The complete list of gauge stations from where Hydro Meteorological data are being collected, danger level/F.R.L. of the stations and the officers in-charge with their telephone numbers are given vide Annexure 1-A and Flood Telephone Directory of the current year respectively. The warning and danger levels for the important gauge stations are also appended vide Annexure 1-B

1.2 Telephone Numbers;

1.2.1 The Telephone numbers of the concerned officers are listed in the Flood Telephone Directory of the current year

1.3 Meteorological Center and Flood Meteorological Officer.

1.3.1 Meteorological Center and Flood Meteorological office stationed at Ahmedabad collects information regarding meteorological situation of the State. These Hydro Meteorological data are transmitted by flood meteorological office to the Executive Engineer, Mahi Division, (C.W.C.) at Gandhinagar and Executive Engineer, Tapi Division (C.W.C.) Surat as per their specific requirements. Meteorological center also issue heavy rainfall warnings to those officers of N.W.R.W.S.& Kalpsar Dept. and Revenue Departments of Government of Gujarat who have specifically got their names registered with Meteorological Center, Ahmedabad for receipt of heavy rainfall warning by giving their specific requirements in the prescribed proforma known as "Album Page". **The information and terminology regarding WEATHER BULLETINS, COASTAL BULLETINS and POST LAND FALL OUTLOOK specified by India Meteorology Department are given on Page No.(I) to (XIX)**

with Telephone Nos. The address of Meteorological Centre and Flood Meteorological office are as under:

TABLE – 1.3.1

(a)	Director I/c Meteorological Center/Flood Meteorological Office RS/RW Building, Airport, Ahmedabad – 382475	Note:- Please see Flood Telephone Directory of current year for Telephone Nos.
(b)	Meteorological Center Office, RS/RW Building, Airport, Ahmedabad 382475	
(c)	Flood Meteorological Office RS/RW Building, Airport, Ahmedabad 382475	

1.4 Central Water Commission Offices

- 1.4.1 Government of India has set up two Divisions, **Tapi Division, (C.W.C.), Kshetrapal Health Centre, Sangrampur, Surat – 395 002** and **Mahi Division, (C.W.C.), 3rd Floor, Narmada Tapi Bhavan, Sector-10-A, Gandhinagar-382043**, working under Superintending Engineer, Hydrological Observation Circle, (C.W.C.) Gandhinagar for issuing flood warnings of six inter-state rivers viz. (1) Damanganga (2) Tapi (3) Narmada (4) Mahi (5) Sabarmati and (6) Banas. The inflow forecast and flood level forecast for the above basins are to be conveyed by Executive Engineer, Tapi Division, (C.W.C.) Surat and Executive Engineer, Mahi Division, (C.W.C.) Gandhinagar to Focal Officers; Flood Control Cell, Gandhinagar and respective project officers well in advance. The details of warnings and danger level for important stations of above **six inter state rivers are given in Annexure - 1(B)**.

The names of Officer in-charge of above basins are as under:

TABLE - 1.4.1

Name Of Officer	Name of Basins
Executive Engineer Tapi Division (C.W.C.) Surat	(a) Damanganga (b) Tapi (c) Narmada
Executive Engineer Mahi Division (C.W.C.) Gandhinagar	(a) Mahi (b) Sabarmati (c) Banas

1.5 Appropriate Authorities (Focal Officers) :

- 1.5.1 The State Government has considered the officer of the rank of Superintending Engineer or Collector of concerned districts or Municipal Commissioners, as Appropriate Authorities (Focal Officers) for various Basins / Regions during monsoon period (as per the [Gujarat State Disaster Management Act-2003](#)). The Focal Officer can nominate any Executive Engineer / Officers in his area as his second in command who will act as Sub-Focal Officer for discharging duties of Focal Officer. He will inform the name, address and telephone Nos. of sub-focal officer to all concerned. List of **Gauge Stations & Officer-in-Charge with telephone nos**, for monitoring the flood is **Annexure-1(A)**.

The Focal Officers are responsible for :-

- 1.5.2** Keeping constant watch over the flood situation, flood warning, monitoring flood discharges through concerned project authorities, formulating flood forecast as and when required conveying these warning including conveying inflow forecast and flood level forecast from C.W.C. or the case may be in advance to the concerned Revenue and Police authorities for alerting and evacuating people of the area likely to be affected by the incoming floods if necessary. On receipt of flood warning the revenue authorities will in turn take necessary actions for alerting and evacuating the people likely to be affected in accordance with warning as per Flood Warning Arrangement.
- 1.5.3** Whenever heavy outflow is likely to be let off from the dam/weir or whenever bursting of dam is anticipated, warnings are also communicated by the Focal Officer/Executive Engineer either to the Assistant Engineer of Railway or to the Station Master of the nearest railway station or Divisional Railway Managers as per list below :

TABLE - 1.5.3

Divisional Railway Manager Western Railway

(a)	Mumbai	Note: Please see Flood Telephone Directory of current year for Telephone Nos.
(b)	Vadodara	
(c)	Ratlam	
(d)	Bhavnagar para	
(e)	Rajkot	

Further the Divisional Railway Manager, Western Railway, Vadodara vide his letter No. W. 694/i/vol.V(W13) Dated 28-2-95 has requested that the Focal Officer should inform the control room of Vadodara Division wherever it is contemplated to release water from the Dams & in case, advance warning is received by the Railway authority in time it will be possible to take preventive measures to regulate the running of trains & to protect the Railway property, staff and passengers. The Chief Bridge Engineer, North-West Railway, Jodhpur and The Chief Bridge Engineer, Churchgate Mumbai office has requested to instruct the field engineers to carry out necessary inspections and execute required maintenance works well before next monsoon so that any damage to railway track on this account can be avoided. Also requested to contact on phone No. **22114588** Chief Area Manager @ **Ahmedabad** & **2638081** Vadodara Divisional Railway Manager @ **Vadodara in case of any emergency.**

- 1.5.4** During flood emergency, in any of the rivers it is duty of the Focal Officer of the basin to intimate the full situation of the flood including measures taken etc. to the *Principal Secretary, Water Resources, Water Supply & Kalpsar Department, Secretary (Narmada), Chief Engineer (Central Gujarat) and Additional Secretary, concerned Chief Engineer and Additional Secretary of the Project and the Flood Control Cell, Gandhinagar.*
- 1.5.5** During emergency flood messages are also conveyed by Focal Officer or any officer authorised by him and **Collector of the District to All India Radio/Doordarshan Kendra** for necessary broadcast. The said messages should also be conveyed to the

Flood Control Cell, Gandhinagar, confirmation copies thereof are to be sent to **All India Radio/ Doordarshan Kendra and Flood Control Cell** by return of post as per **Annexure 2-B**.

1.5.6 All concerned Focal Officers should prepare a drill to be followed during monsoon at the time of various floods including catastrophic flood and fix duties of all concerned persons at that moment. The rehearsal of this drill should be made before the onset of monsoon.

1.5.7 Following are the **Appropriate Authorities** (Focal Officers) for Various Basins/Areas.

TABLE - 1.5.7.

Sr. No.	Name of Basin/Area	Name & Address of Focal Officer	Telephone Nos. Office Residence
1.	Damanganga Basin	Superintending Engineer, Damanganga Project Circle, 2 nd Floor, Damanganga Bhavan, Behind Jilla Seva Sadan-1, Valsad – 396 001	Note: Please see Flood Telephone Directory of current year for Telephone Nos.
2.	Tapi Basin	Superintending Engineer, Surat Irrigation Circle, Near M.T.B. College, Surat	
3.	Narmada Basin	Superintending Engineer, N.P.Head Works Circle, New Administrative Block-B, First floor, Kevadia-393151	
4.	Rami & Sukhi (Sub Basins of Narmada)	Superintending Engineer Vadodara Irrigation Circle, New Kothi Building, Vadodara.	
5.	Karjan Basin (Sub Basins of Narmada)	Superintending Engineer Vadodara Irrigation Circle, New Kothi Building, Vadodara.	
6.	Mahi Basin	Superintending Engineer Mahi Irrigation Circle Nadiad Sarkari Vasahat Mission Road, Nadiad	
7.	Sabarmati Basin	Superintending Engineer Ahmedabad Irrigation Project Circle, L.D. Engineering College Campus, Ahmedabad – 380 015	

Sr. No.	Name of Basin/Area	Name & Address of Focal Officer	Telephone Nos.	
			Office	Residence
7a.	Sub Basin of Sabarmati Mohar & Shedhi River	Superintending Engineer Mahi Irrigation Circle Nadiad Sarkari Vasahat Mission Road, Nadiad		
8.	River of Sabarkatha District	Superintending Engineer Himatnagar Irrigation Project Circle, “Sinchai Bhavan” Himatnagar		
9.	Banas Basin	Superintending Engineer Sujlam Suflam Circle No.2 Kherva, Mehsana		
10.	Vishwamitry & Deo Basins	Superintending Engineer Vadodara Irrigation Circle Near Kothi Building, Vadodara.		
11.	Saraswati Basin	Superintending Engineer Sujlam Suflam Circle No.2 Kherva, Mehsana		
12.	Rivers of Panchmahals & Dahod District	Superintending Engineer, Panam Project Circle, Civil Lines, Behind Collector Office, Godhra-389001.		
13.	Rivers of Rajkot, Morbi,Jamnagar, Dev Bhumi Dwarka & Surendranagar	Superintending Engineer, Rajkot Irrigation Circle Nr. Jilla seva Sadan-II, Opp. Prayag ‘C’ Appartment, Race Course,Rajkot.		
14.	Rivers of Bhavnagar, Amreli, Junagadh, Porbandar, Botad & Gir Somnath Districts	Superintending Engineer, Bhavnagar Irrigation Project Circle,S-3, Jila Seva Sadan-2, Bhavnagar		
15.	Rivers of Kachchh District.	Superintending Engineer Kachchh Irrigation Circle “Sinchai Sadan”, Near Jubilee Ground, Bhuj.		
16.	Minor Irrigation Projects of Districts.			
	(A)			
1.	Gandhinagar	Superintending Engineer Gandhinagar Panchayat Irrigation Circle. Patnagar Yojna Bhavan Sector No. 16, Gandhinagar		
2.	Mehsana			
3.	Surendranagar			
4.	Ahmedabad			
5.	Kheda			
6.	Sabarkanta			
7.	Aravalli			
8.	Anand			

Sr. No.	Name of Basin/Area	Name & Address of Focal Officer	Telephone Nos.	
			Office	Residence
9.	Banaskantha			
10.	Patan			
	(B)			
1.	Rajkot	Superintending Engineer Rajkot Panchayat Irrigation Circle, M.S. Building, Race Course, Rajkot		
2.	Jamnagar			
3.	Junagadh			
4.	Amreli			
5.	Bhavnagar			
6.	Porbandar			
7.	Morbi			
8.	Dev Bhumi Dwarka			
9.	Gir Somnath			
10.	Botad			
	(C)			
1.	Vadodara	Superintending Engineer Vadodara Panchayat Irrigation Circle, Room No.512, 513, 5 th Floor, kuber Bhavan Kothi Char Rasta, Vadodara		
2.	Bharuch			
3.	Surat			
4.	Valsad			
5.	Tapi			
6.	Dangs			
7.	Panchmahals			
8.	Navsari			
9.	Narmada			
10.	Dahod.			
11.	Chhotaudepur			
12.	Mahisagar			
	(D)			
1.	Kachchh District	Superintending Engineer Kachchh Irrigation Circle "Sinchai Sadan", Jubilee Ground, Bhuj.		
17.	Water Supply Schemes:			
	(A)			
1.	Tappar	Superintending Engineer, Public Health Circle, Bhuj.		
	(B)			
1.	Hasnapur	Municipal Commissioner, Junagadh, Municipal Corporation, Junagadh		
2.	Khambhala	Superintending Engineer, Public Health Circle, Porbandar		
3.	Phodarness			

Sr. No.	Name of Basin/Area	Name & Address of Focal Officer	Telephone Nos.	
			Office	Residence
	(C)			
1.	Ajwa	Municipal Commissioner, Vadodara Municipal Corporation, Vadodara		
2.	Pratappura			
	(D)			
1.	Nyari-I	Municipal Commissioner, Rajkot Municipal Corporation Rajkot.		
	(E)			
1.	Ranjit Sagar	Municipal Commissioner Jamnagar Municipal Corporation, Jamnagar.		

- 1.5.8** Where Government has not nominated any officer of Narmada, Water Resources Water Supply and Kalpsar Department as Focal Officer, the Collector of the District will be responsible for all the situations arising out of floods, heavy rains etc. for taking all necessary steps regarding rescue and relief operations. He may obtain meteorological data from I.M.D. directly.

TABLE – 1.5.8
District Collectors.

Sr. No.	Name of Districts	Telephone Nos.	
		Office	Residence
1.	Ahmedabad	Note: Please see Flood Telephone Directory of current year for Telephone Nos.	
2.	Amreli		
3.	Anand		
4.	Banaskantha (Palanpur)		
5.	Bharuch		
6.	Bhavnagar		
7.	Dangs (Ahwa)		
8.	Dahod		
9.	Gandhinagar		
10.	Jamnagar		
11.	Junagadh		
12.	Kheda		
13.	Kachchh (Bhuj)		
14.	Mehsana		
15.	Narmada (Rajpipla)		
16.	Navsari		
17.	Panchmahals (Godhra)		
18.	Patan		
19.	Porbandar		
20.	Rajkot		
21.	Sabarkantha (Himatnagar)		
22.	Surat		
23.	Surendranagar		

Sr. No.	Name of Districts	Telephone Nos.	
		Office	Residence
24.	Tapi		
25.	Vadodara		
26.	Valsad.		
27.	Daman (Union Territory)		
28.	Dadra & Nagar Haweli (U.T).		
29.	Chhotaudepur		
30.	Morbi		
31.	Dev Bhumi Dwarka		
32.	Gir Somnath		
33.	Mahisagar		
34.	Botad		
35.	Aravalli		

1.6 Control Room

1.6.1 As a part of “**Flood Warning Arrangement**” a Flood Control Cell under the control of Superintending Engineer, Sujlam Suflam Circle No.1, State Water Data Centre, Sector - 8, Gandhinagar, is to be set up from 1st June to 31st October or up to one week after withdrawal of monsoon by I.M.D. or as directed by Govt. of Gujarat. Accordingly the Flood Control Cell, shall be setup at 1st Floor, State Water Data Centre Building, Sector - 8, CH-2 Road, Gandhinagar. The Telephone No/Fax No. for any detail related to the flood in Gujarat State is 079-23240553. This is the coordinating unit between the Focal Officers of various river basins and the Government. The Flood Control Cell works round the clock during the monsoon period. The Flood Control Cell collects gauge levels of inter State rivers viz. Damanganga, Tapi, Narmada, Mahi, Sabarmati and Banas from Tapi and Mahi Divisions of C.W.C. The daily flood report, three hourly water levels of interstate basins and hourly water levels of schemes during floods are updated by online data entry on website <http://wrd.guj.nic.in/dam> The cell also collects information of other Major/Medium Projects and informs the officers of the Narmada Water Resources, Water Supply & Kalpsar Department & Revenue Department of the state at Sachivalaya, Gandhinagar about the situation of floods in various rivers of the State. The Flood Control Cell, Gandhinagar also obtains the weather forecast and rainfall data etc. from Indian Meteorological Department. The water levels and forecast is conveyed in morning after 8.00 A.M. to the following officers.

- (i) Secretary, Narmada, Water Resources, Water Supply and Kalpsar Department
- (ii) Secretary(Narmada), Sardar Sarovar Narmada Nigam Ltd. Gandhinagar
- (iii) Secretary , Roads and Buildings Department (If necessary)
- (iv) Chief Engineer, (Central Gujarat) and Addl. Secretary, Narmada, Water Resources, Water Supply and Kalpsar Department
- (v) Chief Engineer and Addl. Secretary of concerned projects of Narmada, Water Resources, Water Supply and Kalpsar Department

- (vi) Superintending Engineer, Sujlam Suflam Circle No.1, Gandhinagar.
 - (vii) Officer on Special Duty(W.R.) Narmada, Water Resources, Water Supply and Kalpsar Department
- 1.6.2** The Collectors, District Superintendents of Police and Focal Officers who open the Control Room and issue flood warning and flood forecast, should intimate the opening of the flood cell with proper Address, Telephone Nos., etc. to the Executive Engineer, Tapi Division, (C.W.C.), Surat/Executive Engineer, Mahi Division (C.W.C.)Gandhinagar as per their jurisdiction and also to the Flood Control Cell, 1st Floor, State Water Data Centre Building, Sector - 8, Gandhinagar.
- 1.6.3.** In addition to this when heavy rainfall warnings are received or when flood level is likely to cross White Signal in any of the rivers in the state, the information will be conveyed to the above officers immediately at Sr. No. (i) to (vii) of Para 1.6.1 and Flood Control Cell, Gandhinagar by the concerned Officer-In-Charge of the concerned control room.
- 1.6.4.** During emergency rainfall i.e. more than 65 mm/hour intensity, rainfall data and other messages are conveyed at an interval of one hour in the morning session i.e. 6.00 to 10.00 A.M. and also in evening session after 6.00 PM at the residence of Officer on Special Duty (W.R.). The same are conveyed to his office during office hours i.e. 10.30 A.M. to 6.10 P.M. who in turn conveys the same to the above said officers appearing at Sr. (i) to (v) of para 1.6.1.
- 1.6.5** All the Officers-In-Charge of control rooms are requested to see that their Control Rooms must be manned by responsible officers of Gazetted rank even on holidays.
- 1.6.6** As a part of Flood Warning Arrangements, the Narmada Water Resources, Water Supply and Kalpsar Department has been linked with point to point speech circuit (i.e. Hot line) with the following control rooms during **1st June to 31st October**.
- (1) The Flood Control Cell Gandhinagar to:**
- 1. Office of The Chief Engineer (Central Gujarat) & Additional Secretary, Narmada, Water Resources, Water Supply and Kalpsar Department, Block No. 9, 1st Floor, New Sachivalaya, Gandhinagar (Local)**
 - 2. Officer on Special Duty(WR), Narmada, Water Resources, Water Supply and Kalpsar Department, Block No. 9, 3rd Floor, New Sachivalaya, Gandhinagar (Local)**
 - 3. The Superintending Engineer, Rajkot Irrigation Circle, Multi Storied Building, Race Course Road, Rajkot**
 - 4. The Superintending Engineer Bhavnagar Irrigation Project Circle, S-3, Jila Seva Sadan-2, Bhavnagar**
 - 5. The Executive Engineer, Mahi Division (C W C) Sector-10-A, Near to Ch-3 Circle, Gandhinagar (Local)**
 - 6. The Executive Engineer, Tapti Division (C W C) Kshetrapal Health Centre, Sangrampur Society, Surat.**
-

7. **The Executive Engineer and Sub Focal Officer, Surat Canal Dn, Athwa lines, M.T.B. College Road, Surat.**
8. **The Executive Engineer and Sub Focal Officer, Dharoi Canal Division No.3, Dharoi Colony Rest House, Visnagar, District: Mehsana.**
9. **The Superintending Engineer and Focal Officer, Kachchh Irrigation Circle "Sinchai Sadan" Nr. Jubilee Ground, Bhuj -- Kachchh.**
10. **The Superintending Engineer and Focal Officer, Panam Project Circle, Civil Lines, Behind Collector Office, Godhra, Dist. Panchmahals.**
11. **The Superintending Engineer, Ukai (Civil) Circle, Ukai, Via: Songadh, Taluka: Vyara, District: Surat**
12. **The Superintending Engineer, Kadana Project Circle, Lunawada, Dist. Mahisagar**
- (2) **Superintending Engineer, and Focal Officer, Rajkot Irrigation Circle, Rajkot i.e., Flood Control Cell Rajkot to,**
 - (a) Executive Engineer, Rajkot Irrigation Division, Rajkot.
 - (b) Executive Engineer, Irrigation Division, Morbi.
 - (c) Executive Engineer, Salinity Control Division, Jamkhambhaliya.
 - (d) Executive Engineer, Surendranagar Irrigation Division, Surendranagar.
- (3) **Superintending Engineer, and Focal Officer, Bhavnagar Irrigation Project Circle, Bhavnagar i.e., Flood Control Cell Bhavnagar, to :**
 - (a) Executive Engineer, Amreli Irrigation Dn. Amreli.
 - (b) Executive Engineer, Junagadh Irrigation Dn. Junagadh.
 - (c) Executive Engineer, Botad Irrigation Dn. Botad
 - (d) Executive Engineer, Gir Somnath Irrigation Dn. Veraval.
 - (e) Executive Engineer, Salinity Control Division, Porbandar.
- (4) **Superintending Engineer and Focal Officer, Surat Irrigation Circle, i.e., Flood Control Cell, to :**
 - (a) Ukai Flood Control Cell. (Ukai)
- (5) **Superintending Engineer and Focal Officer, Damanganga Project Circle, Valsad to:**
 - (a) Damanganga Project Division No. 1, Madhuban Colony.

1.7 Miscellaneous

- 1.7.1 All the officers concerned with flood warning should see that necessary correspondence in connection with flood warning and flood forecasting with all officers of Tapi Division (C.W.C.) Surat/Mahi Division, (C.W.C.), Gandhinagar and other Central Government Officers are made in Hindi or English only.

- 1.7.2** The data will be conveyed in metric units by Executive Engineer, Tapi Division, (C.W.C.) Surat/Executive Engineer, Mahi Division, (C.W.C.), Gandhinagar.
- 1.7.3** In the event of any news items appearing in the news papers regarding flood damages including inundation etc. in any area, the concerned Superintending Engineer should immediately take stock of situation and issue necessary press release clarifying the actual situation. Intimation to this effect should immediately be sent to Flood Control Cell. Gandhinagar, Chief Engineer (Central Gujarat) and Additional Secretary and Chief Engineer & Additional Secretary of the project concerned.
- 1.7.4** Whenever the assistance of Air Force is required during the natural calamities and grave emergencies, the State Authorities are requested to liaison immediately in writing with local (Air Force) Station Commander/HQ Station Western Air Command, Gandhinagar (Phone No.079-23255725).
- 1.7.5** Whenever the assistance of military is required during the natural calamities and grave emergencies, the state Revenue Authorities are requested to liaison immediately to the nearest Military (H.Q) (Phone No.079-22867280).
- 1.7.6** In the case of emergency, the flood forecast and flood warning shall also be sent to the Secretary, Narmada, Water Resources, Water Supply and Kalpsar Department, Secretary (Narmada), Principal Secretary Roads and Buildings Department, Chief Engineer, (Central Gujarat) and Additional Secretary and Chief Engineer & Additional Secretary concerned project of the Government of Gujarat, Gandhinagar by the Appropriate Authorities (Focal Officers) of various basins, Focal Officers and Collectors of the District shall also convey the warning during emergency to the nearest Station Director, All India Radio/Doordarshan Kendra, for the broadcasting the said warning.
- 1.7.7** The provisions of offences and penalties will be applicable as per chapter XV para 38.1 of Gujarat Disaster Management Act-2003.

TABLE - 1.7.6
Name and Head Quarters of the Authorities

Sr. No.	Name of Officer	Residence Address	Telephone Nos.	
			Office	Residence
1	Shri M. K. Jadav Secretary (Water Resources) NWRWS'&KD	K – 507, Sector – 20, Gandhinagar.	Note: Please see Flood Telephone Directory of current year for Telephone Nos.	
2	Shri. K. A. Patel Special Secretary, (Water Resources) NWRWS'&KD	L – 702, Shukan sky, Gandhinagar.		

Sr. No.	Name of Officer	Residence Address	Telephone Nos.	
			Office	Residence
3	Ms. Sonal Mishra Secretary (Narmada)	S-519, Sector - 20, Gandhinagar.		
4	Shri S. B. Vasava Secretary, R & B Department	K-511, Sector - 20, Gandhinagar.		
5	Shri K.B.Rabadia Secretary (Kalpasar)	8, Umang Bungalows, Divine Road, Opp-manav bungalows, Science city Area, Sola, Ahmedabad		
6	Shri M. P. Raval Special Secretary (Saurashtra)	Plot No.1075/A, Sector – 2D, Gandhinagar		
7	Shri A. D. Kanani C.E.(Central Gujarat) & Addl. Secretary	KH-150, Sector-19, Opp Shopping center, Near children's university, Gandhinagar		
8	Shri M.R.Patel C.E. (South Gujarat) & Addl.Secretary	11, Paras Status, Poo. Anurag Bungalows, B/h Saraswati Vidyalaya, Sola, Ahmedabad.		
9	Shri H. U. Kalyani C.E. (North Gujarat) & Addl. Secretary	Flat No. A-203, Satyam Home, Opp. High Court, Ghatlodiya, Ahmedabad		
10	Shri M.R.Patel (I/C) C.E. (Panchayat) & Addl. Secretary	11, Paras Status, Poo. Anurag Bungalows, B/h Saraswati Vidyalaya, Sola, Ahmedabad.		
11	Shri B.P.Chovatia Chief Engineer (Q.C.) & Addl. Secretary	160/1, G-Type, Sector-19, Gandhinagar		
12	Shri D.A.Thakkar Chief Engineer (Mech) & Addl. Secretary	08/F, Sonalkunj Society, Nr.Shukleshwar Society, Khokhara, Maninagar(East), Ahmedabad-8		
13	Shri Harshad R. Patel Addl. Secretary and Commissioner of Relief	--		
14	Programme Head All India Radio Ahmedabad	401-A block, Ratnam-2, Motera, Ahmedabad		
15	Programme Executive. All India Radio, Ahmedabad.	A-34 veenus Apartment, Nr. Prakash high school, Bodakdev, Ahmedabad-54		

Sr. No.	Name of Officer	Residence Address	Telephone Nos.	
			Office	Residence
16	Asst. Dir. Programme All India Radio Rajkot.	B-75, Alap Century, Near. Pushkar Dham, Kalavad Road, rajkot		
17	Programme Head All India Radio, Godhra	Prabhakunj Society, B/h. Gandhi Petrol pump, Godhra-389001		
18	Dy. Director General Doordarshan Kendra Ahmedabad	E1/1, Akash Parshan Colony, Nr. Ashopalav Bungalow, Bhaikakanagar, Thltej, Ahmedabad		

1.7.7 All the Project Officers, who are in-charge of the Irrigation Projects under construction as well as in case of completed schemes, shall remain more vigilant during monsoon. In case of Irrigation tank or reservoirs, which are to be filled in for the first time, after construction, the field officer shall keep close watch and vigil during monsoon for safety of the Irrigation tank or reservoir. The field officer should follow the initial filling criteria given in **C.W.C. letter No. L/25/86-DSS/509 dated 13th May 1986, (Annexure 1-D)**. In case of any apprehension of danger to the scheme the same shall be immediately informed to the Chief Engineer and Add. Secretary, Superintending Engineers concerned of the project and Government officers at Sr. No. 1 to 10 under para 1.7.6 including Flood Control Cell, Gandhinagar and necessary remedial steps shall be taken to stop the danger and the safety of the structure.

1.7.8 The flood forecasting & flood warning arrangements for following water supply projects under **Municipal Corporation/ Gujarat Water Supply & Sewerage Board is being looked after by Municipal Commissioner/Superintending Engineer of the concerned projects**. They shall directly collect Weather Bulletin/H.R.W. from Indian Meteorological Department, Ahmedabad or Revenue Control Room of the concerned district and shall formulate the flood forecast and convey to the concerned Collector regarding the area likely to be affected for alerting and evacuation of the people as warranted by flood, simultaneously, they shall convey the flood forecast and action taken by them to the Flood Control Cell, (Irrigation) nearest to them.

TABLE 1.7.8

Sr. No.	Name of Water Supply Scheme	Officer In-charge of Scheme	Telephone Nos.	
			Office	Residence
1.	Tappar	Superintending Engineer, Kachchh Irrigation Circle, Bhuj	Note: Please see Flood Telephone Directory of current year for Telephone Nos.	
2.	Hasnapur	Muni. Commi., Junagadh		
3.	Khambhala	Public Health Circle, Porbandar		
4.	Phodarness	Public Health Circle, Porbandar		

Sr. No.	Name of Water Supply Scheme	Officer In-charge of Scheme	Telephone Nos.	
			Office	Residence
5.	Ajwa	Municipal Commissioner		
6.	Prattapura	Vadodara Municipal Corporation, Vadodara		
7.	Nyari-I	Municipal Commissioner Rajkot Municipal Corporation, Rajkot		
8.	Ranjit Sagar	Municipal Commissioner Jamnagar Municipal Corporation, Jamnagar		

1.7.9 DRAINS.

There are many drains in the state. These drains are linked up with inter taluka or inter-districts. Several drains are long and having a large capacity. Several drains are also passing from near by villages or town. Due to heavy to very heavy rainfall in the catchment areas of drain, the drains causes damages to land, crops, property, cattle of the adjoining areas. Sometimes it is difficult to approach the drain sites, particularly when the drain overflows and makes breaches in the banks of the drains.

The Executive Engineer, in charge of drain has to function as a “FOCAL OFFICER” and has to take the necessary action. The Deputy Executive Engineer now called as “Sub-Focal Officer” who is physically in-charge of the drains, has to take necessary action and make efforts to control the situation.

The Sub-Focal Officer in-charge of the drains has to intimate his higher authorities and revenue authorities like Mamlatdar, Prant Officer, Collectors, Police Authorities, Home Guard Authorities regarding the situation. All authorities are requested to extend the help required by the sub-focal officer to over come the situation.

1.7.10 The Narmada ,Water Resources ,Water Supply and Kalpsar Department, Gandhinagar has setup the flood fighting units for Monsoon, equipped with various machinery @ various locations of Gujarat, Saurashtra and Kachchh as per para 30 of Chapter - 3 as per Annexure - 3.

1.8 Operation of gates and rule curve levels for Irrigation Projects

1.8.1 The detailed guidelines for gate operation with graphs of (1) Spillway discharges at different reservoir levels and gate opening and (2) Rate of change in storage to decide inflow based on rise/fall in Reservoir level in unit duration are prepared by CDO under NWR, WS & K .D. for almost all the projects and are furnished to concerned Project Officers. These guidelines may be followed for operation of reservoir, (Rule levels are appended in Annexure 1C).

1.8.2 The rule levels are prepared considering following points.

- There is no specific flood storage space provided in any of the dams in the State. Due to this, if the provision of artificial flood control space is proposed to be kept for flood moderation by keeping lower rule levels whenever feasible,

then there may be a risk of non filling of reservoir full up to FRL. If in later part of the monsoon, the availability as assumed is less and in turn as its repercussions, the irrigation requirements as planned thereafter may not be fulfilled.

- (ii) For dams completed recently the initial filling criteria given in C.W.C. letter No. L/25/86-DSS/509 dated 13/5/86 should be followed. The same is also reproduce in the Flood Warning Arrangement for ready reference. While following the CWC's criteria for initial filling, the concerned Superintending Engineer/Executive Engineer should assess the behavior of the structure on the basis of observed data of instruments provided in dams at different stages of filling as well as seepage through dams and review the decision for further filling of reservoir accordingly in consultation with CDO, Gandhinagar.
- (iii) For the safety measures against the existence of hidden damages of dams restored recently or to be restored before june-2013, the initial reservoir filling criteria given in CWC's letter dated 13/05/1986 no. L-25-86-DSS-509 is advisable to be followed.
- (iv) As an advance precaution to safe guard against occurrence of any abnormal condition required goods and materials like sand, rubble stone, empty cement bags wire cats, etc. should be stacked at suitable places. Gates, Hoists and other mechanical accessories, wireless sets, lighting arrangement, alternative arrangement in absence of electricity supply, D.G. set etc. approach road, should be kept in working condition. For further information Govt. Circular included in Chapter No.3 of this Disaster Management Plan may kindly be referred.
- (v) In case of reservoir, which releases water for hydro power generation and the same water is utilized through down stream weir, as far as possible, the releases from reservoir should be made critically and economically in accordance with the actual irrigation demand at the weir site, so that, undue wastage of water through overflow over the weir can be avoided.
- (vi) There may be restriction in filling the reservoir due to other aspects like leakage for which remedial measures may be in progress / likely to be taken up etc. This point may also be considered while deciding rule levels. the concerned SEs are requested to submit the proposal to Govt. for approval from the respective Chief Engineer and Additional Secretary for this restricted filling of reservoir.

1.8.3 In case of the reservoir proposed for restricted filling due to reasons mentioned in Para No. 1.8.2 above concerned Superintending Engineer are requested to submit proposal to the Government and get it approved before on set of monsoon.

1.8.4 The proposed Rule Levels are tentative and concerned project officers are requested to give their comments/views based on their past experiences of observed storms , the down stream hazards, safe carrying capacity of the down stream channel and other restrictions, if any. The project officers are also requested to review and finalise the Rule Levels for this monsoon based on the inflow data, water requirements for irrigation, water supply and power generation for

the year reservoir losses etc. in consultation with C.D.O. and get it approved from the Government.

1.8.5 When the proposed Rule Levels are reached and the position is such that water is to be stored above the rule level, in that case or water is to be released for the purpose other than irrigation before Rule Levels are reached, the concurrence from the concerned Chief Engineer & Addl. Secretary may please be obtained. While deciding the above parameters, following points should be examined critically by the concerned field officers in consultation with respective Chief Engineer & Addl Secretary.

- (i) Prevailing overall conditions of the rainfall during the monsoon.
- (ii) Storage capacity and safety of dam structure and U/s -D/s Structures, flood cushion available in the reservoir above the rule level of the particular time.
- (iii) Efficiency of the existing network of flood forecasting system and flood warning arrangement along with communication system and actual experiences of the same in past to reduce the downstream hazard potential.

1.8.6 When two or more reservoirs are to be operated on the same river basin, gate regulation should be done in such a way that the maximum water can be stored without risk to the safety of upstream and downstream of the dams along with consideration of floods moderation to suit the downstream safe channel carrying capacity such that there is minimum hazarded potential in downstream areas.

1.8.7 Release of water from the dam (outflow) is to be decided by Superintending Engineer, Ukai Circle (Civil), Ukai on consultation of Chief Engineer (S.G) and Additional Secretary.

1.8.8 The details of the Spillway/Weir and the maximum discharge capacity of the Spillway/Weir are also mentioned in the Scheme. The maximum discharge released after the year 1990 from the major project is mentioned in **Annexure-1- G**

1.8.9 The Flood Risk Map of Gujarat, Major & Medium dams in Gujarat, Flood Prone Villages & River Sections, Flood Prone River Sections, Flood Frequency Values across Dams and Gauges in Gujarat and Single Day Extreme Rainfall Reported by Station (1901-1990) given in **Annexure-1- H**

ANNEXURE - 1(E)

MAXIMUM DISCHARGE CAPACITY AND THE DETAILS OF SPILLWAY OF THE SCHEMES

Sch No.	Name of District and Name of Scheme	Type of Scheme	F.R.L. Meter	Crest Level Meter	Spillway Length Meter	Details of Gates		Max. Discharge (Cumecs)	Top of Dam (M)	Design MWL (M)	Observed MWL till today (M)
						Nos.	Size Meter				
BANASKANTHA											
3.	Mukteshwar	Gated	201.65	193.37	104.00	7	12.50 x 8.23	4698	205.60	202.12	201.65
4.	Dantiwada	Gated	184.10	175.91	165.00	11	12.50 x 8.23	7504	188.97	185.06	185.73
				Add. Spillway		14	18.29 x 4.87	7787			
5.	Sipu	Gated	186.43	178.15	180.00	12	12.50 x 8.23	8603	192.00	186.48	186.10
NARMADA											
6	Karjan	Gated	115.25	101.23	172.00	9	15.545 x 14.02	17286	119.70	115.25	115.45
8.	Chopadvav	Un Gated	187.40	186.30	70.00	-	-	863	192.30	188.80	187.55
11.	Kakdi-Amba	Un Gated	187.71	186.71	100.00	-	-	822	192.21	188.71	187.58

Sch No.	Name of District and Name of Scheme	Type of Scheme	F.R.L. Meter	Crest Level Meter	Spillway Length Meter	Details of Gates		Max. Discharge (Cumecs)	Top of Dam (M)	Design MWL (M)	Observed MWL till today (M)
						Nos.	Size Meter				
BHARUCH											
7.	Dholi	Un Gated	136.00	-	260.00	-	-	1085	141.00	136.00	136.60
9.	Baldeva	Un Gated	141.50	-	198.00	-	-	918	145.70	141.50	142.65
10.	Pigut	Un Gated	139.70	-	125.00	-	-	285	144.85	139.70	140.20
MAHISAGAR											
12.	Wanakbori	Un Gated	67.23	-	735.00	-	-	46978	67.30	76.50	76.1
17.	Kadana	Gated	127.71	113.72	406.00	27	15.50 x 14.00	49497	131.40	127.71	127.71
	(Additional Spillway)			113.72	113.00						
19.	Bhadar (P)	Gated	123.72	115.52	89.00	6	12.48 x 8.25	5706	130.37	128.35	123.72
KHEDA											
202.	Varansi	Gated	81.00	76.43	159.68	14	9.14 x 4.57	1503	82.70	81.20	81.10
MEHSANA											
13.	Dharoi	Gated	189.59	178.92	219.04	12	14.94 x 11.28	21662	195.07	192.24	189.59
PANCHMAHALS											
14.	Panam	Gated	127.41	116.74	182.00	10	14.93 x 11.28	10075	131.50	128.015	127.41
15.	Deo	Gated	89.65	81.40	120.00	8	12.50 x 8.23	4118	93.65	89.65	89.65
16.	Hadaf	Gated	166.20	155.53	89.00	5	14.43 x 10.67	5324	171.63	168.33	167.10
DAHOD DISTRICT											
18.	Patadungri	Un Gated	170.84	170.84	137.00	-	-	878	175.60	172.97	172.71
20.	Karad	Fuse Gate	140.08	140.08	107.00	36	1.80 x 1.00	934	143.26	141.70	141.70
21.	Machhanala	Un Gated	277.64	-	260.00	-	-	363	283.80	271.16	271.30
22.	Kabutri	Un Gated	186.35	-	104.00	-	-	1232	193.05	189.56	189.35
23.	Wankleshwar - Bhey.	Ungated	223.57	223.57	137.00	-	-	961	227.69	225.24	225.38
24.	Umaria	Un Gated	280.00	280.00	70.00	-	-	2010	285.20	284.24	282.40
25.	Edalvada	Fuse Gate	237.30	235.70	60.00	20	1.60 x 2.85	1033	241.00	238.78	238.70
26.	Kali - II	Un Gated	257.00	257.00	98.50	-	-	95	263.50	250.00	246.60
SABARKANTHA											
28.	Guhai	Gated	173.00	164.77	89.00	6	12.50 x 8.23	4380	178.07	174.54	172.90
32.	Javanpura	Gated	91.00	86.43	-	15	9.15 x 4.57	-	100.57	94.70	93.00
33.	Harnav – II	Gated	332.00	323.77	43.00	3	12.50 x 8.23	1632	336.85	333.35	332
197.	Khedva	Gated	259.70	253.60	55.50	5	9.15 x 6.10	1651	262.00	259.70	258.25
201.	Gorthiya (Mota Chekhala)	Gated	110.43	105.25	101.80	9	9.14 x 5.18	3774	115.50	113.75	110.43
ARAVALLI											
27.	Watrak	Gated	136.25	128.00	89.00	6	12.50 x 8.23	5669	145.00	140.49	136.40
29.	Mazam	Gated	157.10	151.00	102.00	9	9.15 x 6.10	3313	163.15	158.44	157.13
30.	Hathmati	Un Gated	180.74	-	241.00	-	-	2943	185.36	183.18	181.66
31.	Lank	Gated	111.55	105.45	-	5	9.15 x 6.10	-	113.75	111.55	111.55
34.	Meshwo	Un Gated	214.59	-	62.00	-	-	2067	221.29	219.16	214.95
35.	Waidy	Un Gated	199.20	-	122.00	-	-	1090	204.10	201.10	201.50
TAPI											
36.	Ukai	Gated	105.15 6	91.135	425.19	22	15.54 x 14.78	46269	111.25	106.98	105.48
36.a	Kakrapar	Ungated	48.77	-	613.38	-	-	1083			
37.	Doswada	Un Gated	123.44	-	210.00	-	-	899	126.52	125.30	124.97
SURAT											
38.	Ver – II	Gated	115.80	109.73	90.00	8	9.10 x 6.10	2155	119.50	116.00	115.80
39.	Lakhigam	Un Gated	74.10	-	25.00	-	-	434	77.10	75.30	75.10

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						Nos.	Size Meter				
CHHOTAUDEPUR											
40.	Sukhi	Gated	147.82	139.59	145.66	10	12.50 x 8.23	7899	152.80	148.30	147.95
41.	Rami	Un Gated	196.35	-	222.00	-	-	660	200.31	197.87	197.50
VALSAD											
42.	Damanganga	Gated	79.86	65.83	138.00	10	15.55 x 14.00	22040	85.60	82.40	80.10
NAVSARI											
43.	Jhuj	Un Gated	167.50	-	97.00	-	-	1554	174.50	171.25	169.00
44.	Kelia	Un Gated	113.40	-	113.00	-	-	1225	118.60	115.79	114.35
KACHCHH											
45.	Tapper (W.S))	Gated	40.85	-	159.71	14	9.14 x 4.57	4182	45.04	41.90	40.50
46.	Godhatad	Un Gated	23.00	-	55.00	-	-	1641	29.50	27.99	23.75
47.	Sanandro	Un Gated	59.74	-	152.00	-	-	1466	64.31	63.32	59.89
48.	Rudramata	Un Gated	66.44	-	436.00	-	-	6788	71.63	69.03	67.64
49.	Nara	Un Gated	27.43	-	152.00	-	-	1840	34.07	32.54	31.43
50.	Niruna	Un Gated	43.58	-	274.00	-	-	2997	48.46	47.83	45.88
51.	Bhukhi	Un Gated	73.00	-	80.00	-	-	1490	78.30	77.15	73.65
52.	Kankavati	Un Gated	131.67	-	457.20	-	-	1893	135.63	133.50	132.50
53.	Mathal	Un Gated	83.18	-	550.00	-	-	1260	86.50	84.87	84.03
54.	Kaila	Un Gated	79.25	-	191.00	-	-	1760	83.23	81.74	80.46
55.	Suvi	Un Gated	42.67	-	121.92	-	-	2828	46.94	46.37	43.02
56.	Kaswati	Un Gated	51.20	-	175.00	-	-	934	54.86	53.03	52.10
57.	Gajod	Un Gated	90.82	-	152.00	-	-	1612	95.70	93.72	92.975
58.	Jangadia	Un Gated	38.60	-	70.00	-	-	1447	45.45	42.00	39.90
59.	Fatehgadh	Un Gated	22.70	-	35.00	-	-	714	27.70	25.15	22.95
60.	Berachiya	Un Gated	70.40	-	250.00	-	-	1337	74.90	72.40	71.00
61.	Gajansar	Un Gated	30.00	-	430.00	-	-	1601	36.42	31.89	34.115
62.	Kalaghogha	Un Gated	37.00	-	82.00	-	-	1342	44.00	41.19	39.00
63.	Don	Un Gated	47.75	-	61.00	-	-	1050	55.25	51.75	48.75
64.	Mitti	Un Gated	18.65	-	235.00	-	-	5328	24.50	22.10	19.80
AMRELI											
65.	Khodiar	Gated	202.68	196.58	102.00	9	9.15 x 6.10	2409	207.57	202.68	202.68
66.	Thebi	Gated	126.00	119.90	136.58	12	9.15 x 6.10	3794	129.30	126.44	125.60
67.	Dhatarwadi	Un Gated	81.23	-	329.00	-	-	4342	88.45	84.70	85.18
68.	Raidy	Gated	50.85	44.75	102.00	9	9.15 x 6.10	2265	54.35	50.85	50.85
69.	Vadia	Gated	130.25	124.15	55.50	5	9.15 x 6.10	1556	133.75	130.25	130.25
70.	Vadi	Gated	134.00	127.90	90.23	8	9.15 x 6.10	2195	136.95	134.00	134.00
71.	Shell-Dedumal	Gated	179.50	173.40	55.50	5	9.15 x 6.10	1408	182.50	180.37	179.50
72.	Munjiasar	Un Gated	62.93	-	366.00	-	-	1184	66.60	64.46	66.29
73.	Sankroli	Un Gated	44.20	-	243.82	-	-	1848	47.23	46.60	46.34
74.	Surajwadi	Un Gated	50.28	-	320.00	-	-	1396	54.26	51.80	51.80
75.	Dhatarwadi-II	Gated	34.41	30.76	651.47	32	18.29 x 3.66	8370	38.50	34.41	34.41
93.	Ghelo – I	Un Gated	166.72	-	213.00	-	-	1190	170.49	168.55	167.81
BHAVNAGAR											
76.	Shetrunji	Gated	55.53	54.62	646.00	59	8.84 x 0.91	7080	60.71	57.68	57.27
77.	Rajawal	Gated	56.75	50.65	95.00	8	9.15 x 6.10	4294	62.03	58.49	56.75
80.	Kharo	Gated	54.12	48.02	163.00	14	9.15 x 6.10	3592	57.75	54.25	54.12
81.	Malan	Gated	104.25	102.74	448.00	46	9.15 x 1.50	1334	106.68	104.25	104.25
82.	Ranghola	Gated	62.50	60.98	549.00	47	10.98 x 1.55	2396	64.94	62.83	65.50
84.	Lakhanka	Gated	44.22	38.22	44.00	4	9.15 x 6.10	1182	47.48	44.98	43.55
85.	Hamirpura	Gated	87.80	81.70	32.00	3	9.15 x 6.10	661	90.30	87.80	87.80
86.	Hanol	Gated	90.10	87.05	148.20	13	9.15 x 3.05	1296	93.05	90.10	90.10

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88.	Pingli	Gated	51.30	45.20	43.90	4	9.15 x 6.10	1061	53.35	51.30	51.30
90.	Bagad	Un Gated	60.41	-	242.00	-	-	2929	66.78	63.28	61.41
91.	Rojki	Un Gated	99.08	-	314.00	-	-	1094	102.74	100.88	100.00
196.	Jaspara-Mandva	Un gated	40.25	-	142.00	-	-	841	43.75	42.25	37.90
BOTAD											
1.	Khambhada	Gated	50.35	46.69	140.00	7	18.29 x 3.66	1817	53.20	50.35	50.35
2.	Utavali (Gunda)	Gated	49.30	45.64	304.19	15	18.29 x 3.66	3862	51.50	49.30	49.30
78.	Kalubhar	Gated	60.36	54.26	183.00	16	9.15 x 6.10	7983	66.40	64.33	64.00
79.	Malpara	Gated	78.10	72.00	90.28	8	9.15 x 6.10	2148	81.10	78.10	78.10
83.	Limbali	Gated	128.10	122.00	136.57	12	9.15 x 6.10	5394	Restoration works are under construction		
87	Kaniyad	Gated	102.25	99.20	78.69	7	9.15 x 3.05	963	104.75	102.25	102.02
89.	Goma	Un Gated	126.50	-	164.00	-	-	1189	130.61	128.81	126.97
92.	Bhimdad	Un Gated	104.85	-	110.00	-	-	975	109.14	107.31	105.30
182.	Sukhbhadar	Gated	109.20	103.10	236.50	20	9.15x6.10	10705	115.00	110.70	109.20
JAMANAGAR											
94.	Und-I	Gated	98.00	91.90	127.44	11	9.15x6.10	15866	105.00	100.00	98.00
		(Addl. Spillway)		89.77	91.44	6	12.50x8.23	34538			
96.	Sasoi	Ungated	28.96	28.96	1037.0	-	-	2921	32.30	30.48	30.01
98.	Fulzar-I	Ungated	24.69	24.69	305.00	-	-	1274	28.50	26.51	26.52
99.	Dai-Minsar	Ungated	75.40	75.40	135.00	-	-	1982	82.00	78.61	76.30
101.	Vijarkhi	Ungated	30.48	30.48	304.80	-	-	453	32.30	31.48	30.63
102.	Puna	Ungated	24.38	24.38	135.00	-	-	963	27.43	25.60	25.34
103.	Umiyasagar	Gated	71.05	66.48	217.63	19	9.14 x 4.57	6119	75.95	74.73	71.05
105.	Ruparel	Ungated	48.20	48.20	142.10	Ogee shaped spillway		898	51.85	50.20	48.30
106.	Und-II	Gated	18.25	12.15	623.00	54	9.14x6.10	16450	22.70	19.11	19.11
107.	Kankawati	Gated	30.50	27.75	113.39	10	9.15x2.74	1557	34.80	31.68	30.45
108.	Rangmati	Gated	43.20	37.10	56.00	5	9.15x6.10	1125	46.00	43.20	45.00
110.	Fulzar(KB)	Gated	95.85	89.75	136.55	12	9.15 x 6.10	5456	101.30	91.30	95.85
111.	Aji-IV	Gated	20.40	14.30	658.00	57	9.14 x 6.10	18354	24.90	20.40	20.00
113.	Phophal-II	Ungated	129.33	129.33	110.00	-	-	1220	134.35	132.34	130.10
114.	Sapda	Ungated	32.77	32.77	344.00	-	-	807	35.96	34.13	33.98
116.	Fulzar-II	Ungated	52.12	52.12	277.00	-	-	1076	55.47	53.64	57.62
119.	Wadisang	Ungated	76.50	76.50	371.70	-	-	3204	81.85	79.00	78.50
120.	Rupavati (Lalpur)	Ungated	77.30	77.30	164.00	-	-	653	81.30	78.80	78.55
121.	Und-III	Ungated	110.60	110.60	123.00	-	-	1048	115.10	113.10	110.90
205.	Sasoi-II	Ungated	104.40	104.40	112.20	-	-	640	107.80	106.30	105.40
206.	Wagadia	Ungated	62.05	62.05	207.00			1051	65.30	63.80	-
DEV BHUMI DWARKA											
95.	Sani	Gated	17.25	11.15	192.06	17	9.15x6.10	7019	24.00	18.68	17.25
97.	Ghee	Ungated	40.54	-	107.00	-	-	671	45.65	42.74	41.46
100.	Vartu	Ungated	39.01	-	350.52	-	-	1557	42.97	41.15	39.01
104.	Gadhaki	Ungated	30.00	30.00	100.00	Ogee shaped spillway		607	34.00	32.00	30.20
109.	Vartu-II	Gated	39.95	33.85	368.20	32	9.15 x 6.10	10801	44.65	39.95	39.95
115.	Sonmati	Ungated	78.50	78.50	145.00	-	-	1540	83.50	81.04	80.00
117.	Shedhabhadt hari	Ungated	32.50	-	274.00	-	-	1093	36.10	34.00	32.85
118.	Veradi	Ungated	85.15	-	175.00	-	-	1390	89.90	85.15	86.05
122.	Sindhani	Ungated	16.35	-	125.00	-	-	1391	21.20	18.42	16.91
123.	Kabarka	Ungated	96.85	96.85	150.00	-	-	917	100.50	96.85	98.35

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194.	Veradi-II	Ungated	65.40	65.40	269.00	-	-	1795	65.40	67.50	67.50
195.	Minsar(V)	Ungated	91.80	91.80	136.50	-	-	845	95.80	91.80	92.50
JUNAGADH											
128.	Uben	Ungated	107.61	107.61	160.00	-	-	1550	114.31	110.98	108.61
129.	Madhuvanti	Ungated	165.19	165.19	183.00	-	-	750	169.46	167.02	166.09
130.	Prempara	Ungated	127.50	127.50	30.00	-	-	130	131.10	129.10	128.00
131.	Hasnapur (W.S.)	Ungated	148.13	148.13	62.00	-	-	488	152.40	150.26	148.85
132.	Ozat-II	Gated	77.50	69.27	378.26	25	12.50 x 8.23	14890	82.00	77.59	77.89
133.	Vrajmi	Gated	94.00	90.95	102.00	9	9.15x3.05	1175	97.86	94.36	94.00
134.	Ambajal	Gated	182.31	176.21	49.00	4	9.15x6.10	1030	184.14	182.31	182.31
135.	Draphad	Gated	124.00	117.90	125.00	11	9.15x6.10	3073	127.65	124.00	124.00
136.	Bantva-Kharo	Gated	16.25	13.20	183.00	16	9.14 x 3.05	1764	19.70	16.25	16.25
137.	Ozat-Weir Sahpur (Tilting Gate)	Gated	32.85	29.80	233.40	10	18.00 x 3.50	10581	36.00	35.77	38.00
138.	Ozat-Weir (Vanthli)	Gated	27.50	25.00	202.80	12	9.14 x 3.05 (Vertical)	7170	31.00	28.80	29.45
139.	Mota Gujaraya	Ungated	140.02	140.02	150.00	-	-	1320	144.25	142.52	141.50
141.	Jhanjeshri	Ungated	149.96	194.96	137.00	-	-	935	154.68	152.25	151.06
198.	Sabali	Gated	43.75	40.70	125.00	11	9.14 x 3.05 (Vertical)	1159	46.90	43.75	42.40
GIR SOMNATH											
124.	Shingoda	Gated	141.58	133.33	90.00	6	12.50 x 8.23	3309	144.08	141.58	141.58
125.	Hiran-II	Gated	71.26	63.03	104.00	7	12.50x8.23	3559	74.31	71.26	71.26
126.	Raval	Gated	148.85	140.60	90.00	6	12.50x8.23	2774	151.855	148.855	148.855
127.	Machhundri	Ungated	109.50	-	350.00	-	-	5506	116.50	109.50	109.50
140.	Hiran-I	Ungated	44.20	-	194.00	-	-	1034	48.16	44.20	44.20
PORBANDAR											
142.	Phodarness (W.S)	Ungated	93.59	-	27.00	-	-	204	99.97	93.57	96.01
143.	Khambhala (W.S.)	Ungated	39.63	-	107.00	-	-	344	42.67	39.62	41.14
144.	Sorthi	Ungated	95.50	-	157.00	-	-	1932	100.15	98.82	97.80
145.	Amipur	Gated	5.64	3.23	20.00	4	2.44x2.86	139	9.44	6.34	5.64
146.	Kalindri	Ungated	52.23	-	168.00	-	-	1445	57.40	54.96	53.44
147.	Advana	Ungated	24.00	-	153.00	-	-	604	27.05	24.00	24.00
199.	Saran	Gated	37.00	33.95	182.00	16	9.14 x 3.05 (Vertical)	1748	39.25	37.00	37.00
204.	Rana Khirasra	Gated	36.75	28.52	119.18	8	12.50x8.23 (Radial)	4213	38.75	37.03	-
RAJKOT											
148.	Bhadar	Gated	107.90	106.07	378.00	29	10.67x1.83	16504	114.20	112.74	110.43
149.	Bhadar - II	Gated	53.10	42.43	405.32	22	14.93x10.67	26380	56.40	53.10	53.10
151.	Aji-III	Gated	53.15	44.92	272.00	18	12.50x8.23	17571	60.00	55.30	54.50
152.	Moj	Gated	72.54	71.02	329.00	27	9.14x1.52	7243	76.50	76.50	73.12
153.	Venu-II	Gated	55.00	48.91	229.00	20	9.15x6.10	9866	60.40	56.91	56.40
154.	Nyari-II	Gated	88.50	82.40	160.00	14	9.15x6.10	4826	92.70	88.50	89.00
155.	Karmal	Gated	169.00	162.90	79.00	7	9.15x6.10	3588	173.20	170.34	169.00
156.	Veri	Gated	142.04	141.12	427.00	75	3.05x0.91	1642	145.58	143.41	144.04
157.	Karnuki	Gated	164.50	161.45	183.00	16	9.14x3.05	2486	167.40	164.50	164.50

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159.	Phophal	Ungated	81.76	-	417.00	-	-	10580	87.40	86.44	84.04
160.	Aji-I	Ungated	147.52	-	335.00	-	-	1785	150.81	149.35	148.50
161.	Nyari-I(W.S.)	Ungated	103.50	-	54.00	-	-	396			
162.	Lalpari	Ungated	137.46	-	733.31	-	-	2095	140.75	138.71	139.59
163.	Aji-II	Gated	73.76	67.66	183.00	16	9.15x6.10	5644	78.10	74.72	73.76
165.	Chhaprawadi-II	Gated	98.38	90.15	89.00	6	12.50x8.23	6219	100.82	100.44	98.38
167.	Motisar	Gated	143.00	141.00	150.50	15	9.10x2.00	759	145.70	143.00	143.00
168.	Khodapipar	Gated	55.27	52.22	113.40	10	9.15x3.05	1339	58.52	55.27	55.27
169.	Survo	Gated	99.85	93.75	183.00	16	9.14x6.10	2068	102.80	99.85	99.85
170.	Dondi	Gated	103.72	100.67	101.81	9	9.14x3.05	1354	106.00	103.72	105.50
171.	Sodvadar	Ungated	76.70	76.70	100.00	-	-	1183	80.70	79.20	77.30
173.	Gondali	Ungated	45.80	-	350.00	-	-	948	49.39	47.24	45.80
174.	Ghelo-S	Ungated	135.10	-	213.00	-	-	878	138.54	136.62	136.30
175.	Vachhapari	Ungated	43.89	-	183.00	-	-	535	47.40	45.57	44.59
176.	Phardangbeti	Ungated	189.25	-	190.00	-	-	2370	194.40	191.84	189.80
177.	Ishwaria	Ungated	157.30	-	211.00	-	-	1377	162.00	159.55	157.90
179.	Kabir Sarovar	Ungated	32.45	32.45	295.00	-	-	2350	36.00	34.54	32.65
180.	Dhari	Ungated	49.07	-	84.00	-	-	651	53.35	51.52	51.52
181.	Malgadh	Ungated	159.37	-	140.00	-	-	760	163.75	161.25	159.40
MORBI											
112.	Demi - III	Gated	25.60	19.50	206.03	18	9.14 x 6.10	5516	28.55	25.60	25.60
150.	Machhu-II	Gated	57.30	49.09	508.18	20	12.50x8.23	26419	63.70	59.20	57.30
		(Addl. Spillway)		51.20		18	9.15x6.10				
158.	Machhu-I	Ungated	135.33	-	488.00	-	-	11522	143.20	139.99	139.96
164.	Demi-II	Gated	48.00	41.90	194.50	17	9.14x6.10	4240	52.80	48.78	48.00
166.	Ghodadharoi	Gated	98.30	92.20	102.00	9	9.15x6.10	3247	102.50	98.90	98.30
172.	Demi-I	Fuse Gate	60.35	59.35	244.00	135	1.80 x 1.00	4044	63.10	61.19	61.25
178.	Bangawadi	Fuse Gate	42.65	41.05	200.00	69	2.85 x 1.60	2186	47.10	44.20	44.20
189.	Brahmani	Ungated	64.62	-	426.82+ 548.78	-	-	2945	68.60	66.15	67.06
200.	Brahamani-II	Gated	44.50	36.27	271.58	18	12.50 x 8.23	11896	48.20	45.09	43.35
203.	Machhu-III	Gated	28.70	20.47	302.12	20	12.50x8.23	13450	34.02	28.70	28.70
SURENDRANAGAR											
183.	Nayaka	Gated	101.80	99.36	671.00	20	9.15x2.44	2097	103.65	101.82	101.80
						14	9.15x2.44				
184.	Dholidhaja	Ungated	80.47	-	566.00	-	-	1839	84.02	82.22	80.47
185.	Falku	Gated	107.00	103.00	182.50	16	10.00x4.00	4275	110.35	107.00	107.00
186.	Nimbhani	Gated	134.50	131.45	113.00	10	9.14 x 3.05	1463	137.10	134.50	134.50
187.	Limbdi Bhogavo II	Gated	76.00	69.90	322.00	28	9.15 x 6.10	10530	79.60	76.00	76.00
188.	Vansal	Ungated	100.70	100.70	220.00	-	-	736	105.00	102.50	102.06
190.	Limbi-Bhogavo - I	Ungated	46.02	-	457.17	-	-	1471	49.39	47.56	46.02
191.	Morsal	Ungated	177.00	-	106.00	-	-	1271	181.50	179.50	178.50
192.	Saburi	Ungated	129.50	-	255.00	-	-	1446	132.50	131.00	130.00
193.	Triveni Thanga	Ungated	208.00	-	207.00	-	-	1794	211.50	210.00	209.50

Note: There is no important scheme in Ahmedabad, Gandhinagar, Patan, Anand, Dang & Vadodara Districts

ANNEXURE-1 (A)

Note : Please see Flood Telephone Directory of the current year

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
[I]	<u>GUJARAT REGION</u>			
(A)	<u>Damanganga Basin</u>			(1) Executive Engineer, Tapi Division (C.W.C), Surat
				(2) Superintending Engineer, Damanganga Project Circle, Valsad (Focal Officer).
	<u>Valsad District</u>			
1.	Madhuban Dam	82.40 (270.27)	79.86 (261.94)	Executive Engineer Damanganga Project Dn. No. 1, Madhuban Colony
2.	Madhuban Dam D/S	49.45(162.20)	— (—)	
3.	Vapi (R.G.) (N.H.No. Bridge)	19.20 (62.98)	— (—)	
	<u>Union Territory</u>			
4.	Daman (R.G.)	3.40 (11.159)	— (—)	Collector, Daman Collector, DNH Silvassa
5.	Silvassa (R.G.) (Athal Bridge)	30.00 (98.43)	— (—)	
(B)	<u>Tapi Basin</u>			(1) Executive Engineer Tapi Division (C.W.C), Surat
				(2) Superintending Engineer Surat Irrigation Circle, Surat (Focal Officer).
	<u>Narmada District</u>			
1.	Chopadvav Dam	188.80 (619.44)	187.40 (614.85)	Executive Engineer, Ver - II Project, Division Vyara (Surat),
2.	Kakdiamba Dam	188.71 (619.15)	187.71 (616.53)	
	<u>Tapi District</u>			
3.	Ukai Dam	106.984(351.00)	105.15(345.00)	Executive Engineer, Ukai Division No.1, Ukai
	<u>Surat District.</u>			
4.	Lakhigam Dam	75.90 (249.02)	74.10 (243.11)	Executive Engineer, Ver - II Project Division, Vyara (Surat District)
5.	Ver - II Dam	116.00 (380.57)	115.80 (379.93)	
6.	Ver - I Dam	64.16 (210.50)	60.96 (200.00)	
	<u>Tapi District.</u>			
7.	Kakrapar Weir	53.66 (176.05)	48.77 (160.00)	Executive Engineer, Surat Canal Division, Surat
8.	Ghala (R.G.)	— (—)	— (—)	Executive Engineer Tapi Division (C.W.C.) Surat
9.	Surat Nehru Bridge (R.G.)	9.50(31.16)	— (—)	
(C)	<u>Narmada Basin</u>			
1.	Executive Engineer Tapi Division, (C.W.C.) Surat.			
	Superintending Engineer, N.P.Head Works Circle, New Administrative Block-B, First floor. Kevadia-393151			

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	Superintending Engineer Vadodara Irrigation Circle, Vadodara. (Focal Officer for Sukhi/Rami)			
	<u>Bharuch & Narmada Districts</u>			
1.	Bharuch Golden Bridge (R.G.)	7.315 (24.00)	— (—)	Executive Engineer Tapi Division (C.W.C.) Surat
2.	Garudeshwar Bridge (R.G.)	31.09 (102.00)	— (—)	
3.	Dholi Dam	136.00 (446.22)	136.00 (446.22)	Executive Engineer Irri. Proj. Dn.No.4, Rajpipala
4.	Karjan Dam	116.10 (380.50)	115.25 (378.13)	Executive Engineer Irrigation Project Dn. No. 4, Rajpipla
	<u>Chhotaudepur District</u>			
5.	Rami Dam	197.87 (649.21)	196.35 (644.22)	Executive Engineer Pipe Line Project Dn.No.1 Chhotaudepur
6.	Sukhi Dam	148.30 (486.57)	147.82 (485.00)	Executive Engineer Irri.Proj.Dn.No.2, Bodeli
7.	Wadhvana	56.39 (185.00)	55.63 (182.50)	Executive Engineer Vadodara Irrigation Division,Vadodara
(D)	<u>Mahi Basin</u>			(1) Executive Engineer Mahi Division (C.W.C.) Gandhinagar
				(2) Superintending Engineer Mahi Irrigation Circle, Nadiad (Focal Officer)
	<u>Mahisagar District</u>			
1.	Wanakbori Weir	74.98 (246.00)	67.234 (220.60)	Executive Engineer Nadiad Irrigation Division, Nadiad
		(Danger Level)	(Hydro Fuse Gate)	
2	Kadana Dam	127.71 (419.00)	127.71 (419.00)	Executive Engineer Kadana Dn. No. 1 Divda Colony
		(Danger Level)		
		126.18 (414.07)		
		(Warning Level)		
	<u>Kheda District</u>			
3.	Varansi dam	81.20(266.34)	81.00(265.68)	Executive Engineer WatrakProject Canal Dn. Modasa
	<u>Panchmahals District</u>			
4.	Panam Dam	128.00 (420.00)	127.41 (418.00)	Executive Engineer, Panam Project Division, Godhra.
	<u>Vadodara District</u>			
5.	Mahi Weir at Sindhrot	19.50 (63.98) (HFL)		Executive Engineer, Vadodara Irrigation Division,Vadodara
(E)	<u>Sabarmati Basin</u>			Executive Engineer Mahi Division (C.W.C.) Gandhinagar

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	Superintending Engineer, Ahmedabad Irrigation Project Circle Ahmedabad, (Focal Officer)			
	Superintending Engineer, Hlmatnagar Irrigation Project Circle, Himatnagar (Focal Officer)			
	Ahmedabad District			
1	Subhash Bridge	45.34 (148.76) (Danger Level)	— (—) (R.G.)	Executive Engineer Ahmedabad Irrigation Dn., Ahmedabad
		44.09 (144.65) (Warning Level)		
	Kheda District			
2.	Dakor Bridge(R.G.)	7.05 (23.13)	— (—)	Executive Engineer, Shedhi Irrigation Dn., Nadiad
3.	Kathlal Bridge(R.G.)	6.49 (21.30)	— (—)	
4.	Ladvel Bridge(R.G.)	5.27 (17.30)	— (—)	Executive Engineer, Mahi Division, (C.W.C.) Gandhinagar
5.	Kheda Bridge(R.G.)	6.57 (21.56)	— (—)	
	Mehsana District			
6.	Dharoi Dam	192.24 (630.70) (Danger Level)	189.59 (622.00)	Executive Engineer Dharoi Head Works Division No.1, Dharoi Colony
		187.06 (613.72) (Warning Level)		
7.	Derol Bridge(R.G.)	— (—)	100.23(328.85)	Executive Engineer, Mahi Division, (C.W.C.) Gandhinagar
	Sabarkantha District			
8.	Himatnagar Weir (R.G.)	--- (—)	134.05(439.82)	Executive Engineer, Mahi Division, (C.W.C.) Gandhinagar
9.	Harnav Weir (R.G.)	— (—)	234.76 (—)	
10.	Ratanpur Bridge (R.G.)	9.63(31.60)	— (—)	
11.	Raska Weir (R.G.)	38.17(125.20)	— (—)	
12.	Guhai Dam	174.02 (570.78)	173.00(567.44)	Executive Engineer P.C. Division No. 3, Himatnagar
13.	Javanpur Rech. MI Sch.	94.70 (310.62)	91.00 (298.48)	
14.	Harnav Stage II Dam	332.25(1090.11)	332.00 (1088.96)	-do-
15.	Khedva Dam	259.70(851.82)	259.70(851.82)	-do-
16.	Gorthiya	113.75(373.21)	113.75(373.21)	Executive Engineer, Suj. Suf. Spre.Ch. Dn. No. 1, Himatnagar
	Aravalli District			
17.	Hathmati Dam	183.18 (601.00)	180.79 (593.00)	Executive Engineer H'nagar Irrigation Division, Himatnagar
18.	Meshwo Dam	219.16(718.86)	214.59 (703.86)	
19.	Waidy Dam	201.10 (659.80)	199.20 (653.57)	
20.	Mazam Dam	158.44 (519.83)	157.10 (515.29)	Executive Engineer Irrigation Project Division, Modasa
21.	Watrak Dam	140.49 (460.95)	136.25 (447.00)	
22.	Lank Weir (R.G.)	111.55 (365.67)	111.55 (365.67)	

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
(F)	<u>Banas Basin</u>			Executive Engineer Mahi Division (C.,W.,C.) Gandhinagar
				Superintending Engineer Sujlam Suflam Circle No.2, Kherva (Focal Officer)
	<u>Rajasthan State</u>			
1.	Abu Road (R.G.)	265.00 (869.47)	— (—)	Executive Engineer, Mahi Division, (C.W.C.) Gandhinagar
2.	Swaroopganj (R.G.)	335.35 (1100.28)	— (—)	
	<u>Banaskantha District</u>			
3.	Bhakhudar (R.G.)	163.87(537.66)	— (—)	Executive Engineer Mahi Division (C.W.C.) Gandhinagar
4.	Chitrasani (R.G.)	195.00 (639.80)	— (—)	
5.	Sarotri (R.G.)	192.00(629.95)	— (—)	
6.	Dantiwada Dam	185.06 (607.00) (Danger Level)	184.10(604.00)	Executive Engineer Deesa Irrigation Division, Deesa
		182.88 (600.00) (Warning Level)		
7.	Deesa Road Bridge (R.G.)	123.75(406.00)	— (—)	Executive Engineer, Sipu Project Dn. Palanpur.
8.	Sipu Dam	186.48 (611.84)	186.43 (611.68)	
(G)	<u>Vishwamitry Basin & Deo Basin</u>			Superintending Engineer, Vadodara Irrigation Circle, Vadodara (Focal Officer)
	<u>Vadodara District</u>			
1.	Ajwa (W.S.) (Gauge)	64.31 (211.00)	— (—)	Municipal Commissioner Vadodara Municipal Corp. Vadodara
2.	Pratappura (Gauge)	69.69 (228.63)	— (—)	
3.	City Bridge (R. G.)	30.57 (100.27)	— (—)	
4.	Bhaniara (Gauge)	— (—)	— (—)	Executive Engineer Vadodara Irrigation Division, Vadodara
5.	Dhanora (Gauge)	62.18 (204.00)	— (—)	
6.	Ghansarvav (Gauge)	34.75 (114.00)	— (—)	
7.	Haripura (Gauge)	65.84 (216.00)	— (—)	
8.	Vadadala (Gauge)	58.52 (191.95)	— (—)	
9.	Shivrajpur (Gauge)	90.15 (295.78)	— (—)	
	<u>Panchmahals District</u>			
9.	Halol (Gau.ge)	— (—)	— (—)	Executive Engineer Vadodara Irrigation Division, Vadodara
10.	Deo Dam	90.15 (295.77)	89.65 (294.14)	Executive Engineer Vadodara Irrigation Division Vadodara

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
(H)	<u>Saraswati Basin</u>			Superintending Engineer Sujlam Suflam Circle No.2, Kherva (Focal Officer)
	<u>Banaskantha District</u>			
1.	Mukteshwar Dam	202.12 (663.11)	201.65 (661.57)	Executive Engineer Sipu Project Dn. Palanpur.
	<u>Patan District</u>			
2.	Saraswati Barrage	85.39 (280.11)	84.40 (277.00)	Executive Engineer, Deesa Irri. Dn., Deesa
(I)	<u>Bharuch District</u>			
1.	Baldeva Dam	— (—)	141.50 (464.26)	Executive Engineer Irri.Proj.Dn.No.4 Rajpipala
2.	Pigut Dam	— (—)	139.70 (458.36)	
(J)	<u>Panchmahals & Dahod District</u>			Superintending Engineer, Panam Project Circle, Godhra. (Focal Officer except Kadana Dams)
1.	Bhadar (P) Dam	128.35 (421.00)	123.72 (406.00)	Executive Engineer, Machhanala Proj.Dn
2.	Hadaf Dam	168.32 (552.09)	166.20 (545.30)	Executive Engineer, Panam Proj. Dn. Godhra
3.	Patadungri Dam	172.97 (567.50)	170.84 (560.50)	Executive Engineer Dahod Irri.Dn., Dahod
4.	Wankleshwar Bhey Dam	225.24 (739.00)	223.57 (733.50)	
5.	Edalwada Dam	238.78 (783.20)	237.30 (778.58)	Executive Engineer Machhanala Proj.Dn.D' Colony Dahod Irr. Dn. Dahod
6.	Machhanala Dam	281.33 (923.04)	279.05 (915.56)	
7.	Umaria Dam	284.24 (932.31)	280.00 (918.68)	
8.	Kabutri Dam	189.56 (621.75)	186.30 (611.25)	
9.	Kali - II Dam	269.90 (885.54)	257.00 (843.22)	
10.	Karad Dam	141.43 (454.00)	140.08 (459.60) (With fuse gate)	Executive Engineer Panam Irrigation Division, Godhara
			138.50 (454.30) (Without fuse gate)	
11.	Padardi	149.65 (491.00) Max. Water Level		Executive Engineer Mahi Dn., G'nagar
12.	Chekli	230.20 (755.29) Max. Water Level		Executive Engineer Mahi Dn., G'nagar
13.	Anas P.S.	160.00 (524.96) Max. Water Level		Executive Engineer Mahi Dn., G'nagar
14.	Santroa Weir	150.64 (494.25)	144.50 (474.11)	Executive Engineer Panam Proj. Dn., Godhra
(K)	<u>Tapi District</u>			
1.	Dosawada Dam	— (—)	123.44 (405.00)	Executive Engineer, Ver - II Project Dn., Vyara (Surat District)

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
(L)	<u>Navsari District</u>			
1.	Kelia Dam	115.12 (377.59)	113.40 (371.85)	Executive Engineer, Ukai Left Bank Canal & Investigation Division no. -2, Valod (Dist. Tapi)
2.	Jhuj Dam	171.25 (561.70)	167.50 (549.40)	
[II]	<u>KACHCHH REGION</u>			
	<u>Kachchh District</u>			
1.	Fatehghadh Dam	25.15 (82.49)	22.70 (74.48)	EE, WRI Dn., Bhuj
2.	Gajansar Dam	31.89 (104.60)	30.00 (98.40)	EE,Salinity Control Dn.,Bhuj
3.	Gajod Dam	94.40 (309.63)	90.82 (297.98)	EE, Kachchh Irri Dn., Bhuj
4.	Godhatad Dam	27.99 (91.81)	23.00 (75.46)	EE,Salinity Control Dn.,Bhuj
5.	Kaila Dam	81.74 (268.11)	79.25 (260.02)	EE, Kachchh Irri Dn., Bhuj
6.	Kalaghogha Dam	41.19 (135.10)	37.00 (121.40)	EE, Kachchh Irri Dn., Bhuj
7.	Kankawati Dam	133.95 (439.36)	131.67 (432.01)	EE, Kachchh Irri Const. Dn.,Bhuj
8.	Kaswati Dam	53.73 (176.23)	51.20 (167.99)	EE, Kachchh Irrigation Dn. Bhuj
9.	Nara Dam	32.54 (106.73)	27.43 (90.00)	EE,Salinity Control Dn.,Bhuj
10.	Niruna Dam	47.83 (156.88)	43.58 (142.99)	EE,Salinity Control Dn.,Bhuj
11.	Rudramata Dam	69.88 (229.21)	66.44 (217.99)	EE, Kachchh Irri Dn., Bhuj
12.	Sanandro Dam	63.32 (207.69)	59.74 (196.01)	EE,Salinity Control Dn.,Bhuj
13.	Suvi Dam	46.37 (152.09)	42.67 (140.00)	EE, WRI Dn., Bhuj
14.	Tappar (W.S)Dam	41.90 (137.43)	40.85 (134.00)	EE, Kachchh Irrigation Dn. Bhuj
15.	Bhukhi Dam	77.15 (253.05)	73.00 (239.44)	EE,Salinity Control Dn.,Bhuj
16.	Berachiya Dam	73.99 (241.69)	70.40 (230.98)	EE, Kachchh Irri Const. Dn.,Bhuj
17.	Don Dam	54.33 (178.20)	47.75 (156.67)	EE, Kachchh Irri Const. Dn.,Bhuj
18.	Jangadia Dam	42.81 (140.42)	38.60 (126.64)	EE, Kachchh Irri Const. Dn.,Bhuj
19.	Mathal Dam	84.87 (278.37)	83.18 (272.83)	EE,Salinity Control Dn.,Bhuj
20.	Mitti Dam	23.53 (77.18)	18.65 (61.17)	EE, Kachchh Irri Const. Dn.,Bhuj
[III]	<u>SAURASHTRA REGION</u>			
{A}	<u>Under Flood Control Cell, Rajkot.</u>			Superintending Engineer Rajkot Irrigation Circle, Rajkot (Focal Officer)
(1)	<u>Jamnagar District</u>			
1.	Dai Minsar Dam	78.61 (257.62)	75.40 (247.39)	Executive Engineer Jamnagar Irrigation Division, Jamnagar.
2.	Fulzar - I Dam	26.52 (87.00)	24.69 (81.00)	
3.	Fulzar - II Dam	53.65 (176.00)	52.12 (171.00)	
4.	Puna Dam	25.60 (84.00)	24.38 (80.00)	
5.	Rangmati Dam	43.20 (141.74)	43.20 (141.74)	
6.	Sapada Dam	34.14 (112.00)	32.77 (107.52)	
7.	Sasoi Dam	30.48 (100.00)	28.96 (95.00)	
8.	Vijiarkhi Dam	31.39 (103.00)	30.48 (100.00)	

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
9.	Kankavati Dam	31.68 (103.91)	30.50 (100.00)	E. E., Jam. Irr. Dn. Jamnagar
10.	Und - I Dam	102.92 (337.57)	98.00 (321.54)	E. E., Jam. Irr. Dn. Jamnagar
11.	Rupavati(Lalpur) Dam	78.80 (258.54)	77.30 (253.62)	E. E., Jam. Irr. Dn. Jamnagar
12.	Umiyasagar Dam	73.63 (241.58)	71.05 (233.11)	E. E., Und Irrigation. Dn. Jamnagar
13.	Ruparel Dam	50.20 (164.66)	48.20 (158.10)	E. E., Und Irr. Dn. Jamnagar
14.	Ranjit-Sagar(WS) Dam	----- (---)	---- (----	Municipal Commissioner, Municipal Corporation, Jamnagar
15.	Und - II Dam	19.11 (62.68)	18.25 (59.88)	E. E., Und Irr. Dn. Jamnagar
16.	Wadisang Dam	79.00 (259.12)	76.50 (250.92)	E. E., Jam. Irr. Dn. Jamnagar.
17.	Fulzar(KB) Dam	98.12 (321.83)	95.85 (314.38)	E. E., Und Irri. Dn. Jamnagar
18.	Und - III Dam	113.10 (371.08)	110.60(362.87)	E. E.,Jamnagar Irr. Dn.Jamnagar
19.	Phophal - II Dam	132.33 (434.19)	129.33 (424.30)	E. E.,Jamnagar Irr. Dn.Jamnagar
20.	Aji - IV Dam	20.40 (66.91)	20.40 (66.91)	E. E., Und irrigation Dn. Jamnagar
21.	Sasoi-II	106.30(348.75)	104.40(342.52)	E. E., Und Irr. Dn. Jamnagar
(2)	<u>Dev Bhumi Dwarka District</u>			
1.	Ghee Dam	42.73 (140.20)	40.54 (133.00)	E. E., S.C. Dn. Jamkhambhaliya
2.	Sonmati Dam	81.04 (265.88)	78.50 (257.56)	
3.	Vartu -I Dam	41.15 (135.00)	39.01 (127.98)	
4.	Sani Dam	18.68 (61.27)	17.25 (56.58)	
5.	Sindhani Dam	18.42 (60.41)	16.35 (53.62)	
6.	Shedhabhadthari Dam	34.00 (111.55)	32.50 (106.63)	
7.	Vartu - II Dam	40.55 (133.00)	39.95 (131.04)	
8.	Gadhaki Dam	32.00 (104.96)	30.00 (98.40)	
9.	Veradi -I Dam	87.52 (287.06)	85.15(287.29)	
10.	Kabarka Dam	98.85 (324.33)	96.85 (317.76)	
11.	Veradi-II (W.R.)	67.50 (221.40)	65.40 (214.51)	
12.	Minsar(V) (W.R.)	93.80 (307.66)	91.80 (301.10)	
(3)	<u>Porbandar District</u>			
1.	Sorthi Dam	98.82 (324.21)	95.50 (313.32)	E. E., S.C. Dn. Porbandar
(4)	<u>Rajkot District</u>			
1.	Nyari – I (W.S.) Dam	105.75 (346.96)	103.50 (339.58)	Municipal Commissioner, R.M.C. Rajkot
2.	Aji – I Dam	149.35 (490.00)	147.52 (484.00)	E.E., RID, Rajkot
3.	Bhadar Dam	112.74 (369.88)	107.90 (354.00)	E.E., RID, Rajkot
4.	Gondali Dam	47.24 (155.00)	45.80 (150.25)	E.E.R.I.Dn., Rajkot
5.	Kabir–Sarovar Dam (Chhapparwadi-I)	34.52 (113.25)	32.45 (106.46)	E.E.R.I.Dn., Rajkot
6.	Lalpari Dam	138.71 (455.08)	137.46 (451.00)	Executive Engineer Rajkot Irr. Dn. Rajkot.
7.	Moj Dam	76.50 (251.00)	72.54 (238.00)	
8.	Phophal Dam	86.44 (283.60)	81.76 (268.23)	
9.	Vachhapari Dam	45.57 (149.50)	43.89 (144.00)	E.E.R.I.Dn., Rajkot

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
10.	Veri Dam	143.41 (470.50)	142.04 (466.00)	E.E., Rajkot Irr.Proj Dn., Rajkot
11.	Chhaparwadi-II Dam	100.44 (329.44)	98.38 (322.78)	E.E., Rajkot Irr. Dn., Rajkot
12.	Ishwaria Dam	159.30 (522.66)	157.30 (516.10)	E.E.R.I.Dn., Rajkot
13.	Karmal Dam	170.94 (560.68)	169.00 (554.49)	E.E.R.I.Dn., Rajkot
14.	Motisar Dam	143.00 (469.18)	143.00 (469.18)	E.E., Rajkot Irr.Proj Dn., Rajkot
15.	Nyari – II Dam	88.50 (290.28)	88.50 (290.28)	E.E., Rajkot Irr. Dn., Rajkot
16.	Bhadar - II Dam	53.10 (174.22)	53.10 (174.22)	E.E., Rajkot Irr.Proj Dn., Rajkot
17.	Dondi Dam	103.72 (340.31)	103.72 (340.31)	E.E., Rajkot Irr.Dn., Rajkot
18.	Survo Dam	99.85 (327.61)	99.85 (327.61)	E.E., Rajkot Irr.Proj Dn., Rajkot
19.	Sodvadar Dam	79.20 (259.86)	76.70 (251.65)	E.E., Rajkot Irr.Proj Dn., Rajkot
20.	Venu – II Dam	56.91 (186.71)	55.00 (180.46)	Executive Engineer, Rajkot Irr. Dn. Rajkot.
21.	Aji – II Dam	74.72 (245.14)	73.76 (242.00)	
22.	Phadangbeti Dam	191.94 (629.76)	189.25 (620.93)	E.E.R.I.Dn., Rajkot
23.	Aji – III Dam	55.34 (181.56)	53.15 (174.38)	E.E., Rajkot Irr. Dn., Rajkot
24.	Karnuki Dam	164.50 (539.72)	164.50 (539.72)	E.E., Rajkot Irr.Dn., Rajkot
25.	Khodapipar Dam	55.27 (181.34)	55.27 (181.34)	E.E.R.I.Dn., Rajkot
26.	Ghelo (s) Dam	136.62 (448.11)	136.10 (443.12)	E.E., Rajkot Irr.Proj Dn., Rajkot
27.	Malgadh Dam	161.25 (528.90)	159.37 (522.73)	E.E., Rajkot Irr.Proj Dn., Rajkot
(5) Surendranagar District				
1.	Dholidhaja Dam	82.22 (269.75)	80.47 (264.00)	EE, S'nagar Irr. Dn., Surendranagar.
2.	Limdi Bhogovo-I Dam	47.55 (156.00)	46.02 (151.00)	-- do--
3.	Nayka Dam	101.80 (334.00)	101.80 (334.00)	-- do--
4.	Falku Dam	107.00 (351.06)	107.00 (351.06)	-- do--
5.	Morsal Dam	179.50 (588.94)	177.00 (580.74)	-- do--
6.	Saburi Dam	131.00 (429.81)	129.50 (424.89)	-- do--
7.	Vansal Dam	102.55 (336.36)	100.70 (330.40)	-- do--
8.	Nimbhani Dam	134.50 (441.29)	134.50 (441.29)	-- do--
9.	Limdi Bhogavo-II Dam	76.00 (249.35)	76.00 (249.35)	-- do--
10.	Triveni - Thanga Dam	210.00(688.50)	208.00(682.24)	-- do--
11.	Dhari Dam	51.51(169.00)	49.07 (161.00)	-- do--
(6) Morbi District				
1.	Bangawadi Dam	44.20 (145.00)	42.65 (139.90)	E.E., Irrigation Dn. Morbi
2.	Demi – I Dam	61.19 (200.755)	60.35 (198.00)	-- do--
3.	Godhadharoi Dam	100.49 (329.60)	98.30 (322.52)	-- do--
4.	Machhu-I Dam	137.46 (451.00)	135.33 (444.00)	-- do--
5.	Machhu – II Dam	59.20 (194.22)	57.30 (187.99)	-- do--
6.	Demi – II Dam	48.78 (160.05)	48.00 (157.49)	-- do--
7.	Brahmani Dam	66.15 (217.028)	64.62 (212.00)	-- do--
8.	Brahmani-II	44.50 (146.00)	44.50(146.00)	-- do--
9.	Machhu - III Dam	28.70 (94.15)	28.70 (94.15)	-- do--
10.	Demi - III Dam	25.60 (83.99)	25.60 (83.99)	-- do--

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
	<u>SAURASHTRA REGION</u>			
{B}	<u>Under Flood control Cell, Bhavnagar</u>			Superintending Engineer Bhavnagar Irrigation Project Circle, Bhavnagar (Focal Officer)
(1)	<u>Amreli District</u>			
1.	Dhatarwadi Dam	84.70 (277.81)	81.23 (266.43) (FG not Restored)	Executive Engineer, Amreli Irrigation Division, Amreli
2.	Khodiar Dam	202.68 (665.00)	202.68 (665.00)	Executive Engineer, Amreli Irrigation Division, Amreli
3.	Munjiasar Dam	64.46 (211.50)	62.93 (206.50)	
4.	Vadia Dam	130.25(427.35)	130.25 (427.35)	
5.	Raidy Dam	50.85 (166.78)	50.85 (166.78)	Executive Engineer, Amreli Irrigation Division Amreli
6.	Shell-Dedumal Dam	180.37(591.61)	179.50(588.76)	
7.	Surajwadi Dam	51.80 (169.69)	50.28 (164.91)	Executive Engineer Amreli Irrigation Division Amreli
8.	Vadi Dam	134.00 (439.52)	134.00 (439.52)	Executive Engineer, Amreli Irrigation Division, Amreli
9.	Thebi Dam*	126.40 (414.59)	126.00 (414.38)	
10.	Dhatarwadi-II Dam	34.41 (112.89)	34.41 (112.89)	
11.	Ghelo(Itaria) Dam	168.55 (552.84)	166.72 (546.84)	EE, Botad irrigation Division, Botad
12.	Sankroli Dam	46.60 (152.88)	44.20 (145.00)	Executive Engineer, Rajkot Irrigation Division, Rajkot
(2)	<u>Bhavnagar District</u>			
1.	Shetrunji Dam	57.66 (189.12)	55.53 (182.13)	Executive Engineer, Bhavnagar Irrigation Division, Bhavnagar
2.	Hamirpura Dam	87.80 (288.07)	87.80 (288.07)	
3.	Kharo Dam	54.25 (177.99)	54.12 (177.57)	
4.	Rajawal Dam	58.49 (191.91)	56.76 (186.23)	
5.	Lakhanka Dam	44.98 (147.58)	44.22 (145.08)	
6.	Bagad Dam	63.28 (207.62)	60.41 (198.21)	Executive Engineer, Bhavnagar Irr. Project, Division, Bhavnagar
7.	Malan Dam	104.25 (342.04)	104.25 (342.04)	
8.	Ranghola Dam	62.83 (206.08)	62.50 (205.06)	
9.	Rojki Dam	100.88 (330.88)	99.08 (325.08)	Executive Engineer, Bhavnagar Irrigation Project Division, Bhavnagar
10.	Hanol Dam	90.10 (295.52)	90.10 (295.52)	Executive Engineer, Bhavnagar Irr. Project Division, Bhavnagar
11.	Pingali Dam	51.30 (168.26)	51.30 (168.26)	- do -
12.	Jaspara-Mandva	42.25 (138.58)	40.25 (132.02)	Executive Engineer, Bhavnagar Irrigation Division, Bhavnagar
(3)	<u>Botad District</u>			
1.	Khambhada Dam	50.35 (165.14)	50.35 (165.14)	Executive Engineer, Botad Irrigation Division, Botad
2.	Utavali Dam	49.30 (161.70)	49.30 (161.70)	- do -

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
3.	Bhimdad Dam	107.31 (352.08)	104.85 (343.90)	- do -
4.	Goma Dam	128.81 (422.63)	126.50 (415.05)	- do -
5.	Kalubhar Dam	62.84 (206.11)	60.36 (198.04)	EE,Bhav.Irri. Proj. Dn, Bhavnagar
6.	Malpara Dam	78.10 (256.17)	78.10 (256.17)	Executive Engineer, Botad Irrigation Division, Botad
7.	Kaniyad Dam	102.25(335.38)	102.25 (335.38)	- do -
8.	Sukhbhadar Dam	110.73 (363.20)	109.23 (358.28)	- do -
9.	Limbali Dam**	128.44 (421.28)	122.00 (400.16)	- do -
“***” Limbali Restoration Works are in Progress-Restiction for Filling				
(4)	Junagadh District			
1.	Hashanpur (WS) Dam	150.26 (493.00)	148.13 (486.00)	Municipal Commissioner Municipal Corporation, Junagadh
2.	Varjami Dam (Salinity)	94.36(309.50)	94.00 (308.32)	Executive Engineer Junagadh Irrigation Division Junagadh
3.	Ambajal Dam	182.31 (598.00)	182.31 (598.00)	Executive Engineer Junagadh Irrigation Division Junagadh
4.	Jhanjeshri Dam	152.25 (499.50)	149.96 (492.00)	- do -
5.	Madhuvanti Dam	167.02 (548.00)	165.19 (542.00)	E. E., Junagadh Irr.Proj Dn.Junagadh
6.	Uben Dam	110.98 (364.12)	107.61 (353.06)	- do -
7.	Dhrafad Dam	124.00 (406.84)	124.00 (406.84)	Executive Engineer Junagadh Irrigation Division Junagadh
8.	Bantwa-Kharo Weir	16.25(53.30)	16.25 (53.30)	E. E., Junagadh Irr.Proj Dn.Junagadh
9.	Ozat-Weir(Shapur)	35.77 (117.32)	32.80 (107.58)	E.E., Junagadh Irr.Proj Dn.Junagadh
10.	Ozat-II Dam	77.59 (254.49)	77.50 (254.28)	E.E., Junagadh Irr.Proj Dn.Junagadh
11.	Ozat-Weir(Vanthli)	28.80 (94.46)	27.50 (90.20)	E.E., Junagadh Irr.Proj Dn.Junagadh
12.	Mota Gujarिया	142.52(467.46)	140.02(459.26)	E.E., Junagadh Irr.Proj Dn.Junagadh
13.	Sabali	43.75 (143.54)	43.75 (143.54)	Executive Engineer Junagadh Irrigation Division Junagadh
(5)	Porbandar District			
1.	Khambhala (WS) Dam	41.15(135.00)	39.63(130.00)	Superintending Engineer, Public Health Circle, Porbandar.
2.	Phodarness(WS) Dam	96.63(317.04)	93.59(307.00)	
3.	Amipur Dam	6.34(20.80)	5.64(18.50)	Executive Engineer, S.C. Dn., Porbandar
4.	Kalindri Dam	54.96 (180.30)	52.22(171.28)	E.E., S.C. Dn. Porbandar
5.	Advana Dam	25.50 (83.66)	24.00(78.72)	E. E., S.C. Dn. Porbandar
6.	Saran	37.00 (121.40)	37.00 (121.40)	E. E., S.C. Dn. Porbandar

Sr No	Name of River Gauge Station	Danger level H.F.L. in Meter (Feet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1	2	3	4	5
7.	Rana Khirasra(RRP)	37.03(121.49)	36.75(120.55)	E. E., S.C. Dn. Porbandar
(6)	Gir Somnath District			
1.	Hiran – I Dam	46.26 (151.80)	44.20 (145.00)	Executive Engineer Gir Somnath Irrigation Division, Veraval
2.	Hiran – II Dam	71.26 (233.80)	71.26 (233.80)	- do -
3.	Shingoda Dam	141.58 (464.52)	141.58 (464.52)	- do -
4.	Machhundri Dam	112.91 (370.45)	109.50 (359.26)	- do -
5.	Raval Dam	148.855 (488.40)	148.85 (488.38)	- do -

ANNEXURE - 1 (B)

LIST OF IMPORTANT GAUGE STATIONS

List showing the Danger Level and Warning Level in Mt. (Ft)

SR No.	NAME OF GAUGE STATION	DANGER LEVEL		WARNING LEVEL	
		Meter	Feet	Meter	Feet
1	2	3	4	5	6
(1)	DAMANGANGA BASIN				
1.	Madhuban Dam Site (Damanganga Dam)	82.40	(270.27)	79.86	(261.94)
2.	Madhuban Dam D/S	49.45	(162.20)	48.30	(158.42)
3.	Daman (Moti Daman-Nani Daman Bridge)	03.40	(11.16)	2.60	(8.53)
4.	Vapi (National High way No.8 Bridge)	19.20	(63.00)	18.20	(59.71)
5.	Silvasa (Athal Bridge)	30.00	(98.43)	29.00	(95.15)
(2)	TAPI BASIN				
1.	Ukai	106.984	(351.00)	101.020	(331.43)
2.	Kakrapar	53.66	(176.05)	53.15	(174.33)
3.	Surat Nehru Bridge	9.50	(31.16)	8.50	(27.88)
(3)	NARMADA BASIN				
1.	Garudeshwar	31.09	(102.00)	30.48	(100.00)
2.	Bharuch	7.315	(24.00)	6.71	(22.00)
(4)	MAHI BASIN				
1.	Kadana	127.71	(419.00)	126.18	(414.00)
2.	Panam	128.00	(420.00)	126.18	(414.00)
3.	Wanakbori	74.98	(246.00)	71.93	(236.00)
(5)	SABARMATI BASIN				
1.	Dharoi	192.24	(630.70)	187.06	(613.72)
2.	Subhash Bridge	45.34	(148.76)	44.09	(144.65)
(6)	BANAS BASIN				
1.	Dantiwada	185.06	(607.00)	182.88	(600.00)
2.	Deesa Road Bridge	123.75	(406.00)	122.95	(403.40)

Note: The Danger Level and Warning Level values can be subjected to change by State Govt.

ANNEXURE - 1 (B-1)

LIST OF GAUGE STATIONS FOR INFORMATION
List showing the Danger Level and Warning Level in Mt. (Ft)

SR No.	NAME OF GAUGE STATION	DANGER LEVEL/ HFL		“0” Gauge R.L.	
		Meter	Feet	Meter	Feet
1	2	3	4	5	6
[1] NORTH GUJARAT REGION					
A. SABARMATI RIVER					
1.	Derol Bridge (R. G)	100.23*	328.85	89.00	292.00
2.	Hathmati Weir-Balochpur (R.G.)	146.40	480.34	142.50	467.54
3.	Wasana Bridge (R.G.)	41.75	137.00	38.09	125.00
	"*)" Before Const. of Dharoi Dam, {95.83 mt. (314.42 ft.) After Const. of Dharoi Dam}				
B. Rupen River (Mehsana)					
1.	At Delwada Site	51.61	169.33	46.26	151.73
C. WATRAK RIVER					
1.	Ratanpur Bridge	44.62	146.40	39.12	128.35
2.	Dabha Bridge	83.20	272.98	71.19	233.57
D. MESHWO RIVER					
1.	Raska Weir	38.17	125.24	35.61	116.85
E. SHEDHI RIVER					
1.	Dakor Bridge	53.51	175.51	45.01	147.63
F. MOHAR RIVER					
1.	Kathlal Bridge	45.09	147.90	36.94	121.16
[2] CENTRAL GUJARAT REGION					
G. PANAM RIVER					
1.	Santroad Bridge	152.02	498.63	143.06	469.24
H. VISHWAMITRI RIVER					
1.	Pilol	104.00	341.12	93.18	305.63
2.	City Bridge	30.57	100.30	22.64	74.28
[3] SOUTH GUJARAT REGION					
I. KARJAN RIVER					
1.	Rajpipla Bridge	30.45	99.90	19.75	64.80
J. ORSANG RIVER					
1.	Bodeli Bridge	81.70	267.98	74.75	245.18
K. PURNA RIVER					
1.	Wankla	57.42	188.34	46.37	152.09
L. Ambika River					
1.	Unai (Vansda)	58.45	191.72	46.45	152.36
2.	Waghai (Ahwa)	105.91	347.49	99.66	327.00
M. AURANGA RIVER					
1.	Bhervi (Chikhali)	42.08	138.02	31.58	103.58

Note: The Danger Level and Warning Level values can be subjected to change by State Govt.

ANNEXURE - 1 (C)**Statement Showing the Tentative Rule Levels of Water Resources Project of Gujarat State for Monsoon -2021**

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2021 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
001	Khambhada	46.69	50.35	50.00	50.25	50.35		50.35
002	Utavali (Gunda)	45.64	49.30	49.00	49.30	49.30		49.30
003	Mukteshwar	193.37	201.65	198.00	200.00	200.75		201.65
004	Dantiwada (A) Main Spillway	175.91	184.10	182.00	182.50	183.00		184.10
	(B) Additional Spillway	179.27	184.10	182.00	182.50	183.00		184.10
005	Sipu	178.15	186.43	180.00	183.50	185.02		186.24
006	Karjan	101.23	115.25	103.23	107.55	110.50	113.00	115.25
013	Dharoi	178.92	189.59	188.06	188.37	188.67		189.28
014	Panam	116.73	127.41	125.00	125.88	127.41	127.41	127.41
015	Deo	81.40	89.65	87.50	88.00	88.50	89.65	89.65
016	Hadaf	155.53	166.20	164.00	164.50	166.20	166.20	166.20
017	Kadana	113.72	127.71	124.50	126.00	126.80		127.71
019	Bhadar (P)	115.52	123.72	121.50	122.50	123.72		123.72
027	Watrak	128.00	136.25	133.50	134.50	136.00		136.25
028	Guhai	164.77	173.00	171.00	172.25	173.00		173.00
029	Mazam	151.00	157.10	155.00	155.50	156.75		157.10
031	Lank	105.45	111.55	107.00	110.00	111.25		111.55
032	Javanpura (Minor Recharge Scheme)	86.43	91.00	Gate open	Gate open	91.00		91.00
033	Harnav-II	323.77	332.00	330.50	331.00	332.00		332.00

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2021 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
036	Ukai	91.135	105.156	97.840	101.498	102.108	103.632	105.156
038	Ver-II	109.73	115.80	111.00	113.00	115.00		115.80
040	Sukhi	139.59	147.82	145.50	146.50	147.32		147.82
042	Damanganga (Madhuban Dam)	65.83	79.86	70.00	72.00	76.00	78.00	79.86
045	Tappar	36.27	40.85	39.00	40.00	40.55		40.85
065	Khodiyar	196.58	202.68	201.00	202.50	202.68		202.68
066	Thebi	119.90	126.00	124.50	125.50	125.50		125.50
		Remark: The proposal for restriction in filling of reservoir is approved by government vide letter: બીઆઇપી/૨૦૨૧/૧૭૭/(૩)/ક-૨, તા-૯/૨/૨૧						
068	Raidy	44.75	50.85	50.00	50.65	50.85		50.85
069	Vadia	124.15	130.25	130.25	130.25	130.25		130.25
070	Vadi	127.90	134.00	133.50	133.7	133.7		133.7
		Remark: The proposal for restriction in filling of reservoir is approved by government vide letter: બીઆઇપી/૨૦૨૧/૧૭૭/(૩)/ક-૨, તા-૯/૨/૨૧						
071	Shell-Dedumal	173.40	179.50	178.00	179.00	179.50		179.50
075	Dhatarwadi-II	30.76	34.41	33.50	34.25	34.41		34.41
076	Shetrunji	54.62	55.53	55.25	55.53	55.53		55.53
077	Rajawal	50.65	56.75	56.00	56.50	56.75		56.75
078	Kalubhar	54.26	60.36	58.50	59.00	59.36		59.36
		Remark: Rule level, as per instruction given by CDO, Gandhinagar vide its vernacular letter No.B/CDO/RAD/GTS/Kalubhar/13, Dtd.25-02-2008						
079	Malpara	72.00	78.10	77.80	77.80	78.10		78.10
080	Kharo	48.02	54.12	53.50	53.50	54.12		54.12

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2021 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
081	Malan	102.74	104.25	104.25	104.25	104.25		104.25
082	Ranghola	60.98	62.50	62.50	62.50	62.50		62.50
083	Limbali	122.00	128.10	-	-	-		-
		Remark: Restoration work is in progress, restriction for filling.						
084	Lakhanka	38.12	44.22	44.22	44.22	44.22		44.22
085	Hamirpara	81.70	87.80	87.50	87.50	87.80		87.80
086	Hanol	87.05	90.10	89.50	90.10	90.10		90.10
087	Kaniyad	99.20	102.25	102.00	102.25	102.25		102.25
088	Pingli	45.20	51.30	50.70	51.00	51.30		51.30
094	Und-I	$\frac{91.90}{89.77}$	98.00	97.00	97.50	98.00	98.00	98.00
		Remark: As per letter no:PB-2/Rule level/2021/1000,Dt- 24/03/2021						
095	Sani	11.15	17.25	9.25	9.25	9.25		9.25
		Remark: Reconstruction of spillway, spillway bridge, bucket & piers are to be taken up shortly as per suggestion of sani restoration committee vide Govt. letter no. RIP/2019/1135/(213)/K-2 dtd. 27/05/2019.Hence Rule Level proposed reiver bed level i.e. RL 9.25m.						
103	Umiyasagar	66.48	71.05	69.50	70.00	70.50		71.05
106	Und-II	12.15	18.25	17.75	18.00	18.25		18.25
107	Kankavati	27.75	30.50	30.20	30.50	30.50	30.50	30.50
108	Rangmati	37.10	43.20	42.60	42.90	43.20	43.20	43.20
109	Vartu-II	33.85	39.95	38.95	39.45	39.95		39.95
110	Fulzar (KB)	89.75	95.85	94.85	95.50	95.75		95.85
111	Aji-IV	14.30	20.40	19.00	19.50	20.00		20.40
		Remark: As per letter no:PB-2/Rule level/2021/1000,Dt- 24/03/2021						

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2021 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
112	Demi – III	19.50	25.60	24.60	25.30	25.60		25.60
124	Shingoda	133.33	141.58	139.73	140.23	141.00		141.58
125	Hiran-II	63.03	71.26	70.00	70.75	71.26		71.26
126	Raval	140.60	148.86	146.55	147.55	148.55		148.86
132	Ozat-II	69.27	77.50	76.50	76.75	77.00	77.25	77.50
133	Vrajmi R.R.	90.95	94.00	93.00	93.00	93.50		94.00
134	Ambajal	176.21	182.31	181.80	181.80	182.00		182.31
135	Draphad	117.90	124.00	122.50	123.00	123.50		124.00
136	Bantva-Kharo	13.20	16.25	15.75	16.00	16.25	16.25	16.25
137	Ozat-Weir (Shahpur)	29.80	32.85	29.80	29.80	29.80	29.80	32.50
		Remark: Top Level of existing causeway located 2.5 km in upstream side of said scheme is at elevation of 32.5 m. Hence to provide cushion its suggested to fix Rule Level at 32.5 m instead of 32.8 m.						
138	Ozat-Weir (Vanthali)	25.00	27.50	25.00	25.00	27.50	27.50	27.50
148	Bhadar - I	106.07	107.90	107.30	107.60	107.90		107.90
		Remark: All gates are needed to be strengthen and repaired before onset of monsoon-2021. Mechanical works under progress.						
149	Bhadar - II	42.43	53.10	52.00	52.50	53.00		53.10
150	Machchhu-II	51.20 49.07	57.30	57.00	57.30	57.30		57.30
151	Aji-III	44.92	53.15	52.55	52.85	53.15		53.15
152	Moj	71.02	72.54	72.54	72.54	72.54		72.54
153	Venu-II	48.91	55.00	54.00	54.50	55.00		55.00
		Remark: Anchor rod displaced from pier and hence gate No.12 and 17 were locked and required to repair.						
154	Nyari-II	82.40	88.50	87.90	88.20	88.50		88.50

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2021 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
155	Karmal	162.90	169.00	168.70	169.00	169.00		169.00
		Remark: All gates are needed to be strengthen and repaired before onset of monsoon-2021. Mechanical works under progress.						
157	Karnuki	161.45	164.50	163.50	164.00	164.50		164.50
161	Nyari - I	98.40	104.50	103.50	104.00	104.25		104.50
		Remark: No Submergence problems were observed during filling of the dam last year monsoon-2020 at RL 104.50. This scheme will be handover to Rajkot Municipal Corporation on Nov-2020.						
163	Aji - II	67.66	73.76	73.26	73.26	73.76		73.76
164	Demi - II	41.90	48.00	47.70	48.00	48.00		48.00
165	Chhapparwadi-II	90.15	98.38	98.00	98.38	98.38		98.38
		Remark: All gates are needed to be strengthen and repaired before onset of monsoon-2021. Mechanical works under progress.						
166	Ghodadhroi	92.20	98.30	98.00	98.30	98.30		98.30
168	Khodapipar	52.22	55.27	55.20	55.27	55.27		55.27
169	Survo	93.75	99.85	99.00	99.50	99.85		99.85
170	Dondi	100.67	103.72	102.80	102.80	102.80	102.80	102.80
182	Sukhbhadar	103.10	109.20	108.20	108.70	109.20		109.20
183	Nyka (Wadhavan Bhogavo-I)	99.36	101.80	101.50	101.50	101.80		101.80
186	Nimbhani	131.45	134.50	134.20	134.50	134.50		134.50
187	Lim-Bhogavo-II	69.90	76.00	74.50	75.50	76.00		76.00
197	Khedva	253.60	259.70	256.00	257.00	257.50		258.25
198	Sabali	40.70	43.75	41.50	42.50	43.25		43.75
		Remark: approved vide gov. letter no. RIP/2020/2042/(115)K-2, Dt:07/09/2020						

Sch. No.	Name of Scheme	Crest Level in Meter	F.R.L. in Meter	Tentative Rule Levels for Monsoon-2021 as on				
				01/07	01/08	01/09	16/09	01/10
1	2	3	4	5	6	7	8	9
199	Saran	33.95	37.00	36.50	36.75	37.00		37.00
200	Brahmani-II	36.27	44.50	43.00	43.00	43.00		43.00
201	Gorathiya (Mota Chekhala) Recharge Scheme	105.25	110.43	105.25	106.25	108.25		110.43
		Remark: The Water is impounded upto RL 110.43 m. during monsoon 2020.						
202	Varansi	76.43	81.00	Gate open	79.50	80.00		81.00
203	Machhu-III	20.47	28.70	27.00	27.00	28.00		28.70
204	Rana Khirasara Recharge Reservoir Project	28.52	36.75	28.52	29.00	29.30		29.30
		Remark: New Project completed on 20/8/2018. The rule levels proposed is tentative. As work of bridge on U/S of dam across river Minsar near village – Devada is in Progress through R&B Panchayat under deposit work.						

ANNEXURE - 1-D

Accompaniment to G.O.I. C.W.C's letter No. L/25/86-DSS/509 dated 13th May 1986.

CRITERIA AND GUIDELINES FOR EVACUATING STORAGE RESERVOIR SIZING LOW LEVEL OUTLETS AND INITIAL FILLING OF RESERVOIRS.

General :

All dams should be provided with low level outlets of adequate capacity to lower the reservoir water level to a specified elevation for inspection, maintenance and repairs to control the rate of reservoir pool rise during initial filling and for emergency draw down.

The draw down levels and the evacuation time shall be set forth for each project.

Criteria for evacuating facilities.

For lowering the water level for inspection and repairs when necessary the requirement would be to evacuate a major portion of the reservoir in such time so that after the water level is lowered, sufficient time is available for repairs before the water level rises due to higher inflows. For such a consideration the outlets should be at the lowest possible level and sufficient cater for the anticipated inflows.

Other factors to be taken into account are:

1. To control the rate of reservoir rise during initial filling and if necessary subsequently also.
2. To hold the reservoir at pre-determined levels for stage-wise initial filling.
3. Emergency draw down during initial filling or at a future date when distress conditions are noticed.

The low level outlets should be sized to maintain specific reservoir filling rates and also to hold the reservoir level reasonably constant at specified elevations during initial filling to accomplish a predetermined monitoring programme. The period during which the initial reservoir filling is to be done has to be decided and a detail programme drawn up. Flood routing studies with different frequency floods (lower floods) will have to be done. As such the low level outlets works should have discharge capacity sufficient to maintain reservoir filling rate to a pre-specified programme and to hold the reservoir levels reasonably constant for elevations above fifty percent of the height. Inflows in the reservoir should include a reasonable frequently flood which would be dependent on the anticipated filling period.

The capacity and level of low level outlets for emergency draw down during initial filling or at a future date when distress conditions are noticed has to be evaluated in each individual case separately.

For Structural safety the reduction in height of water which gives relief is important. For very large reservoirs this would mean very large capacity outlets for prompt evacuation. Sizing of outlets works should be accomplished in a systematic way considering the following aspects.

- (1) Project release requirements.
- (2) Economic benefits that can be derived from using the outlet works in routing the inflow design flood. This study may result in increase in outlet works capacity.
- (3) Initial filling required.
- (4) Evacuation Criteria:- This study to meet the evacuation criteria may result in further increase in capacity which may turn be beneficial in routing the inflow design flood.
- (5) After the above requirements are satisfied a study to take the advantage of the outlets works capacity for diversion requirements during construction and the multistage construction of outlet works is made.

Initial Filling of Reservoirs :

Initial reservoir filling is the first test of a dam to perform its, intended functions. As the sizing of the outlet works to meet the probable outflow requirements during initial filling has to be fixed during designs. The information on the desired rates of pool rise must also be available at the time their design requirements are established.

In order to monitor reservoir performance, the rate of filling should be controlled to the extent feasible to allow in accomplishing a pre-determined monitoring programme. Low level outlets should be located and sized to provide discharge capacity sufficient to maintain the reservoir filling rates specified by the initial filling criteria to hold reservoir levels reasonably constant for elevation above 50 percent of the hydraulic heights of the dam. Inflow into the reservoir should be assumed as the average of the mean monthly inflow in the selected filling period and reasonable frequency flood.

Reservoir filling criteria are established on dam. In general the objective as already stated above is to provide a planned programme with adequate time for monitoring and evaluating performance of the dam and its foundation as the reservoir is being filled for the first time.

The major factors to be considered in establishing initial filling criteria are as under:

- (1) Type of dam namely Concrete, Earth and Rockfill.
- (2) Geology of the dam foundation and reservoir and land-slide potential along the banks of the reservoir.
- (3) Hazard potential
- (4) Inflow characteristics controlled or uncontrolled.
- (5) Hydrology - flood patterns and seasonal based flows.
- (6) Release provisions for projects requirements flood release and emergency evacuation.
- (7) Type of instrumentation and provision for monitoring reading and evaluation time needed and response time.

(8) Safe channel capacities down stream of the dam.

(9) Characteristics of reservoir Storage.

Filling rates for concrete dams are much less restricted and are not normally specified for the bottom half of the depth of the reservoir impounded of the dam. Broadly the stage wise filling to be done as under .

The first stage consists of filling the reservoir upto MDDL. This filling can be done without restraint as there is no hazard potential to the public and economic development downstream of the dam. The second stage consists of filling the reservoir from MDDL to the crest of the spillway. The rate of the filling should be controlled and it has to be specified. The third stage consists of filling above the crest of the spillway upto the full reservoir level (FRL) which has also to be conducted in stages.

Concrete Dams

The first stage consists of filling the reservoir upto Minimum Draw Down Level (MDDL). This filling can be done without restraint.

The second stage consists of filling the reservoir from MDDL to the crest of spillway. The reservoir above MDDL should be gradually built up at a rate not exceeding 3 meters per fortnight depending upon the height of the dam and held at the level of crest of spillway in order to assess the behaviour of the structure on the basis of observed data and to take a decision about further storage.

This third stage consists of filling above the crest of the spillway and upto full reservoir level (FRL). Above the crest level of spillway the building upto the reservoir should be restricted to 0.3 meters (1 ft) in 48 hours and the same should be temporarily held at half the height between the crest of spillway and FRL to monitor and assess the behaviour of structure before further filling is resumed. The period for which the reservoir is held at this level will depend on the instrument response time.

In case of concrete dams having high earthen flanks the procedure suggested for earthen dams should be followed.

Earthen Dam :

The first stage consists of filling the reservoir upto MDDL. This filling can be done without restrain.

The second stage consists of filling the reservoir from MDDL to the crest of spillway. In case of earthen and rockfill dam, this stage filling shall be done in two parts.

The reservoir above MDDL should be gradually built at a rate not exceeding 3 meters per fortnight and filling should be temporarily stopped at 50 percent elevation from MDDL to crest of spillway in order to assess the behaviour of the structures on the basis of observed values and to take a decision about further storage.

After a decision is taken to continue the filling further building upto the storage should be done in gradual sub stage of 2 to 3 meters depending upon the height of the dam. Observations of pore pressure cells, uplift pressures, seepage quantum other instrumentation data should be carried out at each stage after allowing a suitable establishing period before going on to the next sub stage of filling.

The third stage consists of filling above the crest of the spillway upto the full reservoir level (FRL).

The rate of reservoir filling crest of spillway should be restricted to 0.3 meters (1 feet) in 48 hours. the reservoir should be temporarily held at half the height between FRL and crest of spillway for sufficient time for monitoring and evaluation performance of dam also taking into account instrument response time and to take a decision about further storage.

Evacuation Time :

Guidelines on this aspect should generally take into account the assessment of hazard potential and risk potential of the dam. However, in the Indian conditions where population growth in downstream areas is not controllable the hazard potential at the initial stage and its subsequent increase can not be assessed. In most cases, the dams would come under high hazard category.

Similarly risk is very difficult to classify because of many combinations of adverse conditions that may be involved at particular dam site and the type of dam.

Classification is also recommended to be based on the height of dams so far as determination of risk potential is concerned and dams with a height of more than 50 meters are to be considered more important than those of height less than 50 meters.

For evacuating storage reservoirs sizing low-level outlets, three categories have been suggested is given in the table below. These assume a general balance between hazard and risk could be adjusted on the basis of detailed site specific studies.

Evacuation Time (in days):

Sr. No.	Depth of Evacuation (from initial pool level)	Degree of Hazard or risk		
		High	Significant	Low
		(Evacuation time in days)		
1.	25 percent	20	30	50
2.	50 percent	40	50	70
3.	75 percent	80	90	100

The above evacuation periods would generally be within the overall requirement to draw down the reservoir within a period of one to four months

allowing sufficient time for carrying out inspection and repairs, before the water level rises due to higher inflows of monsoon.

In some exceptional case it may not be technically possible and economically feasible to provide the required draw down capability to meet the above criteria because of the size of the project (unusually small or large) or because some of special feature. In such a case the criteria regarding draw down level or the evacuation time could be altered to suit the site specific case if the result of studies so indicate.

ANNEXURE - 1 (F)

Hourly Information to be submitted to the concern Chief Engineer & Add. Secretary, Chief Engineer (Central Gujarat) & Add. Secretary & Flood Control Cell, Gandhinagar.

District :-
Name of Scheme :-
& Scheme No. :-
Rule Level :-
Full Reservoir Level :-

Date :

Date & Time	PWL in Meter	Gate Position		Inflow (Cumecs)	Outflow (Cumecs)	Remarks
		No.	Opening in Mt			
(1)	(2)	(3)	(4)	(5)	(6)	(7)

08.00

09.00

10.00

11.00

12.00

13.00

14.00

15.00

16.00

17.00

18.00

19.00

20.00

21.00

22.00

23.00

24.00 And Up to 07.00 Hrs. of Next Day.

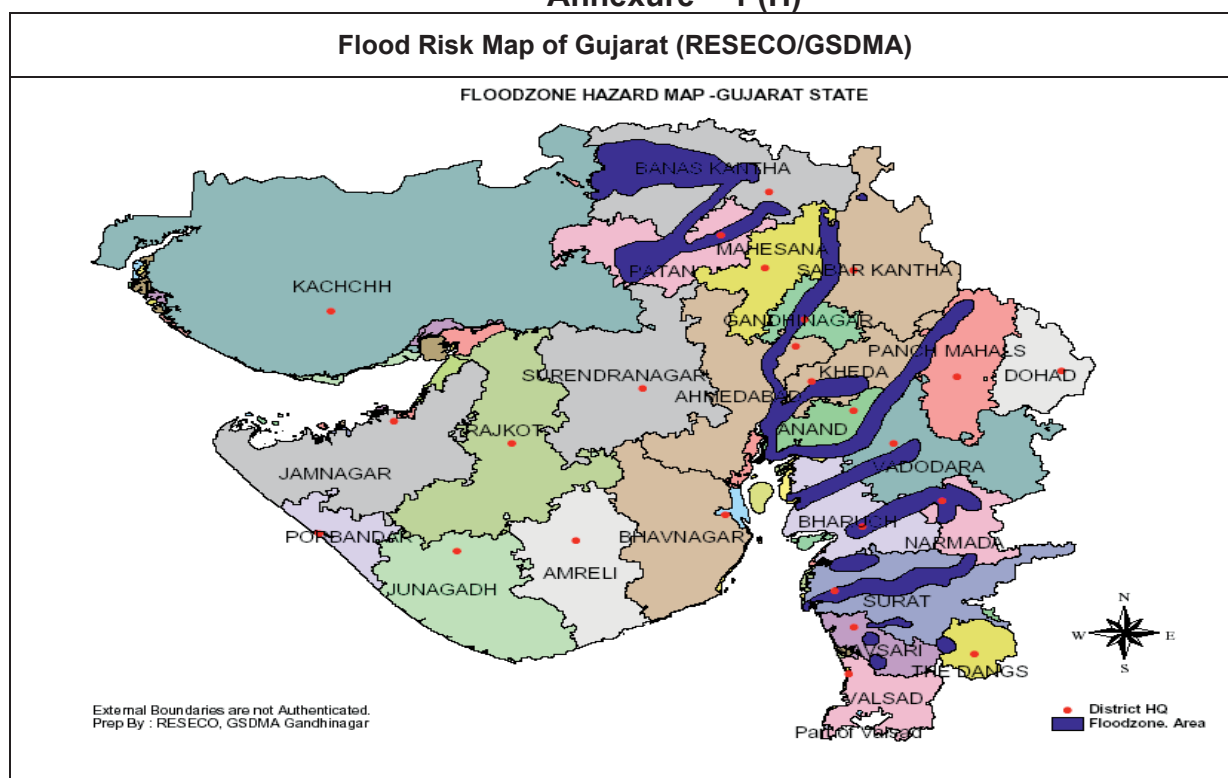
Seal and Signature of
 Superintending Engineer
 Ukai Circle (Civil), Ukai

ANNEXURE - 1 (G)**Maximum Release Made After the Year 1990 in Major Dams of The Gujarat State**

Sr. No.	District	Name of Dam	Date	Maximum Flood Discharge in Cumecs
1	Valsad	Damanganga	03-08-2004	17443.00
2	Tapi	Ukai	09-08-2006	25774.00
3	Narmada	Sardar Sarovar	07-09-1994	62296.00
4.	Narmada	Karjan	19-06-1994	4451.00
5	Chhotaudepur	Sukhi	23-08-1990	3510.00
6	Mahisagar	Kadana	12-08-2006	27079.00
7	Panchmahals	Panam	07-09-1994	9590.00
8	Mahisagar	Wanakbori	12-08-2006	32568.00
9	Aravalli	Watrak	07-09-2006	3398.00
10	Mehsana	Dharoi	17-07-1993	8920.00
11	Banaskantha	Dantiwada	24-07-2017	6821.40
12	Rajkot	Bhadar	24-06-2015	6015.23
13	Morbi	Machchhu-II	22-10-2017	6357.63
14	Bhavnagar	Shetrunji	25-06-2015	3681.00
15	Banaskantha	Sipu	24-07-2017	6821.40
16	Aravalli	Hathmati	19-08-2006	365.66
17	Aravalli	Meshwo	20-08-1994	155.02
18	Jamnagar	Und-I	14-07-1994	6900.00
19	Morbi	Machhu-I	22-10-2017	3670.50

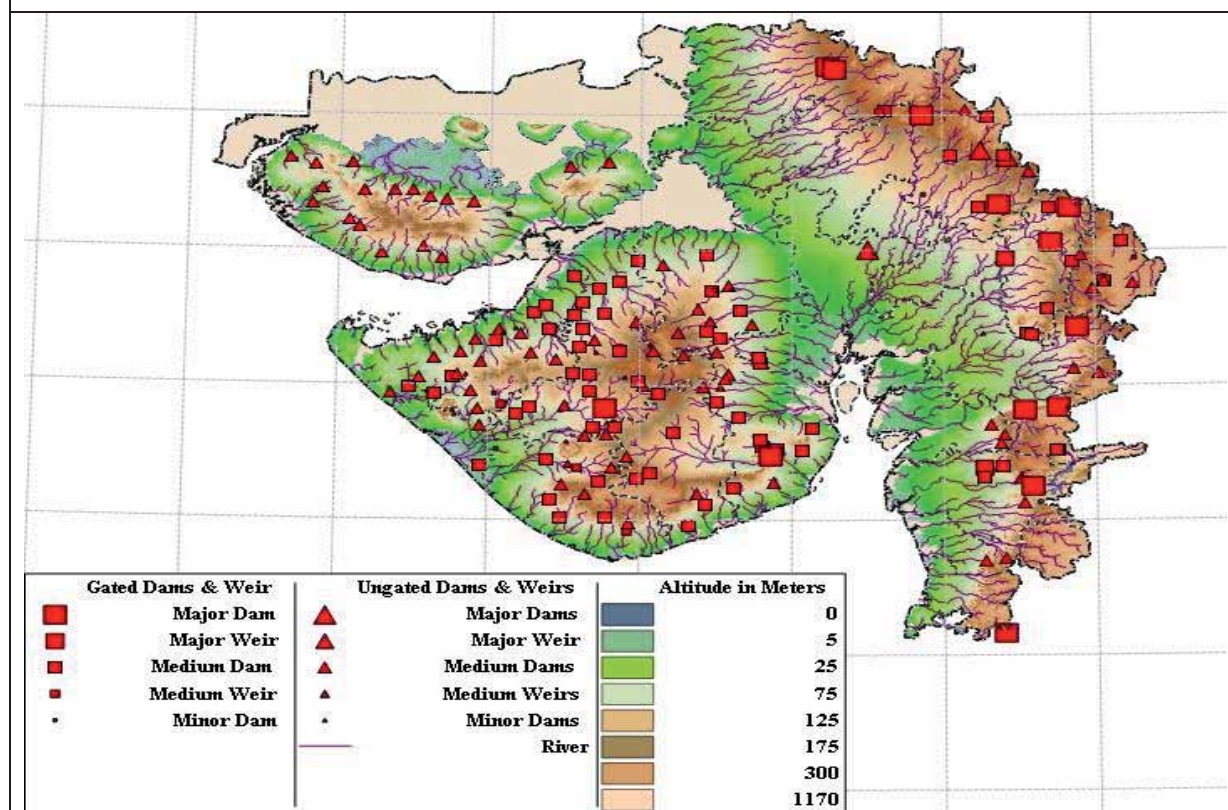
Annexure – 1 (H)

Flood Risk Map of Gujarat (RESECO/GSDMA)



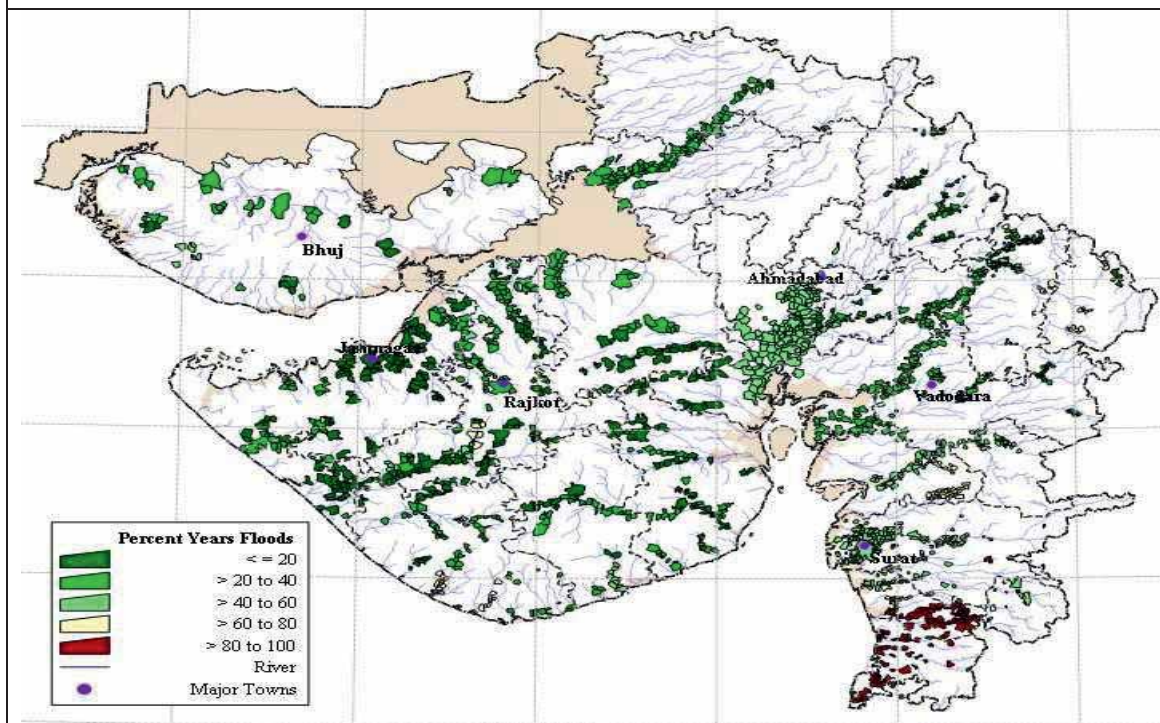
Source : RESCO/GSDMA, 2002

Major and Medium Dams in Gujarat



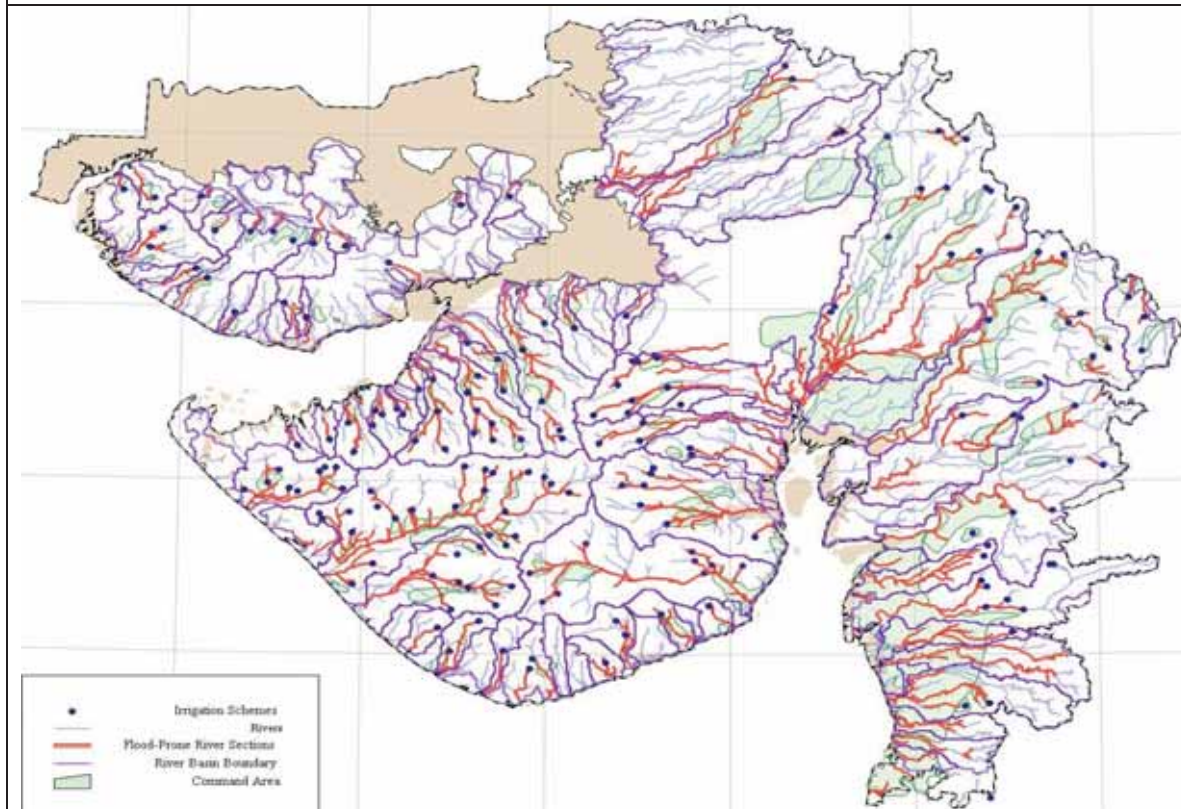
Source : TARU Analysis, 2004; FCC 2004: NWR & WSD, GoG, 2004

Fig. (6) Flood prone villages and River Sections



Source : TARU Analysis, 2004; FCC 2004

Fig. (7) Flood prone River Sections



Source : TARU Analysis, 2004; FCC 2004: SRTM, 2004.

FLOOD FREQUENCY VALUES ACROSS DAMS AND GAUGES IN GUJARAT		
Dam/Weir	Flood years	No of Flood-prone villages
Advana	0.14	1
Aji-I	0.36	5
Aji-II	0.36	10
Aji-III	0.36	22
Ambajal	0.43	6
Amipur	0.21	1
Bagad	0.29	8
Baldeva	0.71	13
Bangawadi	0.5	1
Bantwa-Kharo	0.07	2
Berachiya	0.43	3
Bhadar(P)	0.64	2
Bhadar-I	0.07	47
Bhadar-II	0	2
Bhimdad	0	6
Bhukhi	0.21	3
Brahmni	0.21	17
Chhaparvadi-II	0.43	7
Dabha Road Bridge	0.14	13
Dai-Minsar	0.07	13
Dakor Road Bridge	0.33	14
Damanganga	1	9
Dantiwada	0.21	5
Deesa Road Bridge	0.31	101
Demi-I	0.36	6
Demi-II	0.29	3
Demi-III	0	4
Deo	0.21	23
Dhari	0.14	6
Dhatarwadi	0.43	11
Dholi	0.64	7
Dholidhaja	0.21	6
Dhrafad	0.29	4
Don	0.21	1
Dondi	0	2

FLOOD FREQUENCY VALUES ACROSS DAMS AND GAUGES IN GUJARAT		
Dam/Weir	Flood years	No of Flood-prone villages
Doswada	0.93	2
Edalwada	0.64	6
Falku	0.21	3
Fatehghadh	0.29	2
Fulzar(KB)	0.07	3
Fulzar-I	0.14	3
Fulzar-II	0.36	5
Gajod	0.14	4
Garudeshwar	0.5	31
Ghee	0.21	4
Ghelo(I)	0.07	5
Ghelo(S)	0.07	2
Godadharoi	0.29	8
Godhatad	0.29	2
Golden Bridge	0.5	49
Goma	0	6
Gondali	0.07	8
Guhai	0.07	5
Hadaf	0.79	2
Hamirpara	0.21	6
Hanol	0	8
Harnav-II	0.07	8
Hasanpur	0.14	6
Hathmati	0.07	23
Hiren-I	0.29	8
Hiren-II	0.64	15
Ishwaria	0.14	2
Jangadia	0.29	3
Jhanjeshri	0.29	6
Jhuj	1	67
Kabarka	0.14	3
Kabir-Sarovar	0.64	6
Kabutri	0.71	4
Kadana	0.43	1
Kakrapar Weir Site	0.43	109

FLOOD FREQUENCY VALUES ACROSS DAMS AND GAUGES IN GUJARAT		
Dam/Weir	Flood years	No of Flood-prone villages
Kalaghogha	0.36	1
Kali-II	0.14	6
Kalindri	0.14	5
Kalubhar	0.21	11
KankavatiJ	0.14	4
KankavatiK	0.57	4
Karad	0.43	5
Karmal	0.21	4
Karnuki	0	3
Kaswati	0.14	1
Kathlal Bridge	0.3	10
Kelia Dam	1	12
Khambhala	0	6
Kharo	0.14	2
Kheda Road Bridge	0.28	8
Khodiar	0.21	33
Lakhanka	0.14	3
Limdi-Bhogavo	0.21	4
Limdi-Bhogavo-II	0	14
Machhanala	0.71	4
Machhu-I	0.07	20
Machhu-II	0.36	27
Machhundri	0.36	14
Madhuvanti	0.21	13
Malan	0.21	8
Mathal	0.29	4
Mazam	0.21	34
Mitti	0.07	4
Moj	0.21	8
Morsal	0.14	5
Motisar	0.14	2
Munjiasar	0	6
Nara	0.21	2
Nayka	0.21	4
Nimbhani	0	6

FLOOD FREQUENCY VALUES ACROSS DAMS AND GAUGES IN GUJARAT		
Dam/Weir	Flood years	No of Flood-prone villages
Niruna	0.36	1
Nyari-I	0.36	6
Nyari-II	0.5	3
Panam	0.43	18
Pati	1	12
Phadangbeti	0.14	5
Phodarness	0.29	5
Phophal	0.36	1
Phophal-II	0	3
Pigut	0.79	12
Prempara	0	1
Puna	0.07	1
Raidy	0.21	3
Rajaval	0.21	2
Rajpipla Bridge	1	1
Rami	0.36	8
Ranghola	0.07	9
Rangmati	0.14	5
Ranjit-Sagar	0.14	5
Ratanpur-Gadvel Road	0.14	13
Rudramata	0.21	3
Rupavati	0.07	2
S. Gujarat villages (Unassigned)	0.59	162
Saburi	0.14	3
Sanandro	0.29	3
Sani	0.36	5
Sapada	0.14	9
Sardar Sarovar	0.4	2
Sasoi	0.14	11
Shedha Bhadthari	0.14	5
Shetrunji	0.14	13
Sindhani	0.07	2
Singoda	0.64	9
Sodvadar	0	1
Sonmati	0.29	13

FLOOD FREQUENCY VALUES ACROSS DAMS AND GAUGES IN GUJARAT		
Dam/Weir	Flood years	No of Flood-prone villages
Sorthi	0.36	4
Subhash Bridge	0.45	151
Sukhbhadar	0.14	17
Sukhi	0.36	17
Surajvadi	0.14	2
Survo	0	3
Suvi	0.21	2
Tappar	0.14	2
Thebi	0.07	3
Trivenithanga	0.21	4
Uben	0.14	12
Ukai	0.43	11
Umaria	0.71	4
Und-I	0.14	5
Und-II	0	8
Und-III	0	4
Utavali	0	7
Vadodara City Bridge	0.21	15
Vansal	0.07	2
Vartu-I	0.43	1
Vartu-II	0	1
Venu-II	0.43	4
Verdi-I	0.07	2
Ver-I	0.79	1
Ver-II	0.5	2
Vijarkhi	0.07	6
Vrajmi	0.07	7
Waidy	0.36	8
Wanakbori Weir	0.29	212
Watrak	0.14	2
Wodisang	0.17	3
Source: TARU Analysis (2004) of Data from Flood Control Cell; Flood Memorandum (2003); Global Runoff Data Centre Database; Sage Database.		

GUJARAT - SINGLE DAY EXTREME RAINFALL REPORTED (1901-1990)		
Station Name	District	Extreme rainfall (mm)
Dholera	Ahmedabad	448
Amdavad	Ahmedabad	415
Dholka	Ahmedabad	377
Sanand	Ahmedabad	361
Pigalaj	Anand	425
Thasara	Anand	310
Kheda	Anand	258
Anand A.M.	Anand	247
Mahudha	Anand	187
Palanpur	Banaskanta	510
Radhanpur	Banaskanta	418
Tharad	Banaskanta	370
Deesa	Banaskanta	306
Jambusar	Bharuch	572
Bharuch	Bharuch	485
Amod	Bharuch	395
Ankleshvar	Bharuch	335
Ilav	Bharuch	319
Hansot	Bharuch	308
Vagash	Bharuch	284
Palitana	Bhavnagar	508
Bhavnagar	Bhavnagar	373
Gogha	Bhavnagar	335
Mahuva	Bhavnagar	330
Jamnagar A.M.	Jamnagar	447
Dvarda(Dwarka)	Jamnagar	382
Jamnagar	Jamnagar	338
Junagadh A.M.	Junagadh	368
Veraval	Junagadh	301
Anjar	Kutch	501
Abdasa(Naliya)	Kutch	443
Rapar	Kutch	353
Halol	Panchmahals	485

GUJARAT - SINGLE DAY EXTREME RAINFALL REPORTED (1901-1990)		
Station Name	District	Extreme rainfall (mm)
Zalod	Panchmahals	470
Kalol	Panchmahals	440
Jambughoda	Panchmahals	420
Godhra	Panchmahals	401
Bariya	Panchmahals	337
Lunavada	Panchmahals	308
Vankaner	Rajkot	501
Dhoraji	Rajkot	405
Rajkot	Rajkot	375
Gondal	Rajkot	320
Morbi	Rajkot	244
Jasdan	Rajkot	193
Modasa	Sabarkanta	1026
Prantij	Sabarkanta	782
Himatnagar	Sabarkanta	511
Idar	Sabarkanta	463
Surat	Surat	445
Mandvi	Surat	397
Olpad	Surat	383
Bardoli	Surat	369
Valod	Surat	334
Dhangandhra	Surendranagar	441
Bajana	Surendranagar	418
Wadhavan	Surendranagar	316
Chhotaudepur	Vadodara	286
Note: This table only presents single day extreme rainfall. These extreme events often last for 2 to 3 days and the total rainfall during this period may be twice to thrice the single day rainfall. Source: GAU (undated)		

1.9 Role Matrix : Responsibility Matrix for Various Departments during Monsoon 2021

Role and Responsibility of Disaster Response Departments

	Sr. No	Stages	Disaster Management Authority / EOC	IMD	CWC	WRD	Revenue Dept / EOC	Urban Authority	Roads and Building	Railway Authority	Home Dept	Energy
	1	Monsoon Period	To arrange regular meeting with all concerned departments during Monsoon Period	Issue of weather bulletin for forecasting rainfall	To coordinate with the neighbouring states of Gujarat for rainfall and inflow forecast for inter state rivers. To issue inflow forecast and flood level forecast warning in the reservoir. Warning to be issued to the focal officer of the projects of the basin and concerned officers of WRD.	To coordinate with the concerned Water Resources officers of the neighbouring states in the event of Heavy rainfall in the upstream reservoir position. To plan for operation of reservoir w.r.t. outflow from the reservoir to be decided and to inform concerned Revenue authority by way of Flood warning. Appropriate warning message to be sent to Revenue Dept and if deemed fit for broadcasting on All India Radio and Doordarshan. Place the Disaster Management Plan 2021 on wrd.guj.nic.in/dam for open access.	To take appropriate action for alerting and evacuating the people likely to be affected in accordance with the warning and threat perception along with relief measures. In demanding situation if deemed fit messages for broadcast on All India Radio and Doordarshan.	To take appropriate action for alerting and evacuating the people likely to be affected in urban areas in accordance with the warning and threat perception.	To take appropriate action for safety of bridge, causeways roads and traffic	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure for maintaining power supply in the affected areas.	
	2	Heavy Rainfall		Issue of weather bulletin for forecasting rainfall of various durations Issue of Special Bulletins	To coordinate with the neighbouring states of Gujarat for rainfall and inflow forecast for inter state rivers. To issue inflow forecast and flood level forecast warning in the reservoir. Warning to be issued to the focal officer of the projects of the basin and concerned officers of WRD.	Dam authority monitors the dam situation during monsoon. When any unusual condition or incident is noticed the information / emergency level is communicated to the disaster management authorities responsive actions to save the dam and minimize impact to life, property and the environment. CWC guidelines Emergency Action Plan for dams (GDSO/GUD_DS_01_32.0) in this regard may be referred for more details. Alert Central Assistance agencies on need basis.	To take appropriate action for alerting and evacuating the people likely to be affected in accordance with the warning and threat perception along with relief measures. In demanding situation if deemed fit messages for broadcast on All India Radio and Doordarshan. Alert Central Assistance agencies on need basis.	As above and be prepared for responding to likely Flooding situation	As above	As above	As above and be prepared for responding to likely Flooding situation	
	3	Reservoir Storage position										
		a. Storage more than 70% and upto 80% (Warning Stage)		-	-	To inform concerned District Administration falling in the downstream likely flood affected village / town in writing for the position of re-sevior. Clearly mention the Storage percentage and Warning stage on the Departmental website wrd.guj.nic.in/dam Open Access Reports.	Warning message to Collectors for awareness of the affected people	Warning message to Municipal Commissioners for awareness of the affected people				
		b. Storage more than 80% and upto 90% (Alert Stage)		-	-		Alert message to collectors for awareness of the affected people	Alert message to Municipal Commissioners for awareness of the affected people				
		c. Storage more than 90% (High Alert)		-	-		High Alert message to collectors for awareness of the affected people	High Alert message to Municipal Commissioners for awareness of the affected people				
		d. Release of Flood Water from the Reservoir				Issue the Flood warning before release of water from the reservoir to revenue authority / police dept concerned with downstream affected areas / village / town by the Focal Officer of the Project / Basin in standard proforma stipulated in Disaster Management Plan stating likely affect villages / towns, quantum and time for release of water, warning signal etc. Concerned Executive Engineer of the dam shall inform on the appropriate decision to the Focal officer of the river basin. The Focal officer in turn shall intimate to the District Collector and the Flood Control Cell (WRD) Gandhinagar. The details of focal officer for the respective basins are provided in the Disaster Management Plan.	To take appropriate action for alerting and evacuating the people likely to be affected in accordance with the warning and threat perception. In case of natural calamities and grave emergencies liaison with Airforce authority, Military authority for their assistance	To take appropriate action for alerting and evacuating the people likely to be affected in urban areas in accordance with the warning and threat perception.	To keep constant watch over the situation and mobilise teams.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure for maintaining power supply in the affected areas.	
	4	Main Rivers (Damanganga, Tapi, Narmada, Mahi, Sabarmati and Banas) Flowing at danger level			To coordinate with the neighbouring states of Gujarat for rainfall and inflow forecast for inter state rivers. To issue inflow forecast and flood level forecast warning in the reservoir. Warning to be issued to the focal officer of the projects of the basin and concerned officers of WRD.	To inform concerned District Administration / Police dept falling in the riverine areas with the details of location of the Gauge site. Appropriate warning message to be sent to Revenue Dept and if deemed fit for broadcasting on All India Radio and Doordarshan. Concerned Executive Engineer of the dam shall inform on the appropriate decision to the Focal officer of the river basin. The Focal officer in turn shall intimate to the District Collector and the Flood Control Cell (WRD) Gandhinagar. The details of focal officer for the respective basins are provided in the Disaster Management Plan.	To take appropriate action for awareness, alerting the people likely to be affected in accordance with the threat perception.	To take appropriate action for alerting and evacuating the people likely to be affected in accordance with the threat perception.	To take appropriate action for safety of bridge, causeway, roads and traffic	To take appropriate action for safety of railway bridge, trucks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure for maintaining power supply in the affected areas.

Sr. No	Stages	Disaster Management Authority / EOC	IMD	CWC	WRD	Revenue Dept/ EOC	Urban Authority	Roads and Building	Railway Authority	Home Dept	Energy
5	Dam Failure	To keep constant watch over the situation and send Rapid action force or Airforce as per necessity in the flooded areas to evacuation of the affected people.			In the event of breach in the embankment, heavy uncontrolled leakages from spillway / gates, concerned revenue authorities / district administration be informed immediately with likely affected areas. Dam authority should immediately inform the Focal Officer and Senior WRD officials too. Appropriate warning message to be sent to Revenue Dept and if deemed fit, for broadcasting on All India Radio and Doordarshan.	To take appropriate action for awareness, alerting the people likely to be affected in accordance with the threat perception.	To take appropriate action for awareness, alerting the people likely to be affected in accordance with the threat perception.	To take appropriate action for safety of bridge, causeway, roads and traffic	To take appropriate action for safety of railway bridges, tracks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure for maintaining power supply in the affected areas.
					Concerned Executive Engineer of the dam shall inform on the appropriate decision to the Focal officer of their river basin, District Collector, District Engineer, District Flood Control Officer, District Collector and the Flood Control Cdr (WRD) Gandhinagar.						
					The details of focal officer for the respective basins are provided in the Disaster Management Plan.						
						To implement model action plan as per Annex 3 A	To implement model action plan as per Annex 3 A of WRD Disaster Management Plan 2021. Refer the District Disaster Management Plan of respective districts.	To implement model action plan as per Annex 3 A of WRD Disaster Management Plan 2021. Refer the District Disaster Management Plan of respective districts.		To implement model action plan as per Annex 3 A of WRD Disaster Management Plan 2021. Refer the District Disaster Management Plan of respective districts.	To implement model action plan as per Annex 3 A of WRD Disaster Management Plan 2021. Refer the District Disaster Management Plan of respective districts.
						Inform Revenue Dept - Taluka level, District level and State Level intimation					
6	Disaster Preparedness for Flood	To finalise and review Disaster Management Plan for each Department	To issue weather bulletin	To issue inflow forecast / Level forecast for six rivers.	To implement model action plan as per Annex 3 A					Appropriate actions as per their protocol and Revenue Dept instructions	
						Preparatory actions - Logistics readiness					
						Public intimation, inter-departmental co-ordination				Appropriate actions as per their protocol and Revenue Dept instructions	
						Relief, Rescue, Rehabilitation related actions	Relief, Rescue, Rehabilitation related actions	Damage Control, Repairs	Damage Control, Repairs	Rescue, Relief, Security related actions	Damage Control, Repairs
Levels of Incidence	Dam	To arrange emergency meeting in the situation and intimate situation to all concerned. Maintain constant touch with Airforce, Army and Navy.	Provide information about probable rainfall in the area which may be affected due to emergency situation of the dam.	Provide flood forecast and probable levels in the river.	Dam authority/operator keeps monitoring the dam situation continuously during monsoon. When any unusual condition or incident is noticed the information regarding emergency level is communicated to the disaster management authorities and will act to save the dam and minimize impact to life, property and the environment. CWC guidelines in this regard may be referred for more details. Follow Rule books as per Annexure 1 c (page 34) and Circular 2 clause 17 (p14) for filling of dams	To take appropriate action for alerting and evacuating the people likely to be affected in accordance with the warning and threat perception. In case of natural calamities and grave emergencies liaison with Airforce authority, Military authority for their assistance					To take appropriate action for safety of transmission infrastructure for maintaining power supply in the affected areas.
					WRD Authorities act as per Chapter 4 - (Maintenance of Flood Embankments, p8) and Annexure 4-A(p82) covering maintenance of Flood Embankments. (In event of Drain Overflow or Breaches in banks - Concerned Executive Engineer shall act as Focal Officer and Dy. Ex Engr as subfocal Officer)						
					Timely repairs,		To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.				
					Timely repairs						
					Inform Revenue Dept, (Taluka level, District level and State Level intimation Project / Scheme Executive Engineer to take appropriate actions	Public intimation, inter-departmental co-ordination, Relief as deemed fit	To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.	Ensure accessibility to the Village Canal	To take appropriate action for safety of railway bridges, tracks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure.
River / Canal / Drains	Mild	Warning			Small Breaches in Canal, Small disturbance in Earthen Bunds, Slopes and Pitching						
					Canal / Drain Inundation						
					Indundation in 1 Village						
Medium											

Sr. No	Stages		Disaster Management Authority / EOC	IMD	CWC	WRD	Revenue Dept / EDC	Urban Authority	Roads and Building	Railway Authority	Home Dept	Energy
		Heavy Inundation More than 1 Village				Inform Revenue Dept, (Taluka level, District level and State Level intimation). Mechanical Unit Fighter Squad to alerted	Assessment and Relief coordination	To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.	Ensure accessibility to the Village Ganjal	To take appropriate action for safety of railway bridge, trucks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure.
	Riverine Flooding					Inform Revenue Dept, (Taluka level, District level and State Level intimation). Mechanical Unit Fighter Squad to alerted	Assessment and Relief coordination	To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.	Ensure accessibility to the Village Ganjal	To take appropriate action for safety of railway bridge, trucks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure.
	Major	Major				Inform Revenue Dept, (Taluka level, District level and State Level intimation). Central Designs Organisation Visit and Problem Solving by CDO and Field Officers	Assessment and Relief coordination	To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.	Ensure accessibility to the Village Ganjal	To take appropriate action for safety of railway bridge, trucks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure.
						Inform Revenue Dept, (Taluka level, District level and State Level intimation). Central Designs Organisation Visit and Problem Solving by CDO, Mechanical Wing and Field Officers	Assessment and Relief coordination	To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.	Ensure accessibility to the Village Ganjal	To take appropriate action for safety of railway bridge, trucks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure.
						Inform Revenue Dept, (Taluka level, District level and State Level intimation). Central Designs Organisation Visit and Problem Solving by Design Mechanical Wing and Field Officers	Assessment and Relief coordination	To take appropriate action for awareness, alerting and the people likely to be affected in accordance with the threat perception.	Ensure accessibility to the Village Ganjal	To take appropriate action for safety of railway bridge, trucks and rail traffic.	To take appropriate action in consultation with revenue dept.	To take appropriate action for safety of transmission infrastructure.
	Coordination with Adjoining State				Coordinate with Water Resources Department, Forecasting and Monitoring data Sharing mechanism in place.	Coordinate with Central Water Commission Forecasting and Monitoring mechanism in place.	Coordinate response with various agencies					
					Intimation to State Emergency Operations and Concerned Disaster officers of adjoining States.	Intimation to State Emergency Operations and Concerned Disaster officers of adjoining States.						
	Relief Measures					WRD Dept takes up relief measures for its Irrigation infrastructures. WRD Circle offices shall regularly send report of the Flood Damages WRD infrastructure to Central Flood Cell, Gandhinagar	Revenue dept shall Coordinate efforts by various departments and various departmental Control rooms shall manage gather information of flood damage and response.					

FLOOD WARNING ANNOUNCEMENT THROUGH ALL INDIA RADIO AND / OR DOORDARSHAN.

2.0 FLOOD WARNING ANNOUNCEMENT THROUGH ALL INDIA RADIO / DOORDARSHAN

- 2.1** The Chief Engineer (Central Gujarat) & Addl. Secretary to Government of Gujarat, Narmada, Water Resources, Water Supply & Kalpsar Department, Sachivalaya, Gandhinagar, Collector of concerned District and Appropriate Authorities (Focal Officers) of rivers in Gujarat or the officers authorised on their behalf are empowered to send flood warning message to be broadcasted over the ALL INDIA RADIO and DOORDARSHAN as and when necessary. The messages will be sent to the nearest Station Director or Duty Officer, by immediate means and also be confirmed in writing as per Annexure 2-A, 2-B, and 2-C respectively.
- 2.2** The messages should be written clearly and readable while conveying to AIR and or DOORDARSHAN. Name of the officer should also be conveyed along with telephone No. of the Control Room. Any message given to AIR and DOORDARSHAN should also simultaneously be conveyed to Flood Control Cell, State Water Data Centre Building, Sector-8, Gandhinagar.
- 2.3** In the case of emergency the announcement on Radio / T.V. shall be made every fifteen minutes. Telephone number of the officer of ALL INDIA RADIO, Ahmedabad / Rajkot / Vadodara / Bhuj / Godhra / Surat centers and DOORDARSHAN KENDRA are given in Flood Telephone Directory of the current year

TABLE - 2.3

Sr No	Duty Officers and Station Directors	Telephone Nos. Office Residence.
1.	Station Director, All India Radio, Ahmedabad.	Note :- Please see Flood Telephone Directory of the current year.
2.	Director, Doordarshan Kendra, Ahmedabad	
3.	Director, Doordarshan Kendra, Rajkot.	
4.	Station Director, All India Radio, Vadodara.	
5.	Station Director, All India Radio, Rajkot.	
6.	Station Director, All India Radio, Bhuj.	
7.	Station Director, All India Radio, Godhra.	
8.	Assistant Station Director, Surat.	
9.	Assistant Station Director, Ahwa.	
10.	Duty Officer, All India Radio, Ahmedabad.	
12.	Duty Officer, All India Radio, Vadodara.	
13.	Duty Officer, All India Radio, Rajkot.	
14.	Duty Officer, All India Radio, Bhuj.	

ANNEXURE - 2 -A

The All India Radio / Door Darshan shall arrange to announce the Messages.

પુર ચેતવણી અંગે અધિક્ષક ઇજનેર શ્રી,,
તરફથી જણાવવામા આવે છે કે તારીખ ના રોજ નદીમાં પુર ચઢી રહ્યા છે. અને
લગભગ કલાકે પુર.....ઉંચાઇ એ પહોંચશે, આથી નીચે જણાવેલ ગામના લોકોને
સ્થળાંતર કરવા માટે ચેતવણી આપવામા આવે છે.

અનુ.નંબર	ગામનુ નામ	તાલુકો	જિલ્લો
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ANNEXURE - 2 - B

પ્રતિ,
કેન્દ્ર નિયામક શ્રી,
ફરજ પરના અધિકારી શ્રી, આકાશવાણી / દુરદર્શન,
અમદાવાદ / વડોદરા / રાજકોટ / ભુજ / ગોધરા / સુરત / આહવા

વિષય :- આકાશવાણી / દુરદર્શન ઉપર પુર અંગેના સંદેશા પ્રસારિત કરવા બાબત

અનુસંધાન :- તારીખ ના નદીના આવેલ પુર અંગે આપશ્રીને ફોન
ઉપર આપેલ સંદેશો.

મે. સાહેબ,

જય ભારત સાથે જણાવવાનું કે આપશ્રીને, ફોન ઉપર પૂર અંગે ચેતવાણી માટેના
..... ના સંદેશાના અનુસંધાનમાં જણાવવાનું કે તારીખ
..... ના રોજ નદીમાં કલાકે પાણીની સપાટી
વધતી હોવાથી નીચે જણાવેલ સંદેશો પ્રસારિત કરવા વિનંતી કરવામાં આવે છે / આવી હતી તેને અનુમતી
આપવાના હેતુસર સંદેશાની નકલ આ પત્ર દ્વારા જાણ કરવામાં આવે છે.

ગામોના નામો અને વિગતો નીચે પ્રમાણે હતી :

અનુ.નંબર ૧.	ગામનું નામ ૨.	તાલુકો ૩.	જિલ્લો ૪.

આપનો વિશ્વાસુ,

ક્ષેત્રીય અધિકારી અને અધિક્ષક ઇજનેર

ANNEXURE - 2 – C

જાવક નંબર.,
 નાયબ કાર્યપાલક ઇજનેરશ્રીની કચેરી,
 પુર નિયંત્રણ એકમ,
 સ્ટેટ વોટર ડેટા સેન્ટર,
 સેક્ટર - ૮, ચ-૨, ગાંધીનગર.
 તારીખ : -

પ્રતિ,

..... ,
 ,

રાજ્યના પુર નિયંત્રણ એકમની યાદી જણાવે છે કે આજ રોજ રાજ્યમાં આવેલ કુલ ૨૦૪ જળાશયોની નોંધનીય માહિતી નીચે મુજબ છે.

૧. આજે સવારે ૮.૦૦ કલાકે પુરા થતા છેલ્લા ૨૪.૦૦ કલાકમાં નીચે જણાવેલ જુદા જુદા જિલ્લાઓના જળાશયોનાં ઉપરવાસ માં ભારે વરસાદ નોંધાયેલ છે.

અનુ.નંબર	જળાશયનું નામ	જિલ્લો	છેલ્લા ૨૪ કલાક દરમિયાન થયેલો વરસાદ (મી.મી.માં)

(પાછળ)

(૨) રાજ્યના કુલ ૨૦૬ જળાશયો પૈકી જુદા જુદા જિલ્લાઓના નીચે દર્શાવેલ જળાશયોના ઉપરવાસમાં થયેલા વરસાદને કારણે પાણીની આવક વધતા નીચે મુજબ નોંધપાત્ર પાણીનો પ્રવાહ છોડવામાં આવી રહ્યો છે.

અનુ.નંબર	જળાશયનું નામ	જિલ્લો	છોડવામાં આવેલ મહત્તમ પ્રવાહન કુટ પ્રતિ સેકન્ડે	સમય	રીમાર્ક્સ
૧.	૨.	૩.	૪.	૫.	૬.
૧.					
૨.					
૩.					
૪.					

(૩) રાજ્યના જે જળાશયોમાંથી ઉપરવાસના વધુ વરસાદને કારણે છોડવામાં આવતા પાણીના લીધે નીચે વાસના ગામડાઓને મુલ્કી સત્તાઓને ચેતવણી આપવા જણાવેલ છે. તેવા જળાશયોની જિલ્લાવાર માહિતી નીચે મુજબ છે.

અનુ.નંબર	જળાશયનું નામ	જિલ્લો	રીમાર્ક્સ
૧.			
૨.			
૩.			

(૪) રાજ્યમાં આવેલ મુખ્ય નદીઓની ભયજનક સપાટી નીચે મુજબ છે. અને તે નદીઓની હાલની સપાટી નીચે મુજબ છે.

અનુ.નંબર	નદીઓનું નામ	ગેજસાઇટ નું સ્થળ	ભયજનકસપાટી કુટમાં	હાલની સપાટી કુટમાં	રીમાર્ક્સ
૧.	દમણગંગા	સિલ્વાસા	૯૮.૪૩		
		વાપી	૬૩.૦૦		
૨.	તાપી	સુરત(નહેરુબ્રિજ)	૩૧.૧૬		
૩.	નર્મદા	ગરુડેશ્વર	૧૦૨.૦૦		
		ભરૂચ	૨૪.૦૦		
૪.	મહી	વણાંકબોરી	૨૪૬.૦૦		
૫.	સાબરમતી	સુભાષબ્રિજ	૧૪૮.૭૬		
૬.	બનાસ	ડીસા રોડ બ્રિજ	૪૦૬.૦૦		

સહી /-
ક્ષેત્રિય અધિકારી અને અધિક્ષક ઇજનેર

DISASTER PREPAREDNESS FOR FLOOD

3.0 DISASTER PREPAREDNESS FOR FLOOD.

- 3.1** Well before the onset of the monsoon, Revenue Department convenes a meeting with all the departments and agencies including those of Government of India concerned with rescue, relief and public awareness, under the Chairmanship of Chief Secretary of the state, wherein the detailed contingent plan specifying and delineating the role to be played by various departments during calamity period, pre calamity period and post calamity period is drawn. The checklist for the same is appended vide Annexure 3-A.

ANNEXURE - 3 A

MODEL ACTION PLAN FOR DISASTER PREPAREDNESS (FOR FLOOD)

(A) At The State Level

- 1.** Has a model agency for Disaster Management for (a) Disaster Preparedness (b) Disaster Relief and Rehabilitation been set up?
It must be in operation in the month of June with control room/flood cell.
- 2.** Has the departments of Water Resources Flood Control, Public Health, Civil Defence, Home Guards, Food Transport, Information and Publicity represented in the Committee?
Are the I.G. Police, the local Sub-Area commander, Air Force Formation of the area, Regional Director, Indian Meteorological Department, Regional Manager of Food Corporation of India, Senior Officer of the All India Radio/Doordarshan Kendra and Secretary of the State Social Welfare Board Members of the Committee ?
Does it have a Senior Officer as Member-Secretary ?
Is it meeting periodically before monsoon and more frequently and daily during calamity ?
- 3.** Are important Relief Voluntary Organisation like the Red Cross and the Ramakrishna Mission also associated with it ?
Does it meet atleast once a month before the onset of monsoon each year ?
- 4.** Are the District Officers of flood prone district asked to attend the meeting or send the problem before the Co-ordination committee ?
- 5.** Is there a separate operation control center ?
Is it equipped with a number of telephones, wireless sets, etc. ? Are there arrangements to run it round the clock ?
Whether roster of duties kept ready to put into operation such a control center at short notice ?
- 6.** Have flood prone blocks, talukas, tehsils been identified ?
- 7.** Have steps been taken to see that all such Block/Talukas/Tehsils can be reached over telephone/wireless sets in the event of flood ?

8. Where are the flood warning signals received ?
Are they attended to immediately ?
Are Radio stations instructed to issue flood warning in local and intelligible languages?
Are Panchayats given receiving sets ?
9. Are stores of relief articles and essential medicines arranged and verified before monsoon to check up if there are adequate stocks of tents, boats, tarpaulins, blankets, topes, bleaching powder, vaccines (anti Cholera, Anti typhoid vaccines and Anti snake venom serum) water purification tablet and insecticide (for anti fly and anti mosquito measured) basic field Sanitary Engineering equipment, heavy duty pump sets (for draining) and pump sets ?(for drinking water).
Has local army commander been told of equipment etc. needed in case of floods ?
10. Are routes chalked out in advance for despatch of relief goods to flood affected districts and Sub-divisions for evacuating the vulnerable population ?
11. Has the operation of reservoirs been coordinated for providing flood operation ?
Have the reservoir engineers been asked to be in continuous touch with the district authorities before releasing water likely to inundate village etc. ?
12. Is it ensured that during flood season there will be no transfers and that leave vacancies are filled and nobody should leave post unless a substitute is available ?
13. Have the local All India Radio and T.V Station Directors been requested to broadcast evacuation and informative talks on disaster preparedness for public and to issue flood warning round the clock held ?

(B) FOR DISTRICT AND SUB-DIVISIONAL OFFICERS :

1. Have you identified the flood prone blocks, talukas, tehsils and villages ?
2. Is there is a responsible officer-in-charge of relief and anti-disaster operations? Is there clear division of responsibility for flood relief among the officers and the staff ?
3. Is there an operation control center? Is there a roster of duties to run it round the clock?
4. Is a log book maintained to keep data about rise of flood waters at regular intervals of the rivers in the State ?
5. Is there a co-ordination committee for relief ?
Are the District level officers and Block Development Officers of health, Water Resources, Roads & buildings, Telephones and Police, represented on it ? Does it meet at least 3 weeks before the onset of monsoon ?
Are the Sub-divisional Officers and Block Development Officers of flood prone areas invariably asked to attend the meetings ? Are Voluntary Relief organisations having repute and standing and the District Branch of Indian Red Cross associated with the committee?
6. How is the flood warning communicated through mobile units and microphone in the flood prone sub-division and blocks to issue warning?

7. Has the Deputy Controller of Civil Defense received any training on Disaster Preparedness?
 8. Has the Deputy Controller of Civil Defense trained the C.D. Wardens in this matter ?
 9. Has the Home Guards been given any training in disaster preparedness for floods, as well as rescue/relief/first aid?
How are they kept in readiness for being mobilised at short notice ?
 10. Are the flood prone blocks connected with the telephones and police ?
 - (i) Mobile water tankers, canvas water tanks, drums and Jerry cans for transporting water buckets are kept ready ?
 - (ii) Sand bag for repairs of flood protection embankment are kept ready ?
 - (iii) Basic field Sanitary Engineering equipment are available ?
 11. Has the Chief Medical Officer like wise checked up the stock of essential medicines, vaccines, disinfectants, first aid kits at the District/Sub-divisional medical store and kept the primary Health Centers in flood prone area well supplied with the following.
 - (i) Disinfectants such as bleaching powder, chlorine liquid chloroscope, orthotoludine solution, water purifying tablets, phenyl (for ensuring quantity of free chlorine for supplying safe and potable drinking water).
 - (ii) Essential medicines for mobile team and dispensaries in the evacuee camps are available? are such stations provided with wireless set?
Can wireless sets/telephone be provided at still lower levels of administration?
 - (iii) Who is responsible for disseminating the flood warning at the village level?
Has the village Mukhi and/or the Sarpanch of the Gram Panchayats been given the responsibility?
Do they have transistor?
 12. Has the officer-in-charge of relief inspected the District/Sub-divisional Relief stores after the occurrence of the last floods ?
 13. In particular has he checked the stockpiles of :-
 - a. Clothing (including children's garments) durries/mats ?
 - b. Tents, tarpaulin, G.C.I Sheets, and other materials for providing temporary shelters?
 - c. Boats, power driven and life-jackets ?
 14. Anti diarrheals, antibiotics, chemotherapy and anti malaria drugs, anti phytotics, and analgesic and anti allergic drugs choloresel I.V. fluids pediatric formulations for treatment of gastro informal and respiratory infections in children have been kept ready ?
First aid kits containing splints (including Thoms splints) tornique, dressing and as sorted bandages antiseptic cream, scissors and safety pins, are kept ready?
 15. Have flood shelters (Schools, Community Centers) been identified ?
-

Are the pucca buildings situated on raised ground beyond the reach of normal level of flood water ?

What steps have been taken to make people aware of these shelters ?

Has the list of such shelters been published in the local news papers and displayed in the blocks, taluka, and tehsil offices ?

16. Are the shelters easily accessible ? Is it contemplated to use the flood for work progress for constructing link roads ?

Do the buildings have adequate space in and around them for storage of fodder and for keeping cattle.

17. Are the shelters provided with sources of drinking water ? If not what action being taken to locate water sources, tube wells and wells near the shelters on priority basis?

18. What are the sanitary arrangements for these evacuation camps ? Have local officers in charge of these evacuation camps told to construct the following ?

- (a) Deep trench latrines
- (b) Temporary Urinals with soak pit.
- (c) Incinerations for burning dry refuses.

19. Has the District Manager, Food Corporation of India checked up if sufficient stock of food grains are in position in the flood prone areas of the District before the monsoon starts ?

20. Has the Officer-in-charge of civil supplies ensured that the dealers keep sufficient stock of essential articles like pulses, edible oil, salt, milk powders, baby food, matches and lanterns before the start of flood season ?

21. Have the whole-sale consumers co-operative societies, been requested to keep in readiness the stocks of aforesaid articles at the branch level ?

22. Have suitable sites for probable heli-pade on raised grounds in the flood prone area been located ?

Have these been indicated on the District and Thana Map ?

23. Has meeting of the Transport Operators been called by the Chairman of the Regional Transport Authority to negotiate with the former the placement of private vehicles at reasonable rates for evacuation of flood victims and movement of relief goods ?

24. Has the collector/ Sub-Divisional Officer convened a meeting of the ferry owners and co-operative societies of fishermen to ascertain the availability of country boats with boatmen at reasonable rates in the event of an emergency. A few country boats may be converted into improvised boat Ambulances by providing them with 1 or 2 stretchers.

25. Have people in low lying area which are inundated in every flood been alerted first about the flood warning ?

Are you searching for alternative sites which can be allotted to such families ?

Have attempts been made to pursue such families to shift their dwellings to safer locations?

- 26. Has the concerned block identified and kept in readiness in shelf of projects of relief works which can be launched when the flood water recedes ?
- 27. Have the villages water logged for a long time been identified ?
- 28. Is there a list of people who cannot be provided with gainful work, but many have to be fed, freed at Government cost for some time ? Have the Panchayats been associated in preparing the list of such beneficiaries for gratuitous relief ?
- 29. Have the people in flood prone villages been trained in relief and rescues ?
Have volunteers been grouped for patrolling of embankments are likely to give way?

30. **MOBILISATION OF EQUIPMENT FOR FLOOD FIGHTING UNITS FOR MONSOON.**

Government of Gujarat, Narmada, Water Resources Water Supply & Kalpsar Department has set up flood fighting units along with accessories, equipments & staff for mobilisation during the monsoon period from 10th June to 15th October @ following places as per **Annexure – 3**

The List of Dewatering Pumps allotted to the District Collectors / District Development Officer and Irrigation Mechanical Dn. of NWRWS & Kalpsar Dept. are also compiled in Annexure. 3. The operation, maintenance and repairing of the pumps under District Collector shall be done by the District Panchayat.

ANNEXURE – 3

Proposed distribution of the equipment planned for the Flood Fighting Units for the Monsoon 2021

Sr. No	Location of unit	IMC-1, Vadodara			IMC-2 Ahmedabad			
		Ukai Work shop	Gotri Work shop	Nadiad Section	Wasna Barrage Ah'bad	Dharoi	Nyari-II Dam Rajkot	Rudramata Dam site Bhuj-kutch
1	Name of Dn under whom the unit will work	Irr.Mech Dn No-2 Ukai	Irr.Mech Dn No-1 Vadodara	Irr.Mech Dn No-1 Vadodara	Irr.Mech Dn No-4 Ah'bad	Irr.Mech Dn No-5 Ah'bad	Irr.Mech Dn No-6 Rajkot	Irr.Mech Dn No-6 Rajkot
2	Hyd. Excavator	2	2	-	1	1	2	1
3	Bharat D.80 Tractor	2	2	-	1	1	1	1
3	Heavy Dozer D-155	1	1	-	-	-	-	-
4	Trailer	1	1	-	1	1	2	1
5	Tipper	4	4	-	3	3	4	4
6	Diesel Engine driven dewatering pump with Accessories	8(6.5 H.P.) 1(50 H.P.) Truck Mounted From GWRDC	8(6.5 H.P.) 1(50 H.P.) Truck Mounted From GWRDC	4(6.5 H.P.) 1(50 H.P.) Truck Mounted From GWRDC	5(6.5 H.P.) 1 (50 H. P) Truck Mounted From GWRDC	5(6.5 H.P.) 1(50 H.P.) Truck Mounted From GWRDC	4(6.5H.P.) 1(50 H.P.) Truck Mounted From GWRDC	4(6.5 H.P.) 1(50 H.P.) Truck Mounted From GWRDC
7	Elect.Submersible Dewatering Pump with Floating Platform.	4(10 H.P.) 1(20 H.P.)	4(10 H.P.) 2(20 H.P.)	4(10 H.P.) 2(20 H.P.)	4(10 H.P.) 2(20 H.P.)	4(10 H.P.) 2(20 H.P.)	4(10 H.P.) 2(20 H.P.)	-
Note:- 50 H.P.(10 cusec) Truck Mounted Pump-7 Nos Should be deployed by GWRDC.----(A)								

Pump sets mentioned in above allotment is distributed by following mechanical divisions of NWRWS&K Dept. & GWRDC as per following table.

Sr No	Name of Division	Capacity of Pump	Allotted Quantity	Stand by Quantity	Total available Quantity
1	Irri. Mech. Dn. No.-6 Rajkot	6.5 H.P.(D) 10 H.P. (E) 20 H.P. (E)	8 4 2	7	21 Nos
2	Irri. Mech. Dn. No.-4 A'bad	6.5 H.P.(D) 10 H.P. (E) 20 H.P. (E)	10 4 2	3	19 Nos
3	Irri. Mech. Dn. No.-5 A'bad	10 H.P. (E) 20 H.P. (E)	4 2		6 Nos
4	Irri. Mech. Dn. No.-1 Vadodara	6.5 H.P.(D) 10 H.P. (E) 20 H.P. (E)	12 8 4	0	24 Nos.
5	Irri. Mech. Dn. No.-2 Ukai	6.5 H.P.(D) 10 H.P. (E) 20 H.P. (E)	8 4 1	7	20 Nos.
6	GWRDC	50 H.P.(TM)	7 Nos.	---	7 Nos.
	Total No of Pump				97 Nos.

Note: - (D) Diesel (E) Electrical (TM) Truck Mounted

Various Important Circulars Issued to Appropriate Authorities to Take Precautionary Measures Under Flood warning Arrangements

ચોમાસુ-૨૦૨૧ પરિપત્ર-૧

ચોમાસા દરમ્યાન તથા અન્ય કુદરતી આપદા અંગે પુર નિયંત્રણ એકમો, બંધો, વાયરલેસ સ્ટેશનોની ગોઠવણી અને સેટેલાઈટ ફોનના ઉપયોગ બાબત

નર્મદા, જળ સંપત્તિ, પાણી પુરવઠા અને કલ્પસર વિભાગ, ગુજરાત સરકાર,
સચિવાલય, ગાંધીનગર

પરિપત્ર નં. ૧: એફડબલ્યુએ/૨૦૨૦/૧૧૨૭/જ-૧

તારીખ: ૧૮/૦૩/૨૦૨૧

વિષય: સને ૨૦૨૧ ચોમાસા અગાઉ સાવચેતીનાં પગલા, વાયરલેસ સ્ટેશન, નુકશાનીની વિગતો

આમુખ:-

ચોમાસા અને વાવાઝોડા જેવી કુદરતી આપદા સમયે પૂર્ણ નિયંત્રણ કક્ષ તથા જરૂરી સંદેશ વ્યવહારની ગોઠવણી બાબત વિચારણા હેઠળ હતી. જે અંગે નીચે મુજબ કાર્યવાહી થવા નક્કી કરવામાં આવેલ છે.

સુચના:-

- (૧) વર્ષ ૨૦૨૧ ચોમાસા દરમ્યાન રાજ્યના ગાંધીનગર, અમદાવાદ, રાજકોટ, ભાવનગર, ભુજ, વેલ્લપાડ, હિંમતનગર, નડિયાદ, વડોદરા, ઉકાઈ, વલસાડ અને સુરત ખાતેના પૂર નિયંત્રણ એકમો તારીખ ૧-૬-૨૦૨૧ થી તા. ૩૦-૧૧-૨૦૨૧ સુધી કાર્યરત રાખવાના રહેશે.
- (૨) રાજ્યના ગૃહ વિભાગ સાથે સંપર્કમાં રહી જરૂરી જગ્યાએ વાયરલેસ સ્ટેશનો પણ ૨૪ કલાક કાર્યરત કરવાના રહેશે. તેમજ નક્કી કરેલ સ્થળોએ વાયરલેસની સુવિધા ચાલુ રહે તેની ચકાસણી/ કાર્યવાહી નિયમીત રીતે કરવાની રહેશે.
- (૩) પૂરનિયંત્રણ એકમોમાં હોટલાઈનની સુવિધા પુરી પાડવામાં આવે છે, જે હોટલાઈન ૧/૦૬ થી ૩૦/૧૧ સુધી અવિરતપણે કામ કરે તેની ચકાસણી કરવી, જો બંધ જણાય તો તાત્કાલિક ચાલુ કરાવવાની સ્થાયી સુચના આપવી.

- (૪) જે બંધો પર સેટેલાઇટ ફોનની સુવિધા આપવામાં આવેલ છે. તે બંધો પર સેટેલાઇટ ફોનનો તાકિદના સમયે ઉપયોગ થઈ શકે તે બાબતે જરૂરી સુચનાઓ ક્ષેત્રીય અધિકારીને આપવાની રહેશે.
- (૫) પુર નિયંત્રણ એકમોમાં જરૂરી કોમ્પ્યુટર, પ્રિન્ટર વગેરે ઉપકરણો સુચારૂ રીતે કાર્ય કરે તે સુનિશ્ચિત કરવાનું રહેશે. તેમજ જરૂરી સ્ટેશનરી અને ડેટા કનેક્ટીવિટી ની ઉપલબ્ધતા રહે તે રીતે આયોજન કરવાનું રહેશે.
- (૬) જળ સંપત્તિ વિભાગ દ્વારા અગત્યના બંધો દ્વારા છોડવામાં આવતા પાણીના જથ્થા અંગેની માહિતી સંબંધિત પુર એકમના ફરજ પરના અધિકારીશ્રીઓ દ્વારા ઓન લાઇન એન્ટ્રી કરવામાં આવે તે અંગે જરૂરી કાળજી નોડલ અધિકારીશ્રીઓ, ફોકલ અધિકારીશ્રીઓ અને યોજનાઓના સંબંધિત અધિક્ષક ઈજનેરશ્રીઓ દ્વારા સમયાંતરે ચકાસણી કરવાની રહેશે.
- (૭) વેબસાઇટ wrd.guj.nic.in/dam માં તા.૧-૪-૨૦૨૧ સુધીમાં સંબંધિત અધિકારીશ્રીઓએ માહિતી જોઈ શકે તે માટે જરૂરી કાર્યવાહી (login ID, તાલીમ ઇત્યાદી) મધ્યસ્થ પુર નિયંત્રણ એકમ ગાંધીનગરએ, NIC ના પરામર્શમાં રહી કરવાની રહેશે.
- (૮) વેબસાઇટ wrd.guj.nic.in/dam પર રૂલ લેવલ અંગેની માહિતી મધ્યસ્થ આલેખન તંત્ર દ્વારા નિભાવવાની રહેશે.
- (૯) વધુમાં ૨૦૨૧ ચોમાસામાં સિંચાઈ યોજનાઓને જ્યારે પણ પૂરથી નુકશાન થાય તો તે નુકશાનની વિગતો નુકશાન થયાના ચોવીસ કલાકની અંદર નિયત નમૂનામાં તૈયાર કરી સંબંધિત અધીક્ષક ઈજનેરશ્રીએ, સંબંધિત મુખ્ય ઈજનેર અને અધિક સચિવશ્રીને તથા ગાંધીનગર ખાતે મધ્યસ્થ પૂર નિયંત્રણ એકમને પહોંચી જાય તે રીતે અચૂક મોકલી આપવી વધુમાં થયેલ નુકસાન વેબસાઇટ wrd.guj.nic.in/dam પર SDRF ૨૦૧૫ની ગાઈડલાઈન અનુસાર નુકસાનની વિગતો તેમજ અંદાજિત રકમની એન્ટ્રી કરવાની રહેશે. તેમજ નુકશાનની વીગતો SDRFની ગાઈડલાઈન મુજબ મળવાપાત્ર તાત્કાલીક સહાય વીગેરેની માહિતી મધ્યસ્થ પુર નિયંત્રણ એકમ તેમજ સંબંધિત મુ.ઈ અને અ.સ.શ્રી ને મોકલી આપવાની રહેશે.
- (૧૦) Flood Prone Area Map દરેક ફોકલ અધિકારીશ્રીએ નિભાવવના રહેશે તેમજ નક્શાઓ (બેઝિન/યોજના માટેના) wrd.guj.nic.in/dam વેબસાઇટ પર અપલોડ કરવાના રહેશે.

(એસ.બી.પ્રજાપતિ)

ખાસ ફરજ પરના અધિકારી (સિં.યો.)

નર્મદા જળ સંપત્તિ પાણી પુરવઠા અને કલ્પસર

વિભાગ

ચોમાસુ-૨૦૨૧ પરિપત્ર-૨

પૂરની પરિસ્થિતિમાં પૂર નિયંત્રણ કામો, દરિયાઈ ધોવાણ અટકાવવાના કામો, ડ્રેનેજના કામો તથા સિંચાઈ બાંધકામો જેવા કે મોટી, મધ્યમ અને નાની સિંચાઈ યોજનાઓ વિગેરેની સલામતીના પગલાં અંગે

નર્મદા, જળ સંપત્તિ, પાણી પુરવઠા અને કલ્પસર વિભાગ, ગુજરાત સરકાર, સચિવાલય,
ગાંધીનગર

પરિપત્ર નં. ૨: એફડબલ્યુએ/૨૦૨૦/૧૧૨૭/જ-૧

તારીખ: ૧૮/૦૩/૨૦૨૧

વિષય: સને ૨૦૨૧ ચોમાસા અગાઉ પુર અંગેની સાવચેતીના પગલા લેવા અંગે. નિરીક્ષણની કામગીરી બાબત

આમુખ:-

પ્રતિ વર્ષે પૂરની પરિસ્થિતિમાં પૂર નિયંત્રણ કામો, દરિયાઈ ધોવાણ અટકાવવાના કામો, ડ્રેનેજના કામો તથા સિંચાઈ બાંધકામો જેવા કે મોટી, મધ્યમ અને નાની સિંચાઈ યોજનાઓ વિગેરેની સલામતીના પગલાં સમયસર લેવાના રહે છે. જે અંગે નીચે મુજબ કાર્યવાહી થવા નક્કી કરવામાં આવેલ છે.

સુચના:-

- (૧) સરકારશ્રીના સ્થાયી હુકમોનુસાર રાજ્યની મોટી, મધ્યમ કે નાની સિંચાઈ યોજનાઓ, પૂર નિયંત્રણ યોજનાઓ, કાંસ યોજનાઓ, દરિયાઈ ધોવાણ અટકાવવાના કામોનું ચોમાસા પહેલાં નિરીક્ષણ કરી ચેકલીસ્ટમાં વિગતો ભરી સક્ષમ કક્ષાએ રજુ કરવી. ભારે વરસાદ કે પૂરથી કામોને નુકશાન ન થાય તે માટે મરામત કરાવી/કરી લેવી જરૂરી છે. આ હુકમો અન્વયે ચોમાસા પહેલાં નિરીક્ષણના મોકલાવાના પ્રમાણપત્રો મે માસના અંત પહેલાં સરકારશ્રીમાં અચૂક સાદર કરવાના રહેશે. આ નિરીક્ષણ દરમિયાન આવરી લેવાયેલ તમામ મુદ્દાઓ અને તેની સ્પષ્ટતા નોંધ સામેલ કરવી.

- (૨) દરેક યોજનાના સ્થળ સુધી પહોંચવાનો એપ્રોચ રોડ તૈયાર હોવો જરૂરી છે. ક્ષેત્રીય અધિકારીશ્રી દ્વારા આગામી ચોમાસા પહેલાની ચકાસણી કરી ચકાસણી કર્યા તારીખ સાથેનો જરૂરી અહેવાલ રજૂ કરવો.
- (૩) સિંચાઈ બંધોમાં આવતા પૂરના પાણીના નિયંત્રણ માટે છલતી ઉપરના દરવાજાની કામગીરીની ચકાસણી ચોમાસા અગાઉ તથા ચોમાસા દરમિયાન સમયાંતરે કરાવી/કરી લેવાની રહેશે.
- (૪) ભારે વરસાદ અને પૂર વખતે અગત્યના સંદેશાઓની આપ લે માટે વપરાતા સંદેશા વ્યવહારના સાધનો કાર્યાન્વિત રહે તેની ખાતરી કરી લેવાની રહેશે જેથી કટોકટીના સમયે સંદેશા વ્યવહાર ખોરંભે ન પડે.
- (૫) સિંચાઈના કામો ઉપર સલામતિના ભાગ રૂપે ડીઝાસ્ટર મેનેજમેન્ટ-૨૦૨૧માં દર્શાવ્યા મુજબનો માલસામાન રાખવો જરૂરી છે. આ અંગે પૂર્વ તૈયારી કરાવી લેવાની રહેશે.
- (૬) સિંચાઈના કામો ઉપર સલામતિના પ્રશ્ન અંગે જો તાંત્રિક માર્ગદર્શનની જરૂર પડે તો સંબંધિત મુખ્ય ઈજનેર અને અધિક સચિવશ્રી, બંધ સુરક્ષા તંત્ર, ગુજરાત ઈજનેરી સંશોધન સંસ્થા, વડોદરા અને મધ્યસ્થ આલેખન તંત્ર, ગાંધીનગરના સંપર્કમાં રહી કાર્યવાહી કરવાની રહેશે.
- (૭) પૂર અથવા ભારે વરસાદના સમયે સલામતી માટે જરૂરી મશીનરી મેળવવા અધીક્ષક ઈજનેરશ્રી સિંચાઈ યાંત્રિક વર્તુળ નં.૧, વડોદરા અને અધિક્ષક ઈજનેરશ્રી, સિંચાઈ યાંત્રિક વર્તુળ નં.૨, અમદાવાદનો સંપર્ક સાધી કામગીરી ઝડપી થાય તેમ કાર્યવાહી કરવાની રહેશે તેમજ આ અંગે અગાઉથી આયોજન પુર્ણ કરી તથા તેની જાણ દરેકને યાંત્રિક વર્તુળો મારફત કરવાની રહેશે.
- (૮) અનુભવોના આધારે મશીનરીઓ માટે ૬ માસિક ભાવો પણ મેળવી સક્ષમ સ્તરે મંજૂર કરાવી રાખવાના રહેશે. જેથી યાંત્રિક વર્તુળ ખાતેથી મશીનરી ઉપલબ્ધ ના થાય તે સંજોગોમાં જરૂરી અગ્રતાના કામો વિલંબીત થાય નહીં.
- (૯) મહત્વની યોજનાઓના Hourly Reservoir Data ની વિગતો નિયમિત ધોરણે તેમજ Heavy Rainfall તબક્કે પણ ક્ષેત્રીય કચેરી દ્વારા NIC ના પોર્ટલ પર અપલોડ કરવાની રહેશે.
(અમલકર્તા: તમામ Regional Flood Cell)
- (૧૦) ભારે વરસાદ દરમિયાન અને તાકીદની પરિસ્થિતિએ પ્રિ-મોનિટરિંગ ઇન્પેક્શન રીપોર્ટ ઓનલાઇન જોવા માટેની વ્યવસ્થા (અમલકર્તા: ગાંધીનગર પૂર નિયંત્રણ એકમ) તથા તેના ઉપયોગ માટે તમામ Regional Flood Cell તથા સંબંધિત ફોકલ ઓફિસર અને નોડલ ઓફિસર તેમના યુઝર આઇ.ડી. કેન્દ્રીય પુર નિયંત્રણ એકમને તા.૧૦/૫/૨૦૨૧ પહેલા મોકલી આપવાના રહેશે.
(અમલકર્તા: તમામ Regional Flood Cell)
- (૧૧) Regional Flood Cell ખાતે જે-તે શીફ્ટ માટે નોડલ ઓફિસરના હુકમો ક્ષેત્રીય સ્તરેથી લગત વર્તુળ કચેરી દ્વારા કરવાના રહેશે. જેથી ગાંધીનગર ખાતેના પૂર નિયંત્રણ એકમ ખાતેથી જે-તે

શીફ્ટ ઈન્ચાર્જ, આવશ્યક વિગત મેળવવા માટે સરળતાથી સંપર્ક કરીને વિગતો મેળવી શકે.
(અમલકર્તા: તમામ Regional Flood Cell)

- (૧૨) પૂરના સમયે કામની સલામતી અને પૂર ચેતવણીની વ્યવસ્થા અંગે કરવાની થતી વિવિધ કામગીરીનું આયોજન કરી જુદી જુદી કક્ષાએ જવાબદારી નિયત કરવી અને જરૂર પડે, જિલ્લા કલેક્ટરશ્રીના/તેમજ અન્ય લગતના સંપર્કમાં રહી જરૂરી પગલાં લેવાના રહેશે.
- (૧૩) કોઈપણ યોજનાને કે સંલગ્ન વિસ્તારને પૂરથી નુકશાન થવાના અથવા થયાના સમાચાર દૈનિક પત્ર/ટેલિવિઝનમાં આવે ત્યારે અધિક્ષક ઈજનેરશ્રીએ ખરેખર પરિસ્થિતિનો અભ્યાસ કરી જરૂરી સ્પષ્ટીકરણ પ્રેસ નોંધ દ્વારા બહાર પાડવું તથા તેની જાણ સંબંધિત મુખ્ય ઈજનેરશ્રી અને અધિક સચિવશ્રી તેમજ ગાંધીનગર ખાતેના ફ્લડ કંટ્રોલ સેલને કરવાની રહેશે.
- (૧૪) રાજ્ય સરકાર તરફથી દરેક વર્ષે ચોમાસાની શરૂઆતમાં ડીઝાસ્ટર મેનેજમેન્ટ પ્લાન બહાર પાડવામાં આવે છે. જેમાં પૂર ચેતવણી અને પૂર સલામતી અંગે લેવાના જરૂરી પગલાં અંગે વિગતવાર સુચનાઓ આપવામાં આવતી હોય છે. ક્ષેત્રીય અધિકારીશ્રીઓએ આ સુચનાઓને ચુસ્તપણે અમલ કરવાનો રહેશે.
- (૧૫) દરવાજાવાળા સિંચાઈના બંધોમાંથી છોડવામાં આવનાર પૂરનાં પાણી તેમજ દરવાજા વગરના સિંચાઈના બંધોમાંથી છલતી ઉપરથી પસાર થનાર પૂરના પાણીની જાણ જે તે મહેસુલી તેમજ પોલીસ અધિકારીશ્રીઓ તથા અન્ય સંબંધિત અધિકારીશ્રીઓને અગાઉથી અવશ્ય કરવી. જેથી તકેદારીના પગલાં તેઓ મારફતે સમયસર લઈ શકાય. આ અંગેની માહિતી wrd.guj.nic.in/wms માં સંબંધિત પુરનિયંત્રણ એકમ/યોજનાના અધિકારી દ્વારા સમયસર એન્ટ્રી કરવાની રહેશે. દરવાજાના તેમજ દરવાજા વગરના બંધોમાંથી છોડવામાં આવેલ/પસાર થયેલા પૂરના પાણીનો સમય અને પ્રવાહ તથા તેની મહેસુલી અને પોલીસ અધિકારીશ્રીઓને કરેલી જાણની સમયની વિગતોની નોંધ રજીસ્ટરમાં રાખવી અને ફ્લડ કંટ્રોલ સેલ ગાંધીનગરને પણ તેની નકલ સંકલન અર્થે મોકલી આપવાની રહેશે.
- (૧૬) ક્ષેત્રીય અધિકારીશ્રીઓ તરફથી ફ્લડ સેલ ગાંધીનગરને સિંચાઈના બંધોમાંથી છોડવામાં આવેલ પૂરના પ્રવાહની વિગતો જથ્થામાં (ક્યુસેકસ) તેમજ છલતી ઉપરથી પસાર થયેલા પાણીની ઉંચાઈ સાથે વિગતો આપવાની રહેશે.
- (૧૭) રૂલ લેવલ કરતા વધારે પાણી ભરવા અંગે જળાશયમાં ઉપલબ્ધ જથ્થો, ઉપરવાસ તથા હેઠવાસની પરિસ્થિતિ અને નજીકની આગાહી વગેરે બાબતો ધ્યાને લઈ ચાલુ ચોમાસા દરમિયાન રૂલ લેવલ કરતા વધુ પાણી ભરવા યોગ્ય જણાય તો સંબંધિત મુખ્ય ઈજનેરશ્રીની પૂર્વ મંજૂરી મેળવી લઈ મંજૂર થયેલ સપાટી સુધી જળાશયમાં પાણી ભરવાની કાર્યવાહી કરવાની રહેશે.

- (૧૮) નેશનલ ડીઝાસ્ટર મેનેજમેન્ટ ઓથોરીટી (NDMA) ભારત સરકારની એનેક્ષર-૧માં આવેલ સુચનાઓ ધ્યાને લઈ જરૂરી કાર્યવાહી કરવાની રહેશે.
- (૧૯) બંધોમાં સંગ્રહાયેલ જથ્થો, પાણીનાં લેવલ, છોડવામાં આવી રહેલ પાણીની વિગતો, અને વરસાદની માહિતી નીચમીત wrd.nic.in/dam પર થવા સારું Regional Flood Cell અને સંબંધીત યોજનાના અધીકારીશ્રીઓને આ અંગેની તાલીમ/વર્કશોપ વાલ્મી સંસ્થા મારફતે મધ્યસ્થ પુર નિયંત્રણ એકમએ ૧૦ મે ૨૦૨૧ પહેલા પુર્ણ કરવાનો રહેશે.
- (૨૦) પ્રવર્તમાન કોવિડ-૧૯ સંદર્ભે વખતો-વખતની ગાઇડલાઇન મુજબ જરૂરી એવા લેવાના સાવચેતીના પગલાં લેવાના રહેશે. રોસ્ટર ડ્યુટી સ્ટાફને જાહેર પરિવહનની સુવિધા ઉપલબ્ધ ન હોય તો તેમજ અન્ય સંજોગોમાં જરૂર જણાયે ફલડ સેલને યાંત્રિક વિભાગ દ્વારા અલાયદું વાહન ફાળવવાનું રહેશે. (અમલકર્તા: ગાંધીનગર પૂર નિયંત્રણ એકમ તથા યાંત્રિક વિભાગ)

(એસ.બી.પ્રજાપતિ)

ખાસ ફરજ પરના અધિકારી (સિં.યો.)

નર્મદા જળ સંપત્તિ પાણી પુરવઠા અને કલ્પસર
વિભાગ

ANNEXURE-I

**IMPORTANT POINTS OF GUIDELINES PUBLISHED BY NDMA TO BE
FOLLOWED BY FIELD OFFICES**

Sr. No.	Points of Guidelines															
A	To be followed in the event of dam failure/sudden release of water.															
1.	Install such scientific and technical instruments which are invented or adopted for the purpose of ensuring the safety of the dam and life and property of the people d/s. The inhabitant's d/s should be made aware of the highest flood level and evacuation plan.															
2.	Mock drill for mitigation measures be carried out from time to time to keep the staff and d/s inhabitants prepared for any eventuality.															
3.	Project authority shall ensure identification of vulnerable stretches along discharge route and ensure proper fencing to stop access to the riverbank.															
4.	Powerful siren/hooters to be installed at audible locations to give prior warning to people in the vicinity of dam site and river bank before release of water.															
5.	The danger sign board/hoardings to be erected along the vulnerable stretches carrying message of warning in order to prohibit access of people to the river bank.															
6.	The project authority complies with the norms for observance of a standard drill to be necessary taken before release/discharge of water from the reservoir.															
B.	Devising a well defined, adequate and reliable advance alarm system before release of water.															
1.	Pre warning system consisting of hooters/sirens of high capacity with distinct sound audible up to a minimum distance of one Km. installed in series upto vulnerable stretches and connected through a network of well protected cable/optical fiber using modern technology, operable from the control room of Barrage/Dam/even power house with recording mechanism in the system to minimize the human error to the extent possible, needs to be updated/incorporated.															
2.	The sirens should be capable of operation both on AC and DC supply available in the control Room to avoid malfunctioning in case of power failure, if any.															
3.	Simultaneously, a mobile van equipped with public address system essentially needs to be alerted to give prior warning along identified vulnerable stretches for evacuation of humans/animals from the river bank before release of water.															
4.	The Alarm/Siren for various emerging situations shall be blown as per the following schedule: <table><tr><th>Sr.No.</th><th>Type of Emergency</th><th>Duration</th></tr><tr><td>1</td><td>Normal dam/power house complex operation</td><td>Continuous 1 (one) minute</td></tr><tr><td>2</td><td>In case of fire</td><td>10 Sec on, 5 Sec off, 5 times</td></tr><tr><td>3</td><td>Emergency situations/flood release</td><td>20 Sec on, 5 Sec off, 5 times</td></tr><tr><td>4</td><td>Clear</td><td>Continuous on for 3 minutes only once.</td></tr></table>	Sr.No.	Type of Emergency	Duration	1	Normal dam/power house complex operation	Continuous 1 (one) minute	2	In case of fire	10 Sec on, 5 Sec off, 5 times	3	Emergency situations/flood release	20 Sec on, 5 Sec off, 5 times	4	Clear	Continuous on for 3 minutes only once.
Sr.No.	Type of Emergency	Duration														
1	Normal dam/power house complex operation	Continuous 1 (one) minute														
2	In case of fire	10 Sec on, 5 Sec off, 5 times														
3	Emergency situations/flood release	20 Sec on, 5 Sec off, 5 times														
4	Clear	Continuous on for 3 minutes only once.														
5.	For public awareness in respect of pre warning sirens/hooters and its frequency etc., the notice board highlighting pre warning system procedure should be installed at appropriate places and public in large be made aware by mock drills from time to time.															

ચોમાસુ-૨૦૨૧ પરિપત્ર-૩

ચોમાસા અને કુદરતી આપતા દરમ્યાન પૂર
ચેતવણીની માહિતી મહેસુલ, પંચાયત તથા
પોલીસ વિભાગના અધિકારીઓને આપવા બાબત.

નર્મદા, જળ સંપત્તિ, પાણી પુરવઠા અને કલ્પસર વિભાગ, ગુજરાત સરકાર,
સચિવાલય, ગાંધીનગર

પરિપત્ર નં. ૩: એફડબલ્યુએ/૨૦૨૦/૧૧૨૭/જ-૧

તારીખ: ૧૮/૦૩/૨૦૨૧

વિષય: ચોમાસા દરમ્યાન પૂર ચેતવણીની માહિતી મહેસુલ, પંચાયત તથા પોલીસ
વિભાગના અધિકારીઓને આપવા બાબત

ચોમાસા દરમ્યાન વિભાગના જળાશયોમાંથી પાણી છોડવામાં આવે તે પહેલા પૂર
ચેતવણીના ભાગ રૂપે તે અંગેની માહિતી મહેસુલ, પંચાયત અને પોલીસ વિભાગના સંબંધિત
અધિકારીઓને આપવા અંગેની સ્થાયી સુચનાઓ છે.

વિભાગના ક્ષેત્રીય અધિકારીઓ દ્વારા આપવામાં આવતી આ માહિતી સંબંધિત
અધિકારીશ્રીઓને સમયસર પહોંચે જેથી એમના દ્વારા રાહતની કામગીરી હાથ ધરી શકાય. આ
અનુસંધાને સંબંધિત કચેરી દ્વારા પૂર અંગેની કોઈપણ માહિતી જ્યારે અન્ય કચેરીને આપવામાં
આવે ત્યારે નીચે પ્રમાણે કાર્યવાહી કરવા વિનંતી છે.

- (ક) માહિતીનાં સંદેશા નંબર આપવો અને રજીસ્ટરમાં તે અંગેની નોંધ કરવી.
- (ખ) સંદેશો પાઠવનાર વ્યક્તિનું નામ હોદ્દો, સદર રજીસ્ટરમાં લખવા.
- (ગ) સંદેશો લેનાર કચેરીનું નામ અને લેનાર વ્યક્તિના હોદ્દા સહિત નામ અચૂક લખવું.
- (ઘ) સંદેશો પાઠવ્યાની તારીખ અને સમય અચૂક લખવા.
- (ચ) પૂર ચેતવણીના ભાગરૂપે આપવાના થતા સંદેશાઓ વિના વિલંબે આપવાના રહેશે.

(છ) ચોમાસા/કુદરતી આપદા સમયે આપવાના થતા અગત્યનાં સંદેશાઓ ઈ-મેઈલ/ફેક્સ ઉપરાંત wrd.guj.nic.in/dams વેબસાઈટમાંથી મોકલી શકાય તે અંગે જરૂરી કાર્યવાહી મધ્યસ્થ પુર નિયંત્રણ એકમ અને N.I.C ના પરામર્શ માં રહી વખતો વખત અધ્યતન કરવાનું રહેશે.

ઉપરોક્ત કાર્યવાહીનો ચુસ્તપણે અમલ થાય તે જોવા વિનંતી છે.

(એસ.બી.પ્રજાપતિ)

ખાસ ફરજ પરના અધિકારી (સિં.ચો.)

નર્મદા જળ સંપત્તિ પાણી પુરવઠા અને કલ્પસર
વિભાગ

ચોમાસુ-૨૦૨૧ પરિપત્ર-૪

જળાશયોમાંથી પાણી છોડતાં જળાશયની
પરિસ્થિતિથી જીલ્લા વહીવટી તંત્રને માહિતગાર
(હાઈ એલર્ટ, એલર્ટ અને વોર્નિંગ) કરવા અંગે

નર્મદા, જળ સંપત્તિ, પાણી પુરવઠા અને કલ્પસર વિભાગ, ગુજરાત સરકાર,
સચિવાલય, ગાંધીનગર

પરિપત્ર નં. ૩: એફડબલ્યુએ/ ૨૦૨૦/૧૧૨૭/જ-૧

તારીખ: ૧૮/૦૩/૨૦૨૧

વિષય: જળાશયોમાંથી પાણી છોડતાં જળાશયની પરિસ્થિતિથી જીલ્લા વહીવટી તંત્રને
માહિતગાર (હાઈ એલર્ટ , એલર્ટ અને વોર્નિંગ) કરવા અંગે

આમુખ:-

જે તે જળાશયમાંથી પાણી છોડવાની પરિસ્થિતિ ઉભી થાય ત્યારે પૂર નિયંત્રણ અંતર્ગત મહેસૂલ વિભાગ દ્વારા યોગ્ય કાર્યવાહી માટેનો પુરતો સમય મળે તે માટે અધિકારીશ્રીઓને તેઓની શિફ્ટ ડ્યુટી દરમિયાન નીચે મુજબની કામગીરી અચૂક કરવા અને તે અંગે રજિસ્ટરમાં નોંધ કરવા સુચના આપવામાં આવે છે.

સુચના:-

- (૧) ડેમના જળાશયમાં જ્યારે સ્ટોરેજ ૭૦ ટકાથી વધારે (Warning Stage) ભરાય ત્યારે, સ્ટોરેજના ૮૦ ટકાથી વધારે (Alert Stage) ભરાય ત્યારે તથા ૯૦ ટકાથી વધારે (High Alert Stage) ભરાય ત્યારે પ્રાદેશિક પૂર નિયંત્રણ એકમે જીલ્લા વહીવટી તંત્રને તેમજ તેને સંલગ્ન વહીવટી તંત્રને લેખિતમાં તે સમયની સ્થિતિ સહિત જાણ કરવાની રહેશે.
- (૨) ઉપરોક્ત સંદેશાઓની નોંધ પ્રાદેશિક પૂર નિયંત્રણ એકમના મેસેજ રજિસ્ટરમાં તે સમયના શીફ્ટ ઈન્ચાર્જ અધિકારીના નામ, હોદ્દા, સમય, તારીખ, સાથે વિગતે કરવાનો રહેશે સાથે સાથે આ અંગેની જાણ તે જ સમયે ગાંધીનગર સ્થિત મધ્યસ્થ પૂર નિયંત્રણ એકમને ફેક્સ/E-mail થી અચૂક કરવાની રહેશે.

ઉપર આપવામાં આવેલા સુચનાનો યોગ્યતે અમલ કરવાનો રહેશે અને આ કાર્યવાહી ઉપર જે તે પ્રાદેશિક પૂર નિયંત્રણ એકમના શીફ્ટ ઈન્ચાર્જ અધિકારીશ્રીએ યોગ્ય દેખરેખ રાખવાની રહેશે.

(એસ.બી.પ્રજાપતિ)

ખાસ ફરજ પરના અધિકારી (સિં.ચો.)

નર્મદા જળ સંપત્તિ પાણી પુરવઠા અને કલ્પસર
વિભાગ

MAINTENANCE OF FLOOD EMBANKMENTS

4.0 MAINTENANCE OF FLOOD EMBANKMENTS

- 4.1** Proper maintenance of embankments is extremely important as breaches in these can be disastrous and can cause even greater damage than the inundation by the floods from rivers where no embankments are provided. Very careful maintenance of the embankment is necessary during high waters. Frequent inspections and constant attendance by all concerned is essential particularly in case of new embankments or dangerous section of old embankments. The establishment required for proper upkeep and maintenance of an embankment will vary according to its importance as also the behavior and discharge of the river.

Patrolling :-

Patrolling should commence as soon as water comes against an embankment and should continue until water finally leaves the embankment. When the river is in floods, the embankment requires close and constant watching and unremitting supervision both by day and night by adequate trained staff.

Wave-Wash :-

During the bad storms erosive wave action takes place which sometimes erodes/washes the soil on slope of earth embankment resulting into wave-wash. Short grass and small thick bushes like pilchi, lai etc. growing on the embankment is good protection against erosion and wave-wash.

Leaks :-

Water coming out through the body of embankment in any form such as seepage through cracks or piping action may be termed as leak. Rodents and other borrowing animals make holes, cavities and tunnels through and under an embankment. These are a source of danger as very often these causes leaks and excessive seepage and even serious breaches during flood periods.

Breaches :-

Failure of a section of earth embankment due to over-topping causes breach of section. Successive and heavy rains cause very often severe erosion of unprotected slopes and render the section unsafe. This may result in disastrous breaches. In case of such emergencies the top and sides of particularly weak and dangerous sections of freshly made up earth should be protected by materials sand bags etc.

The materials required during monsoon period to meet the situation is given vide **Annexure : 4A**

ANNEXURE - 4-A

Materials required during monsoon period should be provided in ample quantity as experience shows them to be necessary. Particular care should be taken that there is an adequate quantity of the required materials distributed with carefully forethought so as to be readily available every where, particularly at dangerous sites. The quantity of materials required depends on importance or dangerousness of the embankment line and the distances of the embankment from the nearest stations at which there can be purchased. Adequate provision should be made at the discretion of the Superintending Engineer of the Circle Office. The following scale of materials prescribed for one Circle, is an indication of the relative quantities of the different kinds of materials usually required during monsoon period.

1. PATROLLING

(i)	Lamps Hurricane	1 For every 2 Labours. 1 For every Work Assist/Karkoon. 1 For every A.E/A.A.E./Overseer. and 20% of the Total for Spare.
(ii)	Wicks	9 Nos. per Lamp.
(iii)	Globes	1 No. spare for each Lamp.
(iv)	Burners and Caps	Spare for 1/3 No of Lamp.
(v)	Torches	1 No. for Executive Engineer. 1 No. for Dy. Executive Engineer. 1 For every A.E/A.A.E./Overseer. and 2 Nos. for Spare.
(vi)	Cells	1 Fill and Two Spare sets.
(vii)	Petromax Lamps.	At dangerous places as necessary; each lamp with 2 spare Globes, 2 Nozzles, 2 Washers, 2 Wire Gauzes, 2 Needles and 6 Mantles.(3/4 of the members should be 300 C.P. and 1/4th 200 C.P.
(viii)	Fuel for Lighting	Fire To be collected by labour establishment.
(ix)	Kerosene & Oil	1 Tin per hurricane Lanterns (Excluding Spare) and 2 Tins for Petromax lamp per season.
(x)	Match Boxes	One Dozen per Lamp per season.
(xi)	Spirit	1 Bottle per petromax lamp per Season
(xii)	Funnels	½ Dozen per Work Assistant / Karkoon
(xiii)	Oil Extractors/Caps	¼ Dozen per Work Assistant / Karkoon
(xiv)	Spirit Cane	1 per Petromax.

2. WAVE – WASH

- (i) Lai fascines or any other mattress made up of split bamboos or “pilchi” or any other locally available materials. Material for providing light longitudinal Groynes sewed with compactly woven pilchi or split bamboos etc.
- (ii) Munj rope of lengths to be provided with fascines 11 Kg/Km.

3. LEAKS

(i)	Gunny Bags	(a)	Where High Flood Depth is less than 1.80 Mt and the embankment is generally safe then 65 Bags per Kilometer.
		(b)	Where High Flood Depth is greater than 1.80Mt. or the embankment is known to give trouble of leaks then 130 Bags per Kilometer.
(ii)	Stakes	65 to 130 Stakes per Kilometer.	
(iii)	Baskets	1 Basket of Toot per labour or 1 Basket of lai per labour. and One Spare.	
(iv)	Sutli	450 gms. Per 100 Bags.	
(v)	Needles	½ Dozen with each Work Assistant.	
(vi)	Sand	Collection of 1.80 to 3.60 Cu.Mt.Per every Kilometer for Dangerous Lengths.	

4. BREACHES

Provision for materials required should be made for One or More small breach length each 76 Mt. long depending upon the embankment.

Materials for protecting ends of one breach and constructing one 76 m. long ,4 rows are as under

(i)	Big stakes or Sal Ballies.	Every 1.50 Mt. apart with 100% spare.
(ii)	Split Sal Ballies or Bamboos.	For Horizontal bracing of Vertical ballies - 3.0 Mt. long each for the entire length.
(iii)	Split Sal Ballies or Bamboos	For Cross bracing of vertical ballies – 3.0 Mt. long One for each vertical ballies.
(iv)	Mattresses of split bamboos or “Pilchi” or other locally available material.	For sufficient length.
(v)	Brushwood of local material	For sufficient length.
(vi)	Stakes	0.45 Mt. centre long each row of frame.
(vii)	Munj Rope	Enough quantity
(viii)	Coir Rope	Enough quantity
(ix)	Gunny Bags	2500 Nos. for every A.E/A.A.E./Overseer.
(x)	Sutli	450 gms. Per 100 Nos. Bags.
(xi)	Needles	1 No. per 100 Nos. Bags.
(xii)	Baskets	500 Nos. per Ordinary Sub Division, and 1000 Nos. for Sub Divisions with dangerous Embankments.

WIRELESS STATIONS

5.0 WIRELESS STATIONS

- 5.1** The flood warning arrangements consists of collection of rainfall, gauge, discharge and other hydro meteorological data through Wireless Station, located in the river basin, by the Executive Engineer, (C.W.C), Tapti Division, Surat & Executive Engineer (C.W.C) Mahi Division, Gandhinagar, Appropriate Authorities (Focal Officers). Based on these data, these authorities will formulate the flood forecast and prepare “Flood Warning” and communicate the same to the concerned officers of Narmada, Water Resources, Water Supply and Kalpsar Department, Revenue and Police Departments of the State for taking necessary precautionary measures in respect of alerting and evacuating the people of the area likely to be affected if required. The areas and villages affected by the various basins are shown in the annexures of respective river basins, by the Executive Engineer, Mahi and Tapti Divisions, (C.W.C) and the State Government for collecting gauge and storm data etc.
- 5.2** The basin wise wireless stations mentioned below will be established by the C.W.C and State during the monsoon.

TABLE - (5.2)

Sr. No.	Basin/District	No. of Wireless Stations to be Established			
		By C.W.C		By State	Total
		Out of State	Within State	Within State	
1	2	3	4	5	6
1.	Damanganga Basin	7	3	2	12
2.	Tapi Basin	15	2	6	23
3.	Narmada Basin	13	4	9	26
4.	Mahi Basin	5	5	7	17
5.	Sabarmati Basin	1	12	28	41
6.	Banas Basin	2	6	3	11
7.	Vishwamitri & Deo Basin	-	-	13	13
8.	Saraswati Basin	-	-	3	3
9.	Valsad District	-	-	1	1
10.	Navsari District	-	-	3	3
11.	Tapi District	-	-	2	2
12.	Surat District	-	-	11	11
13.	Bharuch District	-	-	2	2

Sr. No.	Basin/District	No. of Wireless Stations to be Established			
		By C.W.C		By State	Total
		Out of State	Within State	Within State	
1	2	3	4	5	6
14.	Panchmahals District	-	-	4	4
15.	Dahod District	-	-	8	8
16.	Rajkot District	-	-	30	30
17.	Morbi District	-	-	11	11
18.	Jamnagar District	-	-	23	23
19.	Dev Bhumi Dwarka	-	-	12	12
20.	Surendranagar District	-	-	11	11
21.	Bhavnagar District	-	-	17	17
22.	Amreli District.	-	-	12	12
23.	Botad District	-	-	12	12
24.	Junagadh District	-	-	16	16
25.	Gir Somnath District	-	-	8	8
26.	Porbandar District	-	-	9	9
27.	Kachchh District	-	-	20	20
28.	Panchayat Circles.	-	-	13	13
29.	Mahisagar Dist.		-	1	1
30.	Ahmedabad City	-	-	1	1
	Total	43	32	298	373

5.3 List of Wireless stations to be installed during monsoon by State Government

Sr. No.	Name of Basin/District	Name of wireless Station		Name of wireless Station	
1	Damanganga Basin	Madhuban (Dam Site)	(D.P.C)		
		Madhuban Colony	(D.P. C.)		
2.	Tapi Basin	Ukai	(UCC)	Chopadvav	(UCC)
		Vyara Ver - II	(UCC)	Kakdi Amba	(UCC)
		Ukai Dam Site	(UCC)		
		Lakhigam	(UCC)		
3.	Narmada Basin	Bodeli (Dn.Office)	(VIC)	Zoz	(VIC)
		Karjan	(VIC)	Sukhi (Dam Site)	(VIC)

Sr. No.	Name of Basin/District	Name of wireless Station		Name of wireless Station	
		Dholi	(VIC)	Wadhwana	(VIC)
		Fulwadi	(VIC)		
		Ghantoli	(VIC)		
		Rami (Dam Site)	(VIC)		
4.	Mahi Basin	Nadiad	(MIC)	Diwada Colony	(KPC)
		Kadana	(KPC) HR Gate SSSC	Sant Road Weir.	(PPC)
		Panam	(PPC)	Additional Spill Way Kadana	(KPC)
		Wanakbori	(MIC)		
5.	Sabarmati Basin	H'nagar	(HIPC-S.K.)	Badoli	(HIPC-S.K.)
		Hathmati	(HIPC-S.K.)	Modasa	(HIPC-S.K.)
		Meshwo	(HIPC-S.K.)	Idargadh (Repeater)	(HIPC-S.K.)
		Mazam	(HIPC-S.K.)	Ahmedabad	(AIPC-A)
		Harnav.II	(HIPC-S.K.)	Dharoi	(SSC-2-MEH)
		Guhai	(HIPC-S.K.)	Karol	(HIPC-S.K.)
		Waidy	(HIPC-S.K.)	Dakor Rd. Brdg.	(MIC)
		Watrak	(HIPC-S.K.)	Kathlal Rd. Brdg.	(MIC)
		Mahudi	(HIPC-Meh)	Wasna Barrage	(AIPC-A)
		Deradungari	(HIPC-SK)	Ratanpur Bridge	(CWC-Kh)
		Meghraj	(HIPC-S.K)	Kheda Road Bridge.	(CWC-Kh)
		Kherva	(SSC-2-MEH)	Lank	(HIPC-S.K.)
		Jawanpura	(HIPC-S.K.)	Gorathiya Mota Chekhala	(AIPC-A)
		Khedva	(HIPC-S.K.)	Varansi	(HIPC-S.K.)
6.	Banas Basin	Dantiwada	(SSC 2)		
		Bakudar-Sipu	(SSC 2)		
		Bhilda	(SSC 2)		
7.	Vishwamitri & Deo Basin	Vadodara	(VIC Office)		
		Vadodara (Muni.Corp.)	(VMC)	Pilol	(VIC)
		Ajwa Tank	(VMC)	Shivrajpur	(VIC)
		Pratap pura	(VMC)	Deo Dam Site	(VIC)
		Ghansarvav	(VIC)	Rameshra	(VIC)

Sr. No.	Name of Basin/District	Name of wireless Station		Name of wireless Station	
				Colony	
		Dhanora Tank	(VIC)	Bhaniara	(VIC)
		Halol	(VIC)	Pavagadh Repeater	
8.	Saraswati Basin	Palanpur	(SSC 2)		
		Mukteshwar	(SSC 2)		
		Saraswati Barrage	(SSC 2)		
9.	Valsad Dist.	Valsad	(DPC)		
10.	Navsari Dist.	Kelia	(UCC)	Khergam	(UCC)
		Jhuj	(UCC)		
11.	Tapi Dist.	Doswada	(UCC)	Sonagadh flood repeater	(UCC)
12.	Surat Dist.	Surat	(SIC)	Kosamba	(SIC)
		Anaval	(UCC)	Bardoli	(SIC)
		Tadkeshwar	(SIC)	Mahuva	(SIC)
		Kathor	(SIC)	Valod	(UCC)
		Amali dam-ver	(UCC)	Kakarapar	(UCC)
		Umara Gam (Ambica River), Mahuva			
13.	Bharuch Dist.	Baldeva	(VIC)		
		Pigut	(VIC)		
14.	Panchamahals Dist.	Godhra	(PPC)	Karad	(PPC)
		Hadaf	(PPC)	Kabutari	
15.	Dahod District	Machchhanla	(KPC)	Umaria	(KPC)
		Edalwada	(KPC)	Wankleshwar	(KPC)
		Patadungri	(KPC)	Bandibar	(KPC)
		Kali - II	(KPC)	Repeater Bariya	
16.	Rajkot Dist.	Rajkot	(RIC)	Vachhapari	(RIC)
		Nyari – I	(RMC)	Lalpari	(RIC)
		Nyari – II	(RIC)	Ishwaria	(RIC)
		Bhadar	(RIC)	Karmal	(RIC)
		Dhari	(RIC)	Veri	(RIC)
		Chhapparwadi – II	(RIC)	Motisar	(RIC)
		Kabir-Sarovar	(RIC)	Dondi	(RIC)
		Phophal	(RIC)	Survo	(RIC)
		Aji-III	(RIC)	Khodapipar	(RIC)

Sr. No.	Name of Basin/District	Name of wireless Station		Name of wireless Station	
		Phadangbeti	(RIC)	Bhadar - II	(RIC)
		Moj	(RIC)	Sodvadar	(RIC)
		Venu-II	(RIC)	Karnuki	(RIC)
		Aji – I	(RIC)	Ghelo Somnath	(RIC)
		Aji-II	(RIC)	Malgadh	(RIC)
		Gondali	(RIC)	Sankroli	(RIC)
17.	Morbi Dist	Machhu – I	(RIC)	Brahmani	(RIC)
		Machhu – II	(RIC)	Brahamani-II	(RIC)
		Machhu-III	(RIC)	Ghodadharoi	(RIC)
		Demi – I	(RIC)	Bangawadi	(RIC)
		Demi – II	(RIC)	Demi – III	(RIC)
		Flood Control(Morbi)	(RIC)		
18.	Jamnagar Dist	Jamnagar (Jl. Dn.)	(RIPC)	Ranjit – Sagar	(JMC)
		Sasoi	(RIPC)	Dia Minsar	(RIPC)
		Fulzar – I	(RIPC)	Und – I	(RIPC)
		Fulzar – II	(RIPC)	Und – II	(RIPC)
		Sapada	(RIPC)	Kankavati	(RIPC)
		Puna	(RIPC)	Wadisang	(RIPC)
		Vijarkhi	(RIPC)	Aji-IV	(RIPC)
		Rupavati	(RIPC)	Und-III	(RIPC)
		Fulzer (K.B)	(RIPC)	Ruparel	(RIPC)
		Phophal-II	(RIPC)	Umiyasagar	(RIPC)
		Rangamati	(RIPC)	Sasoi-II	(RIPC)
		Wagadiya	(RIPC)		
19.	Dev Bhumi Dwarka Dist	Vartu – I	(SIPC)	Ghee	(SIPC)
		Vartu – II	(SIPC)	Sani	(SIPC)
		Shedhabhadthari	(SIPC)	Sonmati	(SIPC)
		Sindhani	(SIPC)	Minsar V	(SIPC)
		Kabarka	(SIPC)	Verdi – I	(SIPC)
		Verdi – II	(SIPC)		
		Gadhki	(SIPC)		
20.	Surendranagar Dist.	Wadhwan Bhogavo – I	(RIC)	Vansal	(RIC)
		Wadhwan Bhogavo-II	(RIC)	Morshal	(RIC)
		Falku	(RIC)	Limdi Bhogavo	(RIC)

Sr. No.	Name of Basin/District	Name of wireless Station		Name of wireless Station	
		Triveni Thanga	(RIC)	Saburi	(RIC)
		Limdi Bhogavo-II	(RIC)	Nimbhani	(RIC)
		Flood Control	(RIC)		
21.	Bhavnagar Dist.	B'nagar	(BIPC)	Ranghola	(BIPC)
		Rajawal	(BIPC)	Jaspar-Mandva	(BIPC)
		Bagad	(BIPC)	Kharo	(BIPC)
		Shetrunji	(BIPC)	Palitana	(BIPC)
		Shetrunji Fringe	(BIPC)	Hanol	(BIPC)
		Rojki	(BIPC)	Pingali	(BIPC)
		Malan	(BIPC)	Hastagiri Repeater	(BIPC)
		Lakhanka	(BIPC)	Mahuva	(BIPC)
		Hamirpura	(BIPC)		
22.	Amreli Dist.	Amreli (A.I.S. Dn.)	(BIPC)	Vadia	(BIPC)
		Khodiar--	(BIPC)	Thebi	(BIPC)
		Munjiasar	(BIPC)	Surajwadi	(BIPC)
		Dhatarwadi - I	(BIPC)	Vadi	(BIPC)
		Dhatarwadi - II	(BIPC)	Ghelo-I	(BIPC)
		Shell-Dedumal	(BIPC)		
		Raidy	(BIPC)		
23.	Botad	Goma	(BIPC)	Utavali (Gunda)	(BIPC)
		Malpura	(BIPC)	Sukhbhadar	(BIPC)
		Kalubhar	(BIPC)	Limbali	(BIPC)
		Bhimdad	(BIPC)	Botad	(BIPC)
		Gadhda	(BIPC)		
		Paliyad	(BIPC)		
		Kaniyad	(BIPC)		
		Khambhada	(BIPC)		
24.	Junagadh Dist.	Hasanapur	(RIPC)	Disaster Control	
		Madhuvanti	(RIPC)	Junagadh Ir. Dn.	(RIPC)
		Ambajal	(RIPC)	Jhanjheshri	(RIPC)
		Uben	(RIPC)	Drafad	(RIPC)
		Vrajami	(RIPC)	Girnar Repeater	(RIPC)
		Bantva-Kharo	(RIPC)	Ozat-II	(RIPC)
		Ozat-Weir Sahpur	(RIPC)	Mota Gujaraia	(RIPC)
		Ozat Weir (Vanthli)	(RIPC)	Sabali	(RIPC)

Sr. No.	Name of Basin/District	Name of wireless Station		Name of wireless Station	
25.	Gir Somnath	Raval	(SIPC)	Machhundri	(SIPC)
		Hiran – I	(SIPC)	Hiran – II	(SIPC)
		Singoda	(SIPC)	Una Irr.Sub Dn.	(SIPC)
		Kodinar Irri.Sub.Dn.	(SIPC)	Veraval	(BIPC)
26.	Porbandar Dist.	Phodarness	(SIPC)	Amipur	(SIPC)
		Khambhala	(SIPC)	Potrbandar	(SIPC)
		Sorthi	(SIPC)	Advana	(SIPC)
		Kalindri	(SIPC)	Saran	(SIPC)
		Rana Khirasra	(SIPC)		
27.	Kachchh Dist.	Bhuj	(KIC)	Nara	(KIC)
		Kalaghogha	(KIC)	Rudramata	(KIC)
		Niruna	(KIC)	Kasvati	(KIC)
		Godhatad	(KIC)	Tapper	(KIC)
		Suvi	(KIC)	Bhukhi	(KIC)
		Gajod	(KIC)	Berachia	(KIC)
		Kaila	(KIC)	Don	(KIC)
		Sanandro	(KIC)	Mathal	(KIC)
		Fategadh	(KIC)	Jangadia	(KIC)
		Kankavati	(KIC)	Mitti	(KIC)
28.	Mahisagar Dist.	Bhadar	(KPC)		
29.	Ahmedabad City	Sanskar Kendra, Paldi	(AMC)		

5.4 In case of flood emergency the facilities of Police Wireless /Home Guard Network shall also be utilised.

5.5 As a part of Flood Warning Arrangement, the Narmada, Water Resources , Water Supply and Kalpsar Department, Sachivalaya, Gandhinagar has decided to install the V.H.F. sets on various minor irrigation projects coming under the following Panchayat Circles. The details of Minor Irrigation projects are appended vide Table No. 5.6 and details on map vide Annexure 5.6-A.

- (A) Gandhinagar Panchayat Irrigation Circle, Gandhinagar
- (B) Rajkot Panchayat Irrigation Circle, Rajkot
- (C) Vadodara Panchayat Irrigation Circle, Vadodara
- (D) Kachchh Irrigation Circle, Bhuj-Kachchh.

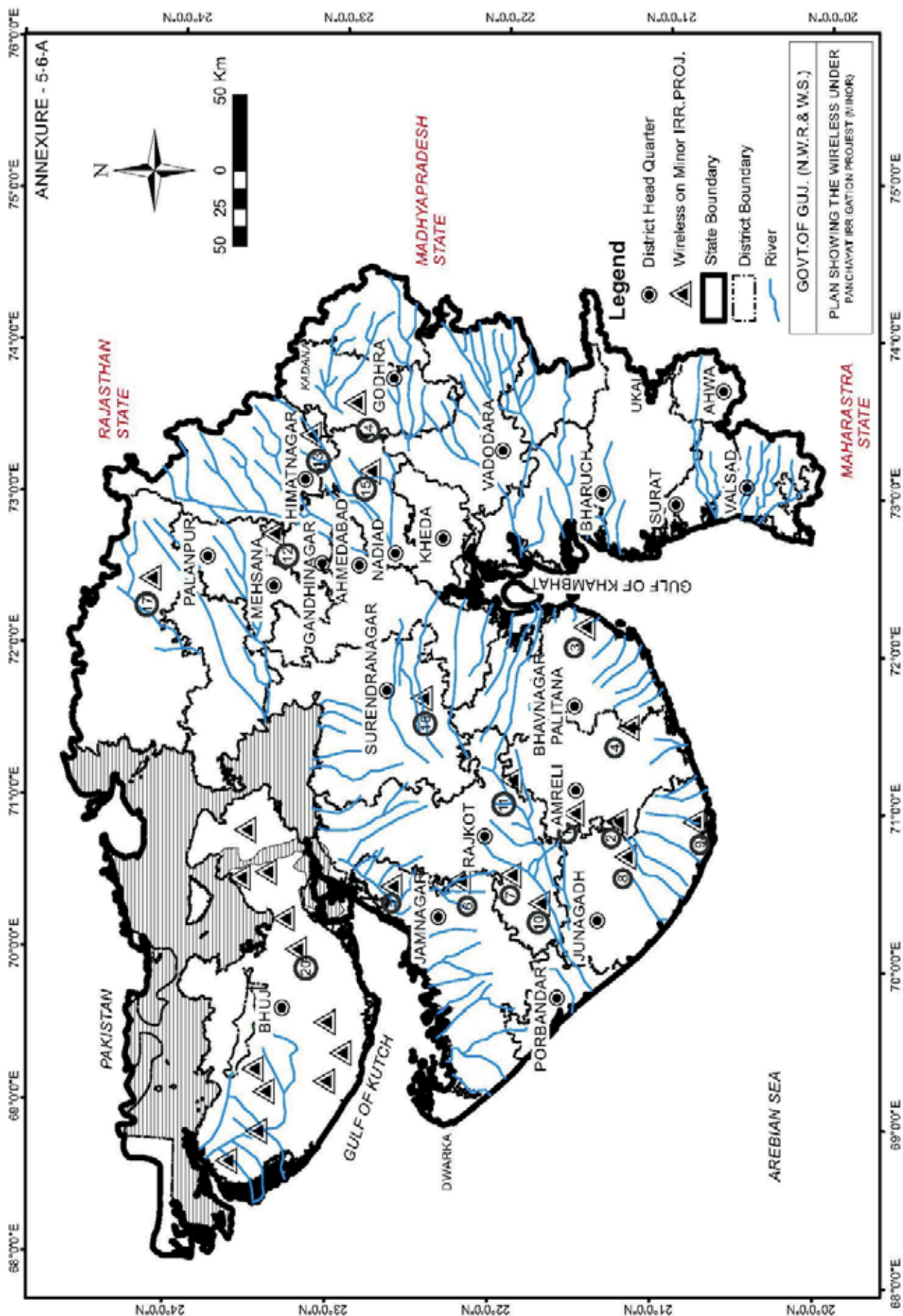
(A)	<u>S.E.GPIC G'nagar</u>	Nos.	(B)	<u>S.E. RPIC, Rajkot</u>	Nos.
1.	Gandhinagar	[-]	1.	Rajkot	[2]
2.	Mehsana.	[1]	2.	Jamnagar.	[3]
3.	Ahmedabad.	[-]	3.	Junagadh	[1]
4.	Kheda.	[-]	4.	Amreli	[2]
5.	Sabarkantha.	[-]	5.	Bhavnagar	[2]
6.	Patan	[-]	6.	Porbandar	[-]
7.	Anand	[-]	7.	Gir Somnath	[1]
8.	Banaskantha	[1]			
9.	Aravalli	[-]			

(C)	<u>S.E.VPIC Vadodara</u>	Nos.	(D)	<u>S.E. KIC, Bhuj-Kachchh</u>	Nos.
1.	Vadodara.	[-]	1.	Kachchh	[-]
2.	Bharuch	[-]			
3.	Surat	[-]			
4.	Valsad	[-]			
5.	Dangs.	[-]			
6.	Panchmahal	[-]			
7.	Dahod	[-]			
8.	Navsari	[-]			
9.	Narmada	[-]			

5.6 Wireless system at the following important places of Minor Irrigation Projects shown in Table 5.6 are suggested by The Chief Engineer (Panchayat) and Add. Secretary Sachivalaya Gandhinagar for flood Situation and its communication to higher authorities.

TABLE - 5.6

Sr. No.	Name of Minor Irrigation Schemes	Taluka	District	In Charge Focal Officer
1	2	3	4	5
1.	Mobhanesh	Khambha	Amreli	S.E., R.P.I.C. Rajkot
2.	Mota Bhandariya	Amreli	Amreli	S.E., R.P.I.C. Rajkot
3.	Virpur Sibeti	Palitana	Bhavnagar	S.E., R.P.I.C. Rajkot
4.	Chonda	Palitana	Bhavnagar	S.E., R.P.I.C. Rajkot
5.	Venu	Jamjodhpur	Jamnagar	S.E., R.P.I.C. Rajkot
6.	Sinhan	Khambhalia	D.B.Dwarka	S.E., R.P.I.C. Rajkot
7.	Balambhadi	Kalavad	Jamnagar	S.E., R.P.I.C. Rajkot
8.	Poswada	Bhesan	Junagadh	S.E., R.P.I.C. Rajkot
9.	Rupen	Gir Gadhada	Gir Somnath	S.E., R.P.I.C. Rajkot
10.	Moti Paneli	Upleta	Rajkot	S.E. R.P.I.C. Rajkot
11.	Alan Sagar	Jasdan	Rajkot	S.E. R.P.I.C. Rajkot
12.	Thol	Kadi	Mehsana	S.E.G.P.I.C. Gandhinagar
13.	Kapasiya	Palanpur	Banaskantha	S.E.G.P.I.C. Gandhinagar



DAMANGANGA BASIN

6.0 DAMANGANGA BASIN :

6.1 The flood forecasting for Damanganga Basin is being looked after by Superintending Engineer, Hydrological Observation circle, Gandhinagar through his Executive Engineer, Tapti Division (C.W.C.) at Surat. He has established various wireless stations at locations upstream and downstream of Madhuban Dam to obtain the details about rainfall and discharge in the Damanganga Basin. The gauge and rainfall data are being communicated, through wireless stations located at various stations on the main river as well as on tributary.

6.2 Name of villages/dams where wireless stations are located to report rainfall and gauge discharge are as under :

A. C.W.C's Wireless Stations

(1)	Ozerkheda	Maharashtra
(2)	Harsul (Rainfall only)	Maharashtra
(3)	Mokheda (Rainfall only)	Maharashtra
(4)	Dhandode (Rainfall only)	Maharashtra
(5)	Silvassa	Union Territory
(6)	Solachar	Union Territory
(7)	Daman	Union Territory
(8)	Madhuban Dam Site	Gujarat State
(9)	Vapi	Gujarat State
(10)	Nani Palsan	Gujarat State

B. State's Wireless Stations.

(1)	Madhuban Dam (Dam Site)	Gujarat State
(2)	Madhuban Dam (Colony)	Gujarat State
(3)	Valsad (D.P.C.)	Gujarat State

6.3 The basin plan showing the locations of wireless stations established and list of villages affected at various levels is also appended vide Annexure 6-A, Annexure 6-B and 6-C respectively. The warning and danger levels are fixed with respect to Pati site which is 0.3 kilometer down stream of Madhuban Dam.

TABLE - 6.4

Note :- Please See Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Executive Engineer Tapti Division (C.W.C), Surat	The inflow forecast of 50,000 Cusecs (1500 Cumecs) for MADHUBAN (Damanganga) Dam to be conveyed to the Officer in Column No. 3 at Sr. No (a) & (g).	(a) Superintending Engineer Damanganga Project Circle, Valsad (b) Collector, Valsad. (c) District Superintendent of Police, Valsad. (d) Collector, DNH, Silvassa. (e) Executive Engineer Public Works Department Daman. (f) Collector, Daman. (g) Flood Cell, Gandhinagar.
	Flood level forecast for VAPI to be conveyed to the officers at Sr. No. (a), (b), (f) & (g) in Column No. 3 when Gauge levels are about to cross Warning Level, i.e., 18.20 M. and Danger Level, i.e. 19.20 M.	
	Flood Level forecast for DAMAN to be conveyed to the officers in Column No.3 mentioned @ Sr. No. (a) (b) (d) (f) and (g) when Gauge level is about to cross Warning Level i.e., 2.60 M and Danger Level i.e., 3.40 M.	
(B) Superintending Engineer Damanganga Project Circle, Valsad	The Flood Level Forecast for VAPI to be conveyed to the officers in column No. 3 mentioned @ Sr. No.(b), (c), (d), (e) and (g) and for DAMAN to be conveyed to the officers in column No. 3 @ Sr.No. (c) and (e) when Gauge level is about to cross Warning and Danger Level	

6.5. Statement showing the time lag for various stations from origin to the end of river basin as under.

Sr. No.	Name of Site	Type of Site	State	Catchment Area in Sq. Kms.	Distance from Origin in Kms.	Danger Level in Meters	Time Lag in Hours
1	2	3	4	5	6	7	8
1.	Dhandore	W,R	Maha.				
2.	Harshul	W,R.	Maha.	Only Rainfall Recording Stations		9.8	
3.	Mokheda	W,R	Maha.	640	75	-	8.10
4.	Ozerkheda	W,G,D,R	Maha.	764	60	-	5
5.	Nani-Palsan	W,G,D,R	Gujarat				
6.	Madhuban Dam	W,G,R,I	Gujarat	1800	83	79.86	3.4
7.	Solachar	W,G,R	UT (DNH)	1948	45	-	3.4
8.	Silvasa	W,G,R	UT (DNH)	266	108	-	2
9.	Vapi	W,G,R,F	Gujarat	2227	116	-	1
10.	Daman	W,G,R	UT(Daman)	2318	131	3.40	0

Note : W = Wireless
G = Gauge

D = Discharge
R = Rainfall

F = Flood Level Forecast
I = Inflow Forecast

6.6 Appropriate Authority (Focal Officer)

The Superintending Engineer
Damanganga Project Circle,
Damanganga Bhavan,
Valsad.

Note :
Please See Flood Telephone
Directory of the current year
for telephone nos.

ANNEXURE - 6 (B)

List of villages likely to be affected by floods in **Damanganga River** on the basis of Gauges & Discharge at Pati Site 0.30 Km.D/s of **Madhuban Dam**.

Sr. No.	KAPARADA TALUKA	Sr. No.	VAPI TALUKA	Sr. No.	UMARGAON TALUKA
	(1)		(2)		(3)
<u>VALSAD DISTRICT</u>					
1.	Meghaval	1.	Lavachha	1.	Kachigam
		2.	Dungara	2.	Borigam
		3.	Chandor	3.	Mohangam
		4.	Namdha	4.	Jamburi
		5.	Kunta	5.	Achchhari
		6.	Chanod	6.	Valvada

UNION TERRITORY of D and N. H. and Daman

Sr. No.	DADRA, NAGAR AND HAVELI	Sr. No.	DAMAN
	(1)		(2)
NANI DAMAN			
1.	Karad	1.	Nani Daman
2.	Rakholi	2.	Verkund
3.	Kudacha	3.	Kharivad
4.	Samarvarni	4.	Kudaiya Machhiwad
5.	Masat	5.	Kachigam
6.	Athal Bridge		
7.	Amla	MOTI DAMAN	
8.	Pati	6.	Moti Daman
9.	Chinch Pada	7.	Singa Falia
10.	Vasona	8.	Ambavad
11.	Dapada	9.	Zari
12.	Piparia	10.	Patlora
13.	Tighra		
14.	Vaghdhara		

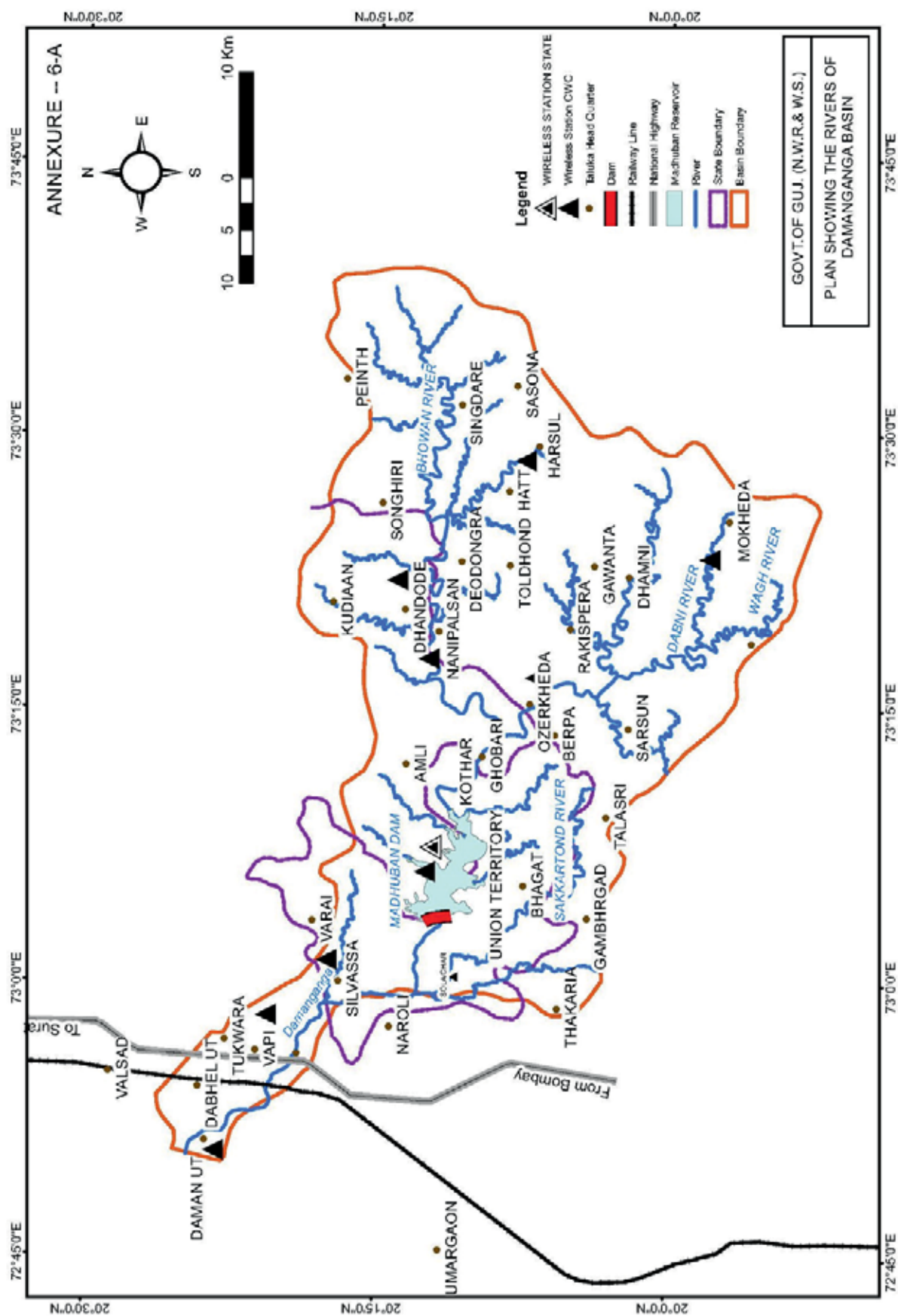
Note: Refer Annexure 6-C for the villages likely to be affected by floods at different Water Levels.

ANNEXURE - 6 (C)

List of villages likely to be affected by floods in **Damanganga River** on the basis of Gauges & Discharge at D/s of **Madhuban Dam**.

Sr. No.	Discharge at D/S of Dam in (Cus/Cum)	Gauge Level at D/S of Dam		Name of District Taluka	Signal for Village at Sr. No.		
		In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :- 1 WHITE SIGNALS : ALERT 2 BLUE SIGNALS : READY FOR EVACUATION 3 RED SIGNALS : IMMEDIATE EVACUATION							
(1)	250000	157.27	47.95	<u>Valsad</u>			
	—————			1. Kaparada	1	—	—
	7079.14			2. Vapi	1 to 6	—	—
				3. Umargaon	1 to 6	—	—
				<u>Union Territory</u>			
				4. Dadra, Nagar & Haveli.	1 to 14	—	---
				5. Daman	1 to 10	—	—
(2)	300000	159.40	48.60	<u>Valsad</u>			
	—————			1. Kaparada	—	1	—
	8494.97			2. Vapi	—	1 to 6	—
				3. Umargaon	—	1 to 6	—
				<u>Union Territory</u>			
				4. Dadra, Nagar & Haveli	—	1 to 14	—
				5. Daman	—	1 to 10	—
(3)	350000	162.2	49.45	<u>Valsad</u>			
	—————			1. Kaparada	—	—	1
	9910.80			2. Vapi	—	—	1 to 6
				3. Umargaon	—	—	1 to 6
				<u>Union Territory</u>			
				4. Dadra, Nagar & Haveli.	—	—	1 to 14
				5. Daman	—	—	1 to 10

Note :-Refer Annexure 6-B for the villages likely to be affected by floods at different Water Levels.



TAPI BASIN

7.0 TAPI BASIN :

7.1 The flood forecasting for Tapi basin is looked after by Superintendent Engineer, Hydrological Observation Circle, Gandhinagar through his Executive Engineer, Tapti Division (C.W.C) at Surat. He has established various wireless stations at locations upstream of Surat to obtain the details about rainfall and discharge in the river. The gauge and rainfall data are being communicated through wireless stations located on the main river as well as on tributaries.

7.2 Name of villages/dams where Wireless Stations are located to report rainfall and gauge discharge are as under :

A. C.W.C's / Wireless and other communication system Stations.

1.	Teska	Madhya Pradesh.
2.	Dedtalai	Madhya Pradesh.
3.	Nawtha	Madhya Pradesh.
4.	Burhanpur	Madhya Pradesh.
5.	Hathnur	Maharashtra
6.	Chikhaldara	Maharashtra
7.	Lakhpuri	Maharashtra
8.	Gopalkheda	Maharashtra
9.	Kurankheda	Maharashtra
10.	Akola	Maharashtra
11.	Lohara	Maharashtra
12.	Duskheda	Maharashtra
13.	Yerli	Maharashtra
14.	Shelgaon	Maharashtra
15.	Talaswada	Maharashtra
16.	Bhusaval	Maharashtra
17.	Pimpri	Maharashtra
18.	Girna Dam	Maharashtra
19.	Saygaon	Maharashtra
20.	Vankhed	Maharashtra
21.	Dahigaon Weir	Maharashtra
22.	Narne	Maharashtra
23.	Savkheda	Maharashtra
24.	Dhupeshwar	Maharashtra
25.	Morane	Maharashtra
26.	Sirpur	Maharashtra
27.	Gidhade	Maharashtra
28.	Sindkheda	Maharashtra
29.	Balsana	Maharashtra
30.	Sarangkheda	Maharashtra
31.	Prakasha	Maharashtra

32.	Velda	Gujarat
33.	Chandapur (Uchhal)	Gujarat
34.	Sagbara	Gujarat
35.	Ukai	Gujarat
36.	Kakrapar	Gujarat
37.	Gavachi (Ver)	Gujarat
38.	Ghala	Gujarat
39.	Kathore	Gujarat
40.	Surat (Seasonal)	Gujarat
41.	Nandurbar	Maharashtra
42.	Nizampur	Maharashtra
43.	Khetia	Madhya Pradesh
44.	Chiklod	Maharashtra
45.	Bambrul	Maharashtra

B. State's Wireless Stations and other communication system Stations.

1.	Ukai	Gujarat State
2.	Ver-II	Gujarat State
3.	Lakhigam	Gujarat State
4.	Chopadvav	Gujarat State
5.	Kakdi Amba	Gujarat State
6.	Ukai Dam Site	Gujarat State
7.	Rumkitalav	Gujarat State
8.	Borda	Gujarat State
9.	Kukarmunda	Gujarat State
10.	Naranpur	Gujarat State
11.	Nizar	Gujarat State
12.	Uchchhal	Gujarat State
13.	Jhamkhadi	Gujarat State

- 7.3** Plan of the river basin showing the wireless stations together with gauge discharge and rain gauge stations and time lag statement is also appended vide Annexure : 7-A.
- 7.4** Ukai Reservoir is located at Ukai on River Tapi which is moderating the flood on Tapi river.
- 7.5** Due to remoteness of Ukai head works and poor reliability of the telephone system during heavy rains and floods, it may not be possible for the Superintending Engineer Ukai (Civil) Circle, Ukai to communicate the flood message to the State Flood Control Cell, Gandhinagar. The Executive Engineer, Tapti Division (C.W.C) Surat shall therefore help to pass on such information to Flood Control Cell, Gandhinagar.
- 7.6** For flood control operation of Ukai Dam using forecast supplied by the Central Water Commission, the project authorities of Ukai Dam i.e. Superintending Engineer, Ukai (Civil) Circle, Ukai and Focal Officer of the Tapi Basin i.e. Superintending Engineer,

Surat Irrigation Circle, Surat are advised to thoroughly refer the guidelines contained in the newly adopted Manual on Flood Control Operation of Ukai Dam issued vide, Govt. Resolution No. - PRCH-1097-4605-(120) Part-3-K dated 4.8.2000 and part modified operation policy vide Govt. letter No.Ukai/2006(23)/Part-I-J Dtd.11.06.2008.

The Executive Engineer, Tapi Division, CWC, Surat will start issuing inflow forecast for Ukai Dam for a flood of peak discharge of 1000 cumec and above irrespective of Water Level of reservoir. 12-Hourly regular inflow forecast will be issued by him based on the hydro-meteorological data of base station Gidhade and Ukai. These forecast will be monitored regularly and revised(if required) after 6 hours based on hydro-meteorological data of Sarankheda and Surat. In addition to 12-hours regular forecast and 6 hourly revised forecasts, advisory warning for expected high flood for Ukai Dam would also be issued when the reservoir level is above 100.59 m (330.00 ft.)

For issue of flood forecasts and advance warning, the CWC has now defined following three situations viz. Normal, High Alert and Emergency.

7.6.1 Normal Situation.

The flood situation is considered as Normal when:

- (i) Water Level in Ukai Reservoir is less than 102.41 m (336.00 ft.)
- (ii) (a) Average daily rainfall recorded at 0830 IST at 7(Seven) key rain gauge stations in Upper Tapi Catchment up to Hathnur is less than 65mm and
(b) Average daily rainfall recorded at 0830IST at all 15 (fifteen) key rain gauge stations up to Ukai is less than 50mm

The flood forecast will be issued starting from June 01 to October 31 in the formate shown in "Form-N" of the Manual whenever inflow in to Ukai reservoir is expected more than 1000 cumec.

7.6.2. High Alert Situation

High Alert situation is implied when condition (i) and any one of the conditions (ii) (a) & (ii) (b) mentioned in 7.6.1. are violated. In this situation, the High Alert Warning shall be issued in the formate as shown in " Form-H", of the Manual.

7.6.3 Emergency Situation

An emergency situation is said to have been created when the Ukai Reservoir Water Level is above 102.41 m (336.00 ft) and

- (i) Combined Estimated discharged at Burhanpur and Yerli river gauging sites is above 14000 Cumecs or
- (ii) Average daily rainfall in lower Tapi between Hathnur to Ukai (8 rain gauge station) is above 65mm or
- (iii) The situation when there is failure of forecasting system.

In this situation, Emergency Situation Warning shall be issued in the formate shown in "Form-E" of the Manual depending upon the availability of data in Upper Tapi Basin with Forecasting Agency.

The CWC will issue these forecasts to the Superintending Engineer, Ukai (Civil) Circle, Ukai, Focal Officer i.e. Superintending Engineer, Surat Irrigation Circle, Surat and Flood Control Cell, Gandhinagar well in advance.

On receipt of the forecasts from CWC, the project authorities have to fill all information in " Form-FBRO" given in the manual to decide the releases to be made from the dam if necessary, and act accordingly.

- 7.7** In the early period of monsoon, to maintain the reservoir level at stipulated rule level, it may become necessary to release the excess water at once in case of flood developing upstream of Gidhade. The basic policy that is stipulated in the Manual Under a " Normal Flood Situation" is to restrict the outflow from the Ukai Dam to 5.0 Lakh cusec (about 14,000 cumec) and maintain the reservoir at the rule level.

In this case, the authorities downstream of the Ukai Dam should be in readiness with all the necessary arrangements made, to receive a flood up to 5.0 Lakh cusec (about 14,000 cumec) any time during the flood season, for which prior warning of 3 hours will be issued before first release of water from the dam. For subsequent release, downstream authority shall be kept informed before such release.

- 7.8** In case, when it is necessary to release discharge more than 5.0 Lakh cusec(about 14,000 cumec) from the Ukai Dam, the prior warning for higher discharges will be issued as mentioned below.

(i) **6.0 Lakh cusec -3 hrs. + Travel time**
(16,660 cumec) from Ukai Dam*

(ii) **8.0 Lakh cusec -6 hrs. + Travel time**
(22,655 cumec) from Ukai Dam*

(iii) **10.0 Lakh cusec -9 hrs. + Travel time***

(* - The approximate estimated travel time from Ukai Dam to Hope Bridge, Surat is 6.00 hrs.)

The collector, Surat has to make all necessary arrangements to make the downstream river channel clear up to danger level i.e. R.L. 9.50 m (31.16 ft) and the people may be shifted from the river banks so as not to hamper the flood routing operation from Ukai Dam for a release of 4.0 Lakh cusec about (11,300 cumec) and above.

- 7.9** The villages affected by floods in Tapi River are given in Annexure :7-B while to the details of various villages affected at different levels of various villages affected at different levels of Kakrapar Weir are mentioned in Annexure : 7-C.

- 7.10** Action to be taken by the Executive Engineer, Tapti Division, (C.W.C) Surat and other officers.

TABLE (7.10)

Note :- Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Executive Engineer Tapti Division (C.W.C), Surat	The Flood Level forecast of NEHRU BRIDGE, Surat shall be conveyed to the Officer in Column No. 3 at Sr.No.(a), (b), (c) and (e) The inflow forecast of 1000 Cumecs or more coming into Ukai Dam shall be conveyed to the officers at Sr. No. (a),(b), (c) & (e) in Column No. 3	(a) Superintending Engineer, Surat Irrigation, Circle, Surat. (b) Superintending Engineer, Ukai (Civil) Circle, Ukai (c) Collector, Surat. (d) District Superintendent of Police, Surat (e) Municipal Commissioner, Surat (f) Police Commissioner, Surat (g) Port Officer, Magadalla, Port, Surat (h) O.N.G.C. (Village Bhatpur), (i) Station Director, Chief Superintendent, Control Room, Kakrapar Atomic Power Plant Vyara & Surat.
(B) Superintending Engineer, Ukai (Civil) Circle, Ukai	The Officer will intimate the Out Flow of Ukai Dam to the officers as shown in Column No.3 Below at Sr. No. (a) to (d) along with (c) and (e) in Col. No. :- 3 of Sr. No. :- (A) above	(a) Executive Engineer, Tapi Division (C.W.C), Surat. (b) Superintending Engineer Surat Irrigation Circle, Surat. (c) Port Officer, Magadalla Port, Surat. (Through Flood Cell, Surat) (d) Executive Engineer, Surat Canal Division, Surat (e) O.N.G.C. Village Bhatpur. (f) Station Director, Chief Superintendent of Control Room, Kakrapar Atomic Power Plant, Vyara-Surat.
(C) Executive Engineer, Surat Canal Dn., Surat	The officer will arrange to intimate the levels of Kakrapar to the Superintending Engineer, Surat Irrigation Circle, Surat, and to the Officers at Sr. No. (a),(b),(c),(e),(f) in Column No.3 of Sr. No. (B), above along with (c) and (e) in Col. No. :- 3 of Sr. No. :- (A) above	(a) Executive Engineer, Tapi Division (CWC), Surat

7.11 Statement showing the Time lag for various stations from origin to the end of river basin is as under:

Sr. No.	Name of Site	Type of Site	State	Catchment Area in Sq. Kms.	Distance from Origin in Kms.	Danger Level in Meters	Time Lag in Hours
1	2	3	4	5	6	7	8
1.	Teska	WGR	M. P.	1486	74	—	—
2.	Dedtalai	WGDR	M. P.	6660	200	—	44
3.	Nawtha	GDR	M. P.	—	—	—	—
4.	Burhanpur	WGDSQR	M. P.	8487	241	220.90	36-37
5.	Hathnur	WGR	Maha.	29430	290	214.00	32
6.	Chikhaldara	WR	Maha.	—	—	—	—
7.	Lakhpuri	WGR	Maha.	3560	—	—	—
8.	Gopalkheda	WGDSQR	Maha.	9500	—	—	45
9.	Kurankheda	GDR	Maha.	42720	605	—	—
10.	Akola	GR	Maha.	34140	615	—	—
11.	Luhara	GDR	Maha.	—	128	—	—
12.	Duskheda	GR	Maha.	775.07	43.363	234.90	—
13.	Yerli	WGDSR	Maha.	16517	223	—	37-38
14.	Shelgaon	R	Maha.	—	—	—	—
15.	Talaswada	GR	Maha.	—	—	—	—
16.	Bhusaval	WGR	Maha.	32478	306	185.32	31
17.	Pimpri	GDR	Maha.	—	—	—	—
18.	Girna Dam	WGR	Maha.	4729	110	398.069	—
19.	Saygaon	GDR	Maha.	911.93	65.106	344.123	—
20.	Vankhed	GDR	Maha.	18330.75	370	—	—
21.	Dahigaon Weir	WGDR	Maha.	8599	222	230.150	—
22.	Narne	GR	Maha.	537.395	61.214	153.140	—
23.	Savkheda	WGR	Maha.	48136	408	—	—
24.	Dhupeshwar	GDR	Maha.	—	—	—	—
25.	Morane	WGDR	Maha.	1933	95	—	22-24
26.	Sirpur	GDR	Maha.	700.74	39.39	149.000	—
27.	Gidhade	WGDR	Maha.	54750	420	—	18
28.	Sindkheda	GDR	Maha.	1080.45	88.602	156.000	—
29.	Balsana	GR	Maha.	342.73	35.44	200.350	—
30.	Sarangkheda	WGDSQR	Maha.	58400	488	—	—
31.	Prakasha	GDR	Maha.	1091	150	117	—
32.	Velda	GR	Gujarat	—	—	—	—
33.	Chandapur (Uchhal)	GR	Gujarat	412.698	36	—	—
34.	Sagbara	R	Gujarat	—	—	—	—
35.	Ukai	WGRF	Gujarat	62225	595	105.15	8
36.	Kakrapar	GR	Gujarat	62826	624	53.66	7-8
37.	Gavachi (Ver)	GDR	Gujarat	365	40	—	—
38.	Ghala	WGDR	Gujarat	63325	640	—	—
39.	Kathore	GR	Gujarat	—	—	—	—

Sr. No.	Name of Site	Type of Site	State	Catchment Area in Sq. Kms.	Distance from Origin in Kms.	Danger Level in Meters	Time Lag in Hours
1	2	3	4	5	6	7	8
40.	Surat (Seasonal)	GR	Gujarat	63973	708	9.50	0
41.	Nandurbar	R	Maha.	—	—	—	—
42.	Nizampur	R	Maha.	—	—	—	—
43.	Khetia	R	M. P.	—	—	—	—
44.	Chiklod	R	Maha.	—	—	—	—
45.	Bambrul	GD	Maha.	—	—	—	—
Note :		W = Wireless		D = Discharge		F = Flood	
		G = Gauge		R = Rainfall		S = Silt	
		Q = Water Quality					

7.12 Appropriate Authority (Focal Officer.)

The Superintending Engineer,
Surat Irrigation Circle,
Near M.T.B. College
Athwa Lines, Surat

Note :-

Please see Flood Telephone
Directory of the current year for
Telephone Nos.

ANNEXURE - 7-(B)

List of villages likely to be affected by floods in **Tapi River** on the basis of Gauge & Discharge at **Kakrapar Weir site**, Surat.

SURAT DISTRICT

SR. NO.	CHORASI TALUKA	SR. NO.	CHORASI TALUKA	SR. NO.	MANDVI TALUKA	SR. NO.	MANDVI TALUKA
	1		1 Contd.		2		2-Contd.
1	Magdalla	39	Kosad	1	Kakrapar	39	Vadi
2	Nava Varachha	40	Mora	2	Tarsada	40	Vadod
3	Katar Gam	41	Mota Varachha	3	Var Jakham	41	Nogama
4	Gavier	42	Amroli	4	Mandvi	42	Kevadia
5	Surat City	43	Utran	5	Khedapur	43	Veghi
6	Dabholi	44	Vanta	6	Patha	44	Naren
7	Piplod	45	Rundh	7	Vashigam	45	Kharoli
8	Umra	46	Bharthana (Vesu)	8	Vaghacha	46	Nandapur
9	Tunki	47	Althan	9	Varoli	47	Andhatri
10	Khatodra	48	Navagam	10	Moti Cher	48	Uncha-Mala
11	Singapor	49	Puna	11	Pipaltha	49	Bed Kuva
12	Ved	50	Saroli	12	Kakadawa		
13	Vesu	51	Ichchhapur	13	Kosamdi		
14	Abhava	52	Rander	14	Piparia		
15	Majura	53	Sarsana	15	Govachhi		
16	Anjana	54	Pandesara	16	Rupen		
17	Parwat	55	Kosmada	17	Thutwadi		
18	Damrod	56	Govalak	18	Bothan		
19	Magob	57	Pal	19	Zankhia		
20	Fulpada	58	Chhaaprabhatha	20	Nani Cher		
21	Athwa	59	Bharthana (Kosad)	21	Ratania		
22	Jhangirpura	60	Malgama	22	Umarsadi		
23	Adajan	61	Limla-Township	23	Vareli		
24	Vairav	62	Bhesan	24	Kamalapur		
25	Bhatar	63	Vansava	25	Vareth		
26	Bamroli	64	Bhatalai	26	Rajwad		
27	Khajod	65	Damka	27	Kharoli		
28	Bhimrod	66	Mora	28	Unn		
29	Udhana	67	Suwali	29	Virpor		
30	Simada	68	Bhatpor	30	Vankla		
31	Kumbharia	69	Abhava	31	Roswad		
32	Karanj	70	Limbayat	32	Khanjroli		
33	Dumas	71	Parvat	33	Khaler		
34	Sarasana	72	Sanla Hemad	34	Kosdi		
35	Kawas	73	Sarsana	35	Godawadi		
36	Bhatha	74	Pandesara	36	Una		
37	Palanpur	75	Kosamba	37	Vaghnera		
38	Bharthana			38	Varethi		

SR. NO.	BARDOLI TALUKA	SR. NO.	KAMREJ TALUKA	SR. NO.	KAMREJ TALUKA	SR. NO.	DIST. TAPI VYARA TALUKA
	3		4		4 Contd.		
1	Miyawadi	1.	Kamrej	38	Kathodra	1	Kanja
2	Kadod	2.	Kholwad	39	Koli Bhathana	2	Bedkuwa-Dur
3	Uchhare	3.	Kholeswar.	40	Netrang	3	Kalavyara
4	Nasura	4.	Timba				
5	Haripara	5.	Kathor				
6	Zarimora	6.	Chorasi				
7	Vadhvania	7.	Antroli				
8	Samthari	8.	Tharoli				
		9.	Paradi				
		10.	Bhadad				
		11.	Valst				
		12.	Sarthana				
		13.	Laskana				
		14.	Velanja				
		15.	Sarasana				
		16.	Ankhakhhol				
		17.	Gior				
		18.	Karjan				
		19.	Bherav				
		20.	Amboli				
		21.	Ambharama				
		22.	Navi pardi				
		23.	Abrama				
		24.	Derod				
		25.	Ghala				
		26.	Dhoranpardi				
		27.	Dungra				
		28.	Dhatava				
		29.	Machhi				
		30.	Nansad				
		31.	Dewali				
		32.	Shampura				
		33.	Ghaduli				
		34.	Limodara				
		35.	Pasodara				
		36.	Navagam				
		37.	Timba				

SR. NO.	OLPAD TALUKA	SR. NO.	OLPAD TALUKA	SR. NO.	OLPAD TALUKA
	5		5 Contd.		5 Contd.
1	Sayan	31	Sandhiar	61	Hasanpor
2	Vasvari	32	Sithana	62	Kanbhai
3	Atodara	33	Masama	63	Obhala
4	Asnad	34	Andhi	64	Bharunda
5	Saroli	35	Kalipur	65	Shekhpur
6	Gothan	36	Isanpur	66	Lavachha
7	Jothan	37	Dihen	67	Admor
8	Umra	38	Kundalana	68	Kudiyana
9	Sivan	39	Achharan	69	Kuwad
10	Delad.	40	Kamaj	70	Kapasi
11	Segwa	41	Saroli	71	Kunbhari
12	Madhar	42	Talad	72	Naghoi
13	Karamala	43	Sherdi	73	Koba- Pardi
14	Ariana	44	Orma	74	Kachhab
15	Sonsak	45	Bhandut	75	Delasa
16	Balkas	46	Kaslakhurd	76	Sondlakhara
17	Gola	47	Kachhol	77	Mirzapor
18	Kosam	48	Tena	78	Mindhi
19	Mahamadpur	49	Kasla Bujarang	79	Morbhava
20	Earthan	50	Saras	80	Syabha
21	Selut	51	Vadila		
22	Ambheta	52	Sejpura		
23	Kunkani	53	Hathisa		
24	Veluk	54	Matkol		
25	Pinjrat	55	Bhat gam		
26	Olpad	56	Asnad		
27	Asnabad	57	Sarsana		
28	Barbodhan	58	Sondla Mitha		
29	Paria	59	Morthan		
30	Vadod	60	Takarma		

Note : Refer Annexure 7-C for the villages likely to be affected by floods at different Water levels.

ANNEXURE - 7 (C)

List of villages likely to be affected by floods in **Tapi River** on the basis of Gauge & Discharge at **Kakrapar Weir Site**, Surat.

Sr. No.	Discharge at Kakrapar Weir in (Cus/Cum)	Gauge Level at Kakrapar Weir		Name of District Taluka	Signal for Village at Sr. No.		
		In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS		: ALERT				
2	BLUE SIGNALS		: READY FOR EVACUATION				
3	RED SIGNALS		: IMMEDIATE EVACUATION				
(1)	3,91,100	174.40	53.15	Surat			
	11,074			1. Chorasi	1,2,4,5, 8,9,11,12, 46,47,52	—	—
(2)	4,40,400	175.50	53.40	Surat			
	12,740			1. Chorasi	3,6,7,10 & 13,15 to 18 20 to 26 28 to 39, 53	1,2,4,5,8, 9,11,12 46,47,52	---
(3)	4,60,640	176.05	53.66	Surat			
	13,044			1. Chorasi	45,48,49, 50,51	3,6,7,10, 13, 15 to 18, 20 to 26, 28 to 39, 53	1,2,4,5, 8,9,11,12 46,47,52
(4)	<u>5,20,375</u> 14,735	177.25	54.04	Surat			
				1. Chorasi	58 to 62,68	45,48,49, 50,51	3,6,7,10,13 ,15 to 18, 20 to 26, 28 to 39, 53
				2. Mandavi	1	—	—
				3. Kamrej	1, 2, 3, 13, 19, 20	—	—
(5)	<u>5,80,740</u> 16,444	178.50	54.42	Surat			
				1.Mandavi	4 to 12	1	—
				2.Bardoli	1	—	—
				3.Kamrej	4,6 to 12	1,2,3,	—
					15 to 16	13,19,20	
				4.Olpad	1 to 25	—	—
				5.Vyara (Tapi)	1	—	—
				6.Chorasi	—	58to62,	45,48,49,
						68	50,51

Sr. No.	Discharge at Kakrapar Weir in (Cus/Cum)	Gauge Level at Kakrapar Weir		Name of District Taluka	Signal for Village at Sr. No.		
		In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
(6)	6,90,370 ————— 19.449	180.50	55.03	Surat			
				1. Chorasi	40 to 44	—	55 to 62, 68
				2. Mandavi	13	4 to 12	1
				3. Bardoli	—	1	—
				4. Kamrej	—	6 to 12, 15, 16	1, 2, 3, 13, 19, 20
				5. Olpad	26 to 36	1 to 25	—
				6.Vyara (Tapi)	—	1	—
(7)	7,60,150 ————— 21,524	181.75	55.41	Surat			
				1. Chorasi	—	40 to 44	—
				2. Mandavi	21 to 30	13	4 to 12
				3. Bardoli	2 to 3	—	1
				4. Kamrej	17 to 20, 21 to 32	—	4, 6 to 12, 15, 16
				5. Olpad	37 to 44	26 to 36	1 to 25
				6.Vyara (Tapi)	—	—	1
(8)	8,90,760 ————— 25,223	184.00	56.10	Surat			
				1.Mandavi	31 to 39	21 to 30	13
				2.Bardoli	4	2 to 3	—
				3.Kamrej	33 to 37	17 to 20, 21 to 32	—
				4.Olpad	45 to 65	37 to 44	26 to 36
				5.Vyara (Tapi)	3	—	—
				6.Chorasi	46, 47, 54, 55, 56, 63 to 67, 69	—	40 to 44
(9)	9,50,950 ————— 26,927	185.00	56.40	Surat			
				1.Mandavi	40 to 47	31 to 39	21 to 30
				2.Bardoli	5	4	2 to 3
				3.Kamrej	—	33 to 37	17 to 20, 21 to 32
				4.Olpad	66 to 74	45 to 65	37 to 44
				5.Vyara(Tapi)	—	3	—
				6.Chorasi	70, 71, 72	46, 47, 54, 55, 56, 63 to 67, 69	—

Sr. No.	Discharge at Kakrapar Weir in (Cus/Cum)	Gauge Level at Kakrapar Weir		Name of District Taluka	Signal for Village at Sr. No.		
		In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
(10)	10,00,000	185.70	56.40	Surat			
	_____			1.Mandavi	2, 3, 48, 49	40 to 47	31 to 39
	28,317			2.Bardoli	6, 7	5	4
				3.Kamrej	5, 38 to 40		33 to 37
				4.Olpad	75 to 80	66 to 74	45 to 65
				5.Vyara (Tapi)			3
				6.Chorasi	14, 19, 27, 47, 73 to 75	70, 71, 72	46, 47, 54, 55, 56, 63 to 67, 69
(11)	11,00,000	187.20	57.05	Surat			
	_____			1.Mandavi	—	2, 3, 48, 49	40 to 47
	31,148			2.Bardoli	—	6, 7	5
				3.Kamrej	—	5, 38 to 40	—
				4.Olpad	—	75 to 80	66 to 74
				5.Vyara (Tapi)	—	3	1
				6.Chorasi	—	14, 19, 27, 47, 73 to 75	70, 71, 72
(12)	12,00,000	188.70	57.51	Surat			
	_____			1.Mandavi	—	—	2, 3, 48, 49
	33,980			2.Bardoli	—	—	6, 7
				3.Kamrej	—	—	5, 38 to 40
				4.Olpad	—	—	75 to 80
				5.Vyara (Tapi)	—	—	3
				6.Chorasi	—	—	14, 19, 27, 47, 73 to 75

Note : Refer Annexure 7-B for the villages likely to be affected by floods at different Water Levels.

TABLE : 1
DRAIN NETWORK OF TAPI BASIN

Sl.No	Name of River / tributary	Bank	Elevation of source above m.s.l [m]	Length [K.m]	Catchment area [K.m ²]	% of total area
1	2	3	4	5	6	7
1	Tapi	Main Steam	752	724	22522	34.57
2	Gomai	Right	600	58	1148	1.76
3	Arunavati	Right	450	53	935	1.44

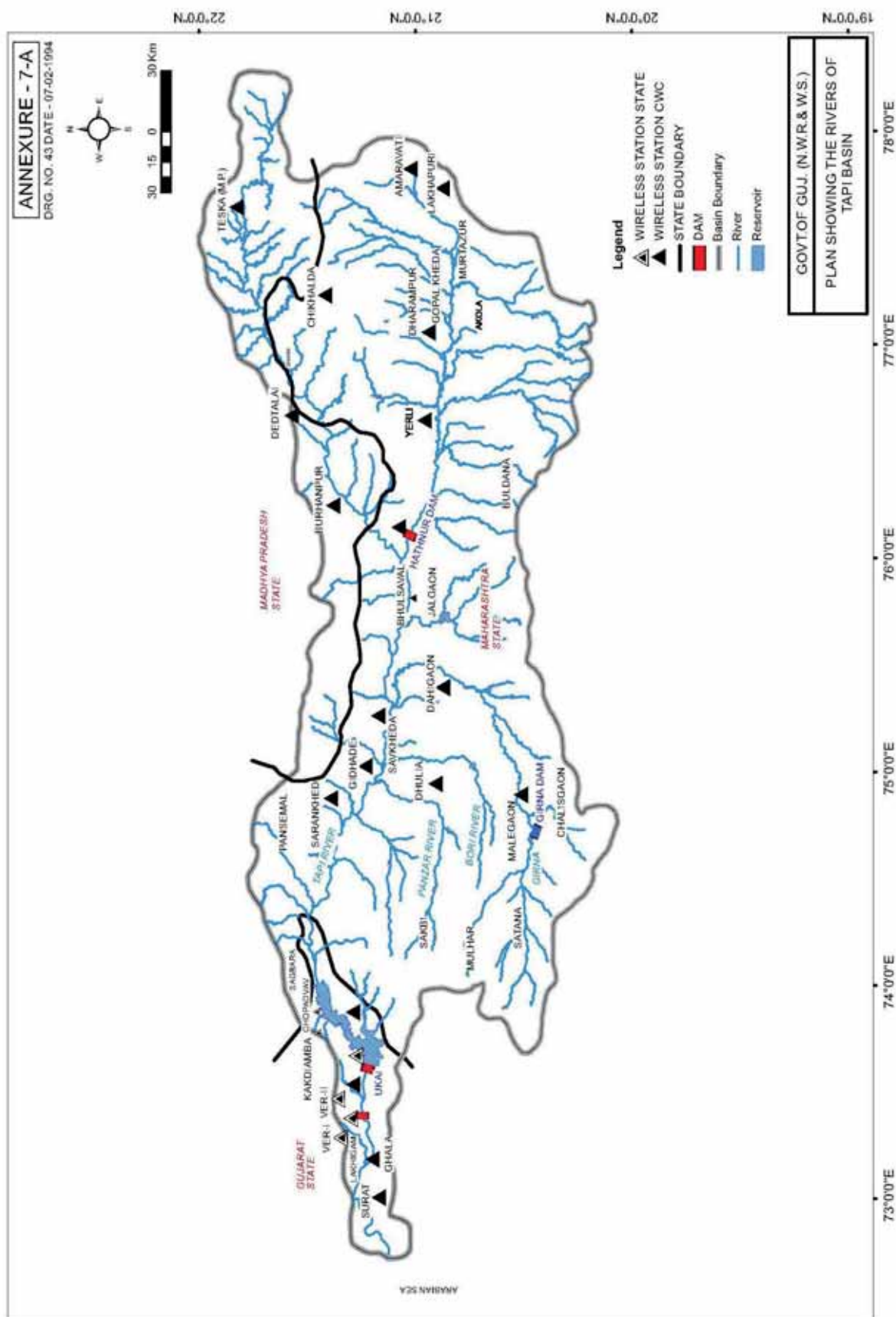
Sl.No	Name of River / tributary	Bank	Elevation of source above m.s.l [m]	Length [K.m]	Catchment area [K.m ²]	% of total area
4	Buray	Left	600	64	1419	2.18
5	Panjhra	Left	600	138	3257	5.00
6	Bori	Left	600	130	2580	3.96
7	Aner	Right	600	94	1702	2.61
8	Girna	Left	900	260	10061	15.44
9	Waghur	Left	751	96	2592	3.98
10	Purna	Left	900	274	18929	29.06
			TOTAL	1896	65145	100

TABLE : 2
EXISTING WRP IN TAPI BASIN

Sl. No	Name of Project	River	Status	Capacity [MCM]		Utilisation
				Gross	Live	
1	Chandora tank	Tapi	Medium	18.20	16.482	Irrigation
2	Sonkhedi tank	Local Nala	Medium	5.456	4.595	Irrigation
3	Girna Project	Girna	Medium	608.45	523.55	Irrigation
4	Manyad	Manyad	Medium	53.950	40.27	Irrigation
5	Bori	Bori	Medium	40.310	25.15	Irrigation
6	Hathnur	Tapi	Medium	388.00	255.0	Irrigation
7	Waghur	Waghur	Major	325.287	248.548	Irrigation & Hydro-power generation
8	Suki	Suki	Medium	50.160	39.85	Irrigation
9	Abhora	Boked Nalla	Medium	7.440	6.020	Irrigation
10	Bokar Bari	Bokar Bari Nalla	Medium	7.090	6.540	Irrigation
11	Agnawati	Agnawati	Medium	3.740	2.760	Irrigation
12	Tondapur	Khadki Nalla	Medium	6.304	4.636	Irrigation
13	Aner Project	Aner	Medium	103.23	56.380	Irrigation
14	Karwand Project	Arunawati	Medium	33.840	31.150	Irrigation
15	Panjhra Project	Panjhra	Medium	43.410	35.630	Irrigation
16	Malangaon	Kan	Medium	13.020	11.350	Irrigation
17	Kanholi	Kanholi	Medium	11.79	8.450	Irrigation
18	Burai	Burai	Medium	21.330	14.210	Irrigation
19	Arunawati	Arunawati	Medium	27.780	14.970	Irrigation
20	Rangwali	Rangwali	Medium	15.020	12.890	Irrigation
21	Nagasakya	Panzar	Medium	15.620	11.240	Irrigation
22	Haran Bari	Mousam	Medium	34.780	---	Irrigation
23	Ukai	Tapi	Major	8510	7092	Power & irrigation
24	Kakrapar	Tapi	Medium	Diversion	N.A	Irrigation
25	Ver-I	Ver	Medium	38.6	37.41	Irrigation
26	Lakhigav	Dhakni	Medium	4.9	4.61	Irrigation
27	Sulwade	Tapi	Medium	65.071	64.942	Irrigation
28	Saragkheda	Tapi	Medium	92.19	91.82	Irrigation

DETAILS OF C. W. C. OFFICES IN THE CATCHMENT OF UKAI DAM

- 1 SURAT**
Shri Ashish Kumar
Executive Engineer
Tapi Division,
Central Water Commission,
Opp. Kshetrapal Health Center
Sagarpura,
SURAT
Ph.No. 0261-2478569
- 2 BHUSAWAL**
D.A.Telangi
Assistant Engineer
Upper Tapi Sub Division
CWC,Opp. Yawal naka
Bhusawal,
Dist. Jalgaon
MAHARASHTRA
Ph.No.02582-222913
- 3 DHULIA**
Shri Ranjan Shrivastava
Assistant Engineer
Middle Tapi Sub Division
CWC,Near Vidya Vardhani College
Sakri Road, Dhulia
Ph.No.02562-276147
- 4 SURAT**
Shri Ashishkumar R. Amin
Sub Division Engineer
Lower Tapi Sub Division
CWC, Opp. Kshetrapal Health Center
Sagarpura,
SURAT
Ph.No. 0261-2476187
- 5 HATHNUR**
N.P.Mahajan
The site Incharge C F F Wireless Station Hathnur
C/O Deputy Engineer
Hathnur Dam
Post Tahakali
Ta. Bhusawal
Dist. Jalgaon
MAHARASHTRA
Ph.No. 02582 - 277044
M - 8459297996



NARMADA BASIN**(A.RAMI SUB BASIN, B.SUKHI SUB BASIN, C.KARJAN SUB BASIN)****8.0 NARMADA BASIN :**

8.1.1 The flood forecasting system for Narmada Basin is being looked after by Superintending Engineer, Hydrological Observation Circle, Gandhinagar through his Executive Engineer, Tapti Division (C.W.C.) at Surat. The Executive Engineer, Narmada Division, Bhopal is entrusted and looked after the all wireless set in Madhya Pradesh (i.e. Sr. No. 1 to 13 in para 8.1.2). He has established various wireless stations at locations from where he can obtain the details about rainfall and discharges in the river. The gauge and rainfall data are being communicated, through wireless stations located on the main river as well as on tributaries. The responsibility of Flood Level Forecast of Mandla and Hosangabad, Bhopal w.e.f. monsoon - 2000. The Flood Forecast of Garudeshwar and Bharuch is still with Tapi Dn., Surat. As such, Tapi Division is collecting hydrometeorological data from Hosangabad to Bharuch only.

8.1.2 Name of villages/dams where wireless stations are located to report rainfall and gauge discharges are as under :

A. C.W.C's Wireless Stations

1.	Manot	Madhya Pradesh
2.	Mawai	Madhya Pradesh
3.	Mohegaon	Madhya Pradesh
4.	Dindori	Madhya Pradesh
5.	Mukki	Madhya Pradesh
6.	Mandla	Madhya Pradesh
7.	Burmanghat	Madhya Pradesh
8.	Tawa Upstream/Downstream	Madhya Pradesh
9.	Panchmari	Madhya Pradesh
10.	Hoshangabad	Madhya Pradesh
11.	Morttakka	Madhya Pradesh
12.	Bargi Dam	Madhya Pradesh
13.	Barman Ghat	Madhya Pradesh
14.	Sandiya	Madhya Pradesh
15.	Indra Sagar Dam	Madhya Pradesh
16.	Omkareshwar Dam	Madhya Pradesh
17.	Mandaleshwar	Madhya Pradesh
18.	Sardar Sarovar Dam	Gujarat State
19.	Garudeshwar	Gujarat State
20.	Rajpipla	Gujarat State
21.	Bodeli	Gujarat State
22.	Bharuch	Gujarat State

B. State's Wireless Stations.

1.	Karjan	Gujarat State
2.	Dholi	Gujarat State
3.	Fulwadi	Gujarat State
4.	Ghantoli	Gujarat State
	Tal. Dediapada	

8.1.3 The plan of the river basin showing the wireless stations established together with gauge discharge and rain gauge stations and time lag statement is also appended vide **Annexure : 8.A.1 and 8.A.2**

8.1.4 The list of villages with District and Taluka affected by floods of Narmada River are given vide Annexure : 8 (B-1) and list of villages affected at various levels at Garudeshwar and Bharuch are given in Annexure 8 (C-1.1) and 8 (C-1.2).

Flood forecasting of Karnali village is being done on the basis of the water level at Garudeshwar gauge site. Danger level of Karnali is 34.14 m (112 ft). Therefore, Garudeshwar water level reaches 34.14 m (i.e 112 ft), the water level will start entering into the village Karnali.

The runoff time from Narmada dam site to village Karnali will be approximately 2.5 hours and 1.5 hours from Garudeshwar.

8.1.5 The Executive Engineer, Tapti Division, (C.W.C.) Surat will inform Research Officer, Narmada Project Laboratory Division, Kevadia Colony about the release of discharge of 1.0 Lacs Cusecs (2832 Cumecs) and more from Tawa Dam (Madhya Pradesh) who in turn will inform the focal officer of Narmada Basin.

8.1.6 Action to be taken by the Executive Engineer, Tapti Division, (C.W.C.), Surat and other Officers.

TABLE - (8.1.6)

Note :- Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
Executive Engineer Tapti Division (C.W.C), Surat.	The Flood Level forecast of GARUDESHWAR & BHARUCH (Golden Bridge) shall be conveyed to the Officers in Column No. 3 (a) (c) to (e) (h) (i) & (l)	(a) Superintending Engineer, N.P.Head Works Circle New Administrative Block-B First floor, Kevadia-393151 (b) Executive Engineer N.P.Dam Division No.2 New Administrative Block-B, Second floor, Kevadia-393151. (c) Collector, Bharuch. (d) Collector, Narmada (e) Collector, Vadodara. (f) District Superintendent of Police, (i) Bharuch. (ii) Narmada (g) District Superintendent of Police (Rural), Vadodara. (h) The Research Officer, Narmada Project Laboratory Division, Kevadia Colony. (i) Flood Cell, "Narmada Bhavan" Vadodara.
Executive Engineer, Irrigation Project Division No.4, Rajpipla. (Incharge of Karjan Dam)	Communication about Rainfall, Water Level Waste Weir Overflow at 6.00 AM. or every hour as required through Wireless	(j) Superintending Engineer, Vadodara Irrigation Circle, Vadodara (k) Executive Engineer Tapti Division, (C.W.C)

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)

/Telephone to the Officers in Column No.3 at Sr. No. (a) (c) (d) (j) (k) & (l) (b)

(l) Flood Cell, Gandhinagar.

Executive Engineer
N.P.Dam Division No.2
New Administrative Block-B,
Kevadia-393151.

The Flood Level forecast of Orsang river shall be conveyed to officers in Column no.3 at Sr.no.(a), (d),(e),(f),(g) & (i)

Dy. Executive Engineer
Dholi Irri, Scheme,
Rajpardi.

Communication about inflow/outflow, Flood reservoir water level, rainfall etc. shall be conveyed to the Officers in Col. No. 3 @ Sr. No. (c) (d) (j) & (k)

8.1.7 Statement showing the Time lag for various stations from origin to the end of river basin is as under. (From Site to Bharuch)

Sr. No.	Name of Site	Type of Site	State	Catchment Area in Sq. Kms.	Distance from Origin in Kms.	Danger Level in Meters	Time Lag in Hours
1	2	3	4	5	6	7	8
1.	MAWAI	W,R	M.P.	Only Rainfall recording stations			
2	DINDORI	W,G,D,R	M.P.	2292	97.00	—	90
3	MUKKI	W,G,R	M.P.	968	84.00	—	90
4	MANOT	W,G,D,R, S,Q	M.P.	4667	265.00	—	81
5	MOHEGAON	W,G,D,R, S,Q	M.P.	4090	160.00	—	82
6	MANDLA	W,G,D,R,F	M.P.	13000	296.00	437.80	78
7	JAMTARA	W,G,D,R, S,Q	M.P.	16949	362.00	374.09	68
8	BURMANGHAT	W,G,D,R, S,Q	M.P.	26453	526.00	323.03	52
9	1. TAWA U/s	W,G,R	M.P.	6060	126	—	36-37
	2. TAWA D/s	W,G,R	M.P.	6060	126	—	36-37
10.	HOSHANGABAD	W,G,D,R, F,S,Q	M.P.	44548	676	293.83	30
11.	PANCHMARI	W,R	M.P.	Only Rainfall recording stations			
12.	INDIRA SAGAR PROJECT	G	M.P.	61642	851.00	262.13 (FRL)	20
13.	OMKARESHWAR PROJECT	G	M.P.	64880	893.00	196.60 (FRL)	16
14.	MORTAKKA	W,G,D,R,S	M.P.	N.A.	908.00	162.75	15
15.	BARWANI	W,G,D,R, S,Q	M.P.	77674	1064.00	123.28	07
16.	Dam Site	G	Gujarat	88000	1168.00	121.92 (CREST LEVEL)	0
17.	GARUDESHWAR	W,G,D,R, F,S,Q	Gujarat	89345	1188.40	31.09	-1*

Sr. No.	Name of Site	Type of Site	State	Catchment Area in Sq. Kms.	Distance from Origin in Kms.	Danger Level in Meters	Time Lag in Hours
1	2	3	4	5	6	7	8
18.	RAJPIPLA	W,G,R	Gujarat	1440	70	26.80	-(6-8)*
19.	BODELI	W,G,R	Gujarat	2300	85	80.06	-(6-8)*
20.	BHARUCH	W,G,R,F	Gujarat	98796	1271.00	7.31	-7*

Note: (1) W = Wireless D = Discharge F = Flood G = Gauge R = Rainfall S = Silt
Q = Water Quality.

*(2) For calculating the Time Lag period considering the Dam Site (Sardar Sarovar) as (0) base.

8.1.8. Appropriate Authority (Focal Officer)

(A) Superintending Engineer
N.P.Head Works Circle,
New Administrative Block-B
First floor, Kevadia-393151

(B) For Dholi Irrigation Scheme
Superintending Engineer
Vadodara Irrigation Circle, Vadodara

Note:-
Please see
Flood Telephone
Directory of the current
year for Telephone Nos.

8.2 A - RAMI BASIN (Sub basin of Narmada River)

8.2.1 The river Rami is tributary of river Narmada reaching in through Heran and Orsang rivers.

8.2.2. Names of places where wireless stations are located to report rainfall gauge & discharge are as under:

1. Bodeli (Office of the Executive Engineer,
Irrigation Project Division No.2, Bodeli)
2. Rami Dam site (near Khandibara village)
3. Vadodara (Vadodara Irrigation Circle, Vadodara)

8.2.3. Basin plan showing all the wireless stations established to gather with the rain gauge, water levels, discharges observation sites are given in Annexure 8-A-1.

8.2.4. The list of villages affected by the floods in river Rami at various stages at different levels is appended vide Annexure 8-B-2 & 8-C-2.

8.2.5 Action to be taken by various concerned officers.

TABLE – (8.2.5)

Note: Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
Dy Executive Engineer (Incharge of RAMI Dam) Under Rami Dam site Wireless Station	Communication about Rain fall, Water Level, Waste weir Over flow at 6.00 A.M. or every hour as required through Wireless / Telephone to be conveyed to the Officer in Column No. 3 at Sr. No. (b).	a) Executive Engineer Pipe Line Project Division No.1, Chhotaudepur
Bodeli Wireless Station under Executive Engineer Irrigation Project Division No.2, Bodeli	Communication about Rain fall, Water Level, Waste Weir Overflow at 6.00 A.M or Every one hour as required through Wireless/Telephone to the officers in column No.3 at Sr. No. (a) to (e)	b) Superintending Engineer Vadodara Irrigation Circle Vadodara c) Dy. Executive Engineer, Vadodara Irrigation Sub- Division, Vadodara i.e., Control Room. d) Executive Engineer Tapti Division (C.W.C), Surat. e) Superintending Engineer Designs. , N.P. (Dam & Power House) Circle, Vadodara.

8.2.6. Appropriate Authority (Focal Officer)

Superintending Engineer
Vadodara Irrigation Circle
Kothi Building, Vadodara

Note:-

Please see Flood Telephone Directory of the current year for Telephone Nos.

8.3 B - SUKHI BASIN (Sub Basin of Narmada River)

8.3.1 The Sukhi River is tributary of Orsang river which is a tributary of Narmada river.

8.3.2 The flood forecasting for Sukhi river is being looked after by Superintending Engineer, Vadodara Irrigation Circle, Vadodara. Various wireless stations are established at suitable locations from where discharge and gauge data including rainfall data are obtained by Focal Officer.

8.3.3 Names of places of Wireless Stations installed in the basin are as under:

- (1) Bodeli (Office of the Executive Engineer, Irrigation Project Division No. 2, Bodeli).
- (2) Zoz
- (3) Sukhi Dam Site.
- (4) Wadhwana
- (5) Vadodara (Office of the S.E, Vadodara Irrigation Circle, Vadodara).

8.3.4 Basin plan showing all the wireless stations established to gather with the rain gauge, water levels, discharges observation sites are given in Annexure: 8-A-1

8.3.5 The list of villages affected by the floods in river Sukhi at various stages at different levels is appended vide Annexure 8-B-3 & Annexure 8-C-3.

Action to be taken by various concerned officers.

TABLE – (8.3.6)

Note : Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
Zoz Wireless Station (under the control of Deputy Executive Engineer, Irrigation Project Sub Dn No. 10, Bodeli)	Communication about Rain fall, in up stream area to be submitted to the Dam site through wireless.	a) Dy. Executive Engineer Irrigation Project Sub-Division No.10, Bodeli (Incharge of Wireless Station at SUKHI Dam Site) (Dungarwant-Control Cabin)
SUKHI Dam Site Wireless Station (near village Dungarwant) under the control of Deputy Executive Engineer, Irrigation Project Sub-Dn. No. 10, Bodeli	Messages about Rain fall Spillway discharges of reservoir, Water level and messages received from Zoz Wireless Stations of up stream catchment area, information regarding Gauging Data Rainfall and Discharge etc. at 6.00 A.M. or every hour as required will be conveyed to the officers mentioned in Column No.3 at Sr. No. (a) to (d) (through Bodeli Wireless Station)	b) Dy. Executive Engineer Irrigation Project Sub Division No. 10, Bodeli c) Executive Engineer Irrigation Project Division No. 2, Bodeli (Admn. Block) d) Mamlatdar Pavi-Jetpur Taluka District, Vadodara. e) Superint. Engineer Vadodara Irrigation Circle, Vadodara
Bodeli Wireless Station in the Office of the Executive Engineer Irrigation Project Division No. 2 Bodeli.	Communication as above & other messages pertaining to floods to be conveyed to the officers mentioned in Column No. 3 at Sr. No. (e) to (h)	f) Superintending Engineer N.P.Head Works Circle New Administrative Block-B, Kevadia-393151. g) Executive Engineer, Tapti Division, (C.W.C), Surat, h) Collector, Bharuch.

8.3.7 Appropriate Authority (Focal Officer)

Superintending Engineer
Vadodara Irrigation Circle,
Kothi Building, Vadodara

Note:-
Please see Flood Telephone Directory of the current year for Telephone Nos.

8.4 C - KARJAN BASIN: (Sub- Basin Of Narmda River)

- 8.4.1** Karjan Dam is located on Karjan river near village Jitgadh. Karjan River is a tributary of Narmada river.
- 8.4.2** The flood forecasting for the Karjan river is being looked after by Superintending Engineer, Vadodara Irrigation Circle, Vadodara.
- 8.4.3** Names of places of Wireless Stations installed in the basin are as under:
- (1) Karjan Dam site
 - (2) Fulwadi
 - (3) Ghantoli
- 8.4.4** Basin plan showing all the wireless stations established is as per Annexure: 8-A-2
- 8.4.5** The list of villages affected by released from Karjan Dam on basis of Gauge & Discharge at Rajpipla Bridge, on river Karjan near Rajpipla is shown vide annexure: 8-B-4.
- 8.4.6** Action to be taken by various concerned officers.

TABLE - (8.4.6)

Note : Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Deputy Executive Engineer, Irrigation Project Sub-Division No. 27, Rajpipla	Communication about Inflow, Outflow, Reservoir Water Level shall be conveyed to the officer at Sr. No.(a) to (h) of Column No.3	a) Superintending Engineer Vadodara Irrigation Circle Vadodara b) Executive Engineer Irrigation Project Division No. 4 Rajpipla c) Superintending Engineer N.P.Head Works Circle New Admini. Block-B, 1 st floor, Kevadia-393151 d) Executive Engineer Tapti Division (CWC), Surat e) Collect, Bharuch f) District Superintendent of Police, Bharuch Dist. g) Collector : Narmada h) Dist. Superintendent of Police, Narmada

- 8.4.7 Appropriate Authority (Focal Officer)**
Superintending Engineer
Vadodara Irrigation Circle, Vadodara

Note:-
Please see Flood Telephone Directory of the current year for Telephone Nos.

ANNEXURE – 8 (B-1)

List of villages likely to be affected by floods in **Narmada River** on the basis of Gauge of **Garudeshwar & Bharuch sites.**

SR. NO.	BHARUCH TALUKA	SR. NO.	ANKLESHWAR TALUKA	SR. NO.	JHAGADIA TALUKA	SR. NO.	NANDOD TALUKA
	1		2		3		4

BHARUCH DISTRICT

- | | |
|-----------------|--------------------|
| 1. Bharuch City | 1. Khalpiya |
| 2. Dashan Bet | 2. Sarfuddin |
| 3. Kabirvad Bet | 3. Juna Kansia |
| 4. Shuklatirth | 4. Juna Chhapara |
| 5. Kelod | 5. Koyali- |
| | Dhanturiya |
| 6. Tavera Bet | 6. Taria Bawli |
| 7. Nikora | 7. Juna Haripura |
| 8. Dashan | 8. Borbhatha (Bet) |
| 9. Jhanor | 9. Juna Borbhatha |
| 10. Mangaleswar | 10. Ankleshwar |
| 11. Sindhot | 11. Sakkarpara |
| 12. Vadava | 12. Pungam |
| 13. Karjan | 13. Divi |
| 14. Jhadeshwar | 14. Diva |
| | 15. Sajod |

BHARUCH DISTRICT

- | | |
|---|--------|
| 1 | Hansot |
|---|--------|

NARMADA DISTRICT

- | | |
|------------------|-----------------|
| 1. Ore | 1. Sisodra |
| 2. Patar | 2. Bhadam |
| 3. Juni Tarasali | 3. Mangrol |
| 4. Juna Tothidra | 4. Guvar |
| 5. Juna Pora | 5. Rampura |
| 6. Indor | 6. Rajpipla |
| 7. Juni Jarasad | 7. Ori |
| 8. Mota Vasana | 8. Navapura |
| 9. Nana Vasana | 9. Dhamnacha |
| 10. Bhalod | 10. Dhanpor |
| 11. Limodara | 11. Bhacharwada |
| 12. Vadhavana | 12. Hajarpara |
| 13. Velugam | 13. Saherav |
| 14. Vanakpor | 14. Varachha |
| 15. Panetha | 15. Sanjaroli |
| 16. Kakalpur | 16. Akteshwar |
| 17. Sarsad | 17. Surajvad |
| 18. Uchedia | 18. Ghambhipura |
| 19. Krushnapuri | 19. Poicha |
| | 20. Garudeshwar |
| | 21. Gora |
| | 22. Rundh |
| | 23. Vansla |

VADODARA DISTRICT**KARJAN TALUKA**

- | |
|---------------|
| 1. Pura |
| 2. Alampura |
| 3. Lilaipura |
| 4. Nani Koral |
| 5. Moti Koral |
| 6. Juna Sayar |

DHABOI TALUKA

- | |
|-------------|
| 1. Chandod |
| 2. Karmali |
| 3. Nanderia |

SINOR TALUKA

- | |
|------------------|
| 1. Madhi |
| Devasthan |
| 2. Ansuya Temple |
| 3. Malsar |
| 4. Barkal |

TILAKWADA TALUKA OF NARMADA DIST.

- | |
|------------|
| 1. Vasam |
| 2. Vadia |
| 3. Virpur |
| 4. Renghan |

Note: (1) Refer Annexures 8(C-1.1) & 8 (C-1.2) for villages to be affected at different Water Levels.

ANNEXURE – 8 (C-1.1)

Statement showing villages affected by floods of **Narmada River** on the basis of Gauge Level at **Garudeshwar Gauge Site**.

Sr. No.	Gauge Level at Garudeshwar		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
NOTE :-						
1	WHITE SIGNALS		: ALERT			
2	BLUE SIGNALS		: READY FOR EVACUATION			
3	RED SIGNALS		: IMMEDIATE EVACUATION			

1.	100.00	30.48	Vadodara			
			2. Dabhoi	1	—	—
2.	101.00	30.78	Vadodara			
			2. Dabhoi	—	1	—
3.	102.00	31.09	Vadodara			
			2. Dabhoi	—	—	1
4.	103.00	31.39	Narmada			
			4. Nandod	1	—	—
5.	104.00	31.70	Narmada			
			4. Nandod	—	1	—
6.	105.00	32.00	Vadodara			
			3. Sinor	1	—	—
			Narmada			
			4. Nandod	—	—	1
7.	106.00	32.31	Vadodara			
			3. Sinor	—	1	—
8.	107.00	32.61	Vadodara			
			3. Sinor	—	—	1
9	108.00	32.92	Narmada			
			4. Nandod	2&3	—	—
10.	109.00	33.22	Narmada			

Sr. No.	Gauge Level at Garudeshwar		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
11.	110.00	33.53	Narmada	—	—	—
			4. Nandod	—	—	2 & 3
12.	111.00	33.83	Vadodara			
			3. Sinor	2	—	—
			Narmada			
			4. Nandod	4 to 6	—	—
13.	112.00	34.14	Vadodara			
			2. Dabhoi	2	—	—
			3. Sinor	3	2	—
			Narmada			
			4. Nandod	—	4 to 6	—
14.	113.00	34.44	Vadodara			
			2. Dabhoi	—	2	—
			3. Sinor	—	3	2
			Narmada			
			4. Nandod	—	—	4 to 6
15.	114.00	34.75	Vadodara			
			2. Dabhoi	—	—	2
			3. Sinor	—	—	3
			Narmada			
			4. Nandod	7	—	—
16.	115.00	35.05	Narmada			
			4. Nandod	—	7	—
17.	116.00	35.36	Narmada			
			4. Nandod	—	—	7

Sr. No.	Gauge Level at Garudeshwar		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
18.	117.00	35.66	Narmada			
			4. Nandod	8 to 10	—	—
19.	118.00	35.96	Vadodara			
			2. Dabhoi	3	—	—
			Narmada			
			4. Nandod	—	8 to 10	—
20	119.00	36.27	Vadodara			
			2. Dabhoi	—	3	—
			Narmada			
			4. Nandod	—	—	8 to 10
21	120.00	36.57	Vadodara			
			2. Dabhoi	—	—	3
			Narmada			
			4. Nandod	11 to 12	—	—
22	121.00	36.88	Narmada			
			4. Nandod	13	11 to 12	—
23.	122.00	37.18	Narmada			
			4. Nandod	—	13	11 to 12
24.	123.00	37.49	Narmada			
			4. Nandod	—	—	13
25.	125.00	38.10	Narmada			
			4. Nandod	14 to 15	—	—
26	126.00	38.40	Narmada			
			4. Nandod	—	14 to 15	—

Sr. No.	Gauge Level at Garudeshwar		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
27.	127.00	38.71	Narmada			
			4. Tilakwada	1	—	—
			Narmada			
			4. Nandod	—	—	14 to 15
28.	128.00	39.01	Narmada			
			4. Tilakwada	—	1	—
			Narmada			
			4. Nandod	16	—	—
29.	129.00	39.32	Narmada			
			4. Tilakwada	—	—	1
			Narmada			
			4. Nandod	—	16	—
30.	130.00	39.62	Narmada			
			4. Tilakwada	2 to 3	—	—
			Narmada			
			4. Nandod	—	—	16
31.	131.00	39.93	Narmada			
			4. Tilakwada	—	2 to 3	—
			Narmada			
			4. Nandod	17	—	—
32.	132.00	40.23	Narmada			
			4. Tilakwada	4	—	2 to 3
			Narmada			
			4. Nandod	18 to 22	17	—

Sr. No.	Gauge Level at Garudeshwar		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
33.	133.00	40.54	Narmada			
			4.Tilakwada	5	4	—
			Narmada			
			4. Nandod	—	18 to 22	17
34.	134.00	40.84	Vadodara			
			3. Sinor	4	—	—
			Narmada			
			4.Tilakwada	—	5	4
			Narmada			
			4. Nandod	—	—	18 to 22
35.	135.00	41.15	Vadodara			
			3. Sinor	—	4	—
			Narmada			
			4.Tilakwada	—	—	5
			Narmada			
			4. Nandod	23	—	—
36.	136.00	41.45	Vadodara			
			3.Sinor	—	—	4
			Narmada			
			4. Nandod	—	23	—
37.	137.00	41.76	Narmada			
			4.Nandod	—	—	23

Note : Refer Annexure - 8-(B-1) for the names of villages mentioned in column Nos. 5 to 7

ANNEXURE - 8 (C-1.2)

Statement showing villages affected by floods of **Narmada River** on the basis of Gauge Level at Golden **Bridge Site, Bharuch**.

Sr. No.	Gauge Level at Golden Bridge		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
NOTE :-						
1	WHITE SIGNALS		: ALERT			
2	BLUE SIGNALS		: READY FOR EVACUATION			
3	RED SIGNALS		: IMMEDIATE EVACUATION			

1.	22.00	6.71	Bharuch			
			1. Bharuch	1	—	—
			2. Ankleshwar	1 to 2	—	—
2.	23.00	7.01	Bharuch			
			1. Bharuch	—	1	—
			2. Ankleshwar	—	1 to 2	—
3.	24.00	7.31	Bharuch			
			1. Bharuch	—	—	1
			2. Ankleshwar	—	—	1 to 2
4.	25.00	7.62	Bharuch			
			2. Ankleshwar	3	—	—
5.	26.00	7.92	Bharuch			
			1. Bharuch	2 to 3	—	—
			2. Ankleshwar	4 to 6	3	—
6.	27.00	8.23	Bharuch			
			1. Bharuch	—	2 to 3	—
			2. Ankleshwar	—	4 to 6	3
7.	28.00	8.53	Bharuch			
			1. Bharuch	—	—	2 to 3
			2. Ankleshwar	—	—	4 to 6
			3. Jhagadia	1 to 5	—	—
8.	29.00	8.84	Bharuch			
			1. Bharuch	4 to 5	—	—
			2. Ankleshwar	7	—	—
			3. Jhagadia	—	1 to 5	—

Sr. No.	Gauge Level at Golden Bridge		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
9.	30.00	9.14	Bharuch			
			1. Bharuch	6	4 to 5	—
			2. Ankleshwar	8 to 9	7	—
			3. Jhagadia	6 to 8	—	1 to 5
10.	31.00	9.45	Bharuch			
			1. Bharuch	—	6	4 to 5
			2. Ankleshwar	—	8 to 9	7
			3. Jhagadia	—	6 to 8	—
			Vadodara			
			1. Karjan	1	—	—
11.	32.00	9.75	Bharuch			
			1. Bharuch	—	—	6
			2. Ankleshwar	10	—	8 to 9
			3. Jhagadia	9	—	6 to 8
			Vadodara			
			1. Karjan	—	1	—
12.	33.00	10.06	Bharuch			
			2. Ankleshwar	11 to 14	10	—
			3. Jhagadia	—	9	—
			Vadodara			
			1. Karjan	—	—	1
13.	34.00	10.36	Bharuch			
			2. Ankleshwar	—	11 to 14	10
			3. Jhagadia	—	—	9
			Vadodara			
			1. Karjan	2	—	—
14.	35.00	10.67	Bharuch			
			2. Ankleshwar	—	—	11 to 14
			3. Jhagadia	10 to 11	—	—
			5. Hansot	1	—	—

Sr. No.	Gauge Level at Golden Bridge		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
			Vadodara			
			1. Karjan	—	2	—
15.	36.00	10.97	Bharuch			
			3. Jhagadia	—	10 to 11	—
			5. Hansot	—	1	—
			Vadodara			
			1. Karjan	3	—	2
16.	37.00	11.28	Bharuch			
			1. Bharuch	7 to 8	—	—
			2. Ankleshwar	—	—	—
			3. Jhagadia	12	—	10 to 11
			5. Hansot	—	—	1
			Vadodara			
			1. Karjan	—	3	—
17.	38.00	11.58	Bharuch			
			1. Bharuch	9 & 10	7 to 8	—
			3. Jhagadia	13	12	—
			Vadodara			
			1. Karjan	—	—	3
18.	39.00	11.89	Bharuch			
			1. Bharuch	11	9 & 10	7to 8
			3. Jhagadia	—	13	12
19.	40.00	12.19	Bharuch			
			1. Bharuch	12	11	9 & 10
			2. Ankleshwar	15	—	—
			3. Jhagadia	14 to 17	—	13

Sr. No.	Gauge Level at Golden Bridge		Name of District Taluka	Signal for Village at Sr. No.		
	In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
			Vadodara			
20.	41.00	12.50	1. Karjan Bharuch	4 to 5	—	—
			1. Bharuch	—	12	11
			2. Ankleshwar	—	15	—
			3. Jhagadia	18 to 19	14 to 17	—
			Vadodara			
21.	42.00	12.80	1. Karjan Bharuch	—	4 to 5	—
			1. Bharuch	—	—	12
			2. Ankleshwar	—	—	15
			3. Jhagadia	—	18 to 19	14 to 17
			Vadodara			
22.	43.00	13.11	1. Karjan Bharuch	6	—	4 to 5
			1. Bharuch	13	—	—
			3. Jhagadia	—	—	18 to 19
			Vadodara			
23.	44.00	13.41	1. Karjan Bharuch	—	6	—
			1. Bharuch	14	13	—
			Vadodara			
24.	45.00	13.72	1. Karjan Bharuch	—	—	6
			1. Bharuch	—	14	13
25.	46.00	14.02	Bharuch			
			1. Bharuch	—	—	14

Note :-Refer Annexure - 8 - (B-1) for the names of villages mentioned in column Nos. 5 to 7.

ANNEXURE - 8 (B-2)

List of villages likely to be affected by floods in **Rami River** on the basis of Gauge of **Rami Dam Spillway**.

Sr. No.	KAWANT TALUKA	Sr. No.	KAWANT TALUKA
----------------	----------------------	----------------	----------------------

CHHOTAUDEPUR DISTRICT

- | | |
|----------------|----------------|
| 1. Zalawant | 5. Vijli |
| 2. Dewant | 6. Wantada |
| 3. Chilia Vant | 7. Khandibara |
| 4. Deri | 8. Moti Sankal |

Note : (1) Refer Annexures 8 (C-2) for villages to be affected at different Water Levels.

ANNEXURE - 8 (C-2)

List of villages likely to be affected by floods in **Rami River** on the basis of Gauge of **Rami Dam & Discharge over weir**.

Sr. No.	Gauge Level at Rami Dam & Disc. Over Waste Weir		Name of District Taluka	Signal for Village at Sr. No.		
	Mt. CUM	Ft. CUS		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
NOTE :- 1 WHITE SIGNALS : ALERT 2 BLUE SIGNALS : READY FOR EVACUATION 3 RED SIGNALS : IMMEDIATE EVACUATION						

1.	196.30	644.22	Chhotaudepur			
	—	—	1.Kawant	1 to 8	—	—
2.	196.50	644.72	Chhotaudepur			
	28.81	1017	1. Kawant	—	1 to 8	—
3.	196.90	646.03	Chhotaudepur			
	149.69	5286	1. Kawant	—	—	1 to 8

Note :- Refer Annexure 8 (B-2) for the names of villages mentioned in Column Nos. 5 to 7.

ANNEXURE - 8 (B-3)

List of villages likely to be affected by floods in **Sukhi River** on the basis of **Sukhi Dam Spillway**

Sr. No.	PAVI JETPUR (JABUGAM) TALUKA	Sr. No.	PAVI JETPUR (JABUGAM) TALUKA
---------	------------------------------	---------	------------------------------

CHHOTAUDEPUR DISTRICT

- | | |
|----------------|-----------------|
| 1. Moti bej | 12. Sithol |
| 2. Amadra | 13. Dungarwant |
| 3. Waghwa | 14. Khandia |
| 4. Kikawada | 15. Koliyari |
| 5. Hood | 16. Lodhan |
| 6. Vadesia | 17. Gambhirpura |
| 7. Moti Rasli | 18. Gutanvad |
| 8. Ghutia | 19. Palia |
| 9. Nani bej | 20. Sajod |
| 10. Thalki | 21. Sihod |
| 11. Nani Rasli | |

Note : (1) Refer Annexures 8 (C-3) for villages to be affected at different releases from Sukhi Dam.

ANNEXURE - 8 (C-3)

List of villages likely to be affected by floods in Sukhi River on the basis of Gauge of Sukhi Dam Spillway.

Sr. No.	Discharge Released from Spillway		Name of District Taluka	Signal for Village at Sr. No.		
	CUMECS	CUSECS		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
NOTE :-						
1	WHITE SIGNALS		: ALERT			
2	BLUE SIGNALS		: READY FOR EVACUATION			
3	RED SIGNALS		: IMMEDIATE EVACUATION			

1.			Chhotaudepur			
	1133	40,000	1. Pavi Jetpur	1 to 3	—	—
2.			Chhotaudepur			
	1700	60,000	1. Pavi Jetpur	4 to 7	1 to 3	—
3.			Chhotaudepur			
	2267	80,000	1. Pavi Jetpur	8 to 12	4 to 7	1 to 3
4.			Chhotaudepur			
	2834	1,00,000	1. Pavi Jetpur	13 to 16	8 to 12	4 to 7

Sr. No.	Discharge Released from Spillway		Name of District Taluka	Signal for Village at Sr. No.		
	CUMECS	CUSECS		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
5.			Chhotaudepur			
	3401	1,20,000	1. Pavi Jetpur	17 to 21	13 to 16	8 to 12
6.			Chhotaudepur			
	3968	1,40,000	1. Pavi Jetpur	—	17 to 21	13 to 16
7.			Chhotaudepur			
	4535	1,60,000	1. Pavi Jetpur	—	—	17 to 21

Note : Refer Annexure 8 (B-3) for the names of villages mentioned in Column Nos. 5 to 7.

ANNEXURE - 8 (B-4)

Statement showing the villages affected by floods in **Karjan River** on the basis of Gauge of **Rajpipla Bridge** near **Rajpipla**.

Sr. No.	NANDOD TALUKA
----------------	----------------------

NARMADA DISTRICT

1. Rajpipla
2. Bhadam
3. Bhacharwada
4. Hazarpura
5. Dhanpor
6. Dhamnacha

Note : (1) Refer Annexures 8 (C-4) for villages to be affected at different Water Levels.

ANNEXURE – 8 (B-5)

Statement showing the villages affected by Floods in **MADHUMATI RIVER**, tributary of Narmada River on the basis of overflow from **Dholi Irrigation Scheme**.

Sr. No.	Name of Taluka	Name of District	Name of Affected Villages
1.	Jhagadia	Bharuch	1. Dholi 2. Rajalwada 3. Mota Sorva 4. Rajpardi 5. Bilwada 6. Kantol 7. Sarsa 8. Kapat 9. Vanakpor

ANNEXURE - 8 (C - 4)

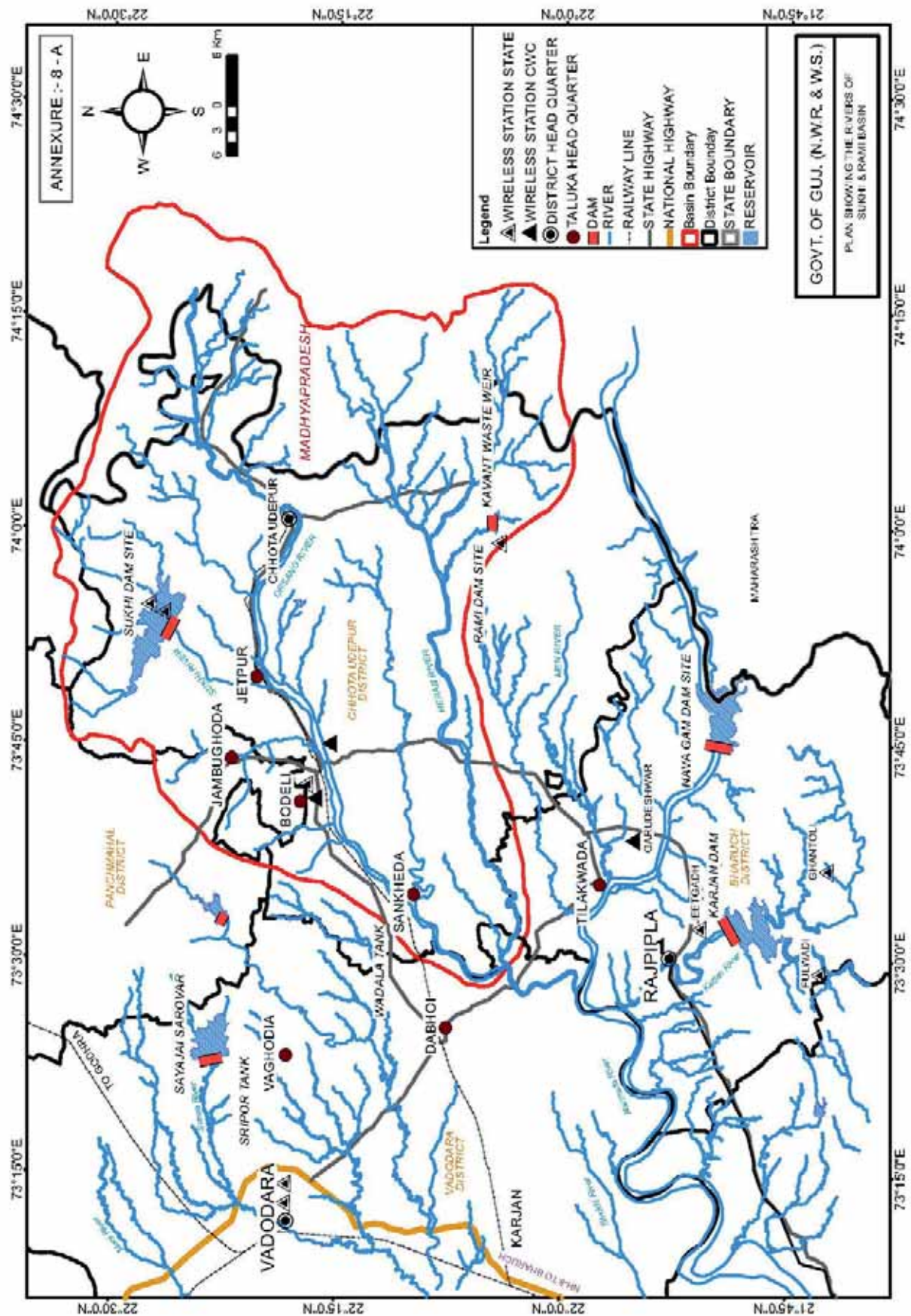
Statement showing villages affected due to flood/discharge in **KARJAN RIVER** on the basis of Gauge Station situated at **Rajpipla Bridge**.

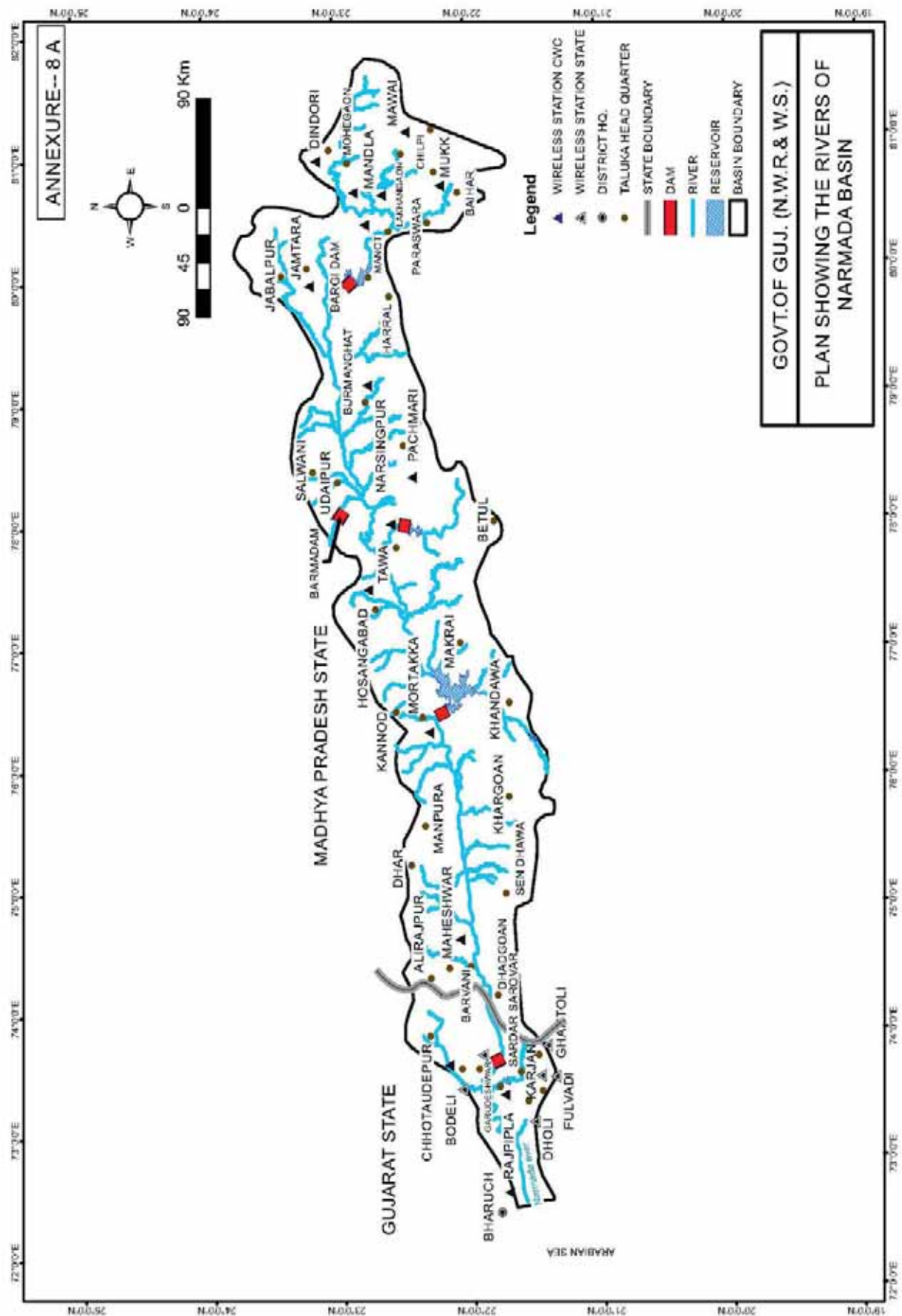
Sr. No.	Discharge Released from Karjan Dam (Cusecs)	Gauge Level at Rajpipla Bridge		Name of District Taluka	Signals for Villages at Sr. No.		
		In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS	:	ALERT				
2	BLUE SIGNALS	:	READY FOR EVACUATION				
3	RED SIGNALS	:	IMMEDIATE EVACUATION				

1.	100000	85.14	25.96	Narmada			
				1. Nandod	1	—	—
2.	106000	85.60	26.10	Narmada			
				1. Nandod	—	1	—
3.	118000	86.60	26.40	Narmada			
				1. Nandod	—	—	1
4.	142000	88.63	27.02	Narmada			
				1. Nandod	2	—	—
5.	148000	89.08	27.16	Narmada			
				1. Nandod	—	2	—
6.	150000	89.24	27.20	Narmada			
				1. Nandod	—	—	2
7.	196000	92.33	28.15	Narmada			
				1. Nandod	3	—	—
8.	204000	92.82	28.30	Narmada			
				1. Nandod	—	3	—
9.	216000	93.51	28.51	Narmada			
				1. Nandod	—	—	3
10.	260000	98.97	29.26	Narmada			
				1. Nandod	4	—	—

Sr. No.	Discharge Released from Karjan Dam (Cusecs)	Gauge Level at Rajpipla Bridge		Name of District Taluka	Signals for Villages at Sr. No.		
		In Feet	In Meter		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
11.	267000	96.39	29.39	Narmada			
				1. Nandod	—	4	—
12.	278000	96.98	29.57	Narmada			
				1. Nandod	—	—	4
13.	424000	104.43	31.84	Narmada			
				1. Nandod	5 to 6	—	—
14.	437000	105.03	32.02	Narmada			
				1. Nandod	—	5 to 6	—
15.	451000	105.71	32.23	Narmada			
				1. Nandod	—	5 to 6	—

Note :- Refer Annexure 8-B-4 for the villages likely to be affected by floods at different Water Levels.





MAHI BASIN

9.0 MAHI BASIN

9.1 As stated earlier, the flood forecasting system for Mahi River Basin is being looked after by the Officer of Executive Engineer, Mahi Division (C.W.C.), Gandhinagar under the control of The Superintending Engineer, Hydrological Observation Circle, Gandhinagar. He has established various Wireless Stations at locations from where he can obtain the details about rainfall and discharges in the river. The gauge and rainfall data are being communicated, through Wireless Stations located at various stations on the main river as well as on the tributaries.

9.2 Name of villages/dams where Wireless Stations are located to report rainfall and gauge discharges are as under:

A. C.W.C's Wireless Stations.

1.	Paderdi	Rajasthan State
2.	Mahi Dam (Bajaj Sagar Dam)	Rajasthan State
3.	Dhariawad	Rajasthan State
4.	Anas Dam Site	Rajasthan State
5.	Som Kamla Amba Dam	Rajasthan State
6.	Diwada Colony(Kadana Dam)	Gujarat State
7.	Panam Dam	Gujarat State
8.	Wanakbori Weir	Gujarat State
9.	Chakaliya	Gujarat State

B. State's Wireless Stations.

1.	Nadiad	Gujarat State
2.	Kadana Dam	Gujarat State
3.	Panam Dam	Gujarat State
4.	Wanakbori Weir (Mahisagar)	Gujarat State
5.	Diwada Colony	Gujarat State
6.	Sant Road Weir	Gujarat State
7.	Addition Spillway (Kadana)	Gujarat State

9.3. Basin Plan showing all the wireless stations established including gauge, discharges and rain gauge station and time-lag statement, is appended vide Annexure 9-A.

9.4 Statement showing the villages affected at various signals at different levels in Mahi river enclosed vide Annexure 9-B and 9-C respectively.

9.5 Kadana reservoir is located on Mahi river at Kadana in Gujarat State, which is moderating the flood in Mahi river. There are other dams viz. Mahi dam (Bajaj Sagar) and Anas dam site (on upper catchment) situated in Rajasthan State on Mahi river and Anas river, which is a tributary of Mahi river. There is Panam dam on Panam river, which is a tributary of Mahi river meeting on the down stream of Kadana dam

and situated in Gujarat State. Panam reservoir on this river also helps in moderating the floods in Mahi river.

9.6 Action to be taken by the Executive Engineer, Mahi Division (C.W.C.), Gandhinagar i.e..

1. Formulation and dissemination of Flood Forecast of Kadana Dam and Wanakbori Weir.

2. Sharing of hourly observed Gauge, estimated discharge and rainfall data of site Paderdibadi and Anas PH-II, as per data dissemination schedule (0000, 0300,0600,0800,1000,1200,1500,1800, 2100 hrs).

TABLE - 9.6

Note:- Please see Flood Telephone Directory of the current year for telephone Nos.

Name of Office	Observation to be made by the Officer	Officer to whom the messages to be sent.	
(1)	(2)	(3)	
(A) Executive Engineer Mahi Division, CWC, Gandhinagar	The Flood inflow forecast of Kadana dam, Wanakbori Weir shall be conveyed to the Officer in Column No. 3 Sr. No. (a),(b), (c),(e), & (s) Whenever it is likely to cross warning level	(a)	Superintending Engineer, Mahi Irrigation Circle Nadiad.
		(b)	Superintending Engineer Kadana Project Circle, Lunawada.
	Hourly rainfall Data of Kadana Dam and Wanakbori weir may be conveyed to the officers at Sr. No. (a), (b), (c), (e) & (s) for deciding the inflow from Kadana reservoir.	(c)	Superintending Engineer Panam Project Circle Godhra.
		(d)	Executive Engineer, Kadana Div. No. 1, Diwda Colony
(B) Superintending Engineer Mahi Irrigation Circle, Nadiad.	Any Flood Forcast received from above (A) regarding the crossing of warning level at Wanakbori should be conveyed to officer at Sr. No. (b) to (u) except (p)	(e)	Executive Engineer, Nadiad Irrigation Division, Nadiad
		(f)	Collector, Panchmahals Dist., Godhra
		(g)	Collector Vadodara Dist., Vadodara
(C) Executive Engineer Panam Project Division, Godhra	Daily Information regarding Water Level in U/s & D/s of Panam Dam, Water released through Sluice or Spillway from Panam Dam to be conveyed to the Officer in Column No. 3 at Sr. No. (a) to (e), (l) & (m)	(h)	Collector, Kheda, Dist., Kheda
		(i)	Collector, Anand, Dist., Anand
		(j)	Dist. Superintendent of Police Panchmahals District, Godhra
		(k)	Collector, Dhaod Dist., Dahod

Name of Office	Observation to be made by the Officer	Officer to whom the messages to be sent.	
(1)	(2)	(3)	
(D) Executive Engineer Kadana Div. No. 1 Diwda Colony	Outflow from Kadana Reservoir to be conveyed to the Officers in Column No. 3 at Sr. No. (a) to (c), (l) (m)& (n)	(l)	Dist. Superintendent of Police Dist.Dahod
		(m)	Dist. Superintendent of Police Kheda
	The Inflow forecast of 1 Las Cusecs (2832 Cumecs) or more coming in to KADANA Dam shall be conveyed to the Officers in Column No. 3 at Sr. No. (a),(b) & (s)	(n)	Dist. Superintendent of Police Anand
		(o)	Dist. Superintendent of Police Vadodara(Rural)
		(p)	Executive Engineer, Mahi Dn. (C.W.C.) Gandhinagar
		(q)	Flood Cell, Godhra
		(r)	Executive Engineer Panam Project Division Godhra
		(s)	Flood Control Cell Gandhinagar
		(t)	Collector, Mahisagar Dist. Lunawada
		(u)	Dist. Sup. of Police, Mahisagar Dist. Lunawada

9.7 Statement Showing the timelag for various stations from origin to the end of river basin are as under:

Sr. No.	NAME OF SITE	TYPE OF SITE	STATE	CATCH-MENT AREA (In Sq. Kms)	DISTANCE FROM ORIGIN (In Kms)	DANGER LEVEL (In Meter)	TIME LAG (In Hours)
1	2	3	4	5	6	7	9
1	BANSWADA	W,R,F,D	Rajasthan	1540	215.60	—	13-27
2	KADANA	W,R,F,D	Gujarat	25520	337.00	127.71	9-18
3	WANAKBORI	W,D,G,R,F	Gujarat	30665	411.00	74.98	5-10
4	MAHI BRIDGE AT VASAD	W	Gujarat	31080	434.40	—	0

NOTE: W = Wireless D = Discharge F = Flood G = Gauge R = Rainfall

9.8 **Appropriate Authority (Focal Officer)**

The Superintending Engineer
Mahi Irrigation Circle,
Sarkari Vasahat, Mission Road, Nadiad

Note :-

Please See Flood
Telephone Directory of the
current year for Telephone Nos.

ANNEXURE - 9(B)

List of Villages likely to be affected by floods in Mahi River on the basis of gauge of **Wankbori Weir.**

Sr.	PADRA	Sr.	SAVLI	Sr.	SAVLI	Sr.	VADODARA
No.	TALUKA	No.	TALUKA	No.	TALUKA	No.	TALUKA
	(1)		(2)		(2)-Contd.		(3)

VADODARA DISTRICT

1. Tithor	1. Khandi	15. Amarapura	1. Singrot
2. Pavda	2. Chavda na	16. Varsada	2. Phajalpur
3. Sultanpur	Muvada	17. Mewalipura	3. Dodka
4. Mohamadpur	3. Bamana	18. Nani Mamoli	4. Rayka
5. Kharera	Muvada	19. Savli	5. Angadh
6. Dabka	4. Jambugoral	20. Shibora	6. Sherikh
7. Chokarai	5. Gulabpura	21. Muval	7. Nandesari
8. Jaspur	6. Vankaner	22. Vaghra	8. Amliara
9. Umraya	7. Jalampur	23. Desaipura	9. Adalpura
10. Mujpura	8. Vaghpura	24. Levalipura	
11. Konta	9. Kanoda	25. Mianagar	
12. Ekalbara	10. Poicha	26. Bandipura	
	11. Parthampura	27. Jesangpura	
	12. Paicha (Rania)	28. Bandipura	
	13. Intwad	na Muvada	
	14. Wanoti Nani		

ANAND DIST.		KHEDA DIST.	
BORSAD TALUKA	ANKLAV TALUKA	River Mahi	River Shedhi
1 Gajna	1 Chamara	THASRA TALUKA	THASRA TALUKA
2 Salol	2 Bamangam	1 Kotariya	1 Thasara
3 Kankupura	3 Umeta	2 Rania	2 Pipalwada
4 Nani Sherdi	4 Khadol (Umeta)	3 Bhadrassa	3 Goraj
5 Kothia Khad	5 Sankhyad	4 Chitlav	4 Aurangpura
6 Dhevan	6 Kanvadi	5 Akalacha	5 Rasulpura
7 Badalpur	7 Amrol	GALTESHWAR TAL.	6 Wantoi/Wanoti
8 Valvod	8 Bhanupur	1 Vanoda	7 Ekalvally
	9 Ashrama	2 Mahi Itadi	8 Dakor
ANAND TALUKA	10 Nava Khal	3 Kuni	9 Rakhial
ANAND DISTRICT	11 Bhetasi Vanto	4 Galteshwar	10 Jakhed
1 Khanpur	12 Gambhira	5 Pali	11 Simlaj
2 Kheda		6 Singol	12 Vinjol
3 Anklavadi			13 Khijalpur Vanta
4 Rajupura			14 Khijalpur Talpad
			15 Malai
UMRETH TALUKA			GALTESHWAR TAL.
ANAND DISTRICT			1 Manpur
1 Pratapura			2 Padal
2 Khorwad			3 Jargal
			4 Dabhali
			5 Mithana Muvada
			6 Dabhasar

MAHISAGAR DIST.		MAHISAGAR DIST.		PANCHMAHAL DIST.		MAHISAGAR DIST.	
Sr. No.	LUNAVADA TALUKA (1)	Sr. No.	LUNAVADA TALUKA (2)	Sr. No.	SHAHERA TALUKA (3)	Sr. No.	KADANA TALUKA (4)
1.	Thana Savli	39.	Hadod	1.	Kharoli	1.	Vagadia na
2.	Rabadia	40.	Kanesav	2.	Bilitha		Andhari
3.	Vanka	41.	Kohan	3.	Hadkimata na	2.	Charan -ni-
4.	Gajoandri	42.	Meghwada		Muvada		Muvada
5.	Tintoi	43.	Simlia	4.	Ramadi	3.	Chopad-devi
6.	Mudava Dekh	44.	Sada	5.	Bhimthal	4.	Mal
7.	Virapara na	45.	Chantiyada	6.	Navi Bordi	5.	Baluji na
	Muvada	46.	Rajgadad	7.	Nathuri na		Muvada
8.	Kanisher	47.	Nana Vadadala		Muvada	6.	Nana-Rajanpur
	Muvada	48.	Handana	8.	Valavpura	7.	Mota- Rajanpur
9.	Madhana		Muvada	9.	Poyda	8.	Diwada
10.	Bhanara	49.	Hindolia	10.	Vadi	9.	Kadana
11.	Limbodra	50.	Golana Palla	11.	Bordi	10.	Thakor na
12.	Pattan	51.	Taktaji na Palla	12.	Vahaka		Nadhra
13.	Kakachia	52.	Kakana			11.	Dadhalia
14.	Ladval		Bhesavada			12.	Kharawada
15.	Kharol	53.	Semara na	SR NO.	GODHRA TALUKA (9)	13.	Tantroli
16.	Fatepura		Muvada			14.	Padamji na
17.	Kothampalla	54.	Chandapur				Muvada
18.	Guvalia	55.	Gadhanpur	1.	Nadisar	15.	Ghodi
19.	Chaerangam	56.	Paji na Muvada	2.	Kabaria	16.	Agarwada
20.	Agarwada.	57.	Mahudia	3.	Juni Dhari	17.	Vagh-Dungari
21.	Dalvaisavli	58.	Vaghji Baria	4.	Nani Dhari	18.	Machhi na
22.	Champli		Muvada		Nadhara	19.	Deda-wada
23.	Kachoti na	59.	Zarakhwada	5.	Gothda	20.	Anup-pur
	Muvada	60.	Chopda	6.	Timba	21.	Khatwa
24.	Juna Karva	61.	Chanasar			22.	Ladu-Damor na
25.	Pania	62.	Ambali na				Vanta
26.	Dholi		Muvada			23.	Munpur
27.	Merai	63.	Mota Dokawa			24.	Antalwada
28.	Sadhakpur	64.	Nani Charel			25.	Math (zNear Mal)
29.	Kidiya	65.	Moti Charel				
30.	Khemalpur	66.	Damanwad			26.	Velanvada
31.	Zer	67.	Verama			27.	Dodia
32.	Bhuvabar	68.	Dokelav			SR NO.	KHANPUR TALUKA
33.	Naroda	69.	Vanata			1.	Dolaria
34.	Ghoghawada	70.	Moti Ghoda			2.	Nana Khanpur
35.	Panam Palla	71.	Dokalina			3.	Raheman
36.	Valinatah		Muvada			4.	Mena
37.	Chuva na	72.	Salawada			5.	Bamroda
	Muvada	73.	Aritha			6.	Sanpadia
38.	Kidia	74.	Kotla			7.	Patapur
						8.	Dolatpur
						9.	Zara

Note :- Refer Annexure 9 (C) for villages to be affected at different water levels.

TABLE - 9 (B-1)

Statement showing affected due to floods in **Panam River** through releases discharged from **Panam Dam** till conflict Point of **Mahi River**

Sr. No.	Name of Taluka	Name of Villages			
1	2	3			
PANCHMAHALS DISTRICT					
1.	Shahera	1.	Ramji-ni-nal	4.	Mor
		2.	Khotha	5.	Baluji-na Muvada
		3.	Undara		
MAHISAGAR DISTRICT					
2.	Santrampur	1.	Amaliyat	3.	Nana Salia
		2.	Jotanjiya	4.	Rajbari
3.	Lunawada	1.	Chopada	10.	Jamapagina
		2.	Verama		Muvada
		3.	Nathuji-na Muvada	11.	Chansar
		4.	Nava Muvada	12.	Undara
		5.	Gantav	13.	Kenabariya-na-muvada
		6.	Motigora	14.	Lunavada
		7.	Dokelav	15.	Jesingpur
		8.	Panampalla	16.	Medjio-na-Muvada
		9.	Amali-Muvada	17	Dokaliya-na-Muvada
				18.	Nanicharel.
4.	Khanpur	1.	Pandarada		

Note: Refer **Annexure-9-(C-1)** for villages to be affected at different discharges.

ANNEXURE - 9 (C)

Statement showing villages affected by floods of Mahi River on the basis of discharge released from Upstream Dams of Wanakbori Weir

Sr. No.	Discharge at D/S of Dam in (Cus/Cum)	Gauge Level at D/S of Dam		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS			: ALERT			
2	BLUE SIGNALS			: READY FOR EVACUATION			
3	RED SIGNALS			: IMMEDIATE EVACUATION			
1	<u>325000</u> 9202.88	71.93	236.00	<u>Vadodara</u> Padra	1 to 10	--	--
				<u>Anand</u> Anklav	1 to 5	--	--
2	<u>435000</u> 12317.71	72.54	238.00	<u>Mahisagar</u> Lunawada	1 to 5	--	--
				<u>Panchmahal</u> Shahera	1 to 10	--	--
				<u>Vadodara</u> Savli	1 to 15	--	--
				Vadodara	1 to 5	--	--
				<u>Anand</u> Borsad	1 to 5	--	--
				Anand	1 to 4	--	--
				Umreth	1 to 2	--	--
3	<u>450000</u> 12742.46	73.15	240.00	<u>Mahisagar</u> Lunawada	6 to 74	--	--
				Kadana	1 to 27	--	--
				Khanpur	1 to 9	--	--
				<u>Panchmahal</u> Shahera	11 to 12	--	--
				<u>Kheda</u> Thasra	1 to 2	--	--
				Galteswar	1 to 2	--	--
				<u>Anand</u> Anklav	6 to 9	--	--

Sr. No.	Discharge at D/S of Dam in (Cus/Cum)	Gauge Level at D/S of Dam		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
4	<u>710000</u> 20104.77	73.76	242.00	<u>Vadodara</u>			
				Padra	11 to 12	--	--
				Vadodara	6 to 9	--	---
				<u>Mahisagar</u>			
5	<u>745000</u> 21095.85	74.07	243.00	Lunawada	--	1 to 5	--
				<u>Panchmahal</u>			
				Shahera	--	1 to 10	--
				Godhra	1 to 5	--	--
6	<u>865000</u> 24493.84	74.67	245.00	<u>Vadodara</u>			
				Padra	--	1 to 10	--
				Savli	16 to 28	1 to 8	---
				<u>Vadodara</u>			
7	<u>900000</u> 25484.92	74.98	246.00	Savli	--	9 to 12	--
				Vadodara	--	1 to 5	--
				Padra	--	11 to 12	--
				<u>Anand</u>			
8	<u>1000000</u> 28316.57	75.44	247.50	Anklav	10 to 12	1 to 5	--
				Borsad	6 to 8	--	--
				Umreth	--	1 to 2	--
				<u>Mahisagar</u>			
8	<u>1000000</u> 28316.57	75.44	247.50	Lunawada	--	6 to 74	--
				Kadana	--	1 to 27	--
				Khanpur	--	1 to 9	--
				<u>Panchmahal</u>			
8	<u>1000000</u> 28316.57	75.44	247.50	Shahera	--	11 to 12	--
				Godhra	6	--	--
				<u>Vadodara</u>			
				Padra	--	--	1 to 10
8	<u>1000000</u> 28316.57	75.44	247.50	<u>Vadodara</u>			
				Savli	--	13 to 15	--
				Vadodara	--	6 to 9	--
				<u>Kheda</u>			
8	<u>1000000</u> 28316.57	75.44	247.50	Thasra	3 to 5	1 to 2	--

Sr. No.	Discharge at D/S of Dam in (Cus/Cum)	Gauge Level at D/S of Dam		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
9	<u>1142000</u> 32337.53	75.90	249.00	Galteshwar	3 to 6	1 to 2	--
				<u>Anand</u>			
				Anand	--	1 to 4	--
				Umreth	--	1 to 2	--
				Borsad	--	1 to 5	--
				Anklav	--	6 to 9	--
				<u>Mahisagar</u>			
				Lunawada	--	--	1 to 5
				<u>Panchmahal</u>			
				Shahera	--	--	1 to 10
10	<u>1210000</u> 34263.06	76.20	250.00	Godhra	--	6	--
				<u>Anand</u>			
				Anklav	--	--	1 to 5
				Anand	--	1 to 4	--
				<u>Vadodara</u>			
				Padra	--	--	11 to 12
				Savli	--	16 to 28	1 to 15
				Vadodara	--	6 to 9	1 to 5
				<u>Kheda</u>			
				Thasra	--	3 to 5	1 to 2
11	<u>1227000</u> 34744.44	76.28	250.25	Galteshwar	--	3 to 6	1 to 2
				<u>Mahisagar</u>			
				Lunawada	--	--	6 to 74
				Kadana	--	--	1 to 27
				Khanpur	--	--	1 to 9
				<u>Panchmahal</u>			
				Shahera	--	--	11 to 12
				Godhra	--	1 to 5	--
				<u>Anand</u>			
				Borsad	--	6 to 8	1 to 5
11	<u>1227000</u> 34744.44	76.28	250.25	Anklav	--	10 to 12	6 to 9
				Umreth	--	--	1 to 2
				Anand	--	--	1 to 4
				<u>Panchmahal</u>			
				Godhra	--	--	1 to 5

Sr. No.	Discharge at D/S of Dam in (Cus/Cum)	Gauge Level at D/S of Dam		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
				<u>Vadodara</u>			
				Savli	--	--	16 to 28
				Vadodara	--	--	6 to 9
				<u>Kheda</u>			
				Thasra	--	--	3 to 5
				Galteshwar	--	--	3 to 6
				<u>Anand</u>			
				Anklav	--	--	10 to 12
				Borsad	--	--	6 to 8
12	<u>1265000</u> 35820.47	76.45	250.80	<u>Panchmahal</u>			
				Godhra	--	--	6

Note: Refer **Annexure 9-B** for the villages likely to be affected by floods at different Water Levels.

ANNEXURE – 9(C-1)

Statement showing villages affected due to floods in **PANAM RIVER** through release made from **PANAM Dam till conflict Point of MAHI RIVER**

Sr. No.	Discharge Release from Panam Dam in (Cus/Cum)	Name of District Taluka	Signal for Village at Sr. No.		
			White Signal	Blue Signal	Red Signal
1	2	3	4	5	6
1.	150000	Panchmahal			
	4227	1. Shahera	1	—	—
2.	280000	Panchmahal			
	7929	1. Shahera	2 to 5	1	—
		Mahisagar			
		1. Santrampur	1 to 4	—	—
		2. Lunawada	1 to 19	—	—
		3. Khanpur	1	—	—
3.	350000	Panchmahal			
	9911	1. Shahera	—	2 to 5	1
		Mahisagar			
		1. Santrampur	—	1 to 4	—
		2. Lunavada	—	1 to 19	—
		3. Khanpur	—	1	—
4.	393000	Panchmahal			
	11128	1. Shahera	—	—	2 to 5
		Mahisagar			
		1. Santrampur	—	—	1 to 4
		2. Lunavada	—	—	1 to 19
		3. Khanpur	—	—	1

Refer **Annexure - 9(B-1)** for the villages likely to be affected by floods at different discharges.

LIST OF EXISTING PROJECTS IN MAHI BASIN

Sl. No.	Name of Project	River	Storage Capacity (Mm ³)		Purpose	Cost in Rs. In Crores.
			Gross	Live		
	Rajsthan State					
1	Mahi Bajaj Sagar	Mahi	2180	1712	Multi	397.06
2	Jakham	Jakham	141.9	131.6	Irrigation	60.250
3	Jaisamand	Gomti	414.6	296.1	Irrigation/ Water Supply	---
4	Nagalia Weir	Jakham	---	---	Irrigation	---
5	Karmai Weir	Karnmai	---	---	Irrigation	---
6	SomKamala Weir	Som	126.06	125.83	Irrigation	---
	Gujarat State					
7	Kadana	Mahi	1249.30	958.00	Multi	101.86
8	Panam	Panam	578.185	552.966	Irrigation Flood Control	59.895
9	Machhan nalla	Machhan	37.91	29.16	Irrigation	11.775
10	Wanakbori Weir	Mahi	41.884	36.224	Irrigation	46.534
11	Hadaf	Hadaf	22.08	17.27	Irrigation	16.534
12	Kabutary	Kabutary	9.58	8.07	Irrigation	4.782
13	Bhadar	Bhadar	46.72	40.06	Irrigation	27.376
14	Umaria	Hadaf	13.53	11.67	Irrigation	4.699
15	Edalwada	Naleshvar	14.08	13.28	Irrigation	2.636
16	Karad	Karad	42.38	40.08	Irrigation	0.56

SABARMATI BASIN

10.0 SABARMATI BASIN

10.1 The flood forecasting for Sabarmati Basin is being looked after by Superintending Engineer, Hydrological Observation Circle, Gandhinagar through his Executive Engineer, Mahi Division (C.W.C.) at Gandhinagar. He has established various wireless stations at locations upstream and downstream of Dharoi Dam to obtain the details about rainfall and discharge in the Sabarmati Basin. The gauge and rainfall data are being communicated, through wireless stations located at various stations on the main river as well as on tributaries.

10.2 Name of villages/dams where wireless stations are located to report rainfall and gauge discharge are as under:

A. C.W.C's Wireless Stations

1. Sai Dam	Rajasthan State
2. Jotasan at River Wakal	Gujarat State
3. Harnav Weir	Gujarat State
4. Kheroj Bridge	Gujarat State
5. Hathmati Weir	Gujarat State
6. Dharoi Dam	Gujarat State
7. Derol Bridge	Gujarat State
8. Ahmedabad [Subhash Bridge]	Gujarat State
9. Ratanpur	Gujarat State
10. Raska Weir	Gujarat State
11. Kheda Town	Gujarat State
12. Watrak Dam	Gujarat State
13. Wautha	Gujarat State
14. Nadiad	Gujarat State

B. State's Wireless Stations.

1. S.E., H.I.P.C., H'nagar	(HIPC)	Gujarat State
2. Hathmati Dam	(HIPC)	Gujarat State
3. Meshwo Dam	(HIPC)	Gujarat State
4. Mazam Dam	(HIPC)	Gujarat State
5. Harnav Dam	(HIPC)	Gujarat State
6. Guhai Dam	(HIPC)	Gujarat State
7. Waidy Dam	(HIPC)	Gujarat State
8. Watrak	(HIPC)	Gujarat State
9. Badoli	(HIPC)	Gujarat State
10. Karol	(HIPC)	Gujarat State

11.	Mahudi	(HIPC)	Gujarat State
12.	Ahmedabad	(AIPC)	Gujarat State
13.	Wasana Barrage	(AIPC)	Gujarat State
14.	Dakor Road Bridge	(MIC)	Gujarat State
15.	Kathlal Road Bridge	(MIC)	Gujarat State
16.	Dharoi	(SSC.2)	Gujarat State
17.	Ratanpur Road Bridge	(CWC)	Gujarat State
18.	Kheda Road Bridge	(CWC)	Gujarat State
19.	Kherva	(SSC-2)	Gujarat State
20.	Jawanpura	(HIPC)	Gujarat State
21.	Deradungari	(HIPC)	Gujarat State
22.	Meghraj	(HIPC)	Gujarat State
23.	Modasa	(HIPC)	Gujarat State
24.	Idargadh (Repeater)	(HIPC)	Gujarat State
25.	Lank	(HIPC)	Gujarat State
26.	Khedva	(HIPC)	Gujarat State
27.	Gorathiya Mota Chekhala	(AIPC)	Gujarat State
28.	Varansi	(HIPC)	Gujarat State

10.3 Basin plan showing the locations of wireless stations established together with gauge discharge and rain gauge stations and time-lag statement is appended vide **Annexure 10-A.**

10.4 Statement showing the names of affected villages of basin and areas of Ahmedabad city at various signaling stages at different levels are enclosed vide **Annexure 10-B-1 and 10-C-1.1 to 10-C-1.4**

10.5 Dharoi Reservoir located about 165 Kms upstream of Ahmedabad City on River Sabarmati.

10.6 The Executive Engineer, Mahi Division, (C.W.C.) Gandhinagar, calculates the inflow in Dharoi reservoir based on the rainfall and discharge data of the upstream stations and reports to the **Superintending Engineer, Sujlam Suflam Circle No.2, Mehsana (Kherva) and Superintending Engineer, Ahmedabad Irrigation Project Circle, Ahmedabad and Executive Engineer, Dharoi Head Works Division, Dharoi.** CWC will also convey the gauge data, estimated discharge data, hourly rainfall and weather report of Dharoi, kheroj and kotra as per data transmission schedule All the data from June 1st to October 31st, 2020 can be conveyed to the officers of project circle through email or whatsapp as per data transmission schedule (0000,0300,0600,0800,1000,1200,1500,1800,2100 hrs). The inflow forecast for Dharoi Dam is to be issued when discharge is of the order of **20,000 Cusecs/567 Cumecs or above is expected to come in reservoir at any time.**

10.7 Inflow data as well as gauge and discharge data observed at Subhash Bridge in Ahmedabad are necessary for deciding the operation of Dharoi spillway gates as

well as Wasna Barrage gates during floods. The release from Dharoi are to be finalised by the Executive Engineer, Dharoi Head Works Division, Dharoi and Mahi Division (C.W.C.), Gandhinagar, in case of normal floods. However, in case of high floods of more than 2.00 lacs Cusecs (5664 Cumecs) the operation of gates and quantum of outflow is to be decided by Executive Engineer, Dharoi Head Works Division in consultation with the Executive Engineer Mahi Division (C.W.C.), Gandhinagar and Superintending Engineer, Sujlam Suflam Circle No.2, Mehsana (Kherva) and Focal Officer, i.e. Superintending Engineer, Ahmedabad Irrigation Project Circle, Ahmedabad.

10.8 There are some huts in the bed of river Sabarmati which are affected by the level of even at 5' to 6' at Subhash Bridge. It is not practicable to forecast the gauge of 5' at Subhash Bridge by Executive Engineer. Hence before monsoon Municipal Authorities as well as Executive Engineer, A.I. Division, Ahmedabad, will issue notices in newspapers for evacuation of such huts.

10.9 Action to be taken by the Executive Engineer, Mahi Division (C.W.C), Gandhinagar

1. Formulation and Dissemination of Flood Forecast of Dharoi Dam and Subhash Bridge.
2. Sharing of hourly observed gauge, estimated discharge and rainfall data of site Kheroj, kotra (Jotasan) and Kheda as per data dissemination schedule (0000,0300,0800,1000,1200,1500,1800,2100 hrs)
3. (a) Support Executive Engineer, Dharoi Head Works Division, Dharoi in finalizing releases from Dharoi Dam in case of normal floods.
(b) Support Executive Engineer, Dharoi Head Works Division, Dharoi, Superintending Engineer Sujalam Suflam Circle No. 2, Mehsana (Kherva) and focal officer, i.e. Superintending Engineer Ahmedabad Irrigation Project Circle, Ahmedabad, in deciding operation of gates and quantum of outflow from Dharoi Dam, in case of high floods of more than 2.0 lacs Cusecs (5664 Cumecs).

TABLE - (10.9)

Note :- Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Executive Engineer Mahi Division (C.W.C.), Gandhinagar	The Inflow forecast for 20000 Cusecs for DHAROI Dam is to be conveyed to the officer at Sr.No. (a) (b) (d) & (s) in Column No.3. The Flood Level forecast of SUBHASH BRIDGE, Ahmedabad. As per Annexure - 10-C-1-1	a) Superintending Engineer Ahmedabad Irrigation Project Circle, Ahmedabad. b) Superintending Engineer Sujlam Suflam Circle No.2, Mehsana (Kherva). c) Executive Engineer, Ahmedabad Irrigation Division, Ahmedabad.

- is to be conveyed to the Officers in Column No.3.at Sr.No.(a),(c)and (s) Only G & D Data of KHEDA TOWN for the Villages covered under Annexure 10-C-1.2 to 10-C-1.4 & 10-C-1.7 is to be conveyed to the Officers in Column No.3 at Sr.No. (a) (c) & (s)
- (B)
Executive Engineer, Dharoi Head Works Dn. No.1, Dharoi Colony.
- (C)
Executive Engineer, Shedhi Irrigation Dn., Nadiad
- d) Executive Engineer, Dharoi Head works Dn. No.1, Dharoi Colony
- e) Police Commissioner of KHEDA
- f) Municipal Commissioner, Ahmedabad.
- g) Dy. Muni. Commissioner, Ahmedabad.
- h) Collector, Ahmedabad.
- i) Area Superintend. (W.R) Ahmedabad.
- j) Commandant Home Guard, Ahmedabad.
- k) Collector, Kheda, District Kheda.
- l) District Superintend of Police, Kheda, Nadiad
- m) Mamlatdar, Dholka.
- n) Dy. Executive Engineer, Sanand Irrigation Sub Dn. Sanand.
- o) Collector, Sabarkantha District, Himatnagar.
- p) Collector, Mehsana District, Mehsana.
- q) Collector, Gandhinagar District, Gandhinagar.
- r) Executive Engineer Mahi Division (C.W.C.), Gandhinagar
- s) Flood Control Cell, Gandhinagar.
- t) Executive Engineer, Irri. Project Dn., Modasa
- u) Mamlatdar, Satlasana

10.10 Statement showing the Time lag for various stations from origin to the end of river basin as under.

Sr. No.	Name of Site	Type of Site	State	Catchment Area in (Sq. Kms.)	Distance from Origin in (Kms.)	Danger Level in (Meters)	Time Lag in (Hours)
1	2	3	4	5	6	7	8
1	DHAROI	W,G,D,R,F	Gujarat	5475.00	163.00	192.25	8 to 11
2	DEROL	W,R,G,D	Gujarat	6724.00	221.00	-----	5 to 11
3	SUBHASH BRIDGE	G,D,F	Gujarat	10674.00	311.00	45.34	7 to 11

NOTE: W=Wireless D=Discharge F=Flood G=Gauge R=Rainfall

10.11 Appropriate Authority (Focal Officer)
Superintending Engineer
Ahmedabad Irrigation Project Circle,
A-Block, 9th Floor, M.S.Building,Vastrapur,
Ahmedabad-52.

Note:-
Please see Flood
Telephone Directory of the
current year for telephone nos.

10.12 RIVERS OF SABARKANTHA DISTRICT (EXCEPT RIVER SABARMATI)

10.12.1 Floods are being experienced in the rivers in Sabarkantha district during heavy rains viz. (1) **Watrak**, (2) **Meshwo**, (3) **Hathmati**, (4) **Guhai**, (5) **Harnav**, (6) **Waidy**, and (7) **Mazam**. For dams of Sabarkantha District (except Dharoi Reservoir), the **Superintending Engineer, Himatnagar Irrigation Project Circle, Himatnagar is the Focal Officer**. The Executive Engineer, H.I. Division, Himatnagar is now under the control of S.E.H.I.P.C., Himatnagar, so, the project under H.I.Dn.Himatnagar are under control of S.E. H.I.P.C. Himatnagar (The Focal Officer of Sabarkantha Project except Sabarmati Project).

10.12.2 The flood warning for the village shown in Annexure 10-B-2 to 10-B-7 & 10-C-1.3 to 10-C-1.10 will be issued by S.E.H.I.P.C., Himatnagar to revenue authorities for taking necessary action for alerting and evacuating the people likely to be affected by release of water from following dams.

- | | | |
|--------------------|------------------|----------------------|
| 1. Meshwo Dam | 5. Hathmati Weir | 9. Jawanpura Barrage |
| 2. Mazam Dam | 6. Hathmati Dam | 10. Lank |
| 3. Watrak Dam | 7. Guhai Dam | |
| 4. Harnav - II Dam | 8. Waidy | |

10.12.3 The locations of Wireless Stations in Sabarkantha district are as under

- | | | | |
|---------------------------|---------------|---------------|---------------|
| 1. S.E.,H.I.P.C., H'Nagar | Gujarat State | 2. Harnav Dam | Gujarat State |
| 3. Guhai Dam | Gujarat State | 4. Badoli | Gujarat State |
| 5. Idargadh (Repeater) | Gujarat State | 6. Karol | Gujarat State |
| 7. Jawanpura | Gujarat State | 8. Khedva | Gujarat State |
| 9. Gorathiya | Gujarat State | 10. Varansi | Gujarat State |

The locations of Wireless Stations in Aravalli district are as under

- | | | | |
|-----------------|---------------|--------------------------|---------------|
| 1. Hatmathi Dam | Gujarat State | 2. Meshwo Dam | Gujarat State |
| 3. Mazam Dam | Gujarat State | 4. Waidy Dam | Gujarat State |
| 5. Watrak | Gujarat State | 6. Mahudi | Gujarat State |
| 7. Modasa | Gujarat State | 8. Deradungari | Gujarat State |
| 9. Meghraj | Gujarat State | 10. Ratanpur Road Bridge | Gujarat State |
| 11. Lank | Gujarat State | | |

Note: The above Wireless Stations are shown in para 10.2 and 10.3 but they are to be looked after by Superintending Engineer, Himatnagar Irrigation Project Circle, Himatnagar.

10.12.4 Action to be taken by various officers:

TABLE - (10.12.4)**Note:-**Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Deputy Executive Engineer (In charge of MAZAM & MESHWO Dam site Wireless station) Modasa Irri. Sub Dn. Modasa	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam @ 6.00 AM or hourly if required through Wireless station on telephone to the Officer in column No.3 at Sr.No.(a),(c) (h) & (j)	a) Superintending Engineer Himatnagar Irrigation Project Circle, Himatnagar
		b) Superintending Engineer Ahmedabad Irrigation Project Circle, Ahmedabad.
Executive Engineer Irrigation Project Division, Modasa.	Data received from Dam site & flood forecast if any will be communicated to the officer in column No.3 at Sr.No. (a), (b), (g), (h), to (t)	c) Executive Engineer Irrigation Project Division, Modasa.
		d) Executive Engineer Himatnagar Irrigation Division, Himatnagar
(B) Deputy Executive Engineer (In charge of WATRAK dam) Dam Site Wireless Station (Anior) Modasa Irri. Sub Dn.1 Bhempoda	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam at 6.00 AM or hourly if required through Wireless Station on telephone to the Officer in column No.3 at Sr.No.(c) (h) and (i).	e) Executive Engineer Project Construction Division No.3, Himatnagar.
		f) Executive Engineer Ahmedabad Irrigation Division, Ahmedabad.
Executive Engineer Irrigation Project Division, Modasa.	Data received from Dam site to formulate flood level forecast of KHEDA TOWN for villages covered in Annexure 10-C-1.2 to 10-C-1.4 & 10-C-1.7 will be Communicated to the Officer in column no.3 at Sr.No.(a) (b),(f),(h), (j),to(t)	g) Executive Engineer, Himatnagar Irrigation Division, Himatnagar.
		h) Executive Engineer, Dharoi Head Works Division No.1, Dharoi.
		i) Flood Cell, Himatnagar
		j) Flood Cell, Gandhinagar.
		k) Collector, Ahmedabad.
		i) Collector, Sabarkantha
		m) Collector, Kheda District, Kheda

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(C) Deputy Executive Engineer (In charge of GUHAI dam) Guhai Sub Division No.5 Himatnagar Dam site Wireless station (Jamla)	Collection & Communication of data regarding Rainfall, Reservoir Water Level, Live storage releases from dam @ 6.00 AM or hourly if required through Wireless station on telephone to the Officer in Column No.3 at Sr.No. (e) & (i).	n) District Superintendent of Police, Sabarkantha Himatnagar. o) District Superintendent of Police, Kheda (North) District, Kheda. p) Chief Area Manager(W.R) Ahmedabad.
Executive Engineer Project construction Division No.1, Himatnagar.	Data received from Dam site & flood forecast if any will be communicated to the officer in column no.3 at Sr. No. (a), (b), (e) to (h), (j) (l) to (n) & (s), (t)	q) District Superintendent of Police, Ahmedabad (Rural)Ahmedabad. r) Mamlatdar, Dholka. s) Executive Engineer Mahi Division (C.W.C), Gandhinagar.
(D) Deputy Executive Engineer (In-charge of HARNAV dam) Harnav Sub Division No.2,Vijaynagar.	Collection & communication of data regarding Rainfall, Reservoir Water Level, Live storage releases from dam @ 6.00 AM or hourly if required through Wireless station on telephone to the Officer in column No.3 at Sr.No.(e) &(i)	t) Collector, Anand (u) Mamlatdar, Kapadwanj
Executive Engineer Project construction Division No.3, Himatnagar.	Data received from Dam site to formulate flood level forecast of KHEDA TOWN for villages covered in Annexure 10-C-1.2 to 10-C-1.4 & 10-C-1.7 will be communicated to the officer in column no.3 at Sr.No.(a).	
(E) Deputy Executive Engineer (In charge of Hathmati & Indrasi dam) Himatnagar Irri. Sub.Dn. Himatnagar	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam @ 6.00 AM or hourly if required through Wireless station on telephone to the Officer in column No.3 at Sr.No.(g) & (i)	

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
Executive Engineer Himatnagar Irrigation Division, Himatnagar.	Data received from Dam site & flood forecast if any will be communicated to the officer in column No.3 at Sr.No. (a), (b), (e), (f), (h) to (o), (s)	
(F) Deputy Executive Engineer (In charge of Waidy dam) Mazam Reha. Sub. Dn. Megharaj	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam at 6.00 AM or hourly if required through Wireless Station on telephone to the Officer in column No.3 at Sr.No.(g) and (i).	
Executive Engineer Irrigation Project Division, Modasa.	Data received from Dam site & flood forecast for villages covered in Annex. 10C-1.1,10-C-1.3 to 10.C-1.5, 10-C-1.8 to 10.C.1.10,10-B. 2, 10-B-6,10-B-7. will be commu- nicated to the officer in Col.3 at Sr. No.(a),(b),(e),(f),(h),(j), (k),(i) to (s)	
(G) Deputy Executive Engineer (In charge of Jawanpura Barrage) Prantij Irri. Sub. Dn. Prantij	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam at 6.00 AM or hourly if required through Wireless Station on telephone to the Officer in column No.3 at Sr.No.(d), (e) and (i), t	
(H) Deputy Executive Engineer (In charge of Lank) Watrak Canal Sub. Dn. 9 Bayad	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam at 6.00 AM or hourly if required through Wireless Station on telephone to the Officer in column No.3 at Sr.No.(a)to (g), (h) & (i)	
(I) Deputy Executive Engineer (In charge of Khedva) Guhai Canal Sub. Dn. 1 Khedbrahma	Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam at 6.00 AM or hourly if required through Wireless Station on telephone to the Officer in column No.3 at Sr.No.(a),(d),(e), (i),(j) & (l)	

(J) Deputy Executive Engineer (In charge of Varansi dam) Watrak Canal Sub. Dn.13 Bayad
Collection & communication of data regarding Rainfall, Reservoir Water Level, releases from dam at 6.00 AM or hourly if required through Wireless Station on telephone to the Officer in column No.3 at Sr.No.(a),(d),(e), (i),(m),(o) & (u)

10.11.6 **Appropriate Authority (Focal Officer)**

(A) **For Sabarkantha District and Aravalli District**

(Except Sabarmati River)

Superintending Engineer

Himatnagar Irrigation Project Circle

Sinchai Bhavan, Himatnagar

Note:-

Please see Flood Telephone

Directory of the current year for telephone nos.

ANNEXURE - 10 (B-1)

White signal is to be issued by S.E. A.I.P.C. when discharge released from Subhash Bridge is more than 86,597 Cusecs in Rivers Sabarmati and intimation should be given to S.E., S.S.C.No.-1 & concerned Revenue Authorities.

GANDHINAGAR DISTRICT

SR. No.	GANDHINAGAR TALUKA	SR. No.	MANASA TALUKA	SR. No.	KALOL TALUKA
1	Valad	1	Khadat	1	Aluva
2	Raysan	2	Mahudi		
3	Randesan	3	Anodia		
4	Bhat	4	Dodipal		
5	Koba	5	Lakroda		
6	Pethapur	6	Varsoda		
7	Palaj	7	Gunma		
8	Sahpur	8	Ambod		
9	Ratanpur	9	Amarpura(Gra)		
10	Lekawada	10	Delwada		
11	Nava Dharampur				
12	Sadara				
13	Dholakuwa				
14	Indroda				
15	Borij				
16	Pimpalaj				
17	Pidharda				

List of villages likely to be affected by floods In Rivers Sabarmati, Watrak, Shedhi.

AHMEDABAD DISTRICT.

SR. No.	CITY TALUKA	SR. No.	DASKROI TALUKA	SR. No.	DHOLKA TALUKA	SR. No.	DHOLKA TALUKA (3.. Contd.....)
1	Paldi	1	Laxmipura	1	Ambaliyara	38	Bhavanpara
2	Old Vadaj	2	Lambha	2	Chandisar	39	Badarkha
					Jalalpur		
3	New Vadaj	3	Kunod	3	Vajifa	40	Diman
4	Giaspur	4	Giramtha	4	Khatripur	41	Dhulajipara
5	Ellisbridge Police Station Area	5	Ode	5	Rajpur	42	Kodariapara
6	Jamalpur	6	Naz	6	Saroda	43	Mandalpara
7	Raikhad	7	Paldi- Kankrej	7	Sathal	44	Jakhda
8	Kochrab	8	Miroli	8	Ambethi	45	Anandpara
		9	Nava Pura	9	Andhari	46	Vejalka
			Dharoda-				
9	Subhas Bridge Area	10	Mahijada	10	Pisawada	47	Arnej
10	Pirana	11	Visal pur	11	Sahij	48	Juwaraj
11	Piplaj	12	Vasai	12	Varna	49	Koth
12	Gopalpur	13	Wanzar	13	Vataman	50	Rupgadh
13	Shahvadi	14	Bhat	14	Bharatwada	51	Kariyana
14	Kama Hotel Area	15	Fatewadi	15	chaloda	52	Godhneswar
15	Sabarmati Power House	16	Kasindra	16	Dadusar	53	Kalia
16	Sarkhej	17	Bakrol	17	Dholi	54	Ambareli
17	Dudheshwer	18	Tihmba	18	Ganesar	55	Kadipur
18	Madhupura			19	Ganol	56	Begva
19	Shahpur Area			20	Girand	57	Rampur
		SR. No.	BAVALA TALUKA	21	Ingoli	58	Raipur
		1	Devthal	22	Kaliapura	59	Ranoda
		2	Dumali	23	Kauka	60	Deliya
		3	Kavitha	24	Kharanti	61	Jundal
		4	Memar	25	Lolia	62	Rupavati
		5	Kavala	26	Mafalipur	63	Shekhadi
		6	Ranesar	27	Moti-Boru	64	Dhanwada
		7	Siyal	28	Nani-Boru	65	Utelia
		8	Bagodara	29	Mujpur Para	66	Saragwada
		9	Rohika	30	Nesda	67	Gandi
				31	Paladi	68	Samani
		SR. No.	SANAND TALUKA	32	Simej	69	Dholka
		1	Matoda	33	Trasad	70	Lothal
				34	Vautha	71	Bhumali
					Kelia-		
11	Valinda	2	Savi	35	Wasana	72	Sarandi
12	Pipali	3	Palvada	36	Virdi	73	Walthera
13	Pachchham	4	Tajpur	37	Virpur	74	Lana
14	Ratanpur	5	Moraiya				
15	Kamibala	6	Wasana				
16	Fedra	7	Jivanpura				
17	Behrampur	8	Sanathal(Chacharwadi)				
18	Anandpur	9	Lodarial				
		10	Changodar				
		11	Zamp				
		12	Kalol				
		13	Moti Devti				
		14	Modasar				

ANNEXURE - 10 (B-1) ..Contd.....**List of villages likely to be affected by floods In Rivers Sabarmati, Watrak, Shedhi.****KHEDA DISTRICT.**

SR. No.	MATAR TALUKA	SR. No.	NADIAD TALUKA	SR. No.	KHEDA TALUKA	SR. No.	KAPADVANJ TALUKA
1	Rasikpura	1	Vina	1	Nani - Kaloli	1	Vaghari
2	Varsang	2	Navagam	2	Moti - Kaloli	2	Pathavat
3	Baroda	3	Valla	3	Radhu		
4	Asmali	4	Aljada	4	Pathapura		
5	Pabla	5	Nana - Vagana	5	Kathwada		
6	Sokhad	6	Erendipura	6	Naika		
7	Rathanpur	7	Bilodra	7	Dharoda		
8	Matar	8	Munjipura	8	Navagam		
9	Hayjrabad	9	Vadai	9	Chitrasar		
10	Pipariar	10	Andhari Ambali	10	Chalindra		
11	Kosiya			11	Vasana-Buzarag		
12	Agovi			12	Hariyala		
13	Mahela			13	Samadralat		
				14	Kheda		
				15	Khumanvad		
				16	Kheda Camp		

SR. No.	THASRA TALUKA	SR. No.	MEHMDAVAD TALUKA	SR. No.	MAHUDHA TALUKA	SR. No.	KATHLAL TALUKA
1	Bharthar	1	Gadhav	1	Undra	1	Chelavat
2	Golaj	2	Bara Muvada	2	Herenj	2	Chhipal
3	Vinzol	3	Ghodali	3	Alina	3	Bharkunda
4	Zakhed	4	Mankuva				
5	Pilol	5	Godhaj (Gedbai)				
6	Simlaj	6	Adika				
7	Vaso	7	Vancol Soda				
8	Dadad	8	Vamali				
9	Mitha-na-Muvada	9	Khambhli				
10	Dabhali	10	Varsola				
11	Jargal	11	Iyava				
12	Vanthrauh						
13	Pipalwada						
14	Dhhudi						
15	Vanoti						
16	Rasulpura						
17	Ekively						
18	Masra						
19	khijalpur Talpad						
20	Khijalpur Vant						

ANNEXURE - 10 (B-1) ..Contd.....

List of villages likely to be affected by floods In Rivers Sabarmati, Watrak, Shedhi.

ANAND DISTRICT.

SR No.	TARAPUR TALUKA	SR No.	KHAMBHAT TALUKA	
1	Galiana	1	Golana	
2	Rinza	2	Pandad	
3	Khada			
4	Milarampur			
5	Chitravada			
6	Dughari			
7	Nabhoi			
8	Mota-Kalodra			
9	Fatehpur			
10	Pachegam			
11	Kasbara			

ARAVALLI DISTRICT

SR No.	BAYAD TALUKA	SR No.	DHANSURA TALUKA	SR No.	MALPUR TALUKA	
1	Dolpur	1.	Barnoli	1.	Khalipur	
2	Nana Lalpur	2.	Chhevadiya	2.	Narshinh Khant	
3	Mota Lalpur		na Muvada		na Muvada	
4	Gopalpur	3.	Sageyani Rayan	3.	Jalam Khant na	
5	Hematral na Muvada	4.	Khadol		Muvada	
6	Motipur					
7	Ranechi					
8	Dahegamda					
9	Nani Simlaj					
10	Moti Simlaj					

SABARKANTHA DISTRICT

SR No.	TALOD TALUKA
1	Takar
2	Motachkhla
3	Varvada
4	Mohanpur

Note:-

- (1) Paldi Means the low lying area between Banks of River Sabarmati and Road from Paldi Bus Stand to Wasna.
- (2) Refer Annexures 10 (C-1.1) to 10 (C-1.8) for villages to be affected at different Water Levels.

ANNEXURE - 10-C-1.1 (WARNING TO BE ISSUED BY S.E.AIPC, AHMEDABAD)

Statement showing villages affected by floods of **Sabarmati River** on the basis of discharge/ gauge available at **Subhash Bridge** gauge site.

Sr. No.	Discharge from Dharoi Dam (Cus/Cum)	Gauge Level at Subhash Bridge Ft./Mt.	Gauge in Ft. Mt.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS			: ALERT			
2	BLUE SIGNALS			: READY FOR EVACUATION			
3	RED SIGNALS			: IMMEDIATE EVACUATION			

1.	86597	144.65	10.00	AHMEDABAD			
	2452.08	44.09	3.01	1. City	1 to 5	—	—
				2. Dholka	1 to 7	—	—
				KHEDA			
				1. Matar	1 to 3	—	—
				2. Kheda	1 to 5	—	—
				ANAND			
				1. Tarapur	—	—	—
				2. Khambhat	1	—	—
2.	116892	146.79	12.00	AHMEDABAD			
	3309.91	44.74	3.66	1. City	6 to 9	1 to 5	—
				2. Dholka	8 to 12	1 to 7	—
				KHEDA			
				1. Matar	4 to 13	1 to 3	—
				2. Kheda	6 to 12	1 to 5	—
				ANAND			
				1. Tarapur	1 to 11	—	—
				2. Khambhat	2	1	—
3.	145000	148.76	14.00	AHMEDABAD			
	4105.90	45.34	4.27	1. City	10 to 12	6 to 9	1 to 5
				2. Dascroi	1 to 18	—	—
				3. Dholka	13 to 43	8 to 12	1 to 7
				6. Bavla	1 to 7	—	—

Sr. No.	Discharge from Dharoi Dam (Cus/Cum)	Gauge Level at Subhash Bridge Ft./Mt.	Gauge in Ft. Mt.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8

KHEDA

1. Matar	—	4 to 13	1 to 3
2. Kheda	—	6 to 12	1 to 5

ANAND

1. Tarapur	—	1 to 11	—
2. Khambhat	—	2	1

4.	173300	150.78	16.00
	4907.26	45.95	4.87

AHMEDABAD

1. City	13 to 19	10 to 12	6 to 9
2. Dascroi	—	1 to 18	—
3. Dholka	—	13 to 43	8 to 12
4. Dhandhuka	1 to 18	—	—
5. Sanand	1 to 14	—	—
6. Bavla	—	1 to 7	—

KHEDA

1. Matar	—	4 to 13	1 to 3
2. Kheda	—	6 to 12	1 to 5

ANAND

1. Tarapur	—	—	1 to 11
2. Khambhat	—	—	2

5.	203300	152.75	18.00
	5756.76	46.56	5.49

AHMEDABAD

1. City	—	13 to 19	10 to 12
2. Dascroi	—	—	1 to 18
3. Dholka	43 to 74	—	13 to 43
4. Dhandhuka	—	1 to 18	—
5. Sanand	—	1 to 14	—
6. Bavla	8 to 9	—	—

KHEDA

1. Matar	—	—	4 to 13
2. Kheda	—	—	6 to 12

ANAND

1. Tarapur	—	—	1 to 11
2. Khambhat	—	—	2

Sr. No.	Discharge from Dharoi Dam (Cus/Cum)	Gauge Level at Subhash Bridge Ft./Mt.	Gauge in Ft. Mt.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
6.	230000	154.75	20.00	AHMEDABAD			
	6512.81	47.17	6.10	1. City	—	—	13 to 19
				3. Dholka	—	43 to 74	—
				4. Dhandhuka	—	—	1 to 18
				5. Sanand	—	—	1 to 14
				6. Bavla	—	8 to 9	—
7.	260000	156.75	22.00	AHMEDABAD			
	7362.31	47.78	6.71	3. Dholka	—	—	43 to 74
				6. Bavla	—	—	8 to 9

- Note:** - (1) Zero Gauge of Subhash Bridge is 134.75 ft. i.e. 41.08 M.
 (2) Refer **Annexure 10-B-1** for affected villages mentioned in Column Nos 6 to 8 in this Annexure.
 (3) Extrapolated Probable discharges, to be observed annually & amended accordingly.

ANNEXURE - 10-C-1-2 (WARNING TO BE ISSUED BY S.E.,MIC,NADIAD)

Statement showing villages affected by floods of **Mohar River** on the basis of discharge/gauge available at downstream of **Kathlal Bridge**.

Sr. No.	Discharge in River Mohar (Cum/Cus)	Gauge Level at Kathlal Bridge Ft./Mt.	Gauge in Ft. Mt.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
1.	NA	NA	5.70	KHEDA			
	NA	NA	18.70	2. Nadiad	1 to 10	—	—
				6. Mahemdabad	1	—	—
				7. Mahudha	1 to 2	—	—
2.	NA	NA	6.10	KHEDA			
	NA	NA	20.01	2. Nadiad	—	1 to 10	—
				6. Mahemdabad	—	1	—
				7. Mahudha	—	1 to 2	—
3.	NA	NA	6.50	KHEDA			
	NA	NA	21.33	2. Nadiad	—	—	1 to 10
				6. Mahemdabad	—	—	1
				7. Mahudha	—	—	1 to 2

- Note :** (1) Refer **Annexure 10-B-1** for affected villages mentioned in Column Nos 1 to 8 in this Annexure.
- (2) Zero Gauge of Kathlal Bridge is **36.94 Meter**.

ANNEXURE - 10-C-1.3 (WARNING TO BE ISSUED BY S.E.HIPC, HIMATNAGAR)

Statement showing villages affected by floods of **Watrak River** on the basis of discharge/gauge available at **D/s of Ratanpur-Gadval Road**.

Sr. No.	Discharge in River Watrak (Cum/Cus)	Gauge Level at Ratanpur Gadval Road	Gauge in Mt. Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
1.	NA	NA	4.50	KHEDA			
	NA	NA	14.76	1. Matar	1 to 5	—	—
				2. Kheda	1 to 10	—	—
				4. Kapadwanj	1 to 2	—	—
				5. Mahemdabad	2 to 6	—	—
				8. Kathlal	1 to 3	—	—
2.	NA	NA	4.90	KHEDA			
	NA	NA	16.07	1. Matar	—	1 to 5	—
				2. Kheda	—	1 to 10	—
				4. Kapadwanj	—	1 to 2	—
				5. Mahemdabad	—	2 to 6	—
				8. Kathlal	—	1 to 3	—
3.	NA	NA	5.50	KHEDA			
	NA	NA	18.04	1. Matar	—	—	1 to 5
				2. Kheda	—	—	1 to 10
				4. Kapadwanj	—	—	1 to 2
				5. Mahemdabad	—	—	2 to 6
				8. Kathlal	—	—	1 to 3

- Note :** (1) Refer **Annexure 10-B-1** for affected villages mentioned Column Nos 6 to 8 in this Annexure.
- (2) Zero Gauge of Ratanpur Gadwal Bridge is **39.12 Meter**.

ANNEXURE - 10-C-1.4 (WARNING TO BE ISSUED BY SE, HIPC, HIMATNAGAR)

Statement showing villages affected by floods of **Watrak River** on the basis of discharge/gauge available at **Kheda Road Bridge on N.H. 8**.

Sr. No.	Discharge in River Watrak (Cum/Cus)	Gauge Level at Kheda Road Bridge on NH-8	Gauge in Mt. Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
1.	NA	NA	4.50	KHEDA			
	NA	NA	14.76	1. Matar 2. Kheda	7 to 13 11 to 12	— —	— —
2.	NA	NA	5.50	KHEDA			
	NA	NA	18.04	1. Matar 2. Kheda	— —	7 to 13 11 to 12	— —
3.	NA	NA	6.50	KHEDA			
	NA	NA	21.32	1. Matar	—	—	6 to 13

- Note :** (1) Refer **Annexure 10-B-1** for affected villages mentioned in Column Nos 6 to 8 in this Annexure.
 (2) Zero Gauge of **Kheda Bridge on N.H.No.8** is **19.75 Meter**.

ANNEXURE - 10-C-1.5 (WARNING TO BE ISSUED BY S.E,HIPC,H'NAGAR)

Statement showing villages affected by floods of **Watrak River** on the basis of discharge released & gauge available at **Dabha Bridge**.

Sr. No.	Discharge Released from Watrak (Cum/Cus)	Gauge Level at Dabha Road Bridge Mt./ Ft.	Gauge in Mt./ Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS			: ALERT			
2	BLUE SIGNALS			: READY FOR EVACUATION			
3	RED SIGNALS			: IMMEDIATE EVACUATION			
1.	2000	78.53	7.34	Aravalli.			
	70630	287.67	24.07	Bayad	—	—	—
2.	2300	79.81	8.58	Aravalli.			
	81224.50	261.87	29.52	Bayad	1,9,10	—	—

Sr. No.	Discharge Released from Watrak (Cum/Cus)	Gauge Level at Dabha Road Bridge Mt./ Ft.	Gauge in Mt. Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
3.	<u>2450</u>	<u>80.20</u>	<u>9.00</u>	Aravalli			
	86521.75	263.12	29.52	Dhansura Bayad	1 —	— 1,9,10	— —
4.	<u>2500</u>	<u>80.31</u>	<u>9.12</u>	Aravalli			
	88287.50	263.51	29.91	Dhansura Bayad	— 2	1 —	— 1,9,10
5.	<u>3000</u>	<u>80.91</u>	<u>9.72</u>	Aravalli			
	105945	265.48	31.88	Dhansura Bayad	— 3,4	— 2	1 1,9,10
6.	<u>3500</u>	<u>81.41</u>	<u>10.22</u>	Aravalli			
	123602.50	267.12	33.52	Dhansura Bayad Malpur	— 5 1&2	— 3,4 —	1 1,9,2,10 —
7.	<u>4000</u>	<u>81.81</u>	<u>10.62</u>	Aravalli			
	141260	268.43	34.83	Dhansura Bayad Malpur	4 6 —	— 5 1&2	1 1,2,3,4,9,10 —
8.	<u>4500</u>	<u>82.16</u>	<u>10.95</u>	Aravalli			
	158917.50	269.58	35.94	Dhansura Bayad Malpur	— — —	4 6 —	1 1,2,3,4,5,9,10 1&2
9.	<u>5000</u>	<u>82.46</u>	<u>11.26</u>	Aravalli			
	176575	270.56	36.96	Dhansura Bayad Malpur	2 7,8 —	— — —	1,4 1,2,3,4,5,6,9,10 1&2
10.	<u>5500</u>	<u>82.71</u>	<u>11.51</u>	Aravalli			
	194232.50	271.38	37.78	Dhansura Bayad Malpur	— — —	2 7,8 —	1,4 1,2,3,4,5,6,9,10 1&2
11.	<u>6000</u>	<u>82.91</u>	<u>11.72</u>	Aravalli			
	211890	272.04	38.44	Dhansura Bayad Malpur	— — 3	3 — —	1,2,4 1 to 10 1&2

Sr. No.	Discharge Released from Watrak (Cum/Cus)	Gauge Level at Dabha Road Bridge Mt./ Ft.	Gauge in Mt. Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
12.	6500	83.06	11.87	Aravalli			
	229547.5	272.53	38.93	Dhansura	—	3	1,2,4
				Bayad	—	—	1 to 10
				Malpur	—	3	1&2
13.	7000	83.06	11.87	Aravalli			
	247205	273.02	39.42	Dhansura	—	—	1 to 4
				Bayad	—	—	1 to 10
				Malpur	—	—	1 to 3

Note :- Refer **Annexure 10-B-1** with Addendum for affected villages mentioned in Col.5 to 7 in this Annexure.

ANNEXURE - 10-C-1.6 (WARNING TO BE ISSUED BY S.E,MIC, NADIAD)

Statement showing villages affected by floods of **Shedhi River** on the basis of discharge/gauge available at **D/s of Dakor Road Bridge**.

Sr. No.	Discharge in River Shedhi (Cum/Cus)	Gauge Level at Dakor Road Bridge	Gauge in Mt. Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
1.	NA	NA	6.80	KHEDA			
	NA	NA	22.30	3. Kheda	13 to 16	—	—
				2. Nadiad.	9 to 10	—	—
				6. Mahemdabad	1 to 5	—	—
				5. Thasra	1 to 6	—	—
				8. Kathalal	3	—	—
2.	NA	NA	7.13	KHEDA			
	NA	NA	23.38	3. Kheda	—	13 to 16	—
				2. Nadiad.	—	9 to 10	—
				6. Mahemdabad	—	1 to 5	—
				5. Thasra	7 to 20	1 to 6	—
				8. Kathalal	—	3	—
3.	NA	NA	7.50	KHEDA			
	NA	NA	24.60	3. Kheda	—	—	13 to 16
				2. Nadiad.	—	—	9 to 10
				6. Mahemdabad	—	—	1 to 5
				5. Thasra	—	7 to 20	1 to 6
				8. Kathalal	—	—	3

Sr. No.	Discharge in River Shedhi (Cum/Cus)	Gauge Level at Dakor Road Bridge	Gauge in Mt. Ft.	Name of District Taluka	Signal for Village at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8

4.	NA	NA	8.00	KHEDA			
	NA	NA	26.25	6. Thasra	—	—	7 to 20

Note : -(1) Refer **Annexure 10-B-1** for affected villages mentioned in Column Nos 1 to 8 in this Annexure.

(2) Zero Gauge of Dakor Road Bridge is **46.01 Meter**.

ANNEXURE-10-C-1-8 (WARNING TO BE ISSUED BY S.E.H.I.P.C. HIMATNAGAR)

Statement showing the villages affected by the Floods of **Guhai River** on the basis of discharge released from the **Guhai Dam**.

Sr. No.	Discharge Released from Guhai Dam (Cum/Cus)	Name of District Taluka	Signal for Village at Sr. No.		
			White Signal	Blue Signal	Red Signal
1	2	3	4	5	6

1	2831.65	Sabarkantha			
	100000	Himatnagar	1	—	—
2.	3539.57	Sabarkantha			
	125000	Himatnagar	4, 6 & 7	1	—
3.	3964.32	Sabarkantha			
	142000	Himatnagar	2	4, 6 & 7	1
4	5380.15	Sabarkantha			
	190000	Himatnagar	5, 9, 10 & 17	2	4, 6 & 7
5.	5493.41	Sabarkantha			
	194000	Himatnagar	-	5, 9, 10 & 17	2
6.	5493.41 & above	Sabarkantha			
	194000 & above	Himatnagar	-	-	5, 9, 10 & 17

Note :- Refer **Annexure 10-B-5** for affected villages mentioned.

ANNEXURE 10-C-1-9 (S.E.H.I.P.C HIMATNAGAR)

Statement showing the villages affected by the Floods of **Mazam River** on the basis of discharge released from the **Mazam Dam**

Sr. No.	Discharge Released from Mazam Dam (Cum/Cus)	Name of District Taluka	Signal for Village at Sr. No.		
			White Signal	Blue Signal	Red Signal
1	2	3	4	5	6
1.	500	Aravalli			
	17657.50	Modasa Dhansura	—	—	—
2.	750	Aravalli			
	26486.25	Modasa Dhansura	1 & 7	—	—
3.	1000	Aravalli			
	35315	Modasa Dhansura	4	1 & 7	—
4	1200	Aravalli			
	42378	Modasa Dhansura	8, 9 & 10 3, 5 & 8	4	1 & 7
5	1500	Aravalli			
	52972.50	Modasa Dhansura	—	8, 9 & 10 3, 5 & 8	4
6.	1900	Aravalli			
	67098.50	Modasa Dhansura	3, 6 & 14 12	—	8, 9 & 10 3, 5 & 8
7.	2000	Aravalli			
	70630	Modasa Dhansura	13	3, 6 & 14 12	—
8.	2250	Aravalli			
	79458.75	Modasa Dhansura	5 & 11	13	3, 6 & 14 12
9.	2500	Aravalli			
	88287.50	Modasa Dhansura	—	5 & 11	13

10.	2850	Aravalli			
	100647.75	Modasa Dhansura	2	—	5 & 11
11	3000	Aravalli			
	105945	Modasa Dhansura	—	2	—
12	3313 & above	Aravalli			
	116998.6 & above	Modasa Dhansura	—	—	2

Note : Refer **Annexure 10-B-3** for affected villages mentioned in Column No. 1 & 2.

ANNEXURE 10-C-1-10 (S.E.H.I.P.C HIMATNAGAR)

Statement showing the villages affected by the Floods of **Harnav-II River** on the basis of discharge released from the **Harnav - II Dam**

Sr. No.	Discharge Released from Harnav-II Dam (Cum/Cus)	Name of District Taluka	Signal for Village at Sr. No.		
			White Signal	Blue Signal	Red Signal
1	2	3	4	5	6

1.	566.33	Sabarkantha			
	20000	Khedbrahma	3	—	—
2	1132.66	Sabarkantha			
	40000	Khedbrahma	1 & 2	3	—
3	1699	Sabarkantha			
	60000	Khedbrahma	—	1 & 2	3
		Vijaynagar	1, 2, 3, 4 & 7	—	—
4.	2123.74	Sabarkantha			
	75000	Khedbrahma	—	—	1 & 2
		Vijaynagar	5	1, 2, 3, 4 & 7	—
5	2406.9	Sabarkantha			
	85000	Vijaynagar	—	5	1, 2, 3, 4 & 7
6	2406.9 & above	Sabarkantha			
	85000 & above	Vijaynagar	—	—	5

Note : Refer Annexure 10-B-4 for affected villages mentioned in column 1, 2, 3, 4.

ANNEXURE - 10-B-2

List of villages likely to be affected in Down-stream of **Hathmati Reservoir** due to floods in **Hathmati River**.

SABARKANTHA DISTRICT			
HIMATNAGAR TALUKA			
Sr. No.	Sr. No.	Sr. No.	Sr. No.
1. Fatepur	10. Chandarni	17. Balwantpura	23. Rajpur
2. Khapreta	11. Khed	18. Kump	24. Keshargadh
3. Medi Timba	12. Chaplanar	19. Surpur	25. Amrapur
4. Naroda	13. Mor Dungra	20. Demai	26. Parthipura
5. Mankadi	14. Ambawada	21. Pratapura	27. Himatnagar
6. Amidpura	15. Jambadi	22. Balochpur	
7. Motipura	16. Rabada		
8. Kadodari			
9. Vasana (Ch.)			

ANNEXURE - 10-B-3

List of villages likely to be affected in Down-stream of **Mazam Reservoir** due to floods in **Mazam River**.

ARAVALLI DISTRICT				KHEDA DISTRICT			
MODASA TALUKA		DHANSURA TALUKA		BAYAD TALUKA		KAPADVANJ TALUKA	
Sr No	Name of Village	Sr No	Name of Village	Sr No	Name of Village	Sr No	Name of Village
1. Volva		1. Vadagam		1. Anakhol		1. Talpora	
2. Hafsabad		2. Khilodiya		2. Land		2. Derdi-Pavthi	
3. Bajkot		3. Mahadevpura		3. Chandrej		3. Kedareshwar	
4. Ganeshpura		4. Alva		4. Ambaliryara		Mahadev	
5. Pahadpur		5. Umedpura		5. Vasani			
6. Sayara		6. Navi Sinol		6. Gobrajini-muvadi			
7. Modasa Kashi		7. Bibipura		7. Mathasulia			
Vishwaanath		8. Kanjoria		8. Limb			
Temple		9. Dolpur		9. Untrada			
8. Sabalpur		10. Jamtha		10. Amarbharti School			
9. Khadoda		11. Rampur		11. Mota Pavthi			
10. Garudi		12. Rajpur		12. Paladi			
11. Sitpur							
12. Modasa							
13. Dhunawas							
14. Modasa City							

ANNEXURE - 10-B- 4

List of villages likely to be affected in Downstream of **Harnav Stage - II Reservoir** due to floods in **Harnav River**.

<u>SABARKANTHA DISTRICT</u>			
VIJAYNAGAR TALUKA			KHEDBRAHMA TALUKA
Sr. No.	Sr. No.	Sr. No.	Sr. No.
1. Antarsuba	4. Virpur	6. Dholivav	1. Vangha Kampa
2. Matali	5. Abhapur	7. Antari	2. Saghara Kampa
3. Bandhana			3. Silvad

ANNEXURE - 10-B- 5

List of villages likely to be affected in Downstream of **Guhai Reservoir** due to floods in **Guhai River**.

<u>SABARKANTHA DISTRICT</u>			
HIMATNAGAR TALUKA			
1. Khandol	6. Rampur	11. Balochpur	16. Balantpura
2. Zump	7. Karanpur (Kampur)	12. Rajpur	17. Khanusa
3. Vasana	8. Ghorwada	13. Amarapur	
4. Bholano Math	9. Tornia Campa	14. Pruthvipura	
5. Kaniol	10. Demai	15. Nava	

ANNEXURE - 10- B- 6

List of villages likely to be affected in Down stream of **Meshwo Reservoir** due to floods in **Meshwo River**.

<u>ARAVALLI DISTRICT</u>			
BHILODA TALUKA		MODASA TALUKA	
Sr. No.	Sr. No.	Sr. No.	Sr. No.
1. Shamlaji	6. Vajapur	1. Bamanvada	6. Gokharia
2. Bhecarpura	7. Brahmpuri	2. Jalia	7. Rakhial
3. Samadpura	8. Nandisan	3. Bolundra	8. Jalampur
4. Kherancha	9. Gadadhar	4. Bharkot	9. Rajpur
5. Vandol		5. Bakrol	

ANNEXURE - 10-B-7

List of villages likely to be affected in Down stream of **Waidy Reservoir** due to floods in **Suron River**.

<u>ARAVALLI DISTRICT</u>		
MEGHRAJ TALUKA		
Sr. No.	Sr. No.	Sr. No.
1. Gotha	4. Varthali	7. Munshivada
2. Jitpur	5. Vunk	8. Lalpur
3. Khokharia	6. Narsoli	

ANNEXURE - 10-B- 8

List of villages likely to be affected in Down stream of **Khedva Reservoir** due to floods in **Kosambi River (Tributary of Harnav)**.

<u>SABARKANTHA DISTRICT</u>		
KHEDBRAHMA TALUKA		
Sr. No.	Sr. No.	Sr. No.
1. Basol	4. Paroya	7. Shitol
2. Navanana	5. Rodhara	8. Boradi
3. Bhutiya	6. Jagannathpura	9. Vaartol

ANNEXURE - 10-B- 9

List of villages likely to be affected in Down stream of **Varansi Reservoir** due to floods in **Varansi River** (Tributary of Watrak river).

<u>KHEDA DISTRICT</u>		
KAPADWANJ TALUKA		
Sr. No.	Sr. No.	Sr. No.
1. Dolpur Timba	3. Bariana Muvada	5. Navi Thunchal
2. Betawada	4. Thunchal	6. Sulatanpur

ANNEXURE - 10-B- 10

List of villages likely to be affected in Down stream of **Jawanpura Reservoir** due to floods in **Meshwo River**.

<u>SABARKANTHA DISTRICT</u>			
TALOD TALUKA			
Sr. No.	Sr. No.	Sr. No.	Sr. No.
1. Badodara	3. Nana	5. Gadhaval	7. Mahekal
2. Panapur	4. Simaliya	6. Lalani Muvadi	

<u>GANDHINAGAR DISTRICT</u>			
DEHGAM TALUKA			
Sr. No.	Sr. No.	Sr. No.	Sr. No.

1. Vadol 2. Bavalani Muvadi 3. Masang 4. Khakhara

ANNEXURE - 10-B- 11

List of villages likely to be affected in Down stream of **Gorathiya Reservoir** due to floods in **Meshwo River**.

<u>SABARKANTHA DISTRICT</u>			
TALOD TALUKA			
Sr. No.	Sr. No.	Sr. No.	Sr. No.

1. Mota Chekhla 3. Antroli Pujaji 5. Panapur 7. Simaliya
2. Antroli Doliji 4. Badodara 6 Nana 8. Gadhaval
9. Lalani Muvadi 10. Mahekal

<u>GANDHINAGAR DISTRICT</u>			
DEHGAM TALUKA			
Sr. No.	Sr. No.	Sr. No.	Sr. No.

1. Vadol 2. Bavalani Muvadi 3. Masang 4. Khakhara

ANNEXURE - 10-B- 12

List of villages likely to be affected in Down stream of **Lank Reservoir** due to floods in **Dhamani River**.

<u>SABARKANTHA DISTRICT</u>			
BAYAD TALUKA			
Sr. No.	Sr. No.	Sr. No.	Sr. No.

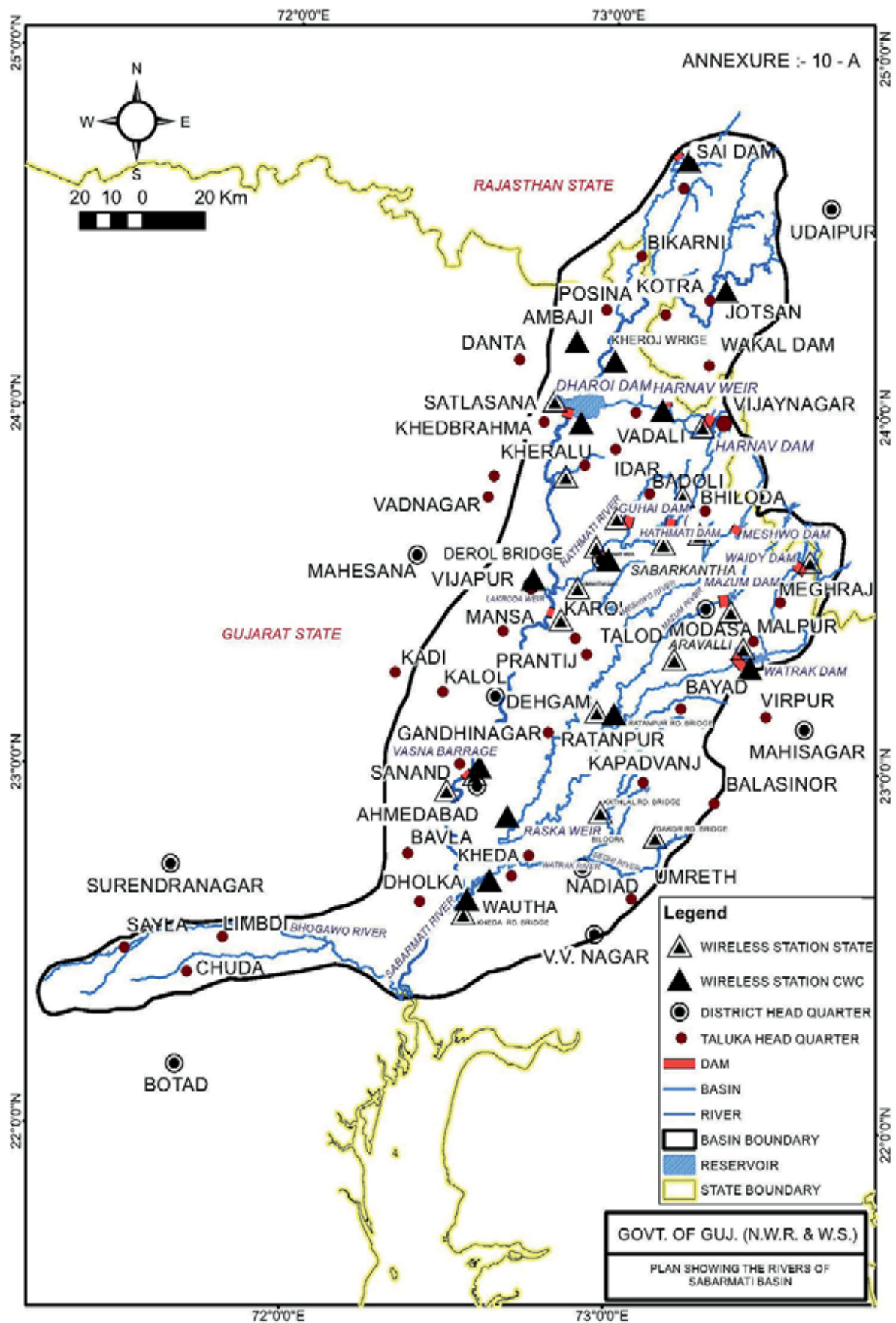
1. Demai

<u>KHEDA DISTRICT</u>		
KAPADWANJ TALUKA		
Sr. No.	Sr. No.	Sr. No.

1. Mota Muwada 3. Kawath 5. Nava Lotia
2. Vantada 4. Vasna Mota 6. Akodiana Muwada

LIST OF EXISTING PROJECTS IN SABARMATI BASIN

Sl. No	Name of Project	River	Storage Capacity (Mm ³)		Purpose	Cost Rs. In Crores.
			Gross	Live		
	Rajsthan State					
1	Sei Dam	Sei	31.34	24.16	Diversion	—
	Gujarat State					
2	Dharoi Dam	Sabarmati	907.88	737.99	Irrigation/ Water Supply	96.00
3	Harnav-I	Harnav	—	—	Irrigation	6.500
4	Harnav-II	Harnav	21.67	19.97	Irrigation	0.510
5	Guhai	Guhai	68.75	61.22	Irrigation	6.500
6	Hathmati	Hathmati	152.84	149.32	Irrigation	5.710
7	Meshwo	Meshwo	53.13	49.97	Irrigation Flood Control	2.949
8	Mazam	Mazam	43.86	36.58	Irrigation	22.37
9	Watrak	Watrak	158.203	134.79	Irrigation	47.58
10	Waidy	Suron	9.292	8.707	Irrigation	1.806
11	Raska Weir	Meshwo	—	—	Irrigation	—
12	Moti Fatewadi	Sabarmati	—	—	Irrigation	0.749
13	Sant sarovar	Sabarmati	10.06	—	Ground Water Recharging	129.27
14	Vasana Barrage	Sabarmati	—	—	Irrigation	8.875
15	Khedva	Kosambi	7.63	6.68	Irrigation	10.23
16	Varansi	Varansi	3.184	2.617	Irrigation	11.86



BANAS BASIN

11.0 BANAS BASIN:

11.1 The flood forecasting for Banas River Basin is being looked after by the Executive Engineer, Mahi Division (C.W.C.) Gandhinagar under the control of the Superintending Engineer, Hydrological Observation Circle, Gandhinagar. He has established Wireless Stations locations from where he can obtain the details about rainfall and discharges in the river. The gauge and rainfall data are being communicated, through Wireless Stations located at various stations on the main river as well as on tributaries.

11.2 Name of villages / dams where wireless stations are located to report rainfall and gauge discharge are as under.

A. C.W.C'S WIRELESS STATIONS AND LOCATION

1. Abu Road	Rajasthan State
2. Swaroop Ganj	Rajasthan State
3. Dantiwada	Gujarat State
4. Sarotri	Gujarat State
5. Palanpur	Gujarat State
6. Chitrasani	Gujarat State
7. Bhakudar	Gujarat State
8. Mount Abu/Ambaji	Gujarat State

B. STATE'S WIRELESS STATIONS.

1. Dantiwada (SSC 2)	Gujarat State
2. Bhakudar (Sipu) (SSC 2)	Gujarat State
3. Bhilada (SSC 2)	Gujarat State

11.3 The Basin Plan showing all the wireless station established together with gauge, discharge and rain gauge station is appended vide Annexure 11-A.

11.4 Statement showing the villages affected at various signals at different levels in Banas river enclosed vide Annexure 11 (B) and 11 (C) respectively.

11.5 West Banas Bund (Swaroop Gunj) Weir is located in Rajasthan State in upstream of Dantiwada dam. Whenever release is made from West Banas Bund, water enters in upstream of Dantiwada dam.

In case of failure or breaches in West Banas Bund, Executive Engineer, Mahi Division (CWC), Gandhinagar will inform Collector, Banaskantha, Patan and Executive Engineer, Deesa Irrigation Dn., Deesa, for precautionary measures to be taken within Gujarat State for the villages Deri, Aval, Arnivada and Balundra, which are likely to be affected by floods.

Executive Engineer, Deesa Irrigation Division, Deesa will report in detail to the Focal Officer, Superintending Engineer, Palanpur Irrigation Project Circle, Palanpur, immediately. The Executive Engineer, Deesa Irrigation Division, Deesa, will remain in touch with C.W.C. authorities when Maximum Water Level

of Swaroop Gunj reaches at 1100.75 Feet or 335.50 Meter for appraisal of the situation.

- 11.6** Dantiwada dam is located on Banas River at Dantiwada in Gujarat State, which is moderating the flood in the river. The Executive Engineer in Deesa Irrigation Division, Deesa, should work out outflow through the spill way of Dantiwada dam on the basis of incoming flood and gauge, estimated discharge data of upstream stations received from executive Engineer, Mahi Division, CWC, Gandhinagar & discharges/releases made through Sipu dam which is in-charge of Executive Engineer, Sipu Project Division, Palanpur. The Flood releases should be frequently supplied to Executive Engineer, Mahi Division (C.W.C.), Gandhinagar and Superintending Engineer, Sujalam Suflam circle No. 2, Mehsana. The inflow forecast for Dantiwada Dam is to be issued for the minimum inflow of 20,000 Cusecs (566.4 Cumecs) and also for minimum inflow of 10,000 Cusecs (283.2 Cumecs) when the reservoir level comes to R.L.595.00 Ft.(181.34M).
- 11.6.1** The release outflow made from spillway of Sipu Dam should be intimated to the Executive Engineer, Deesa Irrigation Division, Deesa by Executive Engineer Sipu Project Division, Palanpur, so that the gate operation of Dantiwada Dam can be planned accordingly.
- 11.7** Action to be taken by the Executive Engineer, Mahi Division (C.W.C.), Gandhinagar .
1. Formulation and dissemination of flood forecast of Dantiwada Dam.
 2. Sharing of hourly observed gauge, estimated discharge and rainfall data of site Sarotry and Chitrasani, as per data dissemination schedule (0000,0300,0600,0800,1000, 1200,1500,1800,2100 hrs)
 3. Information in case of failure or breaches in West Banas Bund.

TABLE - (11.7)

Note :- Please see Flood Telephone Directory of the current year for telephone nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
1	2	3
Executive Engineer, Mahi Division, (C.W.C), Gandhinagar	The Inflow forecast for DANTIWADA DAM is to be conveyed to the Officer at Sr.No.(a),(b) & (g) in Column No.3.	(a) Superintending Engineer, Sujlam Suflam Circle No.2, Kherva , Mehsana. (b) Executive Engineer, Deesa Irrigation Division, Deesa. (c) Collector, Banaskantha Dist. Palanpur. (d) District Superintendent of Police, Banaskantha, Dist. Palanpur. (e) Collector Patan Dist. (f) District Superintendent of Police, Patan District, Patan. (g) Flood Control Cell, Gandhinagar.

ANNEXURE - 11 (B-1)

List of villages likely to be affected by floods in **Sipu river** on down stream of **Sipu Dam** & upto **conflict point of Banas river**.

SR. No.	DEESA TALUKA	REMARKS
---------	--------------	---------

1. Chandaji(Golia) White Signals @50,000 Cusecs Discharge @Banas Road Bridge, Deesa.
2. Morthal(Golia)
3. Bhadath

ANNEXURE - 11(C)

Statement showing villages affected by floods of **Banas river** on the basis of discharge available at **Deesa Road Bridge** gauge site.

Sr. No.	Discharge in River Banas (Cum/Cus)	Gauge Level at Deesa Bridge In Meter	Gauge in Meter Feet	Name of District Taluka	Signals for Villages at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS		:	ALERT			
2	BLUE SIGNALS		:	READY FOR EVACUATION			
3	RED SIGNALS		:	IMMEDIATE EVACUATION			

1.	283.00	122.95	1.85	Patan			
	9994.14		6.06	2.Radhanpur	1 to 6	—	—
2.	708.00	123.35	2.25	Patan			
	25003.02		7.38	1.Santalpur	1	—	—
				2.Radhanpur	7	1 to 6	—
3.	1416.00	123.75	2.65	Patan			
	50006.04		8.69	1.Santalpur	—	1	—
				2.Radhanpur	—	7	1 to 6
				Banaskatha			
				2.Deesa	1 to 3	—	—
4.	1700.00	123.95	2.85	Patan			
	60035.00		9.35	1.Santalpur	—	—	1
				2.Radhanpur	8	—	7
				Banaskantha			
				2.Deesa	—	1 to 3	—
				4.Dantiwada	1 to 3	—	—

Sr. No.	Discharge in River Banas (Cum/Cus)	Gauge Level at Deesa Bridge In Meter	Gauge in Meter Feet	Name of District Taluka	Signals for Villages at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
5.	1982.00	124.15	3.05	Patan			
	69994.33		10.00	1.Santalpur 2.Radhanpur	2 to 9 9 to 12	— 8	— —
				Banaskantha			
				2.Deesa 4.Dantiwada	— —	— 1 to 3	1 to 3 —
6.	2832.00	124.45	3.35	Patan			
	100012.08		10.99	1.Santalpur 2.Raddhanpur 3.Sami	— — 1 to 9	2 to 9 9 to 12 —	— 8 —
				Banaskantha			
				1.Kankrej 4.Dantiwada	1 to 8 —	— —	— 1 to 3
7.	3398.00	124.70	3.60	Patan			
	120000.37		11.81	1.Santalpur 2.Radhanpur 3.Sami	— 13 to 26 10 to 19	— — 1 to 9	2 to 9 9 to 12 —
				Banaskantha			
				1.Kankrej	9 to 25	1 to 8	—
8.	3682.00	124.75	3.65	Patan			
	130029.83		11.97	2.Radhanpur 3.Sami 4.Saraswati	— — 1 to 2	13 to 26 10 to 19 —	— 1 to 9 —
				Banaskantha			
				1.Kankrej	—	9 to 25	1 to 8
9.	4248.00	124.95	3.85	Patan			
	150018.12		12.63	2.Radhanpur 3.Sami 4. Saraswati	— — —	— — 1 to 2	13 to 26 10 to 19 —
				Banaskantha			
				1.Kankrej	26	—	9 to 25

Sr. No.	Discharge in River Banas (Cum/Cus)	Gauge Level at Deesa Bridge In Meter	Gauge in Meter Feet	Name of District Taluka	Signals for Villages at Sr. No.		
					White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
10.	5664.00	125.50	4.40	Banaskantha			
	200024.16		14.43	1.Kankrej 2.Deesa	27 to 37 4 to 18	26 —	— —
				Patan			
				4. Saraswati	—	—	1 to 2
11.	9912.00	126.85	5.75	Banaskantha			
	350042.28		18.86	1. Kankrej 2.Deesa	— —	27 to 37 4 to 18	26 —
12.	11328.00	127.25	6.15	Banaskantha			
	400048.32		20.17	1.Kankrej 2.Deesa	— —	— —	27 to 37 4 to 18

Note:- Zero level of Deesa Road Bridge is **121.10 Meter.**

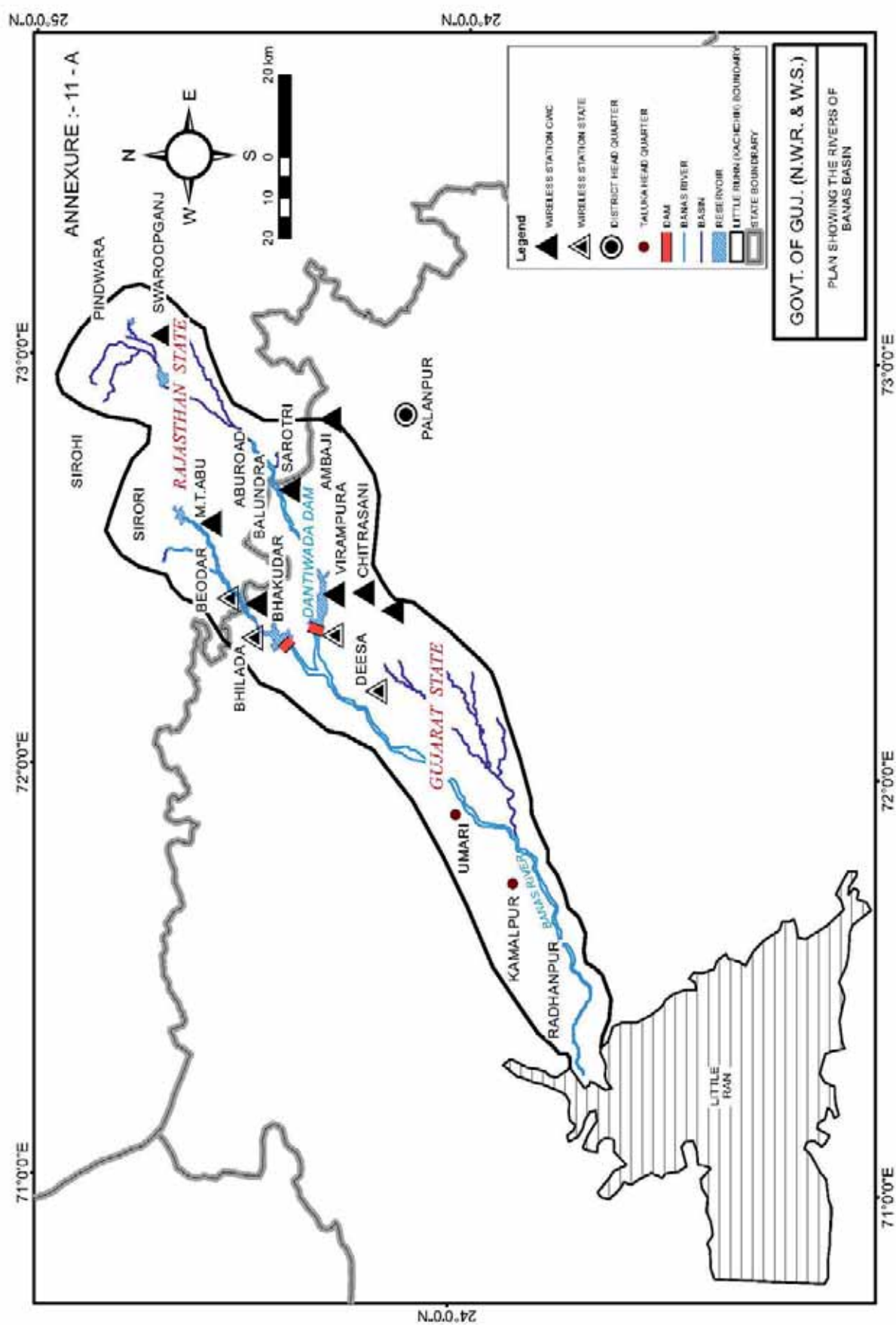
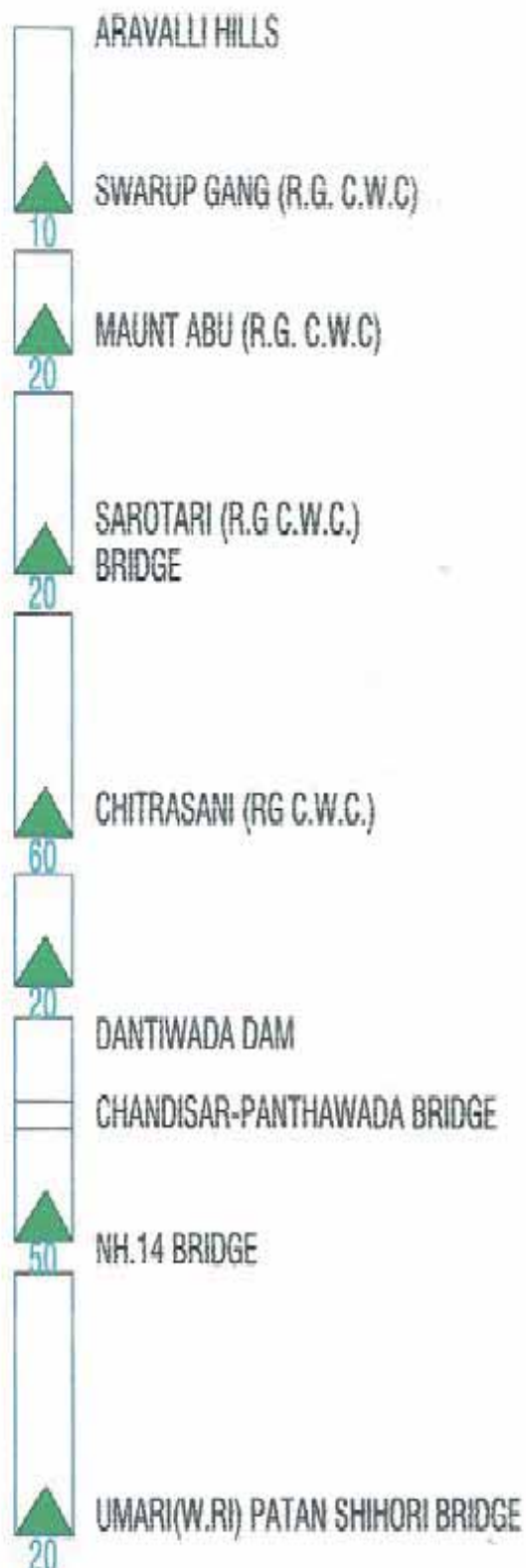


DIAGRAM OF BANAS BASIN



VISHWAMITRY AND DEO BASINS

12 (A) VISHWAMITRY BASIN :

12.1.1 The flood forecasting system for Vishwamitry Basin is being looked after by the Superintending Engineer, Vadodara Irrigation Circle, Vadodara. Various Wireless Stations are established at the locations upstream of Vadodara from where gauge and rainfall data & spillway discharges from various tanks are obtained by him. The gauge and rainfall data are being communicated to him through Wireless Stations.

12.1.2 Name of villages / tanks where wireless stations are located to report rainfall and gauge discharge are as under :

B. State's Wireless Stations.

1.	Vadodara	(VIC)	Gujarat State
2.	Central Control Station, (Vadodara Municipal Corporation)		Gujarat State
3.	Ajwa Tank	(VMC)	Gujarat State
4.	Pratappura Tank	(VMC)	Gujarat State
5.	Halol	(VIC)	Gujarat State
6.	Ghansarvav Tank	(VIC)	Gujarat State
7.	Dhanora Tank	(VIC)	Gujarat State
8.	Pilol	(VIC)	Gujarat State
9.	Bhaniara	(VIC)	Gujarat State
10.	Pavagadh Repeater	(VIC)	Gujarat State

12.1.3 Basin Plan showing all the wireless stations established together with gauge, discharge and rain gauge station is appended vide Annexure 12-A.

12.1.4 The flood forecasting & flood warning arrangements for following water supply projects under Municipal Corporation will be looked after by Municipal Commissioner, Vadodara. He shall directly collect weather bulletin, H.R.W from Indian Meteorological Department, Ahmedabad or Revenue Control Room of the concerned districts & shall formulate the flood forecast & convey to the concerned Collector regarding the area likely to be affected for alerting and evacuation of the people as warranted by flood, Simultaneously, they convey the flood forecast and action taken by them to the Flood Control Cell (Irrigation) nearest to them.

TABLE-12.1.4

Sr. No.	Name of Water Scheme	Officer In Charge of Scheme	Telephone Nos.
1.	Ajwa	Municipal Commissioner	Please see Flood Telephone Directory of current year for Telephone Nos.
2.	Pratappura	Vadodara Municipal Corporation Vadodara	

12.1.5 Action to be taken by various Officers.

TABLE -12.1.5

Note : Please see Flood Telephone Directory of current year for Telephone Nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Officer In Charge Dhanora Wireless Staion under Executive Engineer, Vadodara Irrigation Division, Vadodara	1. Messages about rain-fall, gauge levels, out-flow of Haripura, Vadodara and Dhanora and M.I. tanks to be conveyed to the officer at Sr. No. (A) in Col. No. 3	(a) Deputy Executive Engineer, Goma Project Sub-Division, Halol
(B) Deputy Executive Engineer Goma Project Sub-Division, Halol	2. Messages received from Dhanora to be conveyed to the Officers at Sr. No. (b) in Col No.3	(b) Officer incharge of Ajwa Staion under V.M.C., Vadodara.
(C) Officer In Charge of Bhaniara & Pilol Wireless Staions under Executive Engineer, Irrigation Division, Vadodara.	3. Messages about rain-fall, gauge levels, and velocity of River Vadodara channel and discharge data to be conveyed to the Officer at Sr. No. (b)in Col. No.3 Corporation, Vadodara.	(c) Chief Officer (Fire) Central Wireless Station, V.M.C, Vadodara
(D) Officer In Charge of Ghansarvav Wireless station under Executive Engineer, Vadodara Irrigation Division	4. Messages about rainfall gauge levels, outflow of Ghansarvav Tank to be conveyed to the officer at Sr. No.(b) in Column No.3	(d) Executive Engineer, Vadodara Irrigation Division, Vadodara.
(E) Officer In Charge of Ajwa Station under V.M.C, Vadodara.	5. Messages received vide (1) to (4) about rainfall and water level of Ajwa & Pratappura to be conveyed to the officer at Sr. No. (c) in Col. No.3.	
(F) Chief Officer (Fire) Central Wireless Station, V.M.C, Vadodara.	6. Messages received from Ajwa Wireless Staion as per (5) above, to be conveyed to the Officer at Sr. No. (d) and (e) in column No.3.	

12.1.6 The City Engineer, Vadodara Municipal Corporation, Vadodara, Shall also give messages about the gauge levels at city bridge and also rainfall observed at the M.S.University Observatory, Sayaji Ganj, Vadodara. Whenever the rainfall recorded at the observatory over the previous 24 Hours exceeds 50 mm, the hourly rainfall shall also be obtained by the City Engineer and transmitted together with gauges at City Bridge to the Flood Cell of the Vadodara Irrigation Circle, Vadodara.

12.1.7 When the water levels at the City Bridge is likely to cross the danger mark i.e., various signal stages as given vide Annexures 12(B) & 12(C). The message shall immediately be conveyed to the Flood Control Cell of the Collector, Vadodara for taking necessary measures by the City Engineer, Vadodara Municipal Corporation, Vadodara.

12.1.8 Statement Showing the Time lag for various stations from origin to the end of river basin are as under.

Sr. No.	Name of Site	Distance of River from		Catchment Area in Sq. Kms.	Danger Level in Meters	Time Lag in Hours	
		Origin In Kms.	Vadodara In Kms.			High Flood	Low Flood
1	2	3	4	5	6	7	8
1.	AJWA SAROVA	19.31	32.38	95.00	64.31	4	8
2.	INTER LINKING FEEDER(VISHWAMITRI)	16.10	41.83	38.33	2.50	5	10
3.	PRATAPPURA (VISHWAMITRI)	16.10	41.83	71.59	69.69	5	10
4.	DHANORA (DISTRIBUTARY VISHWAMITRI)	25.74	37.06	32.37	62.18	3	10
5.	CITY BRIDGE	64.36	0.00	0.00	30.57	0	0

Note : W = Wireless D = Discharge F = Flood G = Gauge R = Rainfall.

12 (B) DEO BASIN

12.2.1 The Deo river is a tributary of river Dhadhar. The flood forecasting and flood warning for Deo Basin is being looked after by the Superintending Engineer, Vadodara Irrigation Circle, Vadodara. The hydro meteorological data and spillway discharges are obtained by the focal officer and the same will be communicated to the concerned officers through wireless stations.

12.2.2 Names of villages/dams where wireless stations located are as under:

State's Wireless Stations:

- | | |
|---|-------|
| 1. Vadodara (S.E.V.I Circle, Vadodara) | (VIC) |
| 2. Halol | (VIC) |
| 3. Shivrajpur (Rain gauge stations) | (VIC) |
| 4. Deo dam site (Nr. Kuberpara Village) | (VIC) |
| 5. Rameshra Colony | (VIC) |
| 6. Pavagadh Repeater | (VIC) |

12.2.3 Deputy Executive Engineer, I.P. Sub-Dn. No.23, Waghodia will communicate the necessary flood message to Flood Control Cell, Vadodara, in the Office of Superintending Engineer, Vadodara Irrigation Circle, Vadodara, Executive Engineer, Vadodara Irrigation Division, Vadodara. He will also pass the required data to the Flood Control Cell, Gandhinagar, as and when required.

12.2.4 Basin Plan showing all the wireless stations established together with gauge, discharge and rain gauge stations is appended vide Annexure 12-A.

12.2.5 Action to be taken by various Officers.

TABLE - (12.2.5)

Note :- Please see Flood Telephone Directory of current year for Telephone Nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.
(1)	(2)	(3)
(A) Deputy Executive Engineer, I.P. Sub-Dn. No.23, Waghodia Officer in charge of Shivrajpur wireless station & Deo Dam site near wireless station Halol	Collect the Hydro meteorological data regarding rainfall, gauge level, outflow & other necessary pertaining to flood to be conveyed to the Officer in Col.No.3 from Sr.No. (a) to (e)	(a) Executive Engineer, Vadodara Irrigation Dn., Vadodara (b) S.E.V.I.C, Vadodara. (c) Flood Cell, Vadodara. (d) Collector, Panchmahals. Godhra
B) Executive Engineer Vadodara Irrigation Dn., Vadodara	Messages as received above to be conveyed to the Officer in Col.No.3 at Sr. No. (e) to (j).	(e) Collector, Vadodara. (f) District Superintendent of Police (Panchmahals), Godhra (g) District Superintendent of Police, Vadodara (Rural) (h) Flood Control Cell, Gandhinagar (i) Collector, Bharuch.

12.2.6 The list of affected villages by floods in river **DEO** at various signal stages at different levels is appended vide Annexure 12-B-2 & 12-C-2

12.2.7 Appropriate Authority (Focal Officer)

- (A) (For Vishwamitri & Deo Basin)
Superintending Engineer, Vadodara
Irrigation Circle, Kothi Building, Vadodara
- (B) (For Ajwa and Pratappura Water Supply Scheme)
The Municipal Commissioner,
Vadodara Municipal Corporation, Vadodara.

Note :- Please See Flood The Telephone Directory of current year for Telephone Nos.

ANNEXURE - 12-B-1

Statement of low lying area of **Vadodara City** and list of villages to be affected due to floods in **Vishwamitry River**.

SR NO	SAYAJI GUNJ AREA	SR. NO.	WADI AREA	SR. NO.	BABAJIPURA AREA	SR. NO.	RAOPURA AREA
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Low lying areas of Vadodara City :-

1.	Parasaram Bhatto	1.	Low lying areas outside Pani gate	1.	Behind Nava pura Tank Khanderao	1.	North Portion of Vinoba Bhave Marg.
2.	Area of Bhimnath Mahadev	2.	Mahemad Talav Area		Mahavir Maholla		Tulsi bhai's. Chal, Bhavaman Chall, Ra bari Faliya
3.	Camp Fatehganj Harijanwas Ranchodji	3.	Marial's wada Maliwas Mandir	2	Kumbhar wado (Parasan Society near S.R.P. Mangal park	2	Low lying area of Kasamahala Camp)
	Moffusil Kamatipura, Modikhana, Area Near Methodist Church		North East Corner				
4.(i)	Chhani Road Sardar Nagar Kans, Lalpur, Ramwadi,	4.	Gujarat Housing Board Portion Behind Ranmuktesh war Barvi	3.	Sindhwai Road	3.	North portion of Societies of Karelilbag.
4.(ii)	Pensionpura	5.	Road beyond Yamuna Mill	4.	Dandia Bazar	4.	Naya Dharati Area.
4.(iii)	Akota	6.	Hakim's Palace Nr. Sindwai Mata.			5.	Portion near Ajabadi mill, Taraknath Mahadev
4.(iv)	Manenagar (Munj Mohallo)	7.	Behind Godi & Navagam Mandir.			6.	Surrounding areas of Sarasia Tank and new Societies area
		8.	From Jawahar Society to Simodwali Talawadi place near Satyadev Chemicals				

SR. NO	SAYAJI GUNJ AREA	SR. NO.	WADI AREA	SR. NO.	BABAJIPURA AREA	SR. NO.	RAOPURA AREA
--------	------------------	---------	-----------	---------	-----------------	---------	--------------

9. Warsia new Colony and surrounding societies
10. Manalgeshwar area
11. Society area . situated at Harai Marg.

Affected Villeges of Vadodara Taluka:

- | | | | |
|---------------|---------------|------------|-------------|
| 1. Dumad | 5. Ambaliara | 9. Kotali | 13. Vadsar. |
| 2. Ganpatpura | 6. Sukalipura | 10. Vemali | |
| 3. Harani | 7. Dena | 11. Chapad | |
| 4. Sama | 8. Virod | 12. Kalali | |

Note : Refer Annexure - 12-C for villages affected at different Water levels.

ANNEXURE - 12-C-1

Statement showing warning signals arrangement for low lying area of **Vadodara City** & villages affected by floods of **Vishwamitri River** on the basis of gauge levels of **Vadodara City bridge**.

Sr. No	Gauge R.L. at Vadodara City Bridge		Name of District Taluka	Signal for Village at Sr. No.		
	In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
NOTE :-						
1	WHITE SIGNALS		: ALERT			
2	BLUE SIGNALS		: READY FOR EVACUATION			
3	RED SIGNALS		: IMMEDIATE EVACUATION			

LOWLYING AREA OF VADODARA CITY/VADODARA TALUKA :

1.	29.34	96.68	1. Sayaji Gunj Area	1 to 4	—	—
			2. Wadi Area	1 to 11	—	—
			3. Babaji-Pura Area	1 to 4	—	—
			4. Rao-pura Area	1 to 6	—	—
			5. Vadodara Taluka	1 to 13	—	—
2.	29.95	98.25	1. Sayaji Gunj Area	—	1 to 4	—
			2. Wadi Area	—	1 to 11	—
			3. Babaji Pura Area	—	1 to 4	—
			4. Raopura Area	—	1 to 6	—
			5. Vadodara Taluka	—	1 to 13	—

Sr. No	Gauge R.L. at Vadodara City Bridge		Name of District Taluka	Signal for Village at Sr. No.		
	In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7
3.	30.57	100.28	1. Sayaji Gunj Area 2. Wadi Area 3. Babaji Pura Area 4. Raopura Area 5. Vadodara Taluka	— — — — —	— — — — —	1 to 4 1 to 11 1 to 4 1 to 6 1 to 13

Remarks: The inhabitants of low lying area of Vadodara City and villages in Vadodara Taluka mentioned in Column No.4 are to be requested to alert themselves on account of floods and evacuation of their places as suggested by the Vadodara Municipal Corporation Authority and District Collector respectively.

Note: Refer Annexure - 12-B-1 for the names of villages mentioned in Column Nos. 4,5 & 6.

ANNEXURE - 12-B-2

List of villages likely to be affected in **Down Stream of Deo Reservoir** due to floods in **Deo River**.

VADODARADISTRICT				PANCHMAHALS DISTRICT	
Sr. No	VAGHODIA TALUKA	Sr. No.	DABHOI TALUKA	Sr. No.	HALOL TALUKA
1.	Falod	1.	Banaiya	1.	Sonaviti
2.	Vejalpur	2.	Abdulpura	2.	Rasgagar
3.	Walva	3.	Kadadra	3.	Gadit
4.	Zaverpura	4.	Karali	4.	Sonipur
5.	Goraj	5.	Gojali	5.	Kuberpur
6.	Madhavpura	6.	Kadadarapura	6.	Indral
7.	Dankheda	7.	Wanadra	7.	Badharpuri
8.	Ambali				
9.	Patiyapura				
10.	Muni Ashram				
11.	Muvada				
12.	Jayapura				
13.	Antoli				
14.	Wankuva				
15.	Ghodadara				
16.	Vyara				
17.	Dholar				
18.	Kagdipura				
19.	Akadiyapura				

Note :- Refer Annexure - 12-C-2 for villages affected at different Water Levels.

ANNEXURE - 12-C-2

Statement showing villages affected by floods of **Deo River** on the basis of Discharge released from **Deo Dam**.

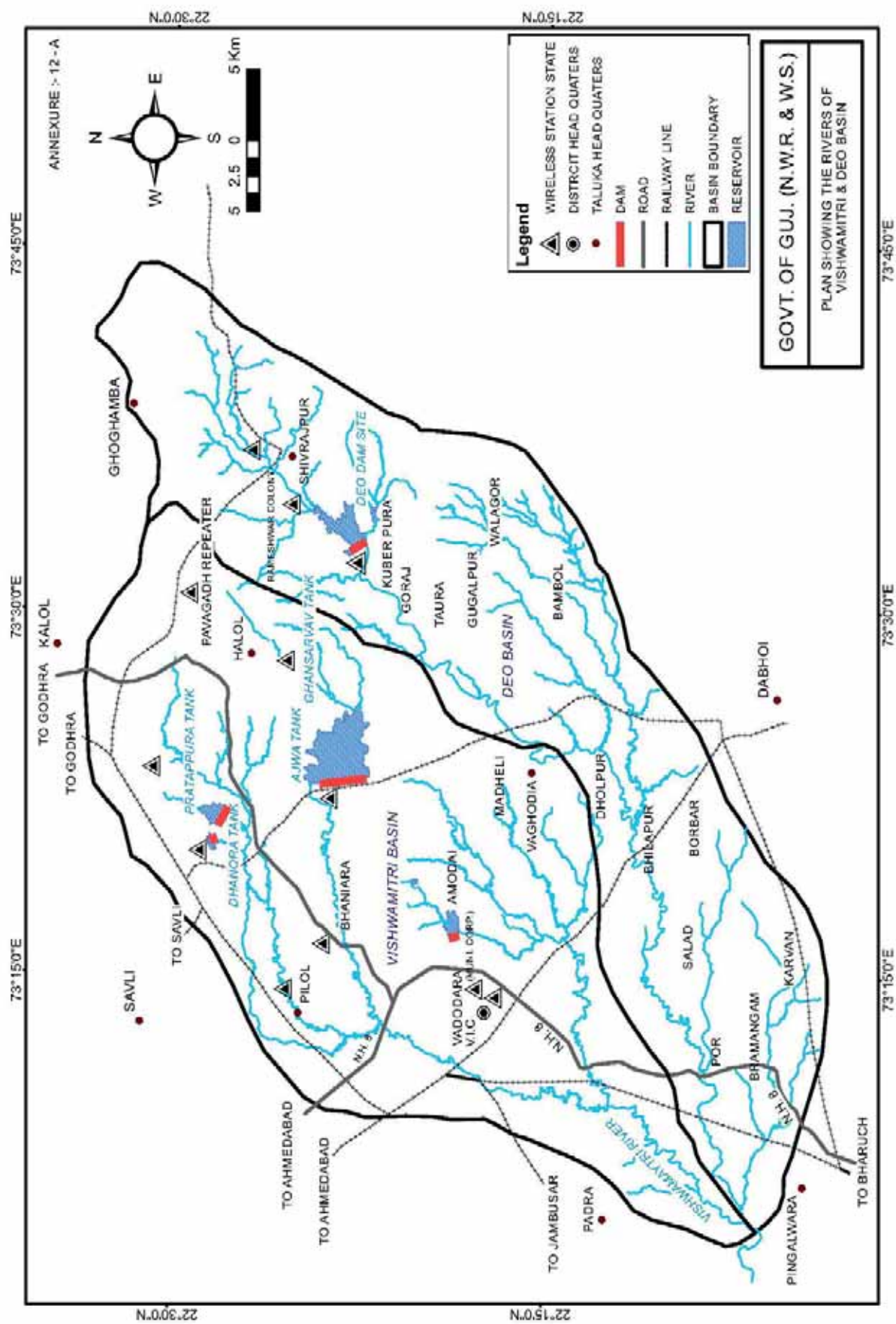
Sr. No.	Discharge Released from Deo Dam (Cum/Cus)	Gauge Level at Spillway		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
NOTE :-							
1	WHITE SIGNALS		: ALERT				
2	BLUE SIGNALS		: READY FOR EVACUATION				
3	RED SIGNALS		: IMMEDIATE EVACUATION				

1.	1134.00 40047.21	83.70	274.62	Vadodara 1. Vaghodia	1	—	—
2.	1275.00 45026.63	83.90	275.28	Vadodara 1. Vaghodia	2	1	—
3.	1417.00 50041.36	84.09	275.90	Vadodara 1. Vaghodia 2. Dabhoi	— 1	2 —	1 —
4.	1559.90 55056.09	84.20	276.26	Vadodara 1. Vaghodia 2. Dabhoi	3 & 4 —	— 1	2 —
				Panchmahals 1. Halol	1	—	—
5.	1700.00 60035.50	84.30	276.59	Vadodara 1. Vaghodia 2. Dabhoi	5 to 9 —	3 to 4 —	— 1
				Panchmahals 1. Halol	—	1	—
6.	1984.00 70064.96	84.60	277.59	Vadodara 1. Vaghodia 2. Dabhoi	— 2	5 to 9 —	3 to 4 —
				Panchmahals 1. Halol	2	—	1

Sr. No.	Discharge Released from Deo Dam (Cum/Cus)	Gauge Level at Spillway		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
7.	2288.00 80800.72	84.90	278.56	Vadodara 1. Vaghodia 2. Dabhoi	10 to 13 3	— 2	5 to 9 —
				Panchmahals 1. Halol	—	2	—
8.	2551.00 90088.56	85.20	279.54	Vadodara 1. Vaghodia 2. Dabhoi	14 to 17 4	10 to 13 3	— 2
				Panchmahals 1. Halol	—	—	2
9.	2834.00 100082.71	85.50	280.53	Vadodara 1. Vaghodia 2. Dabhoi	— 5	14 to 17 4	10 to 13 3
10.	3117.00 100076.86	85.80	281.51	Vadodara 1. Vaghodia 2. Dabhoi	— —	— 5	14 to 17 4
				Panchmahals 1. Halol	3	—	—
11.	3401.00 120106.32	86.00	282.17	Vadodara 1. Vaghodia 2. Dabhoi	18 —	— —	— 5
				Panchmahals 1. Halol	4 to 6	3	—
12.	3685.00 130135.78	86.30	283.15	Vadodara 1. Vaghodia 2. Dabhoi	19 6 & 7	18 —	— —
				Panchmahals 1. Halol	7	4 to 6	3

Sr. No.	Discharge Released from Deo Dam (Cum/Cus)	Gauge Level at Spillway		Name of District Taluka	Signal for Village at Sr. No.		
		In Meter	In Feet		White Signal	Blue Signal	Red Signal
1	2	3	4	5	6	7	8
13.	4535.00 160153.53	87.00	285.45	Vadodara 1. Vaghodia 2. Dabhoi	— —	19 6 & 7	18 —
				Panchmahals 1. Halol	—	7	4 to 6
14.	4670.00 164921.05	87.20	286.10	Vadodara 1. Vaghodia 2. Dabhoi	— —	— —	19 6 & 7
				Panchmahals 1. Halol	—	—	7

Note : Refer **Annexure - 12-B-2** the Names of villages mentioned in col. 6, 7 & 8.



SARASWATI BASIN

13.0 SARASWATI BASIN :

13.1 The flood forecasting and flood warning system for Saraswati Basin is being looked after by Superintending Engineer, Sujlam Suflam Circle No.2, Mehsana through his Executive Engineer, Sipu Project Dn. Palanpur. The gauge discharge and rainfall data are being communicated through Wireless Stations located at various stations on the main river as well as on tributaries.

13.2 Name of Weir/Dams where wireless stations are located are as under:-

State's Wireless Stations.

1.	Palanpur (Irrigation Construction Sub-Dn.No.4 Palanpur)	Gujarat State
2.	Mukteshwar	Gujarat State
3.	Saraswati Barrage	Gujarat State

13.3 The basin plan of the river showing wireless stations established together with gauge discharge and rain gauge stations is appended vide Annexure - 13-A.

13.4 The villages affected in Down Stream of Mukteshwar Dam due to floods in Saraswati are given vide Annexure - 13-B.

13.5 The actual time releases from dam site will be informed by Executive Engineer, Sipu Project Dn. Palanpur, to the Executive Engineer, Deesa Irrigation Division, Deesa for taking precautionary measures for Saraswati Barrage.

13.6 Action to be taken by Executive Engineer, Sipu Project Dn. Palanpur

TABLE - (13.6)

Note:- Please see Flood Telephone Directory of current year for Telephone Nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.	
(1)	(2)	(3)	
Executive Engineer	The Inflow forecast	(a)	Superintending Engineer
Sipu Project Dn.	for 20,000 Cusecs		Sujlam Suflam Circle No.2,
Palanpur	incoming to dam is		Kherva, Mehsana
	to be conveyed to the	(b)	Dy.Ex.Engineer,
	Officer at Sr.No. (a) &		Irrigation Construction Sub-
	(b) in Column No. 3		Dn.No.4,Palanpur (Flood Cell).
	The Outflow from the	(c)	Collector, Banaskantha Dist.
	Mukteshwar Dam is		Palanpur.
	to be intimated to the	(d)	District Superintending of
	Officers in Column		Police, Banakantha District,
	No. 3		Palanpur.
		(e)	Collector, Mehsana District,
			Mehsana.
		(f)	District Superintendent of

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.	
(1)	(2)	(3)	
			Police, Mehsana District.
			Mehsana
		(g)	District Collector, Patan District.
		(h)	District Superintending of Police, Patan District, Patan
		(i)	Flood Control Cell, Gandhinagar.
		(j)	Executive Engineer, Deesa Irrigation Dn., Deesa

13.7 Appropriate Authority (Focal Officer)

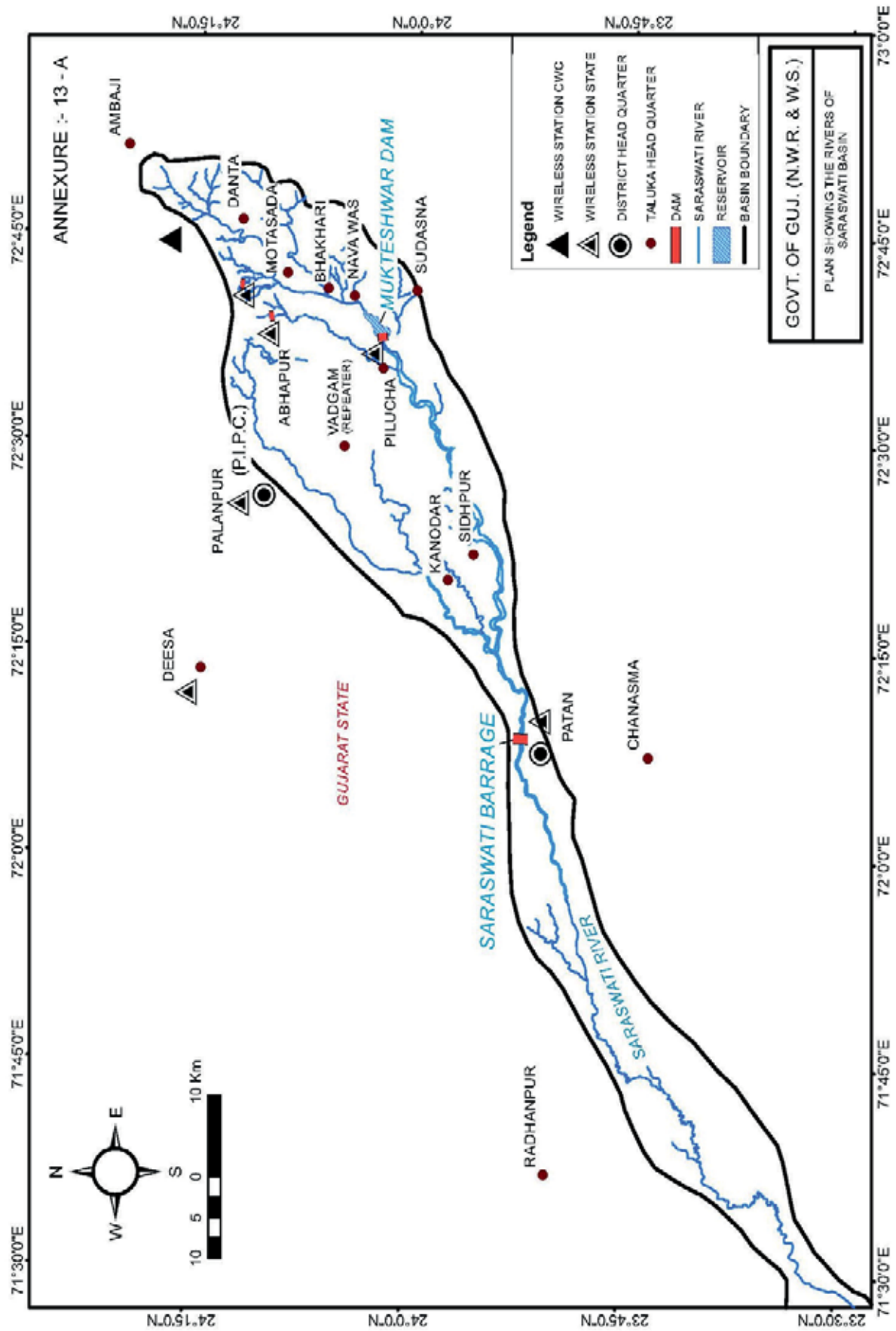
Superintending Engineer
Sujlam Suflam Circle No.2,
Kherva, Mehsana

Note:-
Please See Flood Telephone Directory
of current year for Telephone Nos.

ANNEXURE - 13 (B)

List of Villages likely to be affected by floods of **Saraswati River** on downstream of **Mukteshwar Dam**

BANASKANTHA DISTRICT		
VADGAM TALUKA		
(1) Nizampura	(2) Ikbalpura	(3) Tajpura
(4) Sherpura(Old & New)	(5) Salemkot	(6) Badarpur
(7) Mepda	(8) Nagorpura	(9) Bhukhala
(10) Pilucha	(11) Umrecha	(12) Delwana



RIVERS OF SOUTH GUJARAT

14.0 RIVERS OF SOUTH GUJARAT.

14.1 Floods are being experienced in all rivers of South Gujarat viz. Auranga, Purna, Mindhola, Dhadhar etc. The time lag for the floods to reach from the catchment to its confluence point being very short, the flood waters are likely to reach earlier than the period required for the evacuation.

14.2 The flood forecasting & flood warning system for South Gujarat is being looked after by the Collector of the concerned district. The Collector shall be directly received the weather and heavy rainfall messages from the India Meteorological Centre, Colaba and necessary instructions will be issued by Collectors to Taluka Mamlatdar, Taluka Development Officer for the areas likely to be affected to take further necessary action to alert the people of villages in danger and to make necessary arrangements for evacuation and shifting as may be warranted.

14.2.1 The Executive Engineer, Ukai Left Bank Canal Investigation Division No. -2, Valod will formulate the Flood forecast for Jhuj Irr. Scheme & Kelia Irr. Scheme & Convey the same to the Collector, Navsari for necessary action pertaining to flood warning arrangements.

14.3 Name of Villages/Dams where the wireless stations are located are as under:-

State's Wireless Stations.

1.	Valsad	(S.E.D.P.C. Valsad)	Valsad District
2.	Kelia dam site	(UCC)	Navsari District
3.	Khergam	(UCC)	Navsari District
4.	Surat	(S.E.S.I.C. Surat)	Surat District
5.	Doswada Dam Site	(UCC)	Surat District
6.	Tadkeshwar	(SIC)	Surat District
7.	Kathor	(SIC)	Surat District
8.	Valod	(UCC)	Tapi District
9.	Anaval	(UCC)	Surat District
10.	Kosamba	(SIC)	Surat District
11.	Bardoli	(SIC)	Surat District
12.	Mahuva	(SIC)	Surat District
13.	Vyara	(UCC)	Tapi District
14.	Jhuj Dam Site	(UCC)	Navsari District
15.	Baldeva Dam Site	(VIC)	Bharuch District
16.	Pigut Dam Site	(VIC)	Bharuch District
17.	Dholi Dam Site	(VIC)	Bharuch District
18.	Kakrapar veir	(SIC)	Surat District
19.	Lakhi Dam	(UCC)	Surat District
20.	Amli Dam	(UCC)	Surat District

14.4 The plan of the rivers showing the locations, wireless stations, established together with the gauge, discharge & rain gauge stations is appended vide Annexure 14 (A).

- 14.5** Due to remoteness and poor reliability of telephone system during heavy rain floods, Superintending Engineer, Ukai (Civil) Circle, Ukai is not able to communicate the flood message of the Schemes under his Circle to the Flood Cell, Gandhinagar. In that event of failure of transmission of flood data to Flood Cell, Gandhinagar, through telephone system, Superintending Engineer Ukai (Civil) Circle, Ukai, shall communicate the said data to the Superintending Engineer, Surat Irrigation Circle, Flood Cell, Surat.

In that case Superintending Engineer Surat Irrigation Circle, Surat, shall therefore collect the data from the Superintending Engineer, Ukai (Civil) Circle, Ukai, and convey the same along with the data of Scheme under his jurisdiction to the Flood Cell, Gandhinagar.

- 14.6** The villages likely to be affected by the floods in Valsad District, Surat District, Bharuch District, Vadodara District, Navsari District & Dangs District are given in Annexure 14 (B).

14.7 Appropriate Authority (Focal Officers)

(1)	Valsad District	– S.E., Damanganga Project Circle, Valsad
(2)	Surat District	– S.E., Surat Irrigation Circle, Surat
(3)	Bharuch District	– S.E., Surat Irrigation Circle, Surat
(4)	Dangs District	– S.E., Damanganga Project Circle, Valsad
(5)	Vadodara District	– S.E., Vadodara Irrigation Circle, Vadodara
(6)	Navsari District	– S.E., Surat Irrigation Circle, Surat

ANNEXURE - 14 (B)

List of villages likely to be affected due to floods in river of **Valsad & Navsari District**.

NAME OF RIVERS

SR NO	DEROTHA RIVER	SR. NO	KAVERI RIVER	SR. NO.	AMBICA RIVER	SR. NO.	KHARERA RIVER
	1		2		3		4
VALSAD DISTRICT			NAVSARI DISTRICT				
UMARGAM TALUKA		VANSDA TALUKA		VANSDA TALUKA		VANSDA TALUKA	
1.	Boralia	1.	Nani Valzar	1.	Sindhavi	1.	Kelia
2.	Karambele	2.	Moti Valzar	2.	Vati	2.	Umarkui
3.	Nahuli	3.	Chapal Dhara	3.	Unai	3.	Vadichondh
4.	Eklahara	4.	Pratapnagar	4.	Chadhav	CHIKHALI TALUKA	
5.	Jamburi	5.	Bhinar				
6.	Mohan	6.	Godhabari	CHIKHALI TALUKA		1.	Kanbhai
7.	Punat	7.	Vansda			2.	Ghej
8.	Aangam	8.	Gangpur	1.	Jogvad	3.	Malvada
9.	Sarigam	9.	Moti Bhamati	GANDEVI TALUKA		4.	Sarvani
10.	Bhilad	10.	Nani Bhamati			5.	Fadvel
		11.	Charan Vada	1.	Damandachha	6.	Mandavkha
		12.	Khadakia	2.	Kachholi	7.	Syada
		13.	Navanagar	3.	Davadha	8.	Rumla

		14.	Manpur	4.	Gandevi	9.	Kakadvel
		15.	Boriachh	5.	Torangam	10.	Valanpur
		16.	Mindhabari	6.	Veqam	11.	Godthal
		17.	Vasia Talav	7.	Manekpore	12.	Ambach
		18.	Chikatia	8.	Gadat	13.	Kaliyari
		19.	Jamalia	9.	Sonvadi	14.	Aamadhara
		20.	Vanarasi	10.	Bilimora	15.	Gholar
		21.	Dubal Falia	11.	Vaghrech	16.	Maliyadhara
		22.	Hanumanbari	12.	Kalamtha	17.	Tejlav
		23.	Rani Falia	13.	Morli	18.	Balvada
		24.	Palgabhan	14.	Bhatha		
		25.	Singad	15.	Kolva		
		26.	Rupvel	16.	Salej		
		27.	Rajpur	17.	Ichhapore		
		28.	Doldha	18.	Pinjra		
		29.	Jhuj	19.	Matwad		
		30.	Khata Amba	20.	Khaparia		
		31.	Mankuniya	21.	Valoti		
		32.	Raibor	22.	Gandhor		
		33.	Billmoda	23.	Ajarai		
		34.	Ambapani	24.	Khakhawada		
		35.	Kapadvanj	25.	Devsar		
		36.	Vangan	26.	Talodh		
		37.	Dhakmal				
		38.	Navtad				
		39.	Kurelia				
		CHIKHALI TALUKA					
		1.	Chikhali				
		2.	Malvada				
		3.	Talav Chora				
		4.	Hond				
		5.	Vankala				
		6.	Donja				
		7.	Harangam				
		8.	Sadakpur				
		9.	Khundh				
		10.	Manekpore				
		11.	Sadadvel				
		12.	Bamanvel				
		13.	Kunkeri				
		14.	Ghekti				
		15.	Khambhada				
		GANDEVI TALUKA					
		1.	Undach-Luhar-Falia				
		2.	Undach-Vahia Falia.				
		3.	Goyandi Bhathala				
		4.	Khapar Wada				
		5.	Desara				

ANNEXURE - 14 (B)List of villages likely to be affected due to floods in river of **Valsad District**.**NAME OF RIVERS**

SR. NO.	AURANGA RIVER	SR. NO.	PAR RIVER	SR. NO.	KOLAK RIVER	SR. NO.	PURNA RIVER
	5		6		7		8
VALSAD DISTRICT				NAVSARI DIST.			
A	VANSDA	A	PARDI	A	PARDI	A	NAVSARI
	TALUKA		TALUKA		TALUKA		TALUKA
1.	Khanpur	1.	Kachval	1.	Pandor	1.	Navsari
2.	Kavdej	2.	Umarsadi	2.	Kolak	2.	Supa
3.	Ankalach			3.	Kalsar	3.	Pindsadra
4.	Khambhala	B	DHARAMPUR	4.	Tukwada	4.	Kurala
B	VALSAD		TALUKA	5.	Patigam	5.	Tarsadi
	TALUKA	1.	Kharedi	B	DHARAMPUR	6.	Dharagain
1.	Sandpur	2.	Vahiyal		TALUKA	7.	Amadpur
2.	Tithal	3.	Tamachhadi	1.	Dhodhad	8.	Viraval
3.	Magarvadi			2.	Sukhula	9.	Moldhara
4.	Bhagada-	C	VALSAD	3.	Ambhati	10.	Chovisi
	Khurd		TALUKA	4.	Chival	11.	Kasbapar
5.	Kosamba-	1.	Haria	5.	Marla	12.	Amari
	Machhivad	2.	Bhagod	6.	Pagwada	13.	Asura
6.	Valsad	3.	Atul	7.	Tukwada	14.	Pera
7.	Bhadel	4.	Binvada			15.	Vachchharvad
	Jagalala	5.	Chinchai			16.	Telada
8.	Bhadel Desai	6.	Kakadmati			17.	Kaliawadi
	Pardi	7.	Navera				
9.	Lilapor	8.	Kosamkuva			B	JALALPOR
10.	Vejalpur	9.	Velvach				TALUKA
11.	Ghamdachi	10.	Kachigam				
12.	Pitha					1.	Sandalpor
13.	Sanragpur					2.	Tavdi
14.	Marla					3.	Jalalpor
15.	Kalvada					4.	Machhad
16.	Bhagadwada					5.	Manekpor
17.	Kanjan Ranchhod					6.	Bhinar
18.	Kanjan-Hari					7.	Delwada
19.	Ghadoi					8.	Alura
20.	Jujava					9.	Vadoli
21.	Abrama						
22.	Atak						
23.	Bandar Rd.						

NAME OF RIVERS

SR. NO.	MINDHOLA RIVER	SR. NO.	VAROLI RIVER	List of Villages likely to be affected due to Floods in River of Dang District.			
	9		10				
NAVSARI DISTRICT		VALSAD DISTRICT		DANGS DISTRICT			
NAVSARI TALUKA		UMARGAON TALUKA		NAME OF RIVER		VILLAGES	
1.	Ranodara	1.	Sanjan	(1)	Purna	1.	Mahal
2.	Kala Kacha	2.	Khatalwada			2.	Motikosad
3.	Aasna	3.	Nargol			3.	Savardavasad
4.	Vada	4.	Padgam			4.	Khopriamba
5.	Intarva	5.	Tembi			5.	Koabari
6.	Chokhad	6.	Umargaon			6.	Bhongadia
		7.	Palgam			7.	Karanjada
		8.	Bhathi	(2)	Ambica	1.	Davipada
		9.	Karambeli			2.	Dokapatal
		10.	Nahuli			3.	Dungarda
		11.	Kalai			4.	Baj
		12.	Jamburi	(3)	Khapri	1.	Kudkas
		13.	Humaran			2.	Dav Dahad
						3.	Sati
						4.	Vanvada
				(4)	Gira	1.	Bandhapada
						2.	Dhulda

ANNEXURE - 14-B

List of villages likely to be affected due to floods in river of **Navsari, Surat & Bharuch Districts.**

NAME OF RIVERS

SR NO	MINDHOLA RIVER	SR NO	PURNA RIVER	SR NO	VER RIVER	SR NO	DHADHAR RIVER
	1		2		3		4
SURAT DIST.		NAVSARI DIST.		SURAT DIST.		BHARUCH DIST	
1.	Makhinga	1.	Chhitra	MANDVI TALUKA		JAMBUSAR TALUKA	
2.	Kamalchhad	2.	Miyapur	1.	Gordha	1.	Valia
3.	Syadla	3.	Savasan	2.	Amalsadi	2.	Asaroi
4.	Karelha	4.	Vedchhi	3.	Karvali	3.	Kundal
5.	Utara	5.	Ambach	4.	Kachhiya Bori	4.	Bojedara
6.	Bardoli	6.	Valod	5.	Godavadi	5.	Nada
7.	Mota Rampura	7.	Bhuvasan	6.	Gavachi	6.	Devla
8.	Laipura	8.	Kanai	7.	Godsamba	7.	Bhadhkodra
9.	Kapletha	9.	Vadia	8.	Gangapur	8.	Sigam
10.	Parti Rakeb	10.	Bhudhleshvar	9.	Bundha	9.	Muradpur-Neja

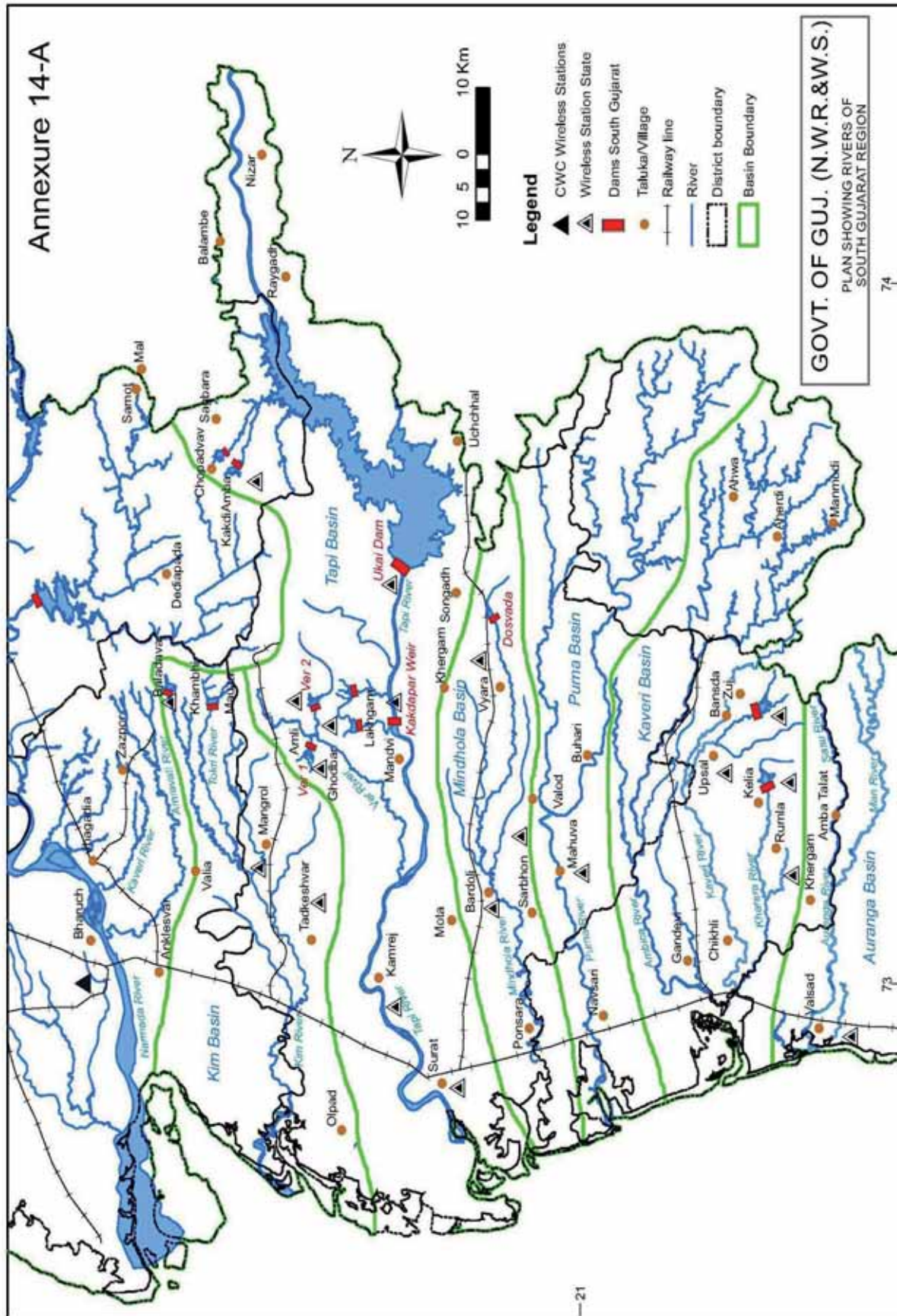
SR NO	MINDHOLA RIVER	SR NO	PURNA RIVER	SR NO	VER RIVER	SR NO	DHADHAR RIVER
	1		2		3		4
11.	Taraj	11.	Shakhpur	10.	Devgiri	10.	Kavi
12.	Pamboli	12.	Mahuva	11.	Maldha	11.	Jantran
13.	Kanpur	13.	Ondach	12.	Limdha	12.	Medafarr-Neja
14.	Panavadi	14.	Noadch	13.	Kolkhadi	13.	Tankari
15.	Kachholi	15.	Amchak	14.	Devgadh	14.	Khanpur
16.	Popda	16.	Kavitha	15.	Andharvadi	15.	Mahapura
17.	Mokai	17.	Ranat	16.	Junvan	16.	Magnand
18.	Ten	18.	Amroli	17.	Visdaliya	17.	Jambusar
19.	Varad	19.	Bagumra	18.	Fulvadi	18.	Koteshwar
20.	Dayan	20.	Karchaka	19.	Moritha	19.	Nobar
21.	Dhamdod	21.	Babla	20.	Salaiya	20.	Uber
22.	Vyara	22.	Vankaner	21.	Valargadh	21.	Nondhana
23.	Pansora	23.	Dhat	22.	Kharoli	22.	Jafarapura
24.	Asta	24.	Bagalpur	23.	Pipariya	23.	Kopuria
25.	Kalkachha	25.	Kalkui	24.	Vareli	24.	Malpur
						25.	Vad
TAPI DISTRICT						26.	Kora
SONGADH TALUKA						27.	Kava
1.	Kumkuva					28.	Umara
2.	Khanjar					29.	Ankhi
3.	Doswada					30.	Vahelam
4.	Kharsi						AMOD TALUKA
5.	Kanala					1.	Vasna
6.	Chorvad					2.	Manjola
7.	Khadka Chikhali					3.	Kankaria
Vyara TALUKA						4.	Ikhar
1.	Vaghzari					5.	Danda
2.	Chikhali					6.	Sarbhan
3.	Musa					7.	Modhana
4.	Kanpura					8.	Dadapur
						9.	Kobla
						10.	Amod
						11.	Pursha
						VADODARA DIST.	
						1.	Nahar
						2.	Barsundh
						3.	Nodra

ANNEXURE - 14-B

List of villages likely to be affected due to floods in river of **Bharuch & Valsad Districts.**

NAME OF RIVERS

	TOKARI	SR	TOKARI KHADI AND	SR	KALU
NO	RIVER	NO	TRIBUTORY OF KIM RIVER	NO	RIVER
BHARUCH DISTRICT				VALSAD DISTRICT	
VALIA TALUKA		VALIA TALUKA		UMARGAM TALUKA	
1.	Mauza	1.	Baldeva	1.	Jamburi
2.	Kamalia	2.	Borkhadi	2.	Punat
3.	Chikhli	3.	Kambodi	3.	Bhilad
4.	Gundia	4.	Panchim	4.	Borlai
5.	Rajpura	5.	Zarna	5.	Karambele
6.	Jabugam	6.	Chasvad		
7.	Vandaria	7.	Sheer		
8.	Chormca	8.	Dolatpur		
9.	Umargam	9.	Kesargam		
10.	Sodgam	10.	Singla		
11.	Sinoda	11.	Pithor		
12.	Navapura	12.	Dehli		
		13.	Desad		
DOMAN KHADI		WAGHATI KHADI		DHAKNI KHADI	
NARMADA DISTRICT		NARMADA DISTRICT		SURAT DISTRICT	
SAGBARA TALUKA		SAGBARA TALUKA		MANDVI TALUKA	
1.	Simamali	1.	Nana Kakdiamba	1.	Kalamkuva
2.	Bhavri saver	2.	Nana Doramba	2.	Beddha
3.	Kel	3.	Makran	3.	Bhatkhai
4.	Pat	4.	Kuvdavadi	4.	Sarkui
5.	Panchpipari	5.	Rozdev	Note : - List of above villages likely to be affected due to flood in Dhakni Khadi of Surat district. (Lakhigam Dam)	
Note : - List of above villages likely to be affected due to flood in Doman Khadi of Narmada district. (Chopadvav Dam)		6.	Dattwada		
		7.	Pati		
		8.	Tavel		
		9.	Ghodmung		
		10.	Nani Devrupan		
		Note : - List of above villages likely to be affected due to flood in Waghati Khadi of Narmada district. (Kakdiamba Dam)			



RIVERS OF MAHISAGAR, PANCHMAHALS & DAHOD DISTRICT

15.0 RIVERS OF MAHISAGAR, PANCHMAHALS & DAHOD DISTRICT

(Except Mahi & Panam Rivers)

15.1 The Flood forecasting and flood warning system for the rivers of Panchmahals and Dahod Districts are being looked after by Superintending Engineer, Panam Project Circle, Godhra, through his Executive Engineer, Panam Project Division, Godhra. The gauge, discharge and rainfall data are being communicated through wireless stations located at various stations on the main river as well as on tributaries. The Superintending Engineer, Kadana Project Circle, Diwada Colony and Superintending Engineer, Vadodara Irrigation Circle, Vadodara should provide all necessary helps to the Superintending Engineer, Panam Project Circle, Godhra, to perform his duties as Focal Officer (for the projects under Kadana Project Circle), viz.,

1. Bhadar (Panchmahals)
2. Machhanala
3. Karad
4. Umaria
5. Edalwada
6. Kabutri
7. Kali - II
8. Patadungari
9. Wankleshwer-Bhey

15.2 The rivers are having very short length and therefore for incoming floods. The time lag available will not be helpful in speedy alerting and evacuation of affected people.

15.3 Name of Weir/Dams where Wireless Stations are located are as under :-

State's Wireless stations.

1.	Godhara (S.E.Panam proj. Circle)	Gujarat State.
2.	Bhadar (KPC)	Gujarat State.
3.	Machhanala (KPC)	Gujarat State.
4.	Hadaf (Gated) (PPC)	Gujarat State.
5.	Umaria (KPC)	Gujarat State.
6.	Edalwada (KPC)	Gujarat State.
7.	Kabutri (KPC)	Gujarat State.
8.	Karad(Fuse Gated) (PPC)	Gujarat State.
9.	Pata dungri (KPC)	Gujarat State.
10.	Wankleshwar Bhey (KPC)	Gujarat State.
11.	Kali -II (KPC)	Gujarat State.
12.	Mataria (Bandibar) (PPC)	Gujarat State.

- 15.3** The basin plan of the rivers showing the wireless stations established together with gauge discharge and rain gauge stations is appended vide Annexure 15-A.
- 15.4** The villages affected in Downstream of dams of Mahisagar, Panchmahals District are given vide Annexure 15-B
- 15.5** Action to be taken by various officers

TABLE - (15.5)

Note : Please see Flood Telephone Directory of the current year for Telephone Nos.

Name of the Officer with Telephone Nos.	Observation to be made by the Officer	Officer to whom the messages to be sent.	
(1)	(2)		(3)
Officer In Charge of			
1. Bhadar Dam	The Inflow & outflow from the Dam mentioned in Column No.(1) are to be conveyed to the officer in column No.3	(a)	Superintending Engineer Panam Project Circle, Godhra.
2. Machhanala Dam		(b)	Superintending Engineer Kadana Project Circle, Lunawada.
3. Hadaf Dam		(c)	Collector, Panchmahals District, Godhra.
4. Umaria Dam		(d)	Collector, Dahod District, Dahod
5. Patadungri Dam Site		(e)	District Superintendent of Police, Panchmahals, Godhra.
6. Edalwada		(f)	District Superintendent of Police, Dahod
7. Kabutri		(g)	Flood Control Cell, Godhra
8. Karad		(h)	Flood Control Cell, Gandhinagar
9. Wankleshwar-Bhey		(i)	Collector, Mahisagar Dist. Lunawada
10. Kali - II		(j)	DSP, Mahisagar Dist., Lunawada

15.6 Appropriate Authority (Focal Officer)

The Superintending Engineer,
Panam Project Circle, Civil Lines Road
Behind Collector Office, Godhra

Note:-
Please See Flood
Telephone Directory of
current year for Telephone Nos.

ANNEXURE - 15 (B)

List of villages likely to be affected by floods on Down stream of the Dams in **Mahisagar, Panchmahal And Dahod Districts.**

SR. NO.	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
1	Bhadar (P) Irrigation Scheme	Mahisagar	Khanpur Kadana	1. Mota Khanpur 2. Nana Khanpur 3. Khanpur 1. Ankalia 2. Dariapur 3. Rehman
2.	Hadaf	Panchmahals	Morva (Hadaf)	1. Khanpur 2. Morva (Hadaf) 3. Mataria 4. Dangaria 5. Kadadara
3	Machhannala Irrigation Scheme	Dahod	Jhalod	1. Bhanpur 2. Chitrodiya 3. Dhavadia 4. Mahudi 5. Mandali Khuta 6. Munkhosla 7. Therka 8. Kharsana 9. Melaniya 10. Nansalai 11. Varod
4	Kabutri Irrigation Scheme	Dahod	Godhra Limkheda	1. Chandpur 2. Vandeli 3. Khudra 1. Chundri 2. Vala Gota
5	Edalwada Irrigation Scheme	Dahod	Limkheda	1. Bogadva 2. Edalwada 3. Khokhbed 4. Modhva

SR. NO.	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				5. Rampur
				6. Ved
6	Umaria	Dahod	Limkheda	1. Agara
	Irrigation			2. Amba
	Scheme			3. Choidia
				4. Dhadhela
				5. Kundha
				6. Ninama na Khakhria
				7. Parmar na Khakhria
				8. Patwan
				9. Vislungh
7	Karad	Panchmahals	Devgadh Baria	1. Boria
	Irrigation			2. Kanbi Palli
	Scheme			3. Kumbhar Palli
				4. Navgam
				5. Vel Kotar
8.	Wanakleshwar	Dahod	Devgadh Baria	1. Kelia
	Bhey			2. Degawada
	Irrigation Scheme			3. Jhabia
				4. Wandar
			Limkheda	1. Boghadawa
9.	Kali - II Irrigation	Dahod	Jhalod	1. Sabli
	Scheme			2. Gultord
				3. Raliyali Bhura
				4. Raliyali Gurjar
				5. Bantia
				6. Tada Gola
				7. Shorda
				8. Kankrakuva
				9. Pethapur
				10. Khakharia
				11. Chakalia
10.	Patadungari	Dahod	Garbada	1. Sahada
	Irrigation Scheme			2. Garbada

SR. NO.	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				3. Gungaradi
				4. Gangaradi
				5. Tunkivij
				6. Tunki Anop
				7. Nandva
				8. Panchvada
				9. Devdha
			Dahod	1 Varamkehda
				2. Borekheda
				3. Jalat
				4. Moti Kharaj
				5. Pusari
				6. Dahod Kashba

RIVERS OF RAJKOT, MORBI, JAMNAGAR, DEV BHUMI DWARKA, SURENDRANAGER AND PORBANDAR DISTRICTS

16.0 RIVERS OF SAURASHTRA REGION:

- 16.1** The Flood forecasting and flood warning system for the rivers of Saurashtra Region is being looked after by the Superintending Engineer, Rajkot Irrigation Circle, Rajkot for the Rajkot, Morbi, Jamnagar, Devbhumi Dwarka, Surendranagar, Junagadh & Porbandar Districts. Also some projects of Amreli and Porbandar Districts which are under Superintending Engineer, Rajkot Irrigation Project Circle, Rajkot.
- 16.2** The rivers are having very short length and therefore for incoming floods in time lag available will not be helpful in speedy alerting and evacuation of affected people.
- 16.3** The Superintending Engineer, Rajkot Irrigation Project Circle, Rajkot should provide all the necessary data such as rainfall, gauge discharge, water levels, live storages, etc. to the focal officer for the area/district concerned under his jurisdiction and will extend all necessary help to the Focal Officer for discharging the duties by acting as Sub Focal Officers.
- 16.4.** The flood forecasting & flood warning arrangements for following water supply projects under Municipal Corporation will be looked after by Municipal Commissioner of the concerned projects. They shall directly collect weather bulletin, H.R.W. from India Meteorological Department, Ahmedabad or Revenue Control Room of the concerned districts & shall formulate the flood forecast & convey to the concerned Collector regarding the area likely to be affected for alerting and evacuation of the people as warranted by flood, simultaneously, they shall convey the flood forecast and action taken by them to the Flood Control Cell(Irrigation) nearest to them.

TABLE - 16.4

Sr. No.	Name of Water Scheme	Officer In charge of Scheme	Telephone Nos.
1	Nyari-I	Municipal Commissioner	Note:- Please See Flood Telephone Directory of the current year for telephone nos.
		Rajkot Municipal	
		Corporation, Rajkot	
2	Ranjit Sagar	Municipal Commissioner	
		Jamnagar Municipal	
		Corporation, Jamnagar.	

- 16.5** The plan showing the location of various wireless stations established on the dams sites, fringes is appended vide Annexure 16-A.
- 16.5.1** The Wireless Stations under the control of Superintending Engineer, Rajkot Irrigation Circle, Rajkot are as under.:

State's Wireless Stations.

RAJKOT DISTRICT			
1	Rajkot (S.E.RIC,Rajkot)	2	Nyari-I
3	Nyari-II	4	Bhadar
5	Karnuki	6	Dhari
7	Kabir-Sarovar	8	Phophal
9	Chhaparvadi-II	10	Veri
11	Phadangbeti	12	Moj
13	Venu-II	14	Aji- I
15	Aji-II	16	Aji-III
17	Gondali	18	Vachhapari
19	Lalpari	20	Karmal
21	Ishwaria	22	Bhadar - II
23	Motisar	24	Survo
25	Khodapipar	26	Dondi
27	Sodvadar	28	Ghelo (s) Dam
29	Malgadh Dam	30	Sankroli
MORBI DISTRICT			
1	Demi-I	2	Demi-II
3	Machhu-I	4	Ghodadharoi
5	Bangawadi	6	Brahmini
7	Brahamani-II	8	Machhu-III
9	Machhu-II	10	Demi-III
11	Flood Control(Morbi)		
JAMNAGAR DISTRICT			
1	Jamnagar (Jl Dn. Jamnagar)	2	Sasoi
3.	Fulzar-I	4	Fulzar-II
5	Umiyasagar	6	Sapada
7	Puna	8	Vijarkhi
9	Rangmati	10	Ranjit-Sagar
11	Und-I	12	Und-II
13	Kankavati	14	Ruparel
15	Phophal - II	16	Wadisang
17	Aji -IV	18	Fulzer (KB)
19	Rupavati	20	Und - III
21	Dia minsar	22	Sasoi-II
23	Wagadia		
DEV BHUMI DWARKA DISTRICT			
1	Vartu-I	2	Ghee
3	Sani	4	Sindhani
5	Sonmati	6	Shedhabhadthari
7	Gadaki	8	Vartu-II
9	Verdi-I	10	Kabarka
11	Minsar-V	12	Veradi – II
SURENDRANAGAR DISTRICT			
1	Wadhwan Bhogavo-I	2	Wadhwan Bhogavo-II
3	Falku	4	Limdi-Bhogavo
5	Vansal	6	Morshal
7	Saburi	8	Limdi Bhogavo-II
9	Nimbhani	10	Triveni Thanga

11	Flood Control
PORBANDAR DISTRICT	
1	Sorthi

- 16.6** Whenever heavy rainfall warning is received from India Meteorological Department the officers of the respective areas shall obtain the storage level and rainfall data at very frequent interval and the same is to be communicated to the Flood Control Cell, Gandhinagar.
- 16.7** Action to be taken by local officer/project officer regarding dams in Saurashtra.
- 16.7.1** The Executive Engineer in-charge of the reservoirs shall arrange to obtain the gauge and other data from upstream of the reservoirs. The Deputy Executive Engineer/Assistant Engineer shall on the basis of this data compute the incoming flood and takes necessary steps to route the flood by operating the crest gates as per the operation manual of gates and as per instructions from the Focal Officer and concerned Superintending Engineer whenever warranted so that there would be no danger either to the head works or to the villages/area etc. downstream of the reservoir. If the routed flood is likely to be unexpectedly high enough to endanger certain areas downstream of the reservoir, the concerned revenue and Police authorities should be intimated in time, so that necessary precautionary measures in respect of alerting the people of the area likely to be affected by flood water including arranging evacuation if necessary.
- 16.7.2** When water level in the reservoir is likely to reach 0.3 Meter (i.e. 1.00 ft) below high flood level or even earlier in the event of rapid rising of flood water, he (in-charge Executive Engineer) should immediately issue necessary warning and communicate the warning messages to the concerned Collector and District Superintendent of Police for taking up further necessary action. When water is likely to exceed H.F.L the warning regarding the conditions of dam should also be indicated in the warning to be issued. This flood warning messages shall be communicated to Flood Control Cell, Gandhinagar, Chief Engineer (Central Gujarat) and Additional Secretary and Chief Engineer and Additional Secretary concerned immediately without any delay.
- 16.7.3** The Executive Engineer of the concerned area should interpret the signals/messages received from various dams in his charge and shall arrange to intimate the flood warning signals to the collector and District Superintendent of Police of respective district in which the reservoir is located if necessary. The areas likely to be affected by floods waters are also to be intimated for taking further necessary action for alerting the people as warranted by flood levels in the reservoirs or in the rivers.
- 16.8** Villages affected by the flood in downstream of dams, in various are given vide **Annexure 16-B**
- 16.9** **Appropriate Authority (Focal Officer):**
- (A) (For Rajkot, Jamnagar, Morbi, D.B. Dwarka & Surendranagar District)
- | | |
|-----------------------------|-----------------------------------|
| Superintending Engineer | Note:- |
| Rajkot Irrigation Circle | Please See Flood Telephone |
| Opp. Hotel Mohit, Near Race | Directory of the current year for |
| Course, Rajkot. | Telephone nos. |

(B) Focal Officers for following Water Supply Scheme.

Sr. No.	Name of Scheme	Appropriate Authority (Focal Officer)	Telephone Nos.
1.	Nyari -I	Municipal Commissioner	Note:-
		Rajkot Municipal Corporation, Rajkot	Please See Flood Telephone Directory of current year for telephone nos.
2.	Ranjit Sagar	Municipal Commissioner	
		Jamnagar Municipal Corporation, Jamnagar.	

ANNEXURE - 16 (B)

List of villages likely to be affected by floods on downstream of the Dams in Rajkot, Jamnagar, Surendranagar and some projects of Junagadh and Porbandar Districts.

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
1.	Sankroli	Amreli	Kukavav	1.Hanuman Khijadiya
		Rajkot	Jetpur	1.Charan Samdhiyala
				2.Resanadi-Galol
				3.Thana Galol
2.	Dai-Minsar Irrigation Scheme	Jamnagar	Jamjodhpur	1. Satapar
		Porbandar	Kutiyana	1. Baloch
			Ranavav	2. Devda
				3. Khirasara
				4. Valotra
				5. Jambu
				6. Kandorna
				7. Rana Khijdad
				8. Mahira
				9. Nerana
				10. Bhoddar
				11. Padardi
			Porbandar	12. Erda
3.	Fulzar - I Irrigation Scheme	Jamnagar	Kalavad	1. Golaniya
				2. Khandhera
				3. Nagpur
				4. Vadisang
4.	Sani Irrigation Scheme	Dev Bhumi Dwarka	Kalayanpur	1. Dangarvad
				2. Jepur
				3. Ranparda
				4. Raval
				5. Suryavadar
				6. Chandravada
				7. Harshad
				8. Gandhavi
				9. Ashiyavadar

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
5.	Sindhani Irrigation Scheme	Dev Bhumi Dwarka	Kalayanpur	1. Chachlana 2. Gangadi 3. Devalia 4. Harsad 5. Gandhavi
6.	Kankavati Irrigation Scheme	Jamnagar	Jamnagar Jodia	1. Falla 2. Baradi 3. Hadiyana 4. Beraja
7.	Vijarkhi Irrigation Scheme	Jamnagar	Jamnagar	1. Dhunvav 2. Khijadia 3. Khimrana 4. Thavariya 5. Navabandar 6. Vijarkhi
8.	Und - I Irrigation Scheme	Jamnagar	Dhrol	1. Hamapar 2. Jaliya Devani 3. Jaliya Mansar 4. Roziya 5. Nathuvadla 6. Soyal 7. Vankiya 8. Virani Khijadya 10. Dhragda 11. Khambhalida 12. Ravani Khijadiya 13. Tamachan 14. Lakhtar
9.	Fulzar - II Irrigation Scheme	Jamnagar	Lalpur	1. Jakhar 2. Jasapar 3. Khatia Beraja 4. Mota Lakhia 5. Nana Lakhia 6. Modpar
10.	Ghee Irrigation Scheme	Dev Bhumi Dwarka	Jam-Khambhalia	1. Khambhalia 2. Kabar Visotri 3. Kotha Visotri 4. Salaya 5. Sodalasa 6. Ramnagar 7. Harshadpur
11.	Puna Irrigation Scheme	Jamnagar	Lalpur	1. Derachhikari 2. Kanachhikari 3. Navagam 4. Bed 5. Shapar

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				6. Sarmat
				7. Vasai
				8. Aamra
12.	Rangamati Irrigation Scheme	Jamnagar	Jamnagar	1. Changa 2. Chela 3. Dared 4. Jamnagar 5. Juna-Nagna 6. Nava-Nagna 7. Nava gam-Ghed
13.	Sapada Irrigation Scheme	Jamnagar	Jamnagar	1. Aliyabada 2. Dhunvav 3. Gangajala 4. Khijadiya 5. Khimrana 6. Moda 7. Nava Bandar 8. Sapada 9. Shekhat
14.	Sasoi Irrigation Scheme	Jamnagar	Lalpur Jamnagar	1. Dera Chikari 2. Kana Chikari 3. Pipli 4. Amra 5. Balambhadi 6. Dodhiya 7. Gaduka 8. Sarmat 9. Shapar 10. Vasai 11. Bed
15.	Sonmati Irrigation Scheme	Dev Bhumi Dwarka	Bhanvad	1. Ambaliyara 2. Bhenakvad 3. Jampar 4. Sevak Devaliya 5. Navagam 6. Ranparada 7. Rupamora
16.	Vartu - I Irrigation Scheme	Dev Bhumi Dwarka	Bhanvad	1. Ambaliyara 2. Bhenakvad 3. Morzar 4. Navagam 5. Ranparda 6. Rupamora 7. Sevak Devalia 8. Shedhakhai 9. Sanada
17.	Vartu - II	Dev Bhumi Dwarka	Kalayanpur	1. Gandhvi

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
	Irrigation Scheme			2. Gorana
				3. Harsad-Mata
				4. Raval
				5. Ranparda
		Porbandar	Porbandar	1. Bhomiyavadar
				2. Fatana
				3. Ishwariya
				4. Morana
				5. Miyani
				6. Parvada
				7. Shingada
				8. Sodhana
		Jamnagar	Bhanvad	1. Zarera
18.	Ranjit-Sagar Water Supply Scheme	Jamnagar	Jamnagar	1. Dadiya
				2. Khimaliya
				3. Low Lying Area of Jamnagar City
				4. Mokhana
				5. Morkanda
				6. Nava Nagar
				7. Navagam(Ghed)
				8. Shri Maharana Sarkarshina Farm
19.	Und - II Irrigation Scheme	Jamnagar	Dhrol Jodiya	1. Majoth
				2. Ananda
				3. Badanpur
				4. Bhadra
				5. Jodiya
				6. Kunad
20.	Shedha Bhadthari Irrigation Scheme	Dev Bhumi Dwarka	Kalyanpur	1. Kanpar-Sherdi
				2. Chapar
				3. Chur
				4. Mangaria
				5. Haripar
21.	Veradi - I Irrigation Scheme	Dev Bhumi Dwarka	Bhanavad	1. Veradi
				2. Sai Devalia
22.	Wadisang W.R. Irrigation Scheme	Jamnagar	Jamnagar	1. Dhudasiya
				2. Dhutarpur
				3. Sumri
23.	Und -III W.R Irrigation Scheme	Jamnagar	Kalavad	1. Rajasthali
				2. Dedhkhijadia
				3. Jasapar
				4. Bhayakhakharia
				5. Bavakhakharia
24.	Fulzar (KB) W.R.	Jamnagar	Jamjodhpur	1. Kotada – Bavisi
				2. Gingani

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
		Rajkot	Upleta	3. Sidasar 1. Rabarika 2. Hariyasan 3. Charaliya 4. Kharachia 5. Rajapara
25.	Rupavati W.R. Irrigation Scheme	Jamnagar	Lalpur	1. Lalpur
26.	Aji - IV W.R.	Jamnagar	Jodia	1. Morana 2. Tarana 3. Hirapar 4. Balambha 5. Ranjitpara 6. Meghpar 7. Sampar 8. Jamsar 9. Manamora 10. Bhimkata 11. Jiragadh 12. Dudhai 13. Madhapar 14. Hajamchora 15. Kothariya
27.	Phophal - II W.R.	Jamnagar	Kalavad	1. Gunda 2. Makhakarod 3. Kalmeghda
		Rajkot	Gondal	1. Ambardi
28.	Demi - III Irrigation Scheme	Morbi	Morbi	1. Koyali 2. Dhulkot 3. Amran 4. Bella 5. Rampur 6. Jinjuda
		Jamnagar	Jodiya	1. Mavanugam
29.	Kabarka Irrigation Scheme	Dev Bhumi Dwarka	Bhanvad	1. Kabarka 2. Bhoria 3. Fotadi
30.	Umiyasagar W.R. Scheme	Jamnagar Rajkot	Jamjodhpur Upleta	1. Sidsar 1. Hariyasan 2. Chareliya 3. Kharachia 4. Rajapara 5. Rabarika
31.	Gadaki W. R.	Dev Bhumi Dwarka	Jamkhambhaliya	1. Sidhpur

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
	Scheme		Jamkalyanpur	2. Dhumthal
32.	Ruparel W.R.	Jamnagar	Jamnagar	1. Pasaya
	Scheme			2. Beraja
33	Veradi-II W.R.	Dev Bhumi Dwarka	Bhanvad	1. Sai-Devalia
	Scheme			2. Bhanvad
34	Minsar(V) W.R.	Dev Bhumi Dwarka	Bhanvad	1. Vanavad
	Scheme			2. Shiva
				3. Katkola
				4. Jasapar
		Jamnagar	Jamjodhapur	1. Vansjalia
35	Sorthi	Jamnagar	Kalyanpur	1. Gandhavi
	Irrigation			2. Gorana
	Scheme			3. Harshad
				4. Raval
		Porbandar	Porbandar	1. Advana
				2. Bhetakdi
				3. Miyani
				4. Sodhana
36	Nyari - I	Rajkot	Khadhari	1. Ishvariya
	Water Supply		Lodhika	2. Haripar (Pal)
	Scheme			3. Vadvali Vajdi
	Paddhari			4. Khambhana
				5. Nyara
				6. Paddhari
				7. Rampur
				8. Rangpur
				9. Tardhari
			Rajkot	10. Gadhivali - Vajelli
				11. Vejagam
				12. Vejagam(Vajdi)
				13. Vajdi (Virdavali)
37	Aji - I	Rajkot	Rajkot	1. Bedi
	Irrigation			2. Manharpur
	Scheme			3. Rajkot
				4. Rojki
				5. Thorala
38	Bangawadi	Morbi	Tankara	1. Bangawadi
	Irrigation	Jamnagar	Jodiya	1. Timbadi
	Scheme			2. Rasnal
39	Bhadar	Rajkot	Dhoraji	1. Bhukhi
	Irrigation			2. Umarkot
	Scheme			3. Vegdi
			Gondal	4. Bhandariya
				5. Khambhalida
				6. Masitala

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				7. Navagam
				8. Nilakha
			Jam-Kandorana	9. Ishvariya
				10. Taravda
			Jetpur	11. Derdi
				12. Jetpur
				13. Kerali
				14. Khirasra
				15. Lunagara
				16. Lunagari
				17. Monpar
				18. Navagadh
				19. Panch Pipla
				20. Rabarika
				21. Sardharpur
				22. Vadasada
40	Demi - I Irrigation Scheme	Morbi	Tankara	1. Bhut Kotda
				2. Harbetiyali
				3. Haripur
				4. Mitana
				5. Rajavad
				6. Tankara
41	Gondali Irrigation Scheme	Rajkot	Kotada Sangani	1. Panchiyavadar
				2. Manekwada
				3. Kherada
				4. Kotda Sangani
				5. Rajgadh
42	Kabir-Sarovar (Chhapparwadi-I) Irrigation Scheme	Rajkot	Gondal	1. Daiya
				2. Charkhadi
				3. Kolithad
				4. Lunivav
				5. Padvala
				6. Vejagam
				7. Garnala
43	Lalpari Irrigation Scheme	Rajkot	Rajkot	1. Navagam
				2. Bedi
44	Moj Irrigation Scheme	Rajkot	Upleta	1. Gadhala
				2. Kerala
				3. Khakhi-Jaliya
				4. Mojira
				5. Navapara
				6. Sevantra
				7. Upleta
				8. Vadla
45	Phophal Irrigation Scheme	Rajkot	Dhoraji Jam-Kandorana	1. Vegli
				2. Dudhivadar
				3. Ishvariya

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				4. Tarvada
46	Vachhapari Irrigation Scheme	Rajkot	Kotda Sangani	1. Panchiyavadar 2. Gondal 3. Khareda 4. Kotda Sangani
47	Veri Irrigation Scheme	Rajkot	Gondal	1. Gondal 2. Kantoliya 3. Vora kotda
48	Chhaparwadi - II Irrigation Scheme	Rajkot	Jetpur	1. Lunagara 2. Jambudi 3. Kerali 4. Mevasa 5. Premgadh 6. Rabarika 7. Lungari
49	Dhari Irrigation Scheme	Rajkot	Vichhiya	1. Mota Hadmatiya 2. Mota Lakhavad 3. Mota Matra
		Surendranagar	Sayala	4. Gangajal 5. Nana Matra 6. Shekhdod
50	Godhadharoi Irrigation Scheme	Morbi	Morbi	1. Chakampar 2. Zikiyari 3. Jivapar 4. Jetpur (Machchhu) 5. Rapar
			Malia (Miyana)	6. Sapar 7. Sultanpur 8. Manaba 9. Chikhali
51	Ishwaria Irrigation Scheme	Rajkot	Jasdan Kotda Sangani	1. Ishwaria 2. Detadiya 3. Karmal Kotda
52	Karmal Irrigation Scheme	Rajkot	Kotda Sangani	1. Bagdadiya 2. Karmal Kotda 3. Pipalyia 4. Vadipara 5. Detadia
53	Machhu - I Irrigation Scheme	Morbi	Morbi	1. Adepur 2. Lakhadarnagar 3. Lilapar 4. Makansar
			Wankaner	5. Dhamalpur 6. Dhuva 7. Gariya

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				8. Holmadh
				9. Jalsika
				10. Kerala
				11. Lunasaria
				12. Mahika
				13. Pajpanj
				14. Panchasar
				15. Panchasia
				16. Ranakpur
				17. Rasikgadh
				18. Rati Devdi
				19. Sobhala
				20. Vaghasia
				21. Vankaner
				22. Vankia
				23. Jodhpar
				24. Hasanpar
54	Motisar Irrigation Scheme	Rajkot	Gondal	1. Hadmatala 2. Kolithad 3. Patiyali
55	Nyari - II Irrigation Scheme	Rajkot	Paddhari	1. Govindpar 2. Khamta 3. Rampar 4. Targhadi 5. Vanpari
56	Venu - II Irrigation Scheme	Rajkot	Upleta	1. Gadgethad 2. Varjang Jalia 3. Mekha-timbi 4. Nagvadar 5. Nilakha
57	Aji - II Irrigation Scheme	Rajkot	Paddhari	1. Adbalka 2. Baghi 3. Dahisarda 4. Dungarka 5. Gadhada 6. Haripar 7. Khandheri 8. Naranka 9. Sakhapar 10. Ukarda
58	Machhu - II Irrigation Scheme	Morbi	Morbi	1. Amreli 2. Bhadiad 3. Dharampur 4. Gorkhijadia 5. Gungan 6. Jodhpur 7. Juna -Saduraka 8. Lilapar

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				9. Mansar
				10. Morbi
				11. Naranka
				12. Nava Sadurka
				13. Ravapar-Nadi
				14. Ravapar
				15. Timbadi
				16. Vanalia
				17. Vejepar
			Malia (Miyana)	18. Bahadurgadh
				19. Derala
				20. Fatshar
				21. Haripar
				22.. Juna-Nagadavas
				23. Mahendragadh
				24. Malia Miyana
				25. Meghapur
				26. Navagam
				27. Nava Nagadavas
				28. Rasangpur
				29. Sokhda
				30. Virvadarkar
				31. Fatepur
				32. Amaranagar
59	Aji -III irrigation Scheme	Rajkot	Paddhari	1. Khajurdi
				2. Thoriyali
				3. Khijadi-Mota
			Tankara	4. Khakhara
		Jamnagar	Jodia	5. Bodaka
				6. Jasapar
				7. Jiragadh
				8. Meghpar
				9. Pithad
				10. Rasnal
				11. Timbadi
			Dhrol	12. Modpar
				13. Dharampur
				14. Sagadiya
				15. Sadhadhuna
				16. Dedakdad
60	Phadangbeti Irrigation Scheme	Rajkot	Rajkot	1. Bedala
				2. Jamgadh
				3. Lamba-Kotadi
				4. Phad-Dang
				5. Rafala
				6. Rampara
				7. Sypar
61	Demi - II Irrigation Scheme	Morbi	Morbi	1. Amran
				2. Bela
				3. Dulkot

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				4. Koyali
				5. Chanchapar
				6. Khanpar
				7. Mota-Rampar
		Morbi	Tankara	8. Nana-Rampar
				9. Nastipur
		Jamnagar	Jodiya	1. Mavanugam
62.	Khodapipar	Rajkot	Paddhari	1. Khodapipar
	Irrigation			2. Thoriali
	Scheme	Morbi	Tankara	1. Khakhara
63.	Bhadar - II	Rajkot	Dhoraji	1. Bhola
	Irrigation Scheme			2. Bhol gamda
				3. Chhadavavadar
				4. Supedi
			Upleta	5. Dumiyani
				6. Chikhalia
				7. Samadhiyala
				8. Ganod
				9. Bhimora
				10. Gadha
				11. Gandod
				12. Hadfodi
				13. Isra
				14. Kundhech
				15. Lath
				16. Meli (Majethi)
				17. Nilakha
				18. Talagana
				19. Upleta
		Porbandar	Kutiyana	1. Bhogsar
				2. Bildi
				3. Chauta
				4. Chhatrava
				5. Katvana
				6. Kutiyana
				7. Mandva
				8. Pasvari
				9. Roghda
				10. Segras
				11. Thapda
			Manavadar	12. Chilodara
				13. Roghda
				14. Vadasada
				15. Vekri
			Porbandar	16. Chikasa
				17. Garej
				18. Mitralla
				19. Navi Bandar
64.	Dondi Irrigation	Rajkot	Paddahari	1. Pambhar Itala
	Scheme			2. Nana Itala

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				3. Lakshmi Itala
				4. Hidad
65.	Survo Irrigation scheme	Rajkot	Jetpur	1. Thana Galol
				2. Khirasara
				3. Khajuri Gundala
66.	Sodvadar Irrigation Scheme	Rajkot	Dhoraji	1. Zanzmer
				2. Supedi
67.	Karnuki W.R.Scheme	Rajkot	Jasdan	1. Jivapar
				2. Juna Pipalia
				3. Pratapura
68.	Brahmani Irrigation Scheme	Morbi	Halvad	1. Ajitgad
				2. Chadadhara
				3. Dhanala
				4. Golasan
				5. Kedariya
				6. Khod
				7. Mangadh
				8. Mayurnagar
				9. Merupar
				10. Miyani
				11. Panda Tirath
				12. Raisangpur
				13. Ranjitgad
				14. Shiroi
				15. Sundargadh
				16. Susvav
				17. Tikar
69.	Dholidhaja Irrigation Scheme (Wadhvan Bhogavo-II)	Surendranagar	Wadhvan	1. Bhadiyad
				2. Joravarnagar
				3. Khamisana Dam
				4. Mamka
				5. Nana Kerala
				6. Ratanpur
				7. Sankli
				8. Wadhvan
				9. Surendranagar
			Limbidi	10. Siyani
				11. Natavar gadh
				12. Dolatpar
70.	Limdi Bhogavo - I (Thoriyali) Irrigation Scheme	Surendranagar	Sayala	1. Thoriyali
				2. Mota Kerala
				3. Vadia
				4. Juna Jaspar
				5. Nava Jaspar
			Chuda	6. Samadhiyala
				7. Juni Morvad

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
			Wadhwan	8. Navi-Morvad
				9. Vastadi
				10. Nana Madhad
				11. Mota Madhad
71.	Nayka Irrigation Scheme (Wadhvan Bhogavo-I)	Surendranagar	Muli	1. Gautamgad
				2. Godavari
				3. Kukda
				4. Shekhapar
				5. U/s of Muli Dam
72.	Falku Irri. Scheme	Surendranagar	Dhrangadhra	1. Dhrangadhra
				2. Ishdra
				3. Wawdi
				4. Moti Malavan
73.	Morsal Irrigation Scheme	Surendranagar	Chotila	1. Habiysara
				2. Nani-Morsal
			Sayla	3. Mangalkui
				4. Moti-Morsal
				5. Sakharpar
				6. Sejakpar
				7. Tidoda
74.	Sabhuri W.R. Scheme.	Surendranagar	Muli	1. Dharmendragadh
				2. Umarda
				3. Tidana
				4. Gadhad
				5. Muli
75.	Nimbhani W.R. Scheme	Surendranagar	Sayla	1. Vantavachh
				2. Sudamda
				3. Nathupura
				4. Vadiya
				5. Amarapar
				6. Samdhiyada
			Wadhvan	7. Moti Morwad
				8. Nani Morwad
				9. Vastadi
76.	Limbdi Bhogavo II (Vadod) W.R. Scheme	Surendranagar	Limbadi	1. Ughal
				2. Liyad
				3. Bodiya
				4. Sauka
				5. Limbdi
				6. Untadi
				7. Choki
				8. Jakhan
				9. Charaniya
				10. Khanbhalav
				11. Panshina
				12. Kanpar
				13. Bhojpara

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				14. Devpara
77	Triveni Thanga Scheme	Surendranagar	Chotila	1. Rampara 2. Khatadi 3. Shekhalia 4. Mevasa 5. Lama Kotadi
78	Vansal Irrigation Scheme	Surendranagar	Chuda	1. Chuda 2. Gokharwada
79	Brahmani-II	Morbi	Halvad	1. Susvav 2. Tikar 3. Miyani 4. Mayurnagar 5. Mangadh 6. Khod 7. Kedariya 8. Chadadhara 9. Ajitgadh 10. Dhanala 11. Raisangpur
80.	Machhu-III	Morbi	Morbi	1. Gorkhijadiya 2. Vanaliya 3. Sadulka 4. Mansar 5. Ravapar(Nadi) 6. Amarnagar 7. Gungan 8. Nagdavas 9. Bahudurgadh 10. Sokhada
			Maliya(M)	1. Derala 2. Mahendragadh 3. Meghpar 4. Navagam 5. Rasangpar 6. Virvidarka 7. Fatepar 8. Maliya(M) 9. Haripar
81.	Sasoi-II	Jamnagar	Lalpur	1. Vavdi 2. Mota Khadba 3. Vallabhpur
82.	Ghelo (S) Irrigation Scheme	Rajkot	Jasdan	1. Somalpur 2. Bhadali
		Botad	Gadhada	1. Rampara 2. Mandavdhar 3. Kerala

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				4. Gadhada
				5. Adatala
				6. Pipal
				7. Tatan
				8. Iakhanaka
				9. Ishvariya
		Bhavnagar	Vallabhupur	1. Dared
				2. Melana
				3. Loliyana
				4. Hadmatia
				5. Pachhegam
				6. Khetatimba
				7. Vallabhupur
83.	Malgadh	Rajkot	Jasdan	1. Bhadli
	Irrigation	Botad	Gadhada	1. Rampara
	Scheme			2. Mandavdhar
				3. Kerala
				4. Gadhada
				5. Adatala
				6. Pipal
				7. Tatan
				8. Iakhanaka
				9. Ishvariya
		Bhavnagar	Vallabhupur	1. Dared
				2. Melana
				3. Loliyana
				4. Hadmatia
				5. Pachhegam
				6. Khetatimba
				7. Vallabhupur
84	Wagadia	Jamnagar	Jamnagar	1. Moti Bhalsan
				2. Sumri
				3. Konza

RIVERS OF BHAVNAGAR, AMRELI, PORBANDAR, JUNAGADH, BOTAD AND GIR SOMNATH DISTRICTS

17.0 RIVERS OF SAURASHTRA REGION :-

- 17.1** The Flood Forecasting and Flood Warning system for the rivers of Saurashtra Region is being looked after by Superintending Engineer, Bhavanagar Irrigation Project Circle, Bhavanagar for Bhavanagar, Amreli, Porbandar & Junagadh Districts. Some projects of Junagadh Districts which are under the Superintending Engineer, Rajkot Irrigation Project Circle are being looked after by the Superintending Engineer, Rajkot Irrigation Circle, Rajkot.
- 17.2** The rivers are having very short length and therefore for incoming floods the time lag available will not be helpful in speedy alerting and evacuation of affected people.
- 17.3** The Superintending Engineer, Bhavanagar Irrigation Project Circle, Bhavanagar, Superintending Engineer, Salinity Ingress Prevention Circle, Rajkot should provide all the necessary data such as rainfall, gauge discharge, water levels, live storages, etc. to the Focal Officer for the area/district concerned under the jurisdiction and will extend all necessary help to the Focal Officer for discharging the duties by acting as Sub Focal Officers.
- 17.4** The flood forecasting & flood warning arrangements for the following water supply projects under Gujarat Water Supply & Sewerage Board will be looked after by the Superintending Engineer of the concerned projects. They shall directly collect weather bulletin, H.R.W. from India Meteorological Department, Ahmedabad or Revenue Control Room of the concerned districts & shall formulate the flood forecast & convey to the concerned Collector regarding the area likely to be affected for alerting and evacuation of the people as warranted by flood, simultaneously, they shall convey the flood forecast and action taken by them to the Flood Control Cell (Irrigation) nearest to them.

TABLE 17.4

Sr No.	Name of Water Scheme	Officer In charge of Scheme	Telephone No.
1	2	3	4
1.	Hasnapur	Municipal Commissioner Municipa Corporation, Junagadh	Note :- Please See Flood Telephone Directory of the current year for Telephone Nos.
2.	Khambhada	S.E, Public Health Circle,	
3.	Phodarness	Porbandar	

- 17.5** The plan showing the location of various Wireless Stations established on the dam sites, fringes is appended vide Annexure 17-A.
- 17.5.1** The Wireless Stations under the control of Superintending Engineer, Bhavnagar Irrigation Project Circle, Bhavnagar are as under :

State's Wireless Stations.

BHAVNAGAR DISTRICT			
1.	Bhavnagar (BIPC, Bhavnagar)	2.	Rajawal
3.	Kharo	4.	Bagad
5.	Shetrunji	6.	Shetrunji Fringe
7.	Rojki	8.	Malan
9.	Ranghola	10.	Hamirpura
11.	Lakhanka	12.	Pingali
13.	Palitana	14.	Hastgiri Repeater
15.	Mahuva	16.	Jaspar-Mandva
17.	Hanol		
BOTAD DISTRICT			
1.	Botad Irrigation Dn. Botad	2.	Malpara
3.	Goma	4.	Bhimdad
5.	Kalubhar	6.	Kaniyad
7.	Paliyad	8.	Sukhbhadar
9.	Gadhda	10.	Khambhada
11.	Limbali	12.	Utavali (Gunda)
AMRELI DISTRICT			
1.	Amreli (Irr. Sub-Dn.)	2.	Khodiar
3.	Dhatarwadi - II	4.	Surajwadi
5.	Munjiasar	6.	Dhatarwadi
7.	Shell-Dedumal	8.	Raidy
9.	Ghelo-I	10.	Vadia
11.	Thebi	12.	Vadi
JUNAGADH DISTRICT			
1.	Hasanapur	2.	J.I. Dn., Junagadh
3.	Madhuvanti	4.	Uben
5.	Jhanjhesri	6.	Ambajal
7.	Ozat Weir (Shahpur)	8.	Vrajami
9.	Ozat Weir (Vanthli)	10.	Girnar Repeater
11.	Dhrafad	12.	Ozat - II
13.	Motagujariya	14.	Bantawa-Kharo
15.	Sabli	16.	Disaster Control
GIR SOMNATH DISTRICT			
1.	Raval	2.	Machhundri
3.	Hiran-I	4.	Hiran – II
5.	Shingoda		
PORBANDAR DISTRICT			
1.	Phodarness	2.	Khambala
3.	Amipur	4.	Kalindri
5.	Porbandar	6.	Advana
7.	Saran	8.	Rana Khirasra

- 17.6** Whenever heavy rainfall warning is received from India Meteorological Department the officers of the respective areas shall obtain the storage level and rainfall data at very frequent interval and the same is to be communicated to the Flood Control Cell, Gandhinagar.

- 17.7** Action to be taken by Local / Project Officer regarding dams in Saurashtra.
- 17.7.1** The Executive Engineer - in – charge of the reservoirs shall arrange to obtain the gauge and other data from upstream of the reservoirs. The Deputy Executive Engineer / Assistant Engineer shall on the basis of this data compute the incoming flood and takes necessary steps to route the flood by operating the crest gates as per the operation manual of gates and as per instructions from the Focal Officer and concerned Superintending Engineer whenever warranted so that there would be no danger either to the head works or to the villages / area etc. downstream of the reservoir. If the routed flood is likely to be unexpectedly high enough to endanger certain areas downstream of the reservoir, the concerned Downstream Dam Authority, revenue and Police Department should be intimated in time, so that necessary precautionary measures in respect of alerting the people of the area likely to be affected by flood water including arranging for evacuation necessary.
- 17.7.2** When water level in the reservoir is likely to reach 0.3 Meter (i.e. 1.00 ft) below high flood level or even earlier in the event of rapid rising of water, he (in charge Executive Engineer) should immediately issue necessary warning and communicate the warning message to the concerned Collector and District Superintendent of Police for taking up further necessary action When water is likely to exceed H.F.L the warning regarding the conditions of dam should also be indicated in the warning to be issued . This flood warning messages shall be communicated to Flood Control Cell, Gandhinagar, Chief Engineer (Central Gujarat) and Addl. Secretary and Chief Engineer and Addl. Secretary concerned immediately without any delay.
- 17.7.3** The Executive Engineer of the concerned area should interpret the signals / messages received from the various dams in his charge and shall arrange to intimate the flood warning signals , to the Collector and District Superintendent of Police of respective district in which the reservoir is located if necessary. The areas likely to be affected by flood waters are also to be intimated for taking further necessary action for alerting the people as warranted by flood levels in the reservoirs or in the rivers.
- 17.8** Villages affected due the flood in various rivers in downstream of dams are given vide Annexure 17-B
- 17.9** In case of Padolia river, the Executive Engineer, Botad Irrigation Division, Botad under Superintending Engineer, Bhavnagar Irrigation Project Circle, Bhavnagar shall obtain weather and rainfall forecast from India Meteorological Center, Ahmedabad. He shall interpret the weather data and if found affecting area, the warning messages will be communicated to the Collector of District and District Superintendent of Police of Botad district, under intimation to the Focal Officer and Flood Control Cell, Gandhinagar.

17.10 The villages likely to be affected in Padolia river are given below.

BHAVNAGAR DISTRICT		
1. Muldharai	2. Rajgad	
BOTAD DISTRICT		
1. Dhanbhari	5. Sagavadar	9. Dhorinda
2. Janada	6. Rohishala	10. Moti
3. Pati	7. Lakheni	11. Dharki
4. Zinjhavadar	8. Sarval	

17.11 Appropriate Authority (Focal Officer)

(A) (For Bhavnagar, Amreli , Botad, Porbandar, Gir Somnath & Junagadh District)

Superintending Engineer,
Bhavnagar Project Irrigation Circle,
S-3, Jila Seva Sadan-2, Bhavnagar

Note:-

Please see Flood Telephone Directory of the current year for Telephone Nos.

(B) Appropriate Authority (Focal officer) for following Water Supply Scheme.

Sr No.	Name of Scheme	Appropriate Authority	Telephone No.
1	2	3	4
1.	Hasnapur	Municipal Commissioner, Municipal Corporation, Junagadh	Note:- Please see Flood Telephone Directory of current year Telephone Nos.
2.	Khambala	Superintending Engineer	
3.	Phodarness	Public Health Circle, Porbandar.	

ANNEXURE - 17 (B)

List of villages likely to be affected by floods on downstream of the Dams in Bhavnagar, Amreli, Botad, Porbandar, Junagadh and Gir Somnath District.

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
1	Khambhada Irrigation Scheme	Botad	Baravala	1. Khambhada 2. Bela 3. Timbla 4. Kundal 5. Baravala 6. Khamidana 7. Juna Navda 8. Nava Navda 9. Wadhela
2.	Utavali Water Resources Scheme	Botad	Ranpur Baravala	1. Gunda 2. Bela 3. Timbla

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				4. Kundal
				5. Barvala
				6. Khamidana
				7. Juna Navda
				8. Nava Navda
				9. Wadhela
3	Dhatarwadi Irrigation Scheme	Amreli	Jafrabad Rajula	1. Lothpur 2. Chhatadia 3. Dharanonesh 4. Dhareshwar 5. Hindorma 6. Jhampodar 7. Juni Mandardi 8. Khakhhbai 9. Navi Mandardi 10. Rampara 11. Uchariya 12. Vad
4	Ghelo (I) Irrigation Scheme	Botad	Gadhda (Swamina)	1. Gadhda 2. Itaria 3. Kerala 4. Mandavadhar 5. Rampura 6. Adatala 7. Pipal 8. Tatana 9. Lakhanaka 10. Ishvariya 11. Limbali
		Bhavnagar	Vallabhupur	1. Dared 2. Melana 3. Loliyana 4. Hadmatia 5. Pachhegam 6. Khetatimba 7. Vallabhupur
5	Khodiar Irrigation Scheme	Amreli	Amreli	1. Babpur 2. Gavodka 3. Gorkhavalu Mota 4. Gorkhavalu Nana 5. Mandavade Nana 6. Medi 7. Pithvajal

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				8. Travada
				9. Vankia
				10. Vithalpur
			Dhari	11. Ambardi
				12. Bhath
				13. Dhari
				14. Halaria
				15. Hularia
				16. Padargadh
				17. Paldi
			Gariyadhar	18. Sarambhada
				19. Gujarda Juna
				20. Manaji
				21. Ranigam
				22. Satapara
				23. Thansa
			Liliya	24. Amba
				25. Bavada
				26. Bavadi
				27. Ingorala
				28. Kankot
				29. Krankach
				30. Shedhavadar
				31. Lonka
				32. Lonki
			Savarkundla	33. Ambolda
				34. Borala
				35. Ghoba
				36. Fifad
				37. Juna Savar
				38. Khabpura
				39. Mekada
		Bhavnagar	Palitana	40. Chok
				41. Dungarpur
				42. Hathasani
				43. Jalirya (Manaji)
				44. Jiwapur
				45. Ranparda
				46. Rohishala
6	Munjiasar Irrigation Scheme	Amreli	Amreli	1. Babapur
				2. Mandava
				3. Timbla
				4. Gavadaka
				5. Paniya
			Bagasara	6. Jamka
				7. Sanalia
				8. Jethiyavadar
				9. Bagasara

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
7	Singoda Irrigation Scheme	Gir Somnath	Kodinar	1. Chhachhar 2. Dudana 3. Ghatwad 4. Govindpur (Bhandaria) 5. Kodinar 6. Mul-Dwarka 7. Nana Ichvad 8. Ronaj 9. Sugala 10. Chohan Ni Khan 11. Jamwala 12. Kansariya
8	Raidy Irrigation Scheme	Amreli	Jafrabad Rajula	1. Mithapur 2. Nageshri 3. Chotra 4. Mota-Barman 5. Nana-Barman
9	Vadia Irrigation Scheme	Rajkot Amreli	Jetpur Vadia	1. Chharania 2. Charan 3. Thana-Galol 4. Vadia
10.	Vadi W.R. Scheme	Amreli	Amreli	1. Amreli 2. Fatehpur 3. Champathal 4. Mangavapal 5. Varudi
11.	Shell - Dedumal	Amreli	Savar-Kundla	1. Hathasani 2. Khambhalia 3. Ditals 4. Nana-Samadhiyala 5. Nesadi 6. Karajala 7. Simaran 8. Jira
12.	Thebi Irrigation scheme	Amreli	Amreli	1. Amreli 2. Fatepur 3. Champathal.
13.	Dhatarwadi - II W.R. Project	Amreli	Rajula	1. Nani Khakhabai 2. Khakhabai 3. Hindorna

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				4. Chhatadia
				5. Vad
				6. Dharness
				7. Uchaiya
				8. Lothpur
				9. Rampara
14.	Shetrunji Irrigation Scheme	Bhavnagar	Palitana	1. Nani-Rajasthali
				2. Lapalia
				3. Lakhavad
				4. Mahidhar
			Talaja	5. Medha
				6. Bhegali
				7. Datrad
				8. Pingli
				9. Timana
				10. Shevalia
				11. Royal
				12. Makhaniya
				13. Talaja
				14. Gorkhi
				15. Lilivav
				16. Tarasara
				17. Sartanpar
15	Bagad Irrigation Scheme	Bhavnagar	Talaja	1. Khardi
				2. Padargadh
				3. Bordi
				4. Pratappara
			Mahuva	4. Moti-Jagadhar
				5. Lilvan
				6. Nani-Jagadhar
			Talaja	7. Datha
				8. Valar
16	Bhimdad Irrigation Scheme	Botad	Gadhda (Swamina)	1. Bhimdad
				2. Goradka
				3. Meghavadiya
				4. Ningala
				5. Sakhpar
				6. Surka
17	Goma Irrigation Scheme	Botad	Botad	1. Alampur
				2. Babarkot
				3. Bodi
				4. Nana-Paliyad
				5. Paliyad
				6. Pipardi
				7. Ranpur

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				8. Sankali
				9. Umralla
18	Hamirpura Irrigation Scheme	Bhavnagar	Talaja	1. Hamirpura 2. Dihor 3. Samadhiyala 4. Nesiya 5. Nani-Babriat 6. Moti-Babriat 7. Hubak Vad
19	Kharo Irrigation Scheme	Bhavnagar	Palitana	1. Bhutia 2. Moti-Paniali 3. Nani-Paniali 4. Palitana
20	Malan Irrigation Scheme	Bhavnagar	Mahuva	1. Mota Khuntawad 2. Goras 3. Sangania 4. Lakhupura 5. Kumbhan 6. Nana Jadra 7. Tavida 8. Mahuva 9. Katapar
21	Rajawal Irrigation Scheme	Bhavnagar	Palitana	1. Anida 2. Lakhavad 3. Mandavada
22	Ranghola Irrigation Scheme	Bhavnagar	Shihor Umarala	1. Bhangadh 2. Chogath 3. Devalia 4. Dhambhalia 5. Dharuka 6. Jhanjhmer 7. Langala 8. Malpara 9. Piprali 10. Ranghola
23	Rojki Irrigation Scheme	Bhavnagar	Mahuva	1. Goras 2. Jarda-Nana 3. Kumbhan 4. Lakhupura 5. Mahuva 6. Sangania 7. Tavida

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				8. Umania-Vadar
24	Surajvadi Irrigation Scheme	Amreli	Savarkundla	1. Dolti 2. Ghandula
25	Kalubhar Irrigation Scheme	Botad	Gadhda	1. Gadhali 2. Rajpipla
		Bhavnagar	Umralla	3. Bhojavadar 4. Hadmatala 5. Ratanpur 6. Samadhiyala 7. Tarapala 8. Umralla 9. Vangadhara 10. Rajasthali
26	Lakhanka Irrigation Scheme	Bhavnagar	Bhavnagar	1. Adhevada 2. Akvada 3. Malanka 4. Tarsamia
27	Limballi Irrigation Scheme	Bhavnagar	Gadhda	1. Adatala 2. Gadhda 3. Manavadar 4. Rampura 5. Kerala 6. Pipal 7. Tatana
			Vallabhupur	1. Dared 2. Melana 3. Loliyana 4. Hadmatia 5. Pachhegam 6. Khetatimba 7. Vallabhupur
28	Malpara Irrigation Scheme	Botad	Gadhda	1. Malpara 2. Ghogadh-Samdi 3. Ankadia
29	Hanol - W.R. Project	Bhavnagar	Palitana	1. Hanol 2. Jalia (Ankolali) 3. Akolali 4. Juna Loichhada 5. Nava Loichhada 6. Senjadia 7. Khijadia (Mokhadaka)

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				8. Mokhadaka
				9. Randola
				10. Bhudarkha
				11 Sagapara
				12 Piparadi 1 & 2
				13 Bhadavav
30.	Kaniyad	Botad	Botad	1. Kaniyad
			Ranpur	2. Kundali
				3. Panvi
				4. Khas
				5. Chacharia
				6. Alav
31.	Pingali	Bhavnagar	Talaja	1. Pingli
32	Jaspar-Mandva	Bhavnagar	Talaja	1. Mandva
				2. Sosiya
				3. Manar
33	Hasnapur (WS)	Junagadh	Junagadh	1. Bamangam
	Irrigation			2. Dervan
	Scheme			3. Galiyavada
				4. Sabalpur
				5. Saragvada
				6. Virpur
34	Vrajami	Junagadh	Malia-Hatina	1. Dudhala
	Salinity			2. Itala
	Ingress			3. Old Vandarvad
	Prevention			4. Kaday
	Scheme			5. Sarkadia
				6. Vadia
				7. Vandarvad
35	Ambajal	Junagadh	Visavadar	1. Jambudi
	Irrigation			2. Mota chaparda
	Scheme			3. Navi chavand
				4. Khijadiya
36	Hiran - I	Gir Somnath	Talala	1. Kamleshwar Ness
	Irrigation			2. Dajiya Ness
	Scheme			3. Chitravad
				4. Chitrod
				5. Gidariya
				6. Khirdhar
				7. Borvav
				8. Ramrechi

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				9. Sangodra
				10. Ghusiya
				11. Talala
		Junagadh	Mendarada	12. Sasan
				13. Bhalchhel
37	Hiran - II Irrigation Scheme	Gir Somnath	Talala	1. Maljinjva
			Veraval	2. Umrethi
				3. Badalpara
				4. Bherala
				5. Indroi
				6. Ishwariya
				7. Kajali
				8. Mandor
				9. Mithapur
				10. Navadra
				11. Prabhas Patan
				12. Savani
				13. Sonariya
38	Jhanjeshri Irrigation Scheme	Junagadh	Visavadar	1. Mahuda
				2. Mahudi
				3. Dhebar
				4. Desai Vadala
				5. Sukhpara
				6. Rupavati
				7. Ishwariya
				8. Vajadi
				9. Khambhaliya
				10. Khijadiya
39	Madhuvanti Irrigation Scheme	Junagadh	Mendarda	1. Kenedipur
				2. Babartirath
				3. Amargadh
				4. Mendarda
				5. Alindhra
				6. Mithapur
				7. Nani Khodiyar
			Vanthali	8. Bhandhada
				9. Bhatiya
				10. Bodka
				11. Gadoi
				12. Konjadi
				13. Mota Kajaliyala
				14. Tinmas
				15. Waspada
40	Uben	Junagadh	Junagadh	1. Bhiyal

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
	Irrigation Scheme			2. Chowki (Sorath)
				3. Jalansar
				4. Kerala
				5. Majevasdi
				6. Taliadhar
				7. Vadhvi
				8. Vala Simdi
				9. Vanandia
			Vanthali	10. Balot
				11. Dhandhusar
				12. Vanthali
		Rajkot	Jetpur	13. Arab Timbadi
				14. Bava Pipalva
				15. Pipalva
41	Machhundri Irrigation Scheme	Gir Somnath	Gir Gadhada	1. Kodia
			Una	2. Itwaya
				3. Gundala
				4. Men
				5. Chachakvad
				6. Una
				7. Delwada
				8. Rampara
				9. Rajpara
				10. Kalapan
				11. Jhankharvada
				12. Nava Bander
42	Raval Irrigation Scheme	Gir Somnath	Gir Gadhada	1. Chikhalkuva
				2. Dhokadva
				3. Mohabatpura
				4. Jasadhar
			Una	5. Kandhi
				6. Kanek Barda
				7. Manekpur
				8. Garal
				9. Mota Samdhiyala
				10. Motha
				11. Padapadar
				12. Patapar
				13. Rameshwar
				14. Samter
				15. Sanjavapur
				16. Umej
				17. Sankhada
				18. Khatrivada
43	Mota Gujaria	Junagadh	Bhesan	1. Mota Gujaria

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				2. Kotda
44	Ozat Weir (Shahpur)	Junagadh	Vanthli	1. Vanthli 2. Shahpur 3. Nana Kajaliyali
45	Bantwa – Kharo W.R.Project	Junagadh	Manavadar	1. Bhalgam 2. Kodvav 3. Aklera 4. Samega
		Porbandar	Kutiyana	1. Revdra 2. Gadavana 3. Dharsen 4. Tarkhal
46	Ozat – II	Junagadh	Junagadh	1. Bela 2. Rameshwar 3. Mevasa (Bava) 4. Badalpur 5. Anandpur
			Vanthali	6. Raipur 7. Sukhpur 8. Vanthali 9. Kanza
			Mendarda	10. Nagalpur
47	Ozat Weir (Vanthli)	Junagadh	Vanthali	1. Kanza 2. Tikar 3. Piplana 4. Vanthali 5. Akha
		Porbandar	Kutiyana Porbandar	6. Amipur 7. Maiyari 8. Balej 9. Ratia 10. Nevibandar 11. Chikasa
48	Sabali	Junagadh	Vanthali	1. Khorasa 2. Sendarda
			Keshod	1. Dervan 2. Magharvada 3. Manekwada
49	Khambhala (WS) Irrigation Scheme	Porbandar	Jamjodhpur	1. Adhipat Nes 2. Amiyari 3. Barapat Nes 4. Bhod 5. Bileshwar

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				6. Dolatgadh
				7. Hanuman Gadh
				8. Javara Nes
		Porbandar	Jamjodhpur	9. Khambhala
				10. Pipaliya
				11. Ramgadh
				12. Rana Bordi
				13. Tarsat
				14. Vadvala
50	Phodarness (WS) Irrigation Scheme	Porbandar	Jamjodhpur	1. Sakhpau
				2. Torsat
			Ranavav	3. Bileshwar
				4. Gandiyavad Nes
				5. Hanuman Gadh
				6. Jambu
				7. Jarera Nes
				8. Kandorana
				9. Kandorana(Rana)
				10. Khandipat Nes
				11. Khijdad
				12. Khirsara
				13. Sajanvada Nes
				14. Samavadar Nes
				15. Thoyana
				16. Undariya
				17. Valotra
51	Adwana W.R.P.	Porbandar	Porbandar	1. Sodhana
				2. Adwana
52	Sukhbhadar Irrigation Scheme	Ahmedabad	Dhandhuka	1. Adval
				2. Dhandhuka
				3. Galsana
				4. Gungar
				5. Jaliya
				6. Morsiya
				7. Vagad
				8. Vasana
		Botad	Ranpur	9. Derdi
				10. Devalia
				11. Sarangpur
				12. Gadhadiya
				13. Hansalpur
				14. Kanara
				15. Patan
				16. Ranpur
			Botad	17. Bhadla Nana

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
				18. Limboda
		Surendranagar	Limbdi	19. Baraliya
				20. Dholi
				21. Nagnesh
			Sayla	22. Bhadla Mota
				23. Chhorvira
53	Dhrafad Irrigation Scheme	Junagadh	Visavadar	1. Sarsai
				2. Mota chaparda
				3. Navi chavand
				4. Khijadiya
54	Saran.	Porbandar	Kutiyana	1. Gokharan
				2. Khunpur
				3. Chautta
				4. Teri
55	Rana Khirasra	Porbandar	Ranavav	1. Rana Khirasra
				2. Valotra
				3. Rana Kandorana
			Kutiyana	1. Amar

RIVERS OF KACHCHH REGION

18.0 RIVERS OF KACHCHH REGION

- 18.1** The flood forecasting & flood warning system for the rivers of Kachchh District is being looked after by the Superintending Engineer, Kachchh Irrigation Circle, Bhuj through his Executive Engineer (1) Kachchh Irrigation Dn, Bhuj (2) Kachchh Irrigation Construction Dn, Bhuj. (3) Salinity Control Dn, Bhuj (4) Water Resources Investigation Dn, Bhuj. The gauge, discharge & rainfall data are being communicated through wireless stations located at various stations on the main rivers as well as tributaries except Water Supply Scheme.
- 18.2** The flood forecasting & flood warning arrangements for Tappar water supply project under Gujarat Water Supply & Sewerage Board will be looked after by Superintending Engineer of the concerned projects. They shall directly collect weather bulletin, H.R.W from India Meteorological Department, Ahmedabad or Revenue Control Room (E.R.C.) of the concerned districts & shall formulate the flood forecast & convey to the concerned Collector regarding the area likely to be affected for alerting and evacuation of the people as warranted by flood. Simultaneously, they shall convey the flood, forecast and action taken by them to the Flood Control Cell (Irrigation) nearest to them.

TABLE - 18.2

Sr No.	Name of Scheme	Officer In charge	Telephone No.
1	2	3	4
1.	Tappar	Superintending Engineer Kachchh Irrigation Circle, Bhuj	Note:- Please see Flood Telephone Directory of current year for Telephone Nos.

- 18.3** This region lies in the North West of Gujarat. It is scantily rainfall area with dry atmosphere and shallow flashy rivers. Overall there are 20 Irrigation Schemes (Including Tappar Water Supply scheme). The time lag for flood to reach the desert or sea from the catchment is very short. The flood waters are likely to reach earlier than the period required for evacuation.
- 18.4** The name of Dams/ Weir where Wireless Stations are located as under:-

1	Bhuj(KIC)	2	Kalaghogha
3	Niruna	4	Godhatad
5	Suvi	6	Gajod
7	Kaila	8	Sanandro
9	Fategadh	10	Kankavati
11	Nara	12	Rudramata
13	Kasvati	14	Tapper
15	Bhukhi	16	Berachia
17	Don	18	Mathal

19	Jangadia	20	Mitti
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18.4 Basin plan showing the locations of Wireless Stations established are appended vide **Annexure 18-A**

18.5 The Collector shall directly receive the weather and heavy rainfall messages from **I.M.D., Ahmedabad / Revenue Department (Emergency Relief Cell), Gandhinagar**. Necessary instruction will be issued by the Collector to warn / alert the people through the Local Officer i.e. Taluka Mamlatdar or Taluka Development Officer of the areas likely to be affected.

18.6 The villages likely to be affected in down stream of **Dams of Kachchh District** are given vide **Annexure 18-B**.

18.7 Appropriate Authority (Focal Officer)

(A) For Kachchh District

Superintending Engineer
Kachchh Irrigation Circle,
Sinchai Sadan, Bhuj.(Kachchh)

Note:-
Please see Flood Telephone
Directory of current year for
Telephone Nos

(B) Appropriate Authority (Focal Officer) for Water Supply Scheme.

Superintending Engineer
Kachchh Irrigation Circle,
Bhuj.

Note:-
Please see Flood Telephone
Directory of current year for
Telephone Nos

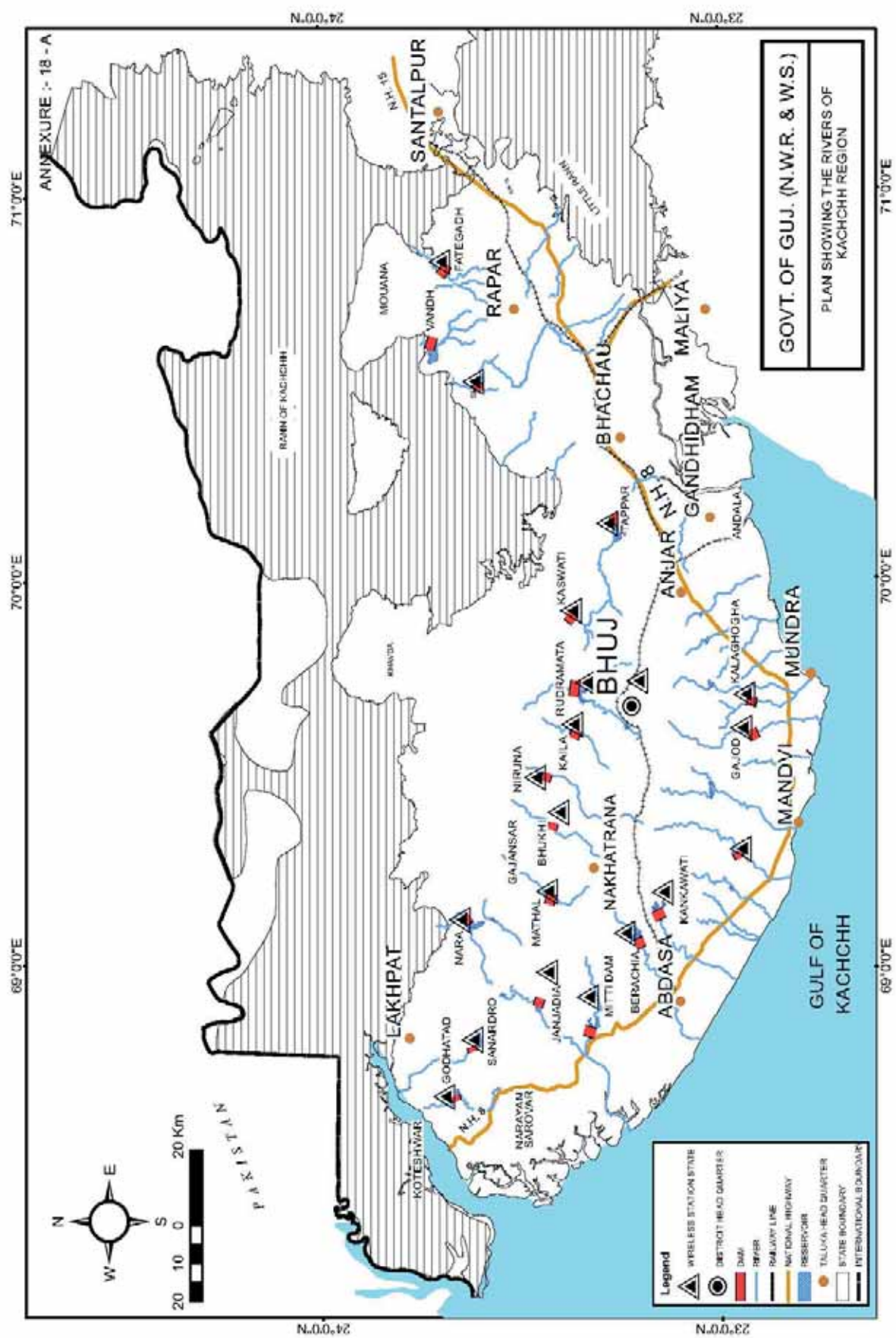
ANNEXURE - 18 (B)

List of villages likely to be affected by floods on down stream of the Dams in **KACHCHH REGION**

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
KACHCHH DISTRICT :-				
1	Fatehgadh Irrigation Scheme	Kachchh	Rapar	1. Gedi 2. Fatehgadh
2	Gajod Irrigation Scheme	Kachchh	Mundra	1. Beraja 2. Bhujpur 3. Gelad 4. Ramania 5. Tumbadi
3.	Godhatad Irrigation Scheme	Kachchh	Lakhpatt	1. Kapurashi 2. Koriyani
4.	Kaila Irrigation Scheme	Kachchh	Bhuj	1. Zura
5	Kalaghogha Irrigation	Kachchh	Mundra	1. Somaghogha

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
	Scheme			
6	Kankawati	Kachchh	Abdasa	1. Hajapur
	Irrigation			2. Miyani
	Scheme			3. Nundhatad
				4. Vinzan
7	Kaswati	Kachchh	Bhuj	1. Khengarpur
	Irrigation			2. Lodia
	Scheme			3. Umedpur
8	Nara-Gajansar	Kachchh	Lakhpat	1. Gajansar
	Irrigation			2. Hajipur
	Scheme			3. Nara
				4. Uthangadi
				5. Zumara
9	Niruna	Kachchh	Nakhatrana	1. Niruna
	Irrigation			
	Scheme			
10	Rudramata	Kachchh	Bhuj	1. Dhor
	Irrigation			2. Kunaria
	Scheme			3. Sumarasar
11	Sanandro	Kachchh	Lakhpat	1. Mindhiyari
	Irrigation			2. Panandhro
	Scheme (Sanandro)			3. Subhaspur
12	Suvi	Kachchh	Rapar	1. Gauripur
	Irrigation			2. Suvi
	Scheme			
13	Tappar (W.S.)	Kachchh	Anjar	1. Bhimsar
	Irrigation			2. Tappar
	Scheme			
14	Bhukhi	Kachchh	Nakhatrana	1. Bhimsar
	Irrigation			2. Dador
	Scheme			3. Godhiyar
				4. Hirapur
				5. Karodia
				6. Wang
15	Berachiya	Kachchh	Abdasa	1. Bitiyari
	Irrigation			2. Bhachunda
	Scheme			3. Berachiya
				4. Rava

SR NO	NAME OF SCHEME	NAME OF DISTRICT	NAME OF TALUKA	NAME OF VILLAGES
1	2	3	4	5
16	Don Irrigation Scheme	Kachchh	Mandvi	1. Don 2. Rajada
17	Jangadia Irrigation Scheme	Kachchh	Abdasa	1. Aida 2. Butta 3. Jangadia 4. Liyari
18	Mathal Irrigation Scheme	Kachchh	Nakhatrana	1. Deshalpar 2. Dhamay 3. Guntali 4. Jinjay 5. Nura 6. Umarapar
19.	Mitti	Kachchh	Abdasa	1. Trambo 2. Rampar 3. Chhasara 4. Vadasara 5. Korwali-Wandh



A - MINOR IRRIGATION PROJECTS

B - RIVER GAUGING AND RAIN GAUGING SITES UNDER NWRWS & KALPSAR DEPTT

19-A - MINOR IRRIGATION PROJECTS

19.A.0 The Flood Forecasting and Flood warnings system for the Minor Irrigation in Gujarat State is being looked after by

- (1) The Superintending Engineer, Gandhinagar Panchayat Irrigation Circle, Gandhinagar.
- (2) The Superintending Engineer, Vadodara Panchayat Irrigation Circle, Vadodara
- (3) The Superintending Engineer, Rajkot Panchayat Irrigation Circle, Rajkot. and
- (4) The Superintending Engineer, Kachchh Irrigation Circle, Bhuj.

19.A.1 The construction of new Minor Irrigation Works and maintenance of existing Minor Irrigation Works are carried out by various District Panchayat Irrigation Division under three of the Panchayat Irrigation Circle and Kachchh Irrigation Circle, Bhuj. The administrative Head of this District Panchayats is District Development Officer.

19.A.2 The Superintending Engineer, Gandhinagar Panchayat Irrigation Circle, Gandhinagar is looking after the Minor Irrigation Schemes of (1) Gandhinagar, (2) Mehasana, (3) Patan, (4) Banaskantha, (5) Ahmedabad, (6) Kheda, (7) Anand, (8) Sabarkantha and (9) Aravalli

The Superintending Engineer, Vadodara Panchayat Irrigation Circle, Vadodara is looking after the Minor Irrigation Schemes of Vadodara, Bharuch, Surat, Valsad, Dangs, Panchmahals, Dahod, Navasari, Narmada, Mahisagar, Chhotaudepur, and Tapi Districts.

The Superintending Engineer, Rajkot Panchayat Irrigation Circle, Rajkot is looking after the Minor Irrigation Schemes of Amreli, Bhavnagar, Botad, Jamnagar, Dev Bhumi Dwarka, Rajkot, Junagadh, Gir Somnath, Porbandar, Morbi and Surendranagar Districts.

The Superintending Engineer, Kachchh Irrigation Circle, Bhuj is looking after the Minor Irrigation schemes of Kachchh District.

9.A.3 The above four Superintending Engineer shall act as a Focal Officer and shall provide all the necessary data such as rainfall, gauge, discharge, water levels, live storages etc. for the district concerned under his jurisdiction and will extend all necessary help as and when asked by the Flood Control Cell, Sardar Training Centre (WALMI) Gandhinagar. The Executive Engineer, incharge of the Minor Irrigation Works shall function as a Sub Focal Officer and shall have to take the necessary action and make efforts to control the situation.

The sub focal officer incharge of the Minor Irrigation schemes has to intimate his higher authorities and revenue authorities like Mamlatdar, Prant Officer, Collectors, Police Authorities, Home Guard Authorities regarding the situation. They shall directly

collect weather bulletin, H.R.W from India Meteorological Department, Ahmedabad or Revenue Control Room (E.R.C.) of the concerned districts. All authorities are requested to extend the help required by the sub focal officer to overcome the situation.

19.A.4 At present there are 882 M.I. Schemes, 6322 check dams, 4567 precolation tanks, 4265 safe stages works and 215 lift Irrigation Schemes are existing in 33 districts of Gujarat State. For better control and immediate information and instructions to the field officer for precautionary steps are necessary. The phone numbers of all the Executive Engineers of Panchayat Irrigation Divisions and Irrigation Circles are shown in Flood Telephone Directory of current year.

19.A.5 For Flood Warning Arrangements the informations regarding the Flood situation and its communications to higher authority, wireless systems at the important places of M.I. Works is shown in table 5.6 (Chapter-5), are suggested by the Chief Engineer (Panchayat) and Add. Secretary Sachivalaya, Gandhinagar.

19.A.6 Appropriate Authority (Focal Officer) for Panchayat Irrigation Scheme :

- | | | |
|------------|---|---|
| (A) | For (1) Gandhinagar, (2) Mehasana, (3) Patan, (4) Banaskantha, (5) Ahmedabad, (6) Kheda, (7) Anand, (8) Sabarkantha and (9) Aravalli District | The Superintending Engineer, Gandhinagar Panchayat Irrigation Circle, Sector - 16, Gandhinagar |
| (B) | For Amreli, Bhavnagar, Botad, Jamnagar, Porbandar, Dev Bhumi Dwarka, Junagadh, Gir Somnath, Rajkot, Morbi and Surendranagar Districts. | The Superintending Engineer, Rajkot Panchayat Irrigation Circle, M.S. Building, Race Course, Rajkot. |
| (C) | For Panchmahals, Vadodara, Narmada, Navsari, Bharuch, Valsad, Dahod, Surat, Dangs, Mahisagar, Chhotaudepur, and Tapi districts. | The Superintending Engineer, Vadodara Panchayat Irrigation Circle, Room No. 512, 513 5 th Floor, Kuber Bhavan Kothi Char Rasta, Vadodara |
| (D) | For Kachchh Districts. | The Superintending Engineer, Kachchh Irrigation Circle, "Sinchai Sadan" Jubilee Ground, Bhuj, Kachchh |

19-B River gauging and Rain gauging Sites under NWRWS and Kalpsar Deptt.

19.B.0 The works of measuring discharge and gauge of almost all rivers of the Gujarat is being done by Narmada, Water Resources, Water Supply and Kalpsar Department, Gandhinagar since long back. The department has also made the facility to measure the rainfall, temperature, humidity, evaporation and quality of Water. All these activities are being carried out by the technical staff (one Division and Six sub divisions) under the Superintending Engineer, State Water Data Centre, Gandhinagar. The consolidated information is stored in State Water Data Centre, Gandhinagar for further analysis and validation and then used for design purpose of Major & Medium Irrigation Project and Research purpose for Civil Engineering students.

19.B.1 The field offices collect gauge and discharge data 4 times a day and rainfall data once a day in monsoon season. After collecting data from sites by the field offices, it is transmitted to the offices of the Executive Engineer, W. R. I. Division, Ahmedabad and then it is sent to the Flood Control Cell, Gandhinagar through Fax and e-mail during monsoon. Data is also submitted to concern project circles and higher dignitaries of department through e-mail and SMS. Communication of data from site is being carried out by mobile facilities during monsoon. The data collected by W. R. I. Division, Ahmedabad and its six sub divisions do not give any flood forecast but it helps considerably in monsoon particularly where heavy rainfall occurs.

19.B.2 The following set up is working under the Executive Engineer, W. R. I. Division, Ahmedabad for almost all district of the state. It is monitored by the Superintending Engineer, State Water Data Centre, Gandhinagar.

The River gauging, Rainfall data covering Banaskantha, Sabarkantha, Arvali, Gandhinagar, Mehsana, Patan, Ahmedabad and Kheda District is being done by Dy. Ex. Engineer, W. R. I. Sub Division No.1, Ahmedabad

The River gauging, Rainfall data covering Vadodara, Panchmahal, Dahod, Bharuch, Narmada, ChhotaUdepur, Anand District is being done by Dy. Ex. Engineer, R. G. Sub Division, Vadodara.

The River gauging, Rainfall data covering Dang, Navsari, Surat, Valsad, Tapi District is being done by Dy. Ex. Engineer, R.G.Sub Division, Navsari.

The River gauging, Rainfall data covering Jamnagar, Rajkot, Junagadh, Porbandar, Surendranagar, Devbhumi Dwarka, District is being done by Dy. Ex. Engineer, R.G.Sub Division, Rajkot.

The River gauging, Rainfall data covering Botad, Bhavnagar, Amreli, Gir Somnath District is being done by Dy. Ex. Engineer, R.G.Sub Division, Bhavnagar.

The River gauging, Rainfall data covering Kutch District is being done by Dy. Ex. Engineer, R.G.Sub Division, Bhuj.

19.B.3 The Sub Dn. Wise list of sections which are monitoring and maintaining the River Gauging, Rain Gauge are appended in Annexure-19.B.3.1

The Sub-Dn.wise list of the River gauge site of the Department incl.name of River,District,Taluka, longitude,latitude are appended in Annexure-19.B.3.2

The Sub-Dn.wise list of stations with value of H.F.L. and previously observed H.F.L. with respect to zero gauge R.L. are given in Annexure-19.B.3.2.

Index map of River gauge stations(Total nos.104) is appended.

19.B.4 The phone numbers of Superintending Engineer, Executive Engineer, W. R.I .Dn., A'bad and Sub Dn. Offices of State Water Data Centre, Gandhinagar are shown in Flood Telephone Directory of current year.

19.B.5 The Collector shall directly receive the weather and heavy rainfall messages from I.M.D., Ahmedabad/Revenue Department (Emergency Relief Cell), Gandhinagar. Necessary instruction will be issued by the Collector to warn/alert the people through

the Local officer i.e. taluka mamlatdar or talukas Development officer of the areas likely to be affected.

19.B.6 The Villages likely to be affected in downstream or up stream of dams or River Banks in all District are given in the concerned river basin (i.e. Annexure-B of Chapter 6 to 18 of this flood memorandum)

19.B.7 Appropriate Authority (Focal Officer)

(Sub Focal Officer)

(A) The Superintending Engineer

State Water data Centre
Sector -8, WALMI Campus,
Gandhinagar

The Executive Engineer

Water Resources Investigation Division,
C/9, Multistoried Bldg., Lal Darwaja,
Ahmedabad.

Name of District	River Gauging Stn.	Raingauge Stn.
Ahmedabad	1	5
Amreli	4	4
Anand	0	2
Arvalli	6	6
Banaskantha	7	15
Bharuch	2	6
Bhavnagar	8	5
Botad	4	1
Chhotaudepur	3	12
Dahod	3	1
Dang	3	7
Devbhumi Dwarka	0	5
Gandhinagar	3	2
Gir Somnath	6	5
Jamnagar	2	6
Junagadh	2	8
Kheda	7	3
Kutch	9	8
Mahisagar	1	1
Mehsana	2	4
Morbi	1	1
Narmada	2	4
Navsari	5	8
Panchmahal	5	1
Patan	2	5
Porbandar	1	2
Rajkot	2	12
Sabarkantha	1	3
Surat	1	7
Surendranagar	1	9
Tapi	3	6
Vadodara	2	2
Valsad	5	14
	104	180

Annexure - 19 (B.3.3)
Statement showing the "0" R.L. & HFL of All River Gauging stations under NWRWS & Kalpasar Dept.

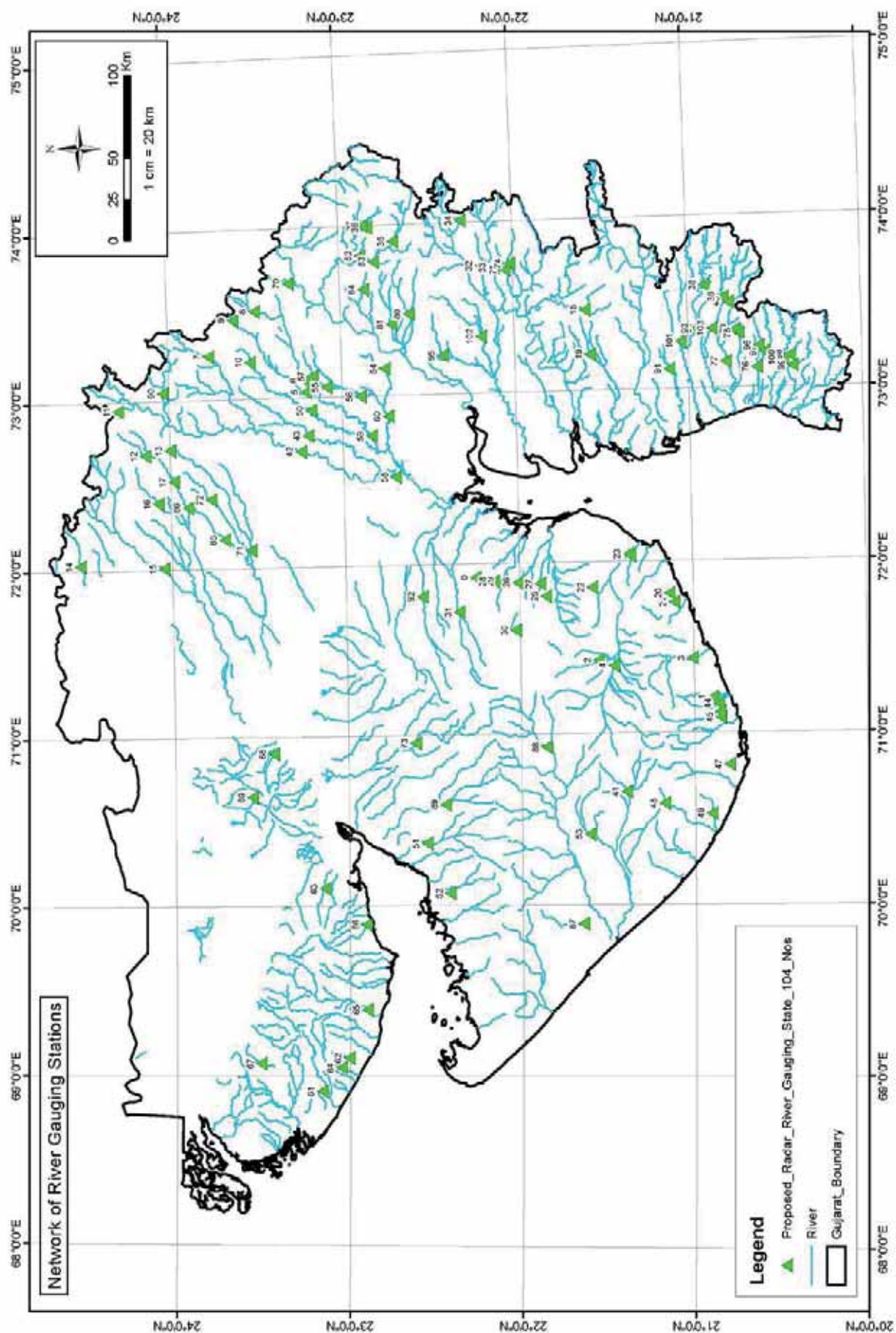
NO.	MAJOR BASIN	RIVER	STATION NAME	DISTRICT	TALUKA	LAT	LONG	'0' R.L. in mt.	Observed H.F.L. in R.L. m.	Observed H.F.L. Gauge in m.	Remarks
			W.R.I Sub Dn. Ahmedabad			N.	E.				
1	Sabarmati	Sabarmati/Sit	Ganapipalli	Banaskantha	Danta	24° 17' 37"	72° 56' 43"	254.77	257.97	3.20	
2	WFR of Kach.-Saur. & Luni	Saraswati/Arjuni	Motasada	Banaskantha	Danta	24° 08' 31"	72° 40' 46"	251.95	257.12	5.17	
3	WFR of Kach.-Saur. & Luni	Saraswati/Kuvarika	Navavas	Banaskantha	Danta	23° 59' 57"	72° 42' 23"	271.23	273.73	2.50	
4	WFR of Kach.-Saur. & Luni	Rel	Dhanera	Banaskantha	Dhanera	24° 31' 50"	72° 01' 48"	131.90	134.90	3.00	
5	WFR of Kach.-Saur. & Luni	Banas	Umbari	Banaskantha	Kankarej	24° 02' 49"	72° 00' 28"	78.18	83.00	4.82	
6	WFR of Kach.-Saur. & Luni	Saraswati/Unardasi	Kanodar	Banaskantha	Palanpur	24° 04' 25"	72° 23' 38"	172.35	174.10	1.75	
7	WFR of Kach.-Saur. & Luni	Saraswati	Pilucha	Banaskantha	Vadgam	23° 58' 52"	72° 31' 18"	156.70	160.00	3.30	
8	Sabarmati	Sabarmati	Gandhinagar	Gandhinagar	Gandhinagar	23° 14' 39"	72° 41' 00"	52.95	64.60	11.65	
9	Sabarmati	Sabarmati/Khari	Megodi	Gandhinagar	Gandhinagar	23° 12' 06"	72° 46' 31"	68.80	74.78	5.98	
10	Sabarmati	Sabarmati/Meshwo	Mitha na muvada	Gandhinagar	Dehgam	23° 10' 49"	72° 55' 18"	66.65	72.05	5.40	
11	Sabarmati	Sabarmati/Varasi	Betawada	Kheda	Kapadvanj	23° 05' 18"	73° 03' 26"	70.45	77.06	6.61	
12	Sabarmati	Sabarmati/Mahor	Kathial	Kheda	Kathial	22° 53' 36"	72° 59' 52"	36.40	45.30	8.90	
13	Sabarmati	Sabarmati	Raskpura	Kheda	Kheda	22° 42' 01"	72° 31' 05"	14.80	19.40	4.60	
14	Sabarmati	Sabarmati/Vatrak	Mahendabad	Kheda	Mahendabad	22° 55' 06"	72° 45' 51"	25.52	34.52	9.00	
15	Sabarmati	Sabarmati/Shedhi	Blodra	Kheda	Nadiad	22° 44' 11"	72° 52' 40"	25.60	37.60	12.00	
16	Sabarmati	Sabarmati/Shedhi	Dakor	Kheda	Thasara	22° 44' 56"	73° 09' 22"	46.01	53.51	7.50	
17	WFR of Kach.-Saur. & Luni	Rupen	Delwada	Mehsana	Becharaji	23° 32' 37"	72° 06' 24"	45.46	51.61	6.15	
18	WFR of Kach.-Saur. & Luni	Rupen/Pushpavali	Aithor	Mehsana	Unjha	23° 46' 05"	72° 24' 35"	102.78	110.29	7.51	
19	WFR of Kach.-Saur. & Luni	Rupen/Khari	Ziliya	Patan	Chanasma	23° 41' 38"	72° 10' 15"	60.90	64.85	3.95	
20	WFR of Kach.-Saur. & Luni	Saraswati	Sidhpur	Patan	Sidhpur	23° 54' 10"	72° 22' 02"	121.42	123.42	2.00	
21	Sabarmati	Sabarmati/Mazam	Amballyra	Arvali	Bayad	23° 12' 34"	73° 02' 00"	71.05	78.30	7.25	
22	Sabarmati	Sabarmati/Vatrak	Dabha	Arvali	Bayad	23° 12' 53"	73° 05' 57"	71.22	85.80	14.58	

NO.	MAJOR BASIN	RIVER	STATION NAME	DISTRICT	TALUKA	LAT	LONG	'0' R.L. in mt.	Observed H.F.L. in R.L. m.	Observed H.F.L. Gauge in m.	Remarks
23	Sabarmati	Sabarmati/Hatmati	Bhiloda	Arvali	Bhiloda	23° 45' 51"	73° 15' 22"	188.27	193.00	4.73	
24	Sabarmati	Sabarmati/Harnav	Khedbrahma	Sabarkantha	Khedbrahma	24° 02' 03"	73° 02' 58"	193.71	198.28	4.57	
25	Sabarmati	Sabarmati/Watrak	Meghnaj	Arvali	Meghnaj	23° 29' 41"	73° 30' 55"	141.00	151.78	10.78	
26	Sabarmati	Sabarmati/Mazam	Rellawada	Arvali	Meghnaj	23° 37' 10"	73° 28' 07"	181.50	187.45	5.95	
27	Sabarmati	Sabarmati/Meshwo	Kabola	Arvali	Modasa	23° 31' 35"	73° 12' 59"	133.60	139.83	6.23	
28	Sabarmati	Sabarmati/Varanshi	Nani-Jaher	Kheda	Kapadvanj	23° 10' 02"	73° 07' 33"	79.11	89.81	10.70	
		R.G. Sub Dn. Bhavnagar									
29	WFR of Kach.-Saur. & Luni	Lilka	Bhinnath	Ahmedabad	Dhandhuka	22° 15' 06"	71° 55' 14"	39.10	40.70	1.60	
30	WFR of Kach.-Saur. & Luni	Rupen	Timbi	Amreli	Jafrabad	20° 53' 29"	71° 12' 07"	20.15	25.90	5.75	
31	WFR of Kach.-Saur. & Luni	Shetrunji/Gaganio	sanaliyo	Amreli	Liliya	21° 32' 58"	71° 25' 26"	95.25	99.25	4.00	
32	WFR of Kach.-Saur. & Luni	Dhatanwadi	Hindorana	Amreli	Rajula	21° 00' 26"	71° 25' 47"	42.40	47.85	5.45	
33	WFR of Kach.-Saur. & Luni	Shetrunji	Junasavar	Amreli	Savarkundla	21° 27' 43"	71° 23' 32"	91.70	96.70	5.00	
34	WFR of Kach.-Saur. & Luni	Bhadrodi	Bhadrod	Bhavnagar	Mahuva	21° 08' 05"	71° 48' 28"	14.83	18.92	4.09	
35	WFR of Kach.-Saur. & Luni	Malan	Mahuva	Bhavnagar	Mahuva	21° 06' 30"	71° 45' 28"	14.02	16.49	2.47	
36	WFR of Kach.-Saur. & Luni	Shetrunji/Rajaval	Mokhadka	Bhavnagar	Paitana	21° 34' 56"	71° 50' 59"	15.57	21.07	5.50	
37	WFR of Kach.-Saur. & Luni	Shetrunji	Talaja	Bhavnagar	Talaja	21° 22' 09"	72° 02' 25"	7.10	16.24	9.14	
38	WFR of Kach.-Saur. & Luni	Shetrunji/Talaji	Talaja	Bhavnagar	Talaja	21° 21' 24"	72° 01' 51"	10.06	15.56	5.50	
39	WFR of Kach.-Saur. & Luni	Kalubhar	Umarala	Bhavnagar	Umralla	21° 50' 51"	71° 48' 09"	62.83	67.93	5.10	
40	WFR of Kach.-Saur. & Luni	Padelio	Multharal	Bhavnagar	Vallabhipur	22° 00' 34"	71° 53' 10"	56.23	59.43	3.20	
41	WFR of Kach.-Saur. & Luni	Ghelo	Vallabhipur	Bhavnagar	Vallabhipur	21° 52' 53"	71° 52' 39"	52.70	57.50	4.80	
42	WFR of Kach.-Saur. & Luni	Utavali	Barwala	Botad	Barwala	22° 08' 48"	71° 53' 46"	19.71	26.30	6.59	
43	WFR of Kach.-Saur. & Luni	Sukrbhadar	Ranpur	Botad	Ranpur	22° 21' 03"	71° 43' 12"	83.10	87.74	4.64	
44	WFR of Kach.-Saur. & Luni	Khalkhalio	Keria	Botad	Botad	22° 06' 18"	71° 53' 36"	18.27	23.27	5.00	

NO.	MAJOR BASIN	RIVER	STATION NAME	DISTRICT	TALUKA	LAT	LONG	'0 R.L. in mt	Observed H.F.L.in R.L. m.	Observed H.F.L.Gauge in m.	Remarks
45	WFR of Kach.-Saur. & Luni	Keri	Goradka	Botad	Gadhada	22° 01' 35"	71° 36' 30"	70.30	77.45	7.15	
46	WFR of Kach.-Saur. & Luni	Sengawadi	Malgam	Gir Somnath	Kodinar	20° 48' 07"	70° 48' 37"	3.50	11.35	7.85	
47	WFR of Kach.-Saur. & Luni	Hiran	Sasan-Gir	Gir Somnath	Talala	21° 10' 31"	70° 35' 12"	133.98	137.85	3.87	
48	WFR of Kach.-Saur. & Luni	Malan-II	Gangada	Gir Somnath	Gir Gadhada	20° 51' 28"	71° 09' 49"	15.17	17.17	2.00	
49	WFR of Kach.-Saur. & Luni	Shahi	Nafhej	Gir Somnath	Gir Gadhada	20° 50' 47"	71° 05' 06"	20.85	25.60	4.75	
50	WFR of Kach.-Saur. & Luni	Raval	Samter	Gir Somnath	Gir Gadhada	20° 51' 04"	71° 07' 03"	19.92	25.70	5.78	
51	WFR of Kach.-Saur. & Luni	Saraswati	Prandhi	Gir Somnath	Veraval	20° 54' 14"	70° 31' 34"	46.42	50.30	3.88	
		R.G. Sub Dn. Bhuj									
52	WFR of Kach.-Saur. & Luni	SAI	Sanbharai	Kutchh	Mandvi	23° 00' 29"	69° 06' 14"	94.50	97.40	2.90	
53	WFR of Kach.-Saur. & Luni	Khokhara	Versamedhi	Kutchh	Anjar	23° 08' 36"	70° 06' 07"	29.70	31.70	2.00	
54	WFR of Kach.-Saur. & Luni	Bhang	Mangadh	Kutchh	Rapar	23° 25' 59"	70° 54' 02"	95.60	99.60	4.00	
55	WFR of Kach.-Saur. & Luni	Chock	Dumra	Kutchh	Abdasa	23° 03' 11"	69° 02' 42"	89.80	91.43	1.63	
56	WFR of Kach.-Saur. & Luni	Nalera	Kothara	Kutchh	Abdasa	23° 09' 49"	68° 54' 32"	95.40	96.40	1.00	
57	WFR of Kach.-Saur. & Luni	Rukmavati	Kodai	Kutchh	Mandvi	22° 54' 09"	69° 23' 18"	96.10	100.10	4.00	
58	WFR of Kach.-Saur. & Luni	Surkhan	Bhadreshwar	Kutchh	Mundra	22° 54' 18"	69° 53' 24"	95.90	97.65	1.75	
59	WFR of Kach.-Saur. & Luni	Gajansar	Ravapar	Kutchh	Nakhatrana	23° 30' 53"	69° 04' 14"	65.50	68.05	2.55	
60	WFR of Kach.-Saur. & Luni	Falku	Rapar	Kutchh	Rapar	23° 33' 30"	70° 38' 48"	92.00	94.30	2.30	
		R.G. Sub Dn. Navsari									
61	WFR South of Tapi	Ambika/Khapri	Kudkus	Dang	Waghai	20° 47' 37"	73° 31' 15"	121.15	133.470	12.32	
62	WFR South of Tapi	Ambika	Waghai	Dang	Waghai	20° 45' 52"	73° 29' 25"	99.66	105.910	6.25	
63	WFR South of Tapi	Puma	Kalibel	Dang	Waghai	20° 54' 09"	73° 35' 27"	130.84	144.490	13.65	
64	WFR South of Tapi	Auranga	Bhervi	Navsari	Chikhli	20° 36' 15"	73° 06' 37"	33.98	44.980	11.00	
65	WFR South of Tapi	Ambika/Kaveri	Harangam	Navsari	Chikhli	20° 47' 06"	73° 08' 53"	36.40	43.200	6.80	
66	WFR South of Tapi	Ambika/Kharera	Kavdej	Navsari	Vansda	20° 42' 23"	73° 18' 28"	118.1	123.100	5.00	

NO.	MAJOR BASIN	RIVER	STATION NAME	DISTRICT	TALUKA	LAT	LONG	'0' R.L. in mt	Observed H.F.L. in R.L. m.	Observed H.F.L. Gauge in m.	Remarks
67	WFR South of Tapi	Ambika/Kaveri	Mindhabari	Navsari	Vansda	20° 43' 50"	73° 19' 49"	111.17	116.670	5.50	
68	WFR South of Tapi	Ambika	Unai	Navsari	Vansda	20° 51' 43"	73° 20' 44"	47.55	59.550	12.00	
69	WFR South of Tapi	Mindhola	Bardoli	Surat	Bardoli	21° 06' 41"	73° 06' 40"	14.73	24.830	10.10	
70	WFR South of Tapi	Puma/Zankhri	Valod	Tapi	Valod	21° 02' 46"	73° 16' 00"	88.44	96.690	8.25	
71	WFR South of Tapi	Puma	Wankla	Tapi	Dolivan	20° 57' 05"	73° 20' 29"	48.17	59.220	11.05	
72	WFR South of Tapi	Ambika/Walan	Wankla	Tapi	Dolivan	20° 55' 56"	73° 20' 30"	46.12	54.120	8.00	
73	WFR South of Tapi	Auranga/Tan	Antia	Valsad	Dharampur	20° 35' 39"	73° 14' 03"	86.04	92.040	6.00	
74	WFR South of Tapi	Auranga/Man	Asura	Valsad	Dharampur	20° 33' 33"	73° 11' 57"	65.41	71.410	6.00	
75	WFR South of Tapi	Par	Nani-Vahiyal	Valsad	Dharampur	20° 27' 12"	73° 09' 29"	48.06	59.660	11.60	
76	WFR South of Tapi	Koliak	Nana-Pondha	Valsad	Kaprada	20° 24' 01"	73° 07' 01"	50.94	58.490	7.55	
77	WFR South of Tapi	Dholdo	Khuntli	Valsad	Kaprada	20° 24' 50"	73° 10' 35"	77.80	80.450	2.65	
R.G. Sub Dn. Rajkot											
78	WFR of Kach-Saur & Luni	Und	Soyal	Jamnagar	Dhrol	22° 33' 11"	70° 21' 53"	15.85	22.40	6.55	
79	WFR of Kach-Saur & Luni	Rangmati	Jamnagar	Jamnagar	Jamnagar	22° 25' 14"	70° 04' 14"	14.50	19.60	5.10	
80	WFR of Kach-Saur & Luni	Uben	Majevadi	Junagadh	Junagadh City	21° 36' 35"	70° 24' 42"	37.50	44.60	7.10	
81	WFR of Kach-Saur & Luni	Ozat	Khambhaliya	Junagadh	Visavadar	21° 23' 46"	70° 39' 29"	79.35	90.95	11.60	
82	WFR of Kach-Saur & Luni	Machhu	Wankaner	Morbi	Wankaner	22° 36' 48"	70° 57' 11"	68.15	78.55	10.40	
83	WFR of Kach-Saur & Luni	Minsar	Rana-Kandorana	Porbandar	Ranavav	21° 38' 54"	69° 53' 17"	59.20	69.59	10.39	
84	WFR of Kach-Saur & Luni	Bhadar	Kamadhya	Rajkot	Gondal	21° 51' 19"	70° 55' 18"	112.00	116.71	4.71	
85	WFR of Kach-Saur & Luni	Dondi	Paddhari	Rajkot	Paddhari	22° 26' 33"	70° 35' 29"	13.70	18.60	4.90	
86	WFR of Kach-Saur & Luni	L. Bhogavo	Limbdi	Surendranagar	Limbdi	22° 33' 41"	71° 48' 51"	39.90	45.70	5.80	
R.G. Sub Dn. Vadodara											
87	Narmada	Narmada/Kim	Dehli	Bharuch	Valia	21° 33' 50"	73° 12' 22"	166.00	172.50	6.50	
88	Narmada	Narmada/Karjan	Thava	Bharuch	Valia	21° 35' 23"	73° 28' 01"	146.37	157.57	11.20	

NO.	MAJOR BASIN	RIVER	STATION NAME	DISTRICT	TALUKA	LAT	LONG	'0' R.L. in mt.	Observed H.F.L. in R.L. m.	Observed H.F.L. Gauge in m.	Remarks
89	Narmada	Narmada/Men	Amroli	Chhotaudepur	Naswadi	22° 01' 01"	73° 45' 10"	96.89	101.35	4.46	
90	Narmada	Narmada/Ashwin	Haripura	Chhotaudepur	Naswadi	22° 02' 43"	73° 43' 00"	58.10	66.80	8.70	
91	Narmada	Narmada/Orsang	Bodeli	Chhotaudepur	Bodeli	22° 15' 55"	73° 43' 37"	70.95	81.70	10.75	
92	Narmada	Narmada/Unch	Khoria	Chhotaudepur	Bodeli	22° 11' 06"	73° 44' 33"	90.82	99.97	9.15	
93	Narmada	Narmada/Heran	Wasna	Chhotaudepur	Sankheda	22° 06' 23"	73° 43' 45"	66.46	74.96	8.50	
94	Mahi	Mahi/Hadaf	Limkheda	Dahod	Limkheda	22° 50' 00"	73° 59' 22"	192.62	198.44	5.82	
95	Mahi	Mahi/Wankadi	Wankadi	Dahod	Limkheda	22° 51' 45"	74° 00' 00"	190.10	192.88	2.78	
96	Mahi	Mahi/Panam	Devgadbaria	Dahod	D'baria	22° 41' 18"	73° 54' 11"	173.59	178.07	4.48	
97	Mahi	Mahi/Bhadar	Undava	Mahisagar	Khanpur	23° 17' 46"	73° 40' 31"	97.05	102.59	5.54	
98	Dhadhar	Mahi/Goma	Kalol	Panchmahal	Kalol	22° 36' 18"	73° 28' 22"	69.03	75.46	6.43	
99	Mahi	Mahi/Mesri	Sansoli	Panchmahal	Kalol	22° 42' 25"	73° 25' 00"	88.90	92.73	3.83	
100	Mahi	Mahi/Koliari	Rampur	Panchmahal	Morva(Hadaf)	22° 52' 41"	73° 49' 26"	135.39	141.34	5.95	
101	Mahi	Mahi/Panam	Santroad	Panchmahal	Morva(Hadaf)	22° 48' 00"	73° 47' 14"	143.53	152.02	8.49	
102	Mahi	Mahi/Kun	Khandial	Panchmahal	Sehra	22° 51' 46"	73° 37' 37"	110.08	118.42	8.34	
103	Dhadhar	Dhadhar	Bhiliapur	Vadodara	Dabhol	22° 10' 51"	73° 19' 45"	24.80	35.25	10.45	
104	Dhadhar	Mahi/Vishamitri	Pilol	Vadodara	Savli	22° 24' 51"	73° 13' 31"	94.76	104.00	9.24	



Disaster Risk reduction strategy for prevention & mitigation (Short term/Medium term/Long term)

Understanding Disaster Risk

Understanding Disaster Risk				
Flood S. No.	Sub – Thematic Area for DRR	State / District Agencies and their Responsibilities		
		State	State / District Agencies and their Responsibilities	District
1.	Observation Networks, Information Systems, Monitoring, Research, Forecasting & Early Warning	1. CWC 2. IMD 3. WRD 4. CoR 5. GSDMA	<p>Responsibility – state</p> <p>Regular/ Recurring</p> <ul style="list-style-type: none"> Assessment, Monitoring, and Scientific studies Assist districts in the identification of priority flood protection and drainage improvement works. Monitoring of flood preparedness, river basin and reservoir management plans. <p>Medium Term</p> <ul style="list-style-type: none"> Specialized efforts for different types of floods and causes of flooding, including cloudburst. Studies and monitoring of rivers flowing from neighboring states. Developing/improving/ updating forecasting methods and models for quantification of inflows and storage of dams 	<p>Responsibility - District</p> <p>Regular/ Recurring</p> <ul style="list-style-type: none"> Support and cooperate with state agencies Support local efforts for flood management Support local information systems and update data for better flood management <p>Short Term (T1)</p> <ul style="list-style-type: none"> Implementing and monitoring of flood preparedness, river basin and reservoir management plans including updating rule curves, improve system of water release from reservoirs Identification of priority flood protection and drainage improvement <p>Medium Term (T2)</p> <ul style="list-style-type: none"> Studies on land use and hydrological changes relevant to flood management in river basins and reservoir command areas of district.

					Long Term (T3)
2.	Zoning, mapping, and classification flood prone areas	1. WRD 2. ISRO 3. BISAG	Short Term (T1) <ul style="list-style-type: none"> • Preparation of large-scale hazard maps of flood prone areas identifying areas of high vulnerability 	1. DM & Collector 2. NGOs 3. CSOs	<ul style="list-style-type: none"> • Execution of flood protection and drainage improvement schemes
3.	Research and Development	1. WRD 2. ISRO 3. R&B 4. GSDMA 5. GIDM 6. SIRD 7. WASMO	Short Term (T1) <ul style="list-style-type: none"> • Studies on support systems for people living in flood prone areas • Evolving designs of shelters in flood prone areas • Socio-economic impacts of flood Medium Term (T2) <ul style="list-style-type: none"> • River basin studies • Studies on flood related problems such as soil losses caused by flooding of rivers, sediment transport, river course changes, and appropriate use of embankments Long Term (T3) <ul style="list-style-type: none"> • Hydrological and morphological studies before undertaking major flood control or prevention measures 	1. DM & Collector 2. DDO 3. NGOs 4. CSOs 5. WASMO	Recurring/ Regular (RR) <ul style="list-style-type: none"> • Support and cooperate with state agencies • Sponsor district-specific efforts; support local efforts Recurring/ Regular (RR) <ul style="list-style-type: none"> • Support and cooperate with State agencies • Sponsor/ carry out district-specific efforts in all these areas; support local efforts

Investing in DRR-Structural measures

S. No.	Sub – Thematic Area for DRR	State / District Agencies and their Responsibilities		
		State	Responsibility – state	District
1.	Flood control measures such as construction of embankments and levees	1. WRD 2. R&B 3. SSNNL	Recurring/ Regular (RR) <ul style="list-style-type: none"> Technical support and studies 	District 1. DM & Collector 2. DDO 3. Municipal Commissioner 4. PRI 5. ULB Responsibility – District Short Term (T1) <ul style="list-style-type: none"> Immediate repairs of embankments Medium Term (T2) <ul style="list-style-type: none"> Proper monitoring and maintenance of embankments / Construction of bank protection works.
2	Water ways and drainage systems for roads, high ways, and express ways	1. R&B 2. WRD 3. NHAI	Recurring/ Regular (RR) <ul style="list-style-type: none"> Proper alignment and design 	1. DM & Collector 2. DDO Recurring/ Regular (RR) <ul style="list-style-type: none"> Coordination and cooperation with the state agencies and ensure proper alignment and design in all district projects
3	Enhancing the safety of dams and reservoirs	1. WRD 2. SSNNL	Recurring/ Regular (RR) <ul style="list-style-type: none"> Issuing Advisories and guidance 	Recurring/ Regular (RR) <ul style="list-style-type: none"> Carry out measures to increase safety, reduce risks from flooding Undertake pre- and post-monsoon inspections of dams and reservoirs Monitor the implementation of safety enhancements in accordance with norms

4	Hazard resistant construction, strengthening, and retro fitting of all lifeline structures and critical infrastructure	1. R&B 2. WRD 3. UDD	Recurring/ Regular (RR) <ul style="list-style-type: none"> Guidance and implementation 	Recurring/ Regular (RR) <ul style="list-style-type: none"> Collaboration with technical agencies and implementation
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Investing in DRR-Non Structural Measures

S. No.	Sub – Thematic Area for DRR	State / District Agencies and their Responsibilities		
		State	Responsibility – state	Responsibility – District
1	Regulation and enforcement of laws, norms, regulations, guidelines including <ul style="list-style-type: none"> Regulation for reservoir management Integrated Water Resources Management (IWRM) 	1. WRD 2. SSNNL	Recurring/ Regular (RR) <ul style="list-style-type: none"> Guidance and Support Oversight and monitoring of compliance with coastal zone laws Promote institutional mechanisms for sharing forecasts, warnings, data, and information Short Term (T1) <ul style="list-style-type: none"> Adoption of revised reservoir operation manuals Regulatory framework for flood plain zoning and flood inundation management Medium Term (T2)	Recurring/ Regular (RR) <ul style="list-style-type: none"> Implementing land-use regulation for low lying areas as per flood control norms Regulation of inhabitation of low-lying areas along the rivers, nallas and drains Implementing flood management action plan Support and cooperate with state agencies Short Term (T1) <ul style="list-style-type: none"> Enforcing building codes and regulations Review and modification of operation manuals for all major dams/ reservoirs Prevention and removal of encroachment into the water ways and natural drainage systems Medium Term (T2) <ul style="list-style-type: none"> Implementing regulatory framework for flood plain zoning and flood inundation management Implementing flood plain zoning regulations Long Term (T3)

			<ul style="list-style-type: none"> • Norms/ regulations applicable to buildings in flood-prone areas 		<ul style="list-style-type: none"> • Implementation of IWRM in major river basins and their sub-basins
			<p style="text-align: center;">Long Term (T3)</p> <ul style="list-style-type: none"> • Facilitate the implementation of IWRM in major river basins and their sub- basins 		

Capacity Development

S. No.	Sub – Thematic Area for DRR	State / District Agencies and their Responsibilities		
		State	Responsibility – state	District
1.	Training	1. GIDM 2. GSDMA	<p>Recurring/ Regular (RR)</p> <ul style="list-style-type: none"> • Training and orientation programs for state govt. staff, SDRF, community, and volunteers 	<p>Recurring/ Regular (RR)</p> <ul style="list-style-type: none"> • Training and orientation programs for district govt. staff, SDRF, community, and volunteers
			<p>Recurring/ Regular (RR)</p> <ul style="list-style-type: none"> • Incorporating disaster response, search and rescue in the training programs of youth such as NCC, NYKS, Scouts and Guides, NSS, SDRF, CDEF, Community, Volunteers 	
				<p>Recurring/ Regular (RR)</p> <ul style="list-style-type: none"> • Incorporating disaster response, search and rescue in the training programs of youth such as village volunteers, and for protection of disaster-affected animals • Training for CDEF, Community, Volunteers

MISCELLANEOUS INFORMATION

UNITS		
cusec	=	Cubic feet per second
cumec	=	Cubic meter per second
Mcm = Mm ³	=	million cubic meter
Mcft = Mft ³	=	million cubic feet
Lac cusecs Hour	=	1 lac cusec flow for 1 hour
cumec day	=	1 cubic meter per second flow for 1 day (24 hours)
MAF	=	Million Acre Feet
TMC	=	Thousand Million Cubic Feet

CONVERSION TABLE

CONVERT		FACTOR
FROM	TO	
LAC CUSEC HOUR	Mm ³	10.19
Mm ³	LAC CUSEC HOUR	0.098
CUMEC DAY	Mm ³	0.086
Mm ³	CUMEC DAY	11.57
MAF	Mm ³	1233.5
TMC	Mm ³	28.317
e.g....5 lac cusec of water is expected for 6 hr then expected volume of inflow to reach in reservoir = 5 lac cusec * 6 hr* 10.19 = 305.7 Mm ³		
e.g.... 123.0 Mm ³ of water is expected to reach in reservoir in 6 hr then expected mean inflow = $\frac{123 \times 0.098}{6} = 2.0$ lac cusec		

FORMAT AND EXAMPLE FOR ESTIMATION OF TIME

(Format for guidance only)
Details shall be project specific

Name of Project :-

F.R.L. : m Gross storage :
Crest R.L. : m
M.W.L.: m

	Date	06/02/2007
	Hour	12.00
1	Initial Level in reservoir =	m
2	Initial Storage in reservoir =	1000 Mm ³
3	Level targeted =	m
4	Storage Targeted =	1400 Mm ³
5	Expected inflow =	1.0 Lac Cusecs
6	Expected outflow =	0.5 Lac Cusecs
7	Expected time interval for targeted level =	79 Hours
8	i.e. Targeted Level will be after	3 Days 7 Hours
9	i.e. Targeted Level will be on	09/02/2007 19 Hours

Procedure to be followed.

- 1 Give date and time in 24 hours format for initial storage
- 2 Put the initial storage in reservoir for Item 2.
- 3 Put the initial level in reservoir according to storage for Item 1.
- 4 Put the targeted storage in reservoir for Item 4.
- 5 Put the targeted level in reservoir according to storage for Item 3.
- 6 Put Expected Inflow and Outflow in Item No.5 & 6
- 7 Item No.7 = $\frac{(\text{Item 4} - \text{Item 2})}{(\text{Item 5} - \text{Item 6})} \times 10.19$
- 8 Item No. 8 & 9 to be calculated according to answer of Item 7.

FORMAT AND EXAMPLE FOR ESTIMATION OF LEVEL

(Format for guidance only)

Details shall be project specific

Name of Project :-

F.R.L. : m

Crest R.L. : m

M.W.L.: m

Gross storage :

	Date	06/02/2007
	Hour	12.00
Initial Level in reservoir =		m
Initial Storage in reservoir =	900	Mm ³
Expected inflow =	4.0	Lac Cusecs
Expected outflow =	2.0	Lac Cusecs
For Duration	6.0	Hours
Expected volume of Inflow =	122	Hours
Total Volume of Water =	1022	Mm ³
Level of Reservoir after 6.0 Hours		m

Procedure to be followed.

Give date and time in 24 hours format for initial storage

Put the initial storage in reservoir for Item 2.

Put the initial level in reservoir according to storage for Item 1.

Put Expected Inflow and Outflow in Item No. 3 & 4

Put the duration in Item 5.

Item No.6 = (Item 3 - Item 4) * Item 5 * 10.19

Item 7 = Item 2 + Item 6

Put the corresponding level in reservoir according to storage for Item 7.

Satellite websites for storm prediction

<http://en.allmetsat.com/images/asia.php>

http://en.allmetsat.com/images/met5_cimss_irc.php

<https://mausam.imd.gov.in>

<http://manati.orbit.nesdis.noaa.gov/dataimages21/cur/zooms/WMBas49.png>

<http://cimss.ssec.wisc.edu/tropic/real-time/indian/images/xxirmet5n.GIF>

<http://cimss.ssec.wisc.edu/tropic/real-time/indian/images/xxwvmet5.GIF>

<https://www.mosdac.gov.in>

<http://www.sat.dundee.ac.uk/abin/geobrowse/IODC/2007/8/7/600>

<http://imkhp2.physik.uni-karlsruhe.de/~muehr/satbilder1.html#Asien>

List of the Officers of Central Water Commission				
Name	Designation	Address	Phone No	
			Office	Residence
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Shri Vipul Verma	SDE, MSD, CWC, Himmatnagar	North Western Rivers Sub Dn., CWC, Raj Kamal Ground Floor, Nr. Manorama High School, Vishwakarma Nagar, Himmatnagar (SK) Pin – 383 001 E-mail : cwc.himmatnagar@gmail.com	02772-222314	9424468912

List of the Officers of Central Water Commission				
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			Office	Residence
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Shri D. K. Jawale	Extra Assistant Director (HM), Tapi Divn., CWC, Surat	- do -	0261-2977452	9403624961
Shri Ashish Kumar Amin	Sub Divisional Engineer LTSD,CWC, Surat (ADD. Charge)	Lower Tapi Sub Dn. , CWC, Opp. Kshetrapal Health Centre, Sangram pura, Surat -395002. Email : aeltsd@yahoo.com	0261-2476187	9012238357
Shri S. R. Shrivastava	Sub Divisional Engineer MTSD,CWC, Dhule	Middle Tapi Sub-Division, CWC, Sinchai Bhavan, Sakri Road, Dhule-424001 (Maharashtra)	0256-2276147	9420663145
Shri D. A. Telangi	Sub Divisional Engineer UTSD,CWC, Bhusawal	Upper Tapi Sub-Division, CWC, Nr. Yawal Road Tapi Nagar, Bhusawal – 425201 (Maharashtra) Email : sde.utsd-cwc@gov.in	02582-222913	8329058110
Shri Shakeel Ahmed	Sub Divisional Engineer LNSD,CWC, Bharuch	Lower Narmada Sub Dn. , CWC, Opp. Pritam Society-II, Maktampur Road, Bharuch – 392001 Email : sde_lnsd_bharuch@indiatimes	02642-249848(F)	9012238357
Shri Asish Kumar Amin	Sub Divisional Engineer, Damanganga Sub Division, Silvassa (Additional Charge)	Damanganga Sub Division, CWC, Opp. Police Line, Silvassa – 396230 Email : Daman.386@rediffmail.com	0260-2640204(F)	9726942456

Forecasting Stations under Narmada Tapi Basin Organisation, C.W.C.

Sr. No.	Basin/River	Forecasting Station
1	Tapi river basin	Inflow forecast for Ukai Dam
2	Tapi river basin	Inflow forecast for Hathnur Dam
3	Tapi river basin	Level forecast for Surat city
4	Lower Narmada river basin	Level forecast for Garudeshwar
5	Lower Narmada river basin	Level forecast for Bharuch
6	Lower Narmada river basin	Inflow forecast for Sardar Sarovar Dam
7	Damanganga river basin	Inflow forecast for Madhuban Dam
8	Damanganga river basin	Level forecast for Vapi
9	Damanganga river basin	Level forecast for Daman
10	Mahi river	Level forecast for Wanakbori Weir
11	Mahi river	Inflow forecast for Kadana Dam
12	Sabarmati river	Level forecast for Subhash Bridge
13	Sabarmati river	Inflow forecast for Dharoi Dam
14	Banas river	Inflow forecast for Dantiwada Dam

Contact details of Focal Officers for Interstate basins (Out of Gujarat)

Sr. No.	Basin	Name and designation of Focal Officer	Name of Office	Contact Nos.
1	Tapi	Shri B.S.Swami Chief Engineer	Tapi Irrigation Development Corporation, Jalgaon	09822479886(M) 0257-2221290 0257-2217169 0257-2221605 (Fax)
2	Damanganga	Shri K. B. Kulkarni, Chief Engineer	North Maharashtra Region, Nasik, Dist. Nasik	08007427466 (M) 0253-2575667
3	Mahi	Shri Prahalad R. Khoiwal Superintending Engineer	Mahi Project Banswara	09829279685(M) 02962-243238 (O)
4	Sabarmati (Sai Dam)	Shri N.K.Balotiya Executive Engineer	Sumerpur Irrigation Division, Sumerpur	09414608551 (M) 02933-252928 (O)
5	Sabarmati	Shri Vinith Sharma, Executive Engineer	Udepur Irrigation Division, Udepur	09413047465 (M) 0294-2415813 (O)
6	Banas	Shri Prakash Chandra Executive Engineer	Water Resources Division, Shirohi	09414545636 (M) 02972-222336 (O)







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