



# DISTRICT DISASTER MANAGEMENT PLAN OF KUTCH

DDMP| 2019

District Disaster Management Plan of Kutch, Year 2019-20

Lets endeavour for a "Disaster Free Country"



Gujarat State Disaster Management Authority  
Collector Office, Bhuj-Kutch



Gujarat State Disaster Management Authority  
Collector Office, Bhuj-Kutch



# Kutch District Disaster Management Plan 2019-20

Name of District : KUTCH

Name of Collector : Smt Remya Mohan IAS

Date of Submit : 15/05/2019

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Signature of  
District Collector :



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## Chapter 1: Introduction

### 1.1 What is a Disaster?

A disaster is an event triggered by natural man-made causes that lead to sudden disruption of normalcy causing widespread damage to life and property. The High Power Committee of Government of India has identified 30 major and minor disasters, which frequently occurs in our country. It is now a recognized fact that while natural disasters are primarily due to an imbalance in nature but losses due to them on account of human feelings. Human sufferings and misery from a large number of natural disasters can be minimized by taking timely action, preventing mechanisms and undertaking capital works of long and medium terms.

Disaster management is a process or strategy that is implemented when any type of catastrophic event takes place and it also includes the preparation in anticipation of any such event. In India, 199 districts have been identified to be multi hazard prone. Kutch is also one of them and it is exposed to both natural as well as man-made hazards. Among the natural hazards, earthquake, cyclones, drought, flood and heat wave are the major ones. At the district level, the district administration is the focal point to manage any disaster or eventuality. It is therefore, imperative to equip and train the district disaster management committee and disaster management team headed by the District Collector. The district administration is also required to prepare a District Disaster Management Plan (DDMP) based on the type of disasters likely to affect the district. The actual day to day function of administering preparedness, response, and mitigation is the responsibility of the District Collector (DC).

The previous disaster management plans of the Kutch district were mainly disaster specific contingency plans. As a result, the command and control of relief efforts were often not optimal. The mitigation, prevention, and preparedness aspects were not addressed. Further, separate plans for each disaster have produced multiple documents with considerable duplication, which would work against potential users reading and knowing any of the plans.

Recognizing the fact that most tasks and actions before and following a disaster are common at the district level, the Kutch district administration has used a **multi-disaster approach** (all disasters covered by one plan) while developing disaster management plan for the district.

### 1.2 Aims and Objectives of Kutch DDMP

Following are the broad objectives of the Kutch DDMP –

*To determine the risk and vulnerabilities associated with various hazards*

- a. *To identify the hazardous areas and to create appropriate strategies to address the issues in these areas*
- b. *To develop appropriate strategies for effective prevention and mitigation of disasters*
- c. *To build the capacity of people working in the field of disaster management*
- d. *To make the citizens aware of the disasters and their impact*



- e. To define and assign roles and responsibilities to various stakeholders associated with disaster management for pre-disaster and post-disaster phases*
- f. To develop and maintain arrangements for accessing resources, equipment, supplies, and funding in preparation for disasters*
- g. To defines the risks and Vulnerabilities of the citizens of the district to different disasters.*
- h. To Identifies the private and public sector parties with prime and supporting responsibilities to reduce or negate these vulnerabilities*
- i. To Mainstreaming disaster management concerns into the developmental planning process*
- j. To Defines actions to be taken by these parties to avoid or mitigate the impact of possible disasters in the district*

### **1.3 The Scope of the Plan**

The District Disaster Management and Response Plan for Kutch District have been prepared for its operation by various departments and agencies of the district and other Non-governmental Agencies expected to participate in disaster management. This plan provides for Vulnerability Assessment and Risk Analysis, Preventive Measures, Mainstreaming disaster management concerns into Developmental Plans, Preparedness Measures, Response Mechanism, and Partnership with Stakeholders, Financial Arrangement, Roles and Responsibilities of the various agencies interlinks in disaster management and the scope of their activities. An elaborate inventory of resources has also been formalized.

### **1.4 How to Use the Plan**

The present plan is not intended to provide comprehensive explanations and background information about a disaster or serve as a training manual on how to respond to a disaster or conduct a disaster-related task. The approach taken is that plans and Standard Operating Procedures (SOPs) should be limited to the minimum information needed to respond to a specific disaster or undertake a disaster-related task. Steps to address disaster specific requirements can be covered in procedures related to actions. This approach does require that task forces develop disaster specific procedures where appropriate.

In other words, this plan is intended for use by persons who are technically competent in the tasks or responsibilities set out in each plan. The SOPs are intended to be used by persons who are unfamiliar with disaster management topics but are intended to be task specific and not as replacements for full plans.

Guidelines on the use of the DDMP as per National Disaster Management Authority (NDMA) policy plan are following –

- a. Section 31 of National Disaster Management (NDM) Act 2005 makes it mandatory for every district to prepare a disaster management plan, for the protection of life and property from the effects of hazardous events within the district.
- b. Insignificant emergencies or disasters, District Magistrate or the chairperson of DDMA will have the powers of overall supervision direction and control as may be specified under State Government Rules/State Disaster Management Plan guidelines.

- c. The district Emergency Operation Center (EOC) will be staffed and operated as the situation dictates. When activated, operations will be supported by senior officers from line departments and central government agencies; private sector and volunteer organizations may be used to provide information, data and resources to cope with the situation.
- d. The DDMA may recommend for action under Sec 30 of DM Act.
- e. Facilities that have been identified as vital to the operation of the district government functions have been identified.
- f. The Collector or his designee will coordinate and control resources of the District.
- g. Emergency public information will be disseminated by all available media outlets through the designated media and information officer.
- h. Prior planning and training of personnel are prerequisites to effective emergency operations and must be considered as integral parts of disaster preparations.
- i. Coordination with surrounding districts is essential, when an event occurs, that impacts beyond district boundaries. The procedure should be established and exercised for inter-district collaboration.
- j. Departments, agencies and organizations assigned either primary or supporting responsibilities in this document must develop implementation documents in order to support this plan.
- k. When local resources prove to be inadequate during emergency operations, request for assistance will be made to the State or higher levels of government and other agencies in accordance with set rules and procedures.
- l. District authority will use the normal channel for requesting assistance and/or resources, i.e., through the District Emergency Operations Center (DEOC) to the State EOC. If state resources have been exhausted, the state will arrange to provide the needed resources through central assistance.
- m. The DEOC will coordinate with the State EOC, Agencies of the Govt. of India like Indian Meteorological Department (IMD), Central Water Commission(CWC) to maintain upto-date information concerning potential flooding, cyclones etc. As appropriate, such information will be provided to the citizens of the affected areas in the district.
- n. Upon receipt of potential problems in these areas, DEOC/designated officials will appropriately issue alert and notify action to be taken by the residents.
- o. Disaster occurrence could result in disruption of government functions and, therefore, all levels of local government and their departments should develop and maintain procedures to ensure continuity of Government action.

### **1.5 Evolution of the Plan**

Gujarat Act No. 20 of 2003 or The Gujarat State Disaster Management (GSDM) Act, 2003 provides for the creation of the DDMP in the district and in fact GSDM Act was a pioneer legislation in the whole country to make such provisions. It has clearly stated the mandatory provision of the DM plan in various clauses and sections. Some of the important sections and provisions are reproduced below.

**Clause 15 of Chapter VI of GSDM Act, 2003**

1. The authority shall develop or cause to be developed guidelines for the preparation of disaster management plans and strategies and keep them update and shall assist such departments of Government, local authorities, and person, as may be specified by the authority in preparation of plans and strategies and coordinate them
2. The plan preparing authority while preparing the plan under subsection (1) shall make suitable provisions in the plan after considering the following namely:
  - a. The types of disaster that may occur and their possible effects;
  - b. The communities and property at risk;
  - c. Provision for appropriate prevention and mitigation strategies;
  - d. Inability to deal with disasters and promote capacity building;
  - e. The integration of strategies for prevention of disaster and mitigation of its effects with development plans, program, and such other activities in the State;
  - f. Provision for assessment of the nature and magnitude of the effects of a disaster;
  - g. Contingency plans including plans for relief, rehabilitation, and reconstruction in the event of a disaster, providing for –
    - i. Allocation of responsibilities to the various stakeholders and coordination in carrying out their responsibilities;
    - ii. Procurement of essential goods and providing essential services;
    - iii. Establishment of strategic communication links;
    - iv. Dissemination of information; and
    - v. Other matters as may be provided for in the regulations.
    - vi. Any other matter required by the Authority.
3. The Authority shall prepare, or cause to be prepared, and maintained a master plan for the State/District

**1.6 Authority for the Plan**

At the state level, Gujarat State Disaster Management Authority (GSDMA) shall be primarily responsible for promoting an integrated and coordinated system of disaster management including prevention or mitigation of disaster by the state, local authorities, stakeholders and communities. The Authority shall act as the central planning, coordinating and monitoring body for disaster management and post-disaster reconstruction, rehabilitation, evaluation, and assessment. It will also assist the State Government in the formulation of policy relating to emergency relief not with standing that the implementation of emergency relief shall be the responsibility of the revenue department and other departments of the Government. It shall also inform the State Government and departments of Government on progress and problems in disaster management. It has all promote general education and awareness on disaster management, emergency planning, and response and matters incidental to the State Government, the Collector, concerned officers of the State Government and the local authorities in the State shall gives uch assistance and support to the Authority in performing its functions as may be required by the Authority.

At the district level, the District Collector is in charge of disaster management and prepares DDMP and responds to emergency situations.

## 1.7 Stakeholders and Their Responsibilities

At the district level, District Collector is responsible for responding any disaster situation in consultation with other line departments at district Head Quarters (HQ) is responsible to deal with all phases of disaster management within the district. Technical institutions, Non-Governmental Organizations (NGOs), Local authority, the private sector, community groups, volunteer agencies, and citizens are the other stakeholders and potential participants in the disaster management exercise.

According to DM Act, 2003 Stakeholders and their responsibilities are:

### I. District Collector

During the period, when an area is declared or considered as an affected area the Collector may issue directions to the officers of the departments of the Government and the local authority in the affected area, to provide emergency relief in accordance with the DDMP or other contingency plan.

**The District Collector may make arrangements for release and use of available resources.** The District Collector may also *control and restrict traffic to, from and within the area affected by a disaster*. He or she may *control and restrict the entry into, movement within and departure from any disaster area or part of it*. Other activities which may be ordered by the collector are –

- a. *Removal of the debris*
- b. *Conduct search and rescue operations*
- c. *Make arrangements for the disposal of the unclaimed dead body, by appropriate means*
- d. *Provide alternative shelter*
- e. *Provide food, medicines and other essentials*
- f. *Require experts and consultants in the matters relevant to the disaster to provide relief under his direction and supervision*
- g. *To take possession and make use of any property, vehicles, equipment, buildings, and means of communication on such terms and conditions as may be prescribe*
- h. *Procure exclusive or preferential use of amenities as and when required*
- i. *Construct temporary bridges or other structures*
- j. *Demolish unsafe structures which may endanger the public*
- k. *Coordinate with non-governmental organizations and ensure that such entities carry out their activities in an equitable manner*
- l. *Disseminate information to the public to deal with the disaster*
- m. *Direct and compel evacuation, of all or part of the population from any affected area for the purpose of preservation of life and for such evacuation, and for such evacuation use such force as may be necessary*
- n. *Authorize any person, to make an entry into any place, to open or cause to be opened, any door, gate or other barrier, if he or she considers such an action is necessary for preservation of life and property, if the owner or occupier is absent, or is present, refuses to open such door, gate or barrier.*

**The Collector may exercise the powers** contained in subsection (2) of the GSDM Act, 2003 **to the extent only that this is necessary for the purpose of –**

- a. *Assisting and protecting the community*
- b. *Providing relief to the community*
- c. *Preventing or combating disruption*
- d. *Dealing with the destructive and other effects of the disaster*

*The Collector may issue such directions to any person or government agency and take such other steps, as may be necessary to curtail the escalation of the disaster or to alleviate, contain or minimize the effects of the disaster.*

**The Collector shall also** facilitate and, coordinate with, local Governing bodies to ensure that pre and post-disaster management activities in the district are carried out. He or she shall assist community training, awareness programmers and the installation of emergency facilities with the support of local administration, non-governmental organizations, and the private sector. He or she shall also take appropriate actions to smoothen the response and relief activities to minimize the effect of the disaster. He or she shall recommend Commissioner of Relief (COR) and State Government for a declaration of disaster.

## II. **Local Authority**

The local authorities shall –

- a. Provide assistance to GSDMA, COR, and Collector in disaster management activities.
- b. Ensure training of its officers and employees and maintenance of resources so as to be readily available for use in the event of a disaster.
- c. Ensure that all construction projects under it conform to the standards and specifications laid down.
- d. Each department of the Government in a district shall prepare a disaster management plan for the district. Carry out relief, rehabilitation and reconstruction activities in the affected area within its jurisdiction.

## III. **Private Sector**

The private sector should ensure their active participation in the pre-disaster activities in alignment with the overall plan developed by the GSDMA or the Collector. They should also adhere to the relevant building codes and other specifications, as may be stipulated by relevant local authorities.

## IV. **Community Groups and Voluntary agencies**

Local community groups and voluntary agencies including NGOs should actively assist in prevention and mitigation activities under the overall direction and supervision of the GSDMA or the Collector. They should actively participate in all training activities as may be organized and should familiarize themselves with their role in disaster management.

## V. **Citizen**

It is a duty of every citizen to assist the Collector or such other person entrusted with or engaged in disaster management whenever his aid is demanded generally for the purpose of disaster management.



## 1.8 Approach to Disaster Management

The Government of Gujarat and the district administration take an inclusive approach to disaster management. Disaster impact decrease is divided into various broad areas – mitigation, preparedness and prevention before the disaster strikes and warning, relief and recovery during and after the disaster.

### **Mitigation, Preparedness and Prevention:**

Mitigation, preparedness, and prevention actions are to be taken before a disaster to reduce the probability of a disaster (risk reduction) or the level of damage (vulnerability reduction) expected from a possible disaster. Vulnerability reduction is given priority over risk reduction. The district can avail itself of four mechanisms (singularly or together) to reduce risk and vulnerability –

- a. Long-term planning for mitigation, preparedness and prevention investments in the district
- b. Enforcement of regulations, particularly building and safety codes and land use plans
- c. Review and evaluation of development plans and activities to identify ways to reduce risks and vulnerability
- d. Capacity building including warning, the provision of relief and recovery assistance and community-level identification of risk and vulnerability

### **Warning, Relief and Recovery:**

Necessary actions are intended to eliminate the loss of life and property and hardship due to disasters. Plans and SOPs at District level should provide as seamless as the possible provision of warning, relief, and recovery assistance to avoid or reduce losses and hardship.

*The focal point for early warning, relief and recovery are the District Collector, who directs and coordinates these efforts within the district. The Collector is also answerable for coordinating warning, relief, and recovery with similar activities in neighboring districts and with the Revenue Department, COR and GSDMA.*

The Collector is further responsible for *developing long-term relief, recovery and rehabilitation plans during the course of a disaster*. These plans will include steps to reduce disaster impact in the future and be coordinated with the GSDMA in terms of policy and implementation.

The overall approach to disaster management is based on six elements –

- a. Precise risk and Vulnerability assessment
- b. Planning and efficient allocation of resources
- c. Capacity building and training
- d. Provision of ample resources
- e. The assignment of disaster management roles and responsibilities which correspond to normal roles and responsibilities (if possible) and
- f. Use of diverse legal and operational mechanisms to accomplish disaster management objectives

Based on the interim assessment of risk and vulnerabilities, the Kutch District will focus on the following areas for mitigation, preparedness, and prevention –

- a. Resilience of lifeline systems (water, power, and communications)

- b. Reduction in disaster impact on health care facilities, schools, and roads
- c. Vulnerability reduction in flood-prone areas
- d. Vulnerability reduction to high winds
- e. Improvement of off-site Preparedness near industrial sites

### 1.9 Financial Support During the Disaster

The financial arrangement *as per the fund granted by GSDMA/State nodal agencies* to the district. District Collector has authorities to distribute/impart the fund to the counter partners of Disaster management in the District as per required activities, according to the instructions of Government of Gujarat.

### 1.10 DDMP Review and Updation

The ***District Collector*** is responsible for the preparation and revision of the DDMP in collaboration with the line departments and other organizations in the district. Plan maintenance is a dynamic process of updating the plan on a periodic basis. The backbone of maintaining the plan is carrying out mock drills and updating the plan based on the lesson learned as an outcome of the mock exercise, which consists of identifying the gaps and putting in place a system to fill the same.

The DDMP shall be ***reviewed and updated regularly bi-annually/half yearly*** and updated –

- a. When significant changes in the nature of any hazards
- b. By lessons learned following any major disaster
- c. When there is any significant change to organization or responsibility of primary members of the task forces defined in the plan.
- d. District Disaster Management Committee (DDMC) shall compile its learning and proposed new mechanisms for improvement of the capacity to deal with disasters
- e. After any drills and rehearsals
- f. After recommendations from all line Depts. in their concerned reports
- g. After lessons learned from any disaster event in other district and state
- h. In consequence of any directions from NDMA, GSDMA, Government of Gujarat, Revenue Department etc

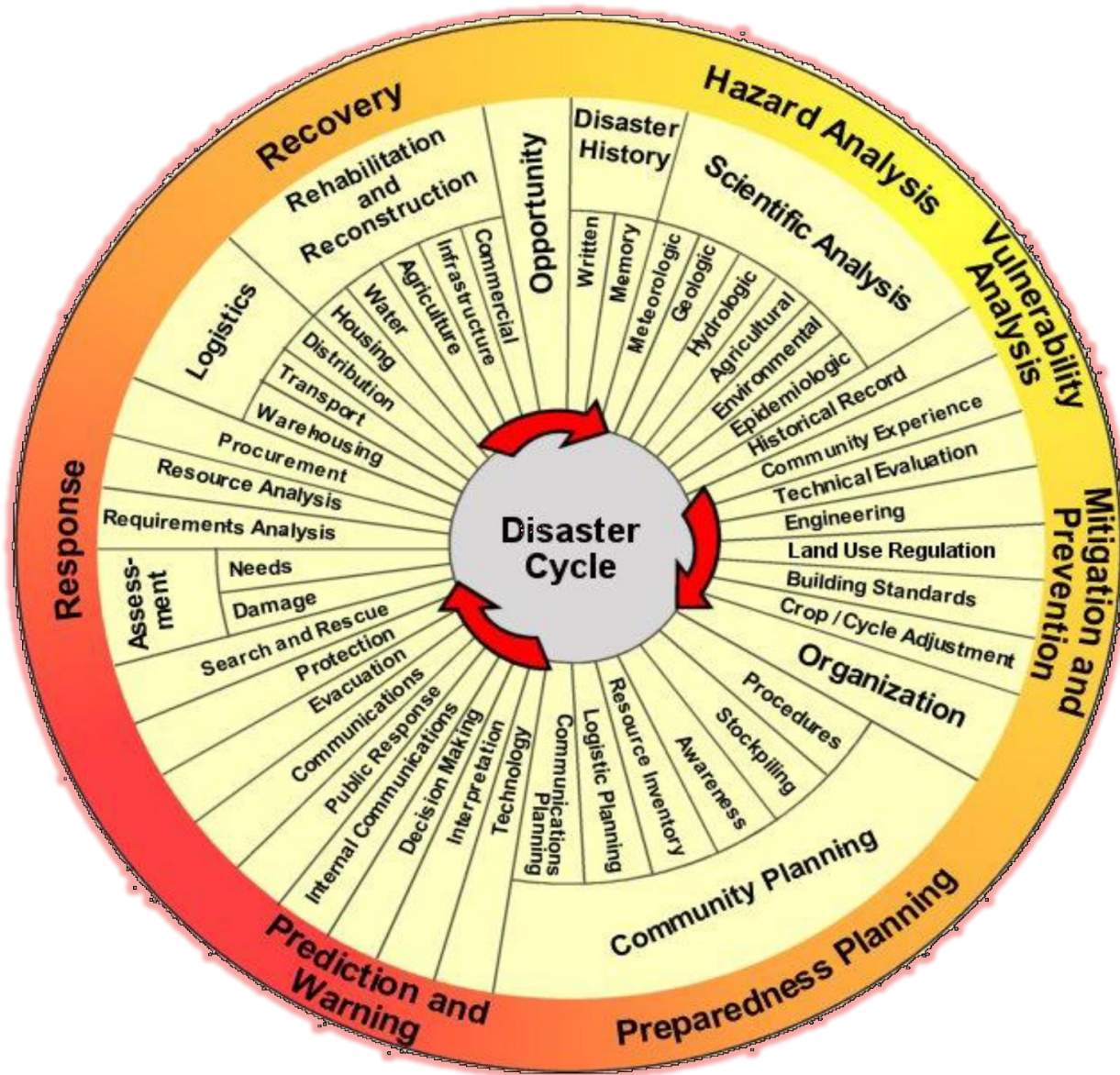


Figure 1: Disaster Risk Management Cycle

## Chapter 2: District Profile of Kutch

### 2.1 District Overview

Kutch is Located in the West corner of Gujarat State. The District is spread between 22°44' and 24° 41' of northern latitude and 68° 07' and 71° 4' of eastern longitude. It is bounded by Rajkot in South and Banaskantha district in East and then Rajasthan state border. Kutch Desert is situated in North and the international border of Pakistan. The district is having an area of 887106 Hectare (45674 Sq. Kms) making it the largest district of India and accounting for above 23.28% of the total state land. The district has 3300 Hectares forest Area and Agriculture Land is 691818 Hectares.

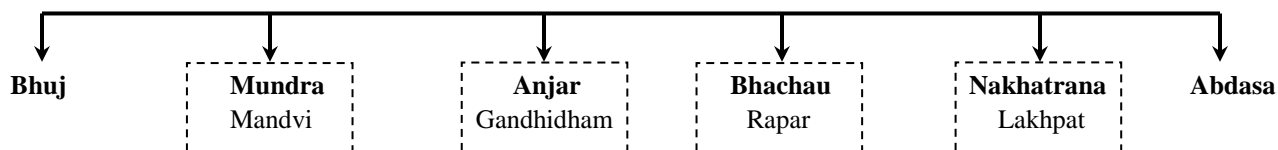
It has a population of 2,092,371 persons (as per 2011 census) and density of the population is 46 persons per sq. km. About 70.02 % of the population lives in the rural area and 29.98% of the population live in the city area. Thus, urban population of Kutch is lower than the Gujarat average. The literacy percentage is 70.59 %.

The District has 10 Talukas and six Subdivisions. The information of Taluka is as under –

**Table 1: Demographic profile of Kutch**

Sr. No.	Name of Taluka	No of Villages	No of Town	Taluka population (Census 2011)
1	Bhuj	149	5	443269
2	Madavi	92	1	203373
3	Mundra	59	1	153219
4	Anjar	66	1	235537
5	Gandhidham	6	4	327166
6	Bhachau	69	1	186035
7	Rapar	97	1	217315
8	Nakhatrana	120	0	146367
9	Abdasa	133	0	117538
10	Lakhpat	86	0	62552
<b>Total</b>		<b>877</b>	<b>14</b>	<b>2092371</b>

### Kutch District with Six Sub-Division



**Table 2: Municipalities of Kutch**

Sr. No.	Name of Municipalities	Population (census 2011)
1	Bhuj	148449
2	Mandavi	51364
3	Anjar	86481
4	Gandhidham	248004
5	Bhachau	39516
6	Rapar	28390
<b>Total</b>		<b>602204</b>

Bhuj town is District Head Quarter and has one of the 6 Municipalities in the District. There are 614 Gram Panchayats, 23 Police Station and 56 Police Out-Posts in District.

## 2.2 Climatic and Geographical Conditions of Kutch District

The Climate of Kutch-Bhuj District can be observed as one of anextreme kind with hot summers and mildly cold winters, where it is generally pleasant all throughout the year. The climate of Kutch-Bhuj is Mostly Dry with scant rainfall.

Soil of the district is Red in a reasonable part of the district with abundant rocky terrain and hillocks. Kutch also has a significant part in form of marshy land known as Rann locally which is basically a salty desert which dries up seasonally and at other parts of the years is filled with shallow water. The desert touches Bhuj, Rapar, Nakhatrana, Lakhpat, and Bhachau Taluka. Abdasa is the newest Sub-division and it is headquartered in Naliya. Abdasa is actually the name of an area like Kutch district itself.

The temperature at Kutch-Bhuj district ranges from 45.8°C(June)in summer and 2.0°C(January)in winters. Maximum relative Humidity 100% and range ofsea water temperature is 16.8°C to 31.8°C. The average annual rainfall is 402 mm (30 year average for the period 1987 to 2016). 2017 had above average rainfalls and till August 2017, the rainfall was 107% of the past 30 years' average.

**Table 3: Taluka Wise Rainfall Data of Kutch- Bhuj District (1999 to 2016)**

Year	Bhuj	Mandavi	Mundra	Anjar	Gandhidham	Bhachau	Rapar	Nakhatrana	Abdasa	Lakhpat
1999	123	84	120	86	335	273	189	10	187	65
2000	90	61	100	63	103	11	18	63	131	185
2001	243	301	411	331	62	382	339	456	572	294
2002	78	168	103	136	259	164	231	100	125	58
2003	712	503	785	771	195	599	686	922	443	843
2004	223	283	417	285	861	275	416	201	142	253
2005	188	243	490	382	383	403	491	174	187	98
2006	596	547	645	466	599	378	532	655	634	656
2007	663	536	590	572	571	611	570	580	462	442
2008	247	594	438	402	376	289	333	319	186	198



2009	421	559	620	378	258	389	462	432	849	383
2010	896	1701	776	889	604	968	949	691	789	375
2011	742	673	575	473	613	881	1056	634	623	415
2012	140	170	142	194	274	182	277	380	388	290
2013	472	630	946	796	765	951	865	330	349	189
2014	230	412	530	392	340	320	185	241	151	140
2015	591	406	288	899	450	684	646	649	256	434
2016	224	285	295	325	173	416	391	389	277	291
2017	320	482	397	614	343	449	656	367	683	330
2018	83	118	145	231	264	103	26	70	53	12

### 2.3 River and Dams

There are no major dams in Kutch-Bhuj District. There are 20 medium and minor dams controlled under state irrigation department and 16 minor dams controlled under the District Panchayat. Among these dams, Rudramata dam is the biggest dam in the district. Information on various dams in the district is given below, as on April 2014 –

### 2.4 Ports and Fisheries

Out of 1600 kms long coastline of Gujarat, Kutch District is blessed with around 750 km of coastline extending from Surajbariya of Bhachau Taluka to Koteswar of Lakhpat Taluka. There are **five** ports in the Kutch District, Deendayal Port (earlier known as Kandla Port) is the oldest one and the Mundra Port is the latest one. Jakhau is one of the major fisheries harbor of the district and it is one of the five major fisheries harbors of the state. Surajbariya, Bhadreswar and Mandvi are other fish landing centers in the district. 72 villages in 7 Talukas of the district are fishing villages in Kutch District. Total around 1300 mechanical boats, 180 Non-mechanical boats of different capacity are available.

### 2.5 Salt Works

Due to the long coastline in the District, Salt Industries have developed very well. The district has total 972 salt works (salt production unit) and 17456 salt worker is working in salt production. Annual Production of salt is around two Lakhs tonnes.

### 2.6 Live Stock

Cattle wealth occupies pivotal place in the rural economy of the district especially in the areas of Banni, Abdasa and Rapar. Livestock position is as below.

Cow	Buffalo	Sheep	Goat	Horse	Donkey	Dog	Camel	Other	Total
388717	225992	575019	484982	2322	3356	16992	8575	1315	1707270

There are 30 veterinary hospitals, 29 Primary veterinary hospitals/dispensaries in the district.

## 2.7 Industries

There were 7085 registered industrial units in Kutch in 2010, as per GIDC data, and they were providing employment to around 53,000 people. Two special economic zones (SEZ) are also there in the district. The district has 32 Major Accident Hazard (MAH) Units.

## 2.8 Roads and Railway

The district has 924 villages and 615 Gram Panchayats. It is well covered by national and state highways. NH-41 is the longest national highway that passes through the district and it connects Narayan Sarovar to Gandhidham. The total length of railway track is 372.42 Kms in the District, and Naliya is the last station in the district.

**Table 4: Length of Roads in Kutch**

Sr. No.	Name Road	Length of road(km)
1.	National Highway	325
2.	State highway	1727
3.	District Main road	814
4.	District other road	722
5.	Village road	4609

## 2.9 Health

The district has 1 Civil Hospitals, 13 Community Health center, 39 Primary health center, 13 Comprehensive Health Care Units, 5 mobile Units, 35 Dispensaries, 10 mobile units (IPD) and one Ayurvedic hospital in the District to cater the people. There are some of private and trust run hospitals also in the district like – Jain Hospital and Leva Patel Hospital in Bhuj, Vagad Welfare Society in Bhachau, Sarvodaya Hospital in Bidada, Tolani Hospital in Adipur, Haji Hasan Hospital and Gokal Hospital in Mandvi. Civil Hospital in Bhuj runs on PPP and is one of the key medical facilities in the district. Further, the building of this hospital is also earthquake resistant.

**Table 5: Name of CHCs and PHCs of Kutch**

Sr. No.	Taluka	Name of CHCs	Name of PHCs
1.	<b>Anjar</b>	Anjar, Dudhai	Dudhai, Khedoi, Bhimasar, Chadrani, Ratnal, Mathak, Medhpar, Sanghad
2.	<b>Mundra</b>	Mundra	Darsadi, Talvana, Gadhshisa, Godhara, Bhujpar, Bhadresvar, Ratadiya, Tumdi Nani, Mota Kandgara, Jarpara
3.	<b>Mandvi</b>	Gadhshisa,	Layja, Vanki, Bhujpar, Bhadai, Moti Talvana, Godhara, Layja Mota, Nana Asmbiya, Kodai, Godiyari
4.	<b>Bhachau</b>	Bhachau, Lakadia, Janan	Juna Kataria, Adhoi, Manfara, Jungi, Dhoravira Samkhiali, Amaramradi
5.	<b>Rapar</b>	Rapar, palasava	Adesar, Fatehghadh, Bella, Bhimasar-B, Gagodar, Suvai, Chitrod, Gedi, Balasar

6.	<b>Bhuj</b>	Khavda, Bharapar, Dhor	Dhaneti, Gorewali, Kodki, Kukma, Kera, mota Dinara, Dahisara, Madhapar, Bhiurandiyar, Desalpar Vandhai
7.	<b>Abdasa</b>	Naliya	Tera, Mothala, Kothala, Vayor,
8.	<b>Lakhp</b>	Dayapar	Baranda , Narayan Sharovar, Matanamadh, Gaduli
9.	<b>Nakhatrana</b>	Nakhatrana	Deshalpar, Netra, Nirona, Vithon, Mangvana, Netra
10.	<b>Gandhidham</b>	Rambag	Kidana, Mithi Rohar

### 2.10 Education

The district has relatively low literacy rate when compared to national average. As per 2011 Census, Kutch had average 70% literacy rate while the national average was 74%. The district has total 1741 Primary schools, 185 Secondary schools and 114 High Secondary Schools. For higher education there is one university namely, Kachchh University in Bhuj and apart from it, there are around 40 colleges which are providing higher education.

## Chapter 3: Hazard Vulnerability and Risk Assessment

Before we move into Hazard, Vulnerability and Risk analysis of the district Kutch, let's understand the terms themselves first.

**Hazards** are defined as “*Phenomena that pose a threat to people, structures or economic assets and which may cause a disaster. They could be either man-made or naturally occur in our environment.*” A **Disaster** is the product of a hazard coinciding with a vulnerable situation, which might include communities, cities or villages. The **Vulnerability** is defined as “*the extent to which a community, structure, service or geographical area is likely to be damaged or disrupted by the impact of particular hazard, on account of their nature, construction, and proximity to a hazardous terrain or disaster prone area*”.

The hazard mapping can be best done by officials in the field, line departments, specialized agencies like BISEG or GIDM, and Gujarat State Disaster Management Authority. Collector is the nodal officer which does such hazard analysis. Now a days technology like GIS and aerial surveillance by drones etc can also be used for hazard mapping.

### 3.1 Risk and Vulnerability Ranking Analysis

All events or activities carry some risk and are associated with some level of vulnerability. Risk and vulnerability ranking is the process of assigning scores to the risk and possible impact of hazards to be able to compare the likely vulnerability and make informed management decisions about which hazards are of greatest concern and when planning and preparation efforts should be directed. A crude risk and vulnerability ranking process can be accomplished in five steps.

**Table 6: Matrix of Disasters in Past**

Disaster	Year	Magnitude /extent	Talukas & no. of villages affected	Life & cattle loss	Damage to property	Economic losses
<b>Earthquake</b>	2001	4	10 Taluka 884 Village Affected	13805	146087 houses fully damage, 278217 houses medium damage infrastructures were damaged to a variable extent.	Around 448 crore private and public property
<b>Cyclone</b>	1998	4	Gandhidham, Mundra, Anjar	4000	--	--
<b>Flood</b>	2011	3	2 Taluka 200 village	1 Death 41 cattle loss		18947 lakhs Rs.
<b>Heat wave</b>	--	--	--	--	--	--
<b>Cold wave</b>	--	--	--	--	--	--
<b>Drought</b>	Almost Every Year	--	4 Taluka	--	--	--
<b>Industrial</b>	--	--	--	--	--	--

disaster						
----------	--	--	--	--	--	--

### 3.2 Hazard Risk Vulnerability Assessment (HRVA)

Hazard and Risk Vulnerability Assessment in this document is calculated done by creating matrix scores using the probability of occurrence of various disasters and their likely impact. Following two tables are used to calculate the values in the preceding table.

First of all, the likelihood of a hazard being converting into a disaster is calculated by reaching a consensus on probability and then assign each hazard a Probability Level, as indicated in the following table.

Note: For the understanding of Table: 7 there is more information are given in respective table No. 8, 9, and 10.

Assess the probabilityor "likelihood" of each hazard by reaching a consensus on probability and then assign each hazard a Probability Level, as indicated in the following table. Enter the score for each hazard in the probability column of the table in.

**Table 7: Probability Level of a Hazard becoming a Disaster**

Probability	Score	Description
Almost certain	5	A regular event, on the average, at least once in a 12 month period
Likely	4	Will occur at least once every two years.
Moderate	3	Will occur at least once every 5 years.
Unlikely	2	Will occur sometime in a 25 years period.
Rate	1	Can be expected to occur sometime in a 50 to 100 year period

Potential magnitude or impact of each hazard is estimated and is then assigned an Impact Level as in the following table. A similar exercise can be done for other hazards in future also.

**Table 8: Impact Ratings**

Impact	Scope	Description
Catastrophic	5	Massive insecurity, substantial loss of life likely. Large and generalized assistance urgently needed for large segments of thepopulation. Additional management, administrative, and technical expertize urgently needed. Large volumes of materials inputs needed.
Major	4	Security threatened for large segments of thepopulation; substantial impacts on vulnerable groups likely. Some loss of life likely. Lifesaving programs likely needed to handle theimpact of theemergency situation. Large volumes of material inputs and additional administrative staff and technical expertize likely to be needed.
Moderate	3	Security is threatened for potential target groups, some interventions may be needed, particularly for groups who likely face anincreasein vulnerability. The organization can likely respond with existing country/regional management



		structures.
Minor	2	Momentary insecurity local groups able to respond adequately to those in need. Some technical assistance by the organization may be helpful to local respondents, although not urgently needed.
Insignificant	1	Little or no significant change in conditions, no expected loss of life, injuries or significant loss of property for usual target groups as the result of the hazard. Normal operations continue.

Using the above two tables (7 and 8), we can get the Vulnerability Ranking by multiplying the probability and the impact scores (as obtained in the following table). The resulting score indicates crude vulnerability. The matrix below can be used for hazard, risk and vulnerability analysis of any disaster. Table 10 denotes the analysis of common hazards for Kutch using this matrix methodology.

**Table 9: Vulnerability Ranking**

Probability Rating: Class and (score)	Impact Rating: Class and (score)				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost certain (5)	Low-5	Moderate -10	Moderate -15	High-20	High-25
Likely (4)	Low-4	Moderate-8	Moderate -12	High-16	High-20
Moderate (3)	Low-3	Low-6	Moderate -9	Moderate -12	Moderate -15
Unlikely (2)	Low-2	Low-4	Low-6	Moderate -8	Moderate -18
Rare (1)	Low-1	Low-2	Low-3	Low-4	Low-5

The table below shows the risk and vulnerability analysis of the district using the above methodology. Such a matrix can be used for disaster response planning and preparedness.

**Table 10: Hazard Risk Vulnerability Assessment**

Hazard	Probability	Impact	Vulnerability Rating (Probability times Impact)	Specific Locations and populations of concern
Earthquake	4	5	20 (High)	Whole Kutch district come under Zone V  Bhachau, Rapar, Bhuj and Anjar are more vulnerable
High Wind and Sea Surge (Cyclone)	4	4	16 (High)	Bhachau, Gandhidham, Anjar, Mundra, Mandavi, Abdasa and Lakhpat are more vulnerable
Tsunami	4	3	12 (Moderate)	Coastal Talukas like Mundra, Mandvi, Gandhidham, Bhachau,

				Anjar, Lakhpat
<b>Flood</b>	1	2	1 (Low)	May occur due to very heavy rainfall, sea surge or tsunami
<b>Industrial Accident</b>	3	4	12 (Moderate)	Gandhidham, Anjar, Bhachau, Mundra are more vulnerable due to closeness to industrial units
<b>Drought</b>	4	3	12 (Moderate)	Whole district
<b>Heat wave</b>	4	2	8 (Moderate)	Whole district
<b>Cold wave</b>	3	2	6 (Low)	Naliya, Bhuj, Mandvi, Lakhpat
<b>Landslides Mudflows</b>	1	1	1 (Low)	---
<b>Dam Failure</b>	1	2	2 (Low)	District does not have any major dams
<b>Mine fires/collapse</b>	2	1	2 (Low)	Pandro coal mines
<b>Road/rail/air accident</b>	3	3	9 (Moderate)	Surajbariya, Chiray village, National Highway, Bhuj to Pandro highway
<b>Oil spill (marine)</b>	2	4	8 (Moderate)	Sea shore, coastal belt of Kandla, Mandvi, Mundra.
<b>Boat Sinking</b>	2	2	4 (Low)	Kandla, Mandvi, Mundra, Jakhau port
<b>Building Collapse</b>	3	2	8 (Moderate)	Bhuj, Gandhidham, Anjar, Bhachau, Rapar, Mundra, Mandvi City area
<b>Communal Disease (epidemics)</b>	3	3	9 (Moderate)	Banni area and Vagad area
<b>Food poisoning</b>	3	3	9 (Moderate)	Whole district
<b>Animal disease (epidemics)</b>	2	3	6 (Low)	Bhuj Taluka, Banni area, Gada area of Abdasa taluka
<b>Terrorism</b>	2	4	8 (Moderate)	Land and costal International border area
<b>Critical Infrastructure Failure (e.g. extended power outage)</b>	3	3	6 (Low)	Oil pipe lines, road infrastructure in the district
<b>Civil Unrest</b>	1	1	1 (Low)	Relatively peaceful district
<b>War</b>	2	5	10 (Moderate)	Whole district

The above table can be clubbed with the following table for disaster planning.

**Table 10: Probability Period/Seasonality of Disasters**

Type of hazard	Time of Occurrence	Potential Impact
<b>Flood</b>	June to September	Loss of life, livestock, crop and infrastructure
<b>Epidemics</b>	Anytime	Loss of human life
<b>Fire Accidents</b>	Anytime	Human Loss and house damage
<b>Earth Quake</b>	Anytime	Loss of Life, Livestock, and Infrastructure
<b>Cyclone</b>	April to May October to November	Loss of Life, Livestock, and Infrastructure
<b>Drought</b>	July-October	Damaged to crops

**Table 11: List of Hazards with Probability (frequency and magnitude) to be addressed in this plan**

Probability of Occurrence of disaster												
Type of Hazard	Time period											
	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec
<b>Earthquake</b>												
<b>Cyclone</b>												
<b>Flood</b>												
<b>Tsunami</b>												
<b>Fire</b>												
<b>Heat Wave</b>												

### 3.3 Identify Areas with Highest Vulnerability:

Once vulnerability ranks have been identified, the locations and populations considered most vulnerable should be identified. This aids in knowing where disaster assistance may be most needed, as well as providing a quick indication of where vulnerability reduction efforts could be most productive. Note that vulnerability reduction can include education, structural measures, and non-structural measures like evacuation planning. Where possible, the areas of high vulnerability should be mapped and included in disaster planning documents.

#### 3.3.1 Earthquake:

Different types of ground do shake with different severity of an earthquake. Softer soils and those with high water content generally shake more than rocky sites. Wherever possible site structures on the firmer ground. This will reduce the severity of vibrations experienced in an earthquake. Capital intensive infrastructure, hazardous facilities and materials, and other important buildings should not be located in the vicinity of a known fault.

Since early warning is not possible in case of earthquakes, the best choice is to ensure that seismicity is monitored and integrated with the GIS. Kutch District's situation indicates that some parts of

the District like Bhachau, Rapar, Anjar, Bhuj, Gandhidham, Lakhpat Taluka have been adequately provided with the seismic instrumentation. It is necessary that mitigation strategy considers instrumentation of all other areas in order to have a total assessment of the seismic activity. This would enable reconfirmation and upgradation of micro zonation activities.

### 3.3.2 Flood:

River flooding is a not a major hazard faced by the district as most of the rivlets are seasonal and rainfall is less. All the river systems in the District are very slow flooding. Occassional localized urban flooding happen in urban areas like Bhuj, Gandhidham, and Anjar primarily due to heavy rain and inadequate drainage and increased run-off loads in hard surfaces. But no major incidents have been reported regarding urban floods. However, cyclones can cause major flood hazards in Gandhidham which is densly habituated.

#### **Regulations would include.**

- Not permitting unrestricted new development in the hazard-prone areas
- Anchoring and flood-proofing structures to be built in known flood-prone areas
- Built-in safeguards for new water and sewage systems and utility lines from flooding
- Enforcing risk zone, base flood elevation, and flood way requirements
- Prohibition on development in wetlands
- Prescribing standards for different flood zones on flood maps.

To meet these requirements, local governments will have to adopt specific flood planmanagement into zoning and subdivision regulations, housing and building codes, and resource protection regulations.

In low-lying areas, close to the coast, and on flat land in river valleys, there may be apotential for coastal or river flooding. In geologically younger river valleys, in mountains, and foothills there may be a potential for flash-flooding.

It is important to check the history of flooding in the area. Wherever possible

- Map the extent of land covered by past flood waters
- Get an indication of the depth of past floodwaters
- Find out about the severity of past floods; how much damage they have caused, how fastthey flowed and how much debris they left behind and
- Find out how often flooding has happened, over at least the past 20 years.

### 3.3.3 Cyclone

In meteorology, a cyclone is an area of closed, circular fluid motion rotating in the same direction as the Earth. This is usually characterized by inward spiraling winds that rotate counter clockwise and clockwise of the Earth. Most large-scale cyclonic circulations are centered on areas of low atmospheric pressure. The largest low-pressure systems are cold-core polar cyclones and extratropical cyclones which lie on the synoptic scale.

Coastal areas of district like Bhachau, Gandhidham, Anjar, Mundra, Mandvi, and Lakhpat are particularly prone. Cyclones originate out at sea and become hazardous when they come ashore. They also drive the sea level up to cause coastal flooding.

At a community level, the GSDMA has proposed to provide temporary Multi Purpose cyclone shelter (MPCS). There are 5 identified sites to construct Cyclone Shelter on Coastal Belt of Kutch District which are in Mandvi, Maska, Moti Chirai, Bharapar and Chudva. These shelters will be, with built-in safety against high wind velocity and heavy rainfall and within easy reach of the people most affected. Educational buildings or places of worship may also be designed as cyclone shelters, for evacuation and temporary occupation.

### 3.3.4 Chemical Disasters

The growth of chemical process industry in Gujarat has received a dramatic accelerated momentum in last one decade. Sophisticated technology complex processes and a wide range of chemicals and chemical products have emerged to provide better standards and improved way of living to millions of people.

Kutch district has a specific chemical zone of factories. However, the disaster preparedness as precautionary measures have envisaged by involving all the major Departments who are directly or indirectly responsible for Chemical hazard. Total 36 MAH units is in this district. The probability of chemical disaster in this district is very high.

Industries involved in the production or transportation of inflammable, hazardous and toxic materials hold the responsibility for preparing an off-site plan and communicating the same to the district collector. Simulation exercises are also undertaken in the adjoining communities.

- All transport of hazardous and toxic materials are communicating to the RTO.
- Small-scale industries releasing toxic waste in water have to be encouraged to set up common effluent treatment facility.
- A common format for chemical data sheets used by Director Industrial Safety and Health (DISH) for collect information from all industries in the district is same available with both fire brigade and police.

### 3.3.5 Tsunami

Tsunamis are ocean waves produced by earthquakes or underwater landslides. Tsunamis are often incorrectly referred to as tidal waves, but a tsunami is actually a series of waves that can travel at speeds averaging 450 (and up to 600) miles per hour in the open ocean. However, waves that are 10 to 20 feet high can be very destructive and cause many deaths or injuries.

Tsunamis are most often generated by the earthquake induced movement of the ocean floor. Landslides, volcanic eruptions, and even meteorites can also generate a tsunami. Areas at greatest risk are less than 25 feet above sea level and within one mile of the shoreline. So far as Kutch District is concerned there are 6 coastal talukas and as per analysis of Mean Sea level of Kutch District there are 72 villages of 6 coastal taluka are less than 2 km far from the sea and on less than 10 meters of height from ocean level. Most deaths caused by a tsunami are because of drowning. Associated risks include flooding, contamination of drinking water, fires from ruptured tanks or gas lines, and the loss of vital community infrastructure.

### 3.3.6 Epidemics

The Public Health Department is the nodal agency responsible for monitoring and control of epidemics. Local governments and municipal authorities also have a responsibility for taking appropriate steps in this context. Therefore, the success of mitigation strategy for control of epidemics is depending on the type of coordination that exists between the Health Department and local authorities. Mitigation efforts for control of epidemics would include

1. Surveillance and warning
2. Preventive and Primitive measures
3. Strengthening institutional infrastructure, Like;
  - Promoting and strengthening community hospitals with an adequate network of Para-professionals will improve the capacity of the Health Department for surveillance and control of epidemics.
  - Establishing testing laboratories at appropriate locations in different divisions within the State will reduce the time taken for diagnosis and subsequent warning.
  - Establishing procedures and methods of coordination between Health Departments and local authorities.

### 3.3.7 Drought:

Low rainfall coupled with the erratic behavior of the monsoon in the state make Kutch the most vulnerable to drought. Of all the natural disasters, drought can have the greatest impact and affect the largest number of people. Drought invariably has a direct and significant impact on food production and the overall economy. Drought however, differs from other natural hazards. Because of its slow onset, its effects may accumulate over time and may linger for many years. The impact is less obvious than for events such as earthquakes or flood but may be spread over a larger geographic area. Because of the pervasive effects of drought, assessing their impact and planning assistance becomes more difficult than with other natural hazards.

### 3.3.8 Fire:

Fires may be caused due to earthquakes, explosions, electrical malfunctioning and various other causes. The State shall take up a detailed assessment of fire hazards like preparation of inventories/maps of storage locations of toxic/hazardous substances, provision and regular maintenance of firefighting equipment, identification of evacuation routes, fail-safe design, and operating procedures, planning inputs, transportation corridors etc.

Kutch district has many MAH company and oil Installation in so fire possibility is like more.

### 3.3.9 Thunderstorm & Lightning:

A Thunderstorm, also known as an electrical storm or a lightning storm, is a storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere, known as thunder. Thunderstorms are responsible for the development and formation of many severe weather phenomena. Thunderstorms, and the phenomena that occur along with them, pose great hazards. Damage that results from thunderstorms is mainly inflicted by downburst winds, large hailstones, and flash flooding caused by heavy precipitation.



### 3.3.10 Heat Wave

Heat wave is a hazard, which can cause a disastrous scenario. The scientific causes of Heat Wave may be meteorological, El-Nino effect and Climate Change. Mostly in the summer season, High-Pressure Zones created above ground (3-7 Km), Cold air descends, heats up and dries out while capping atmosphere above ground with little or no convection. This heat dome traps heat, dust and humidity inside the cap. Climate change can also be the cause of Heat Wave. Increased emission of GHGs, Deforestation, Urban Land Use, Anthropogenic activities and Global warming are the reason behind the warm weather.

#### Indicator for Heat Wave:

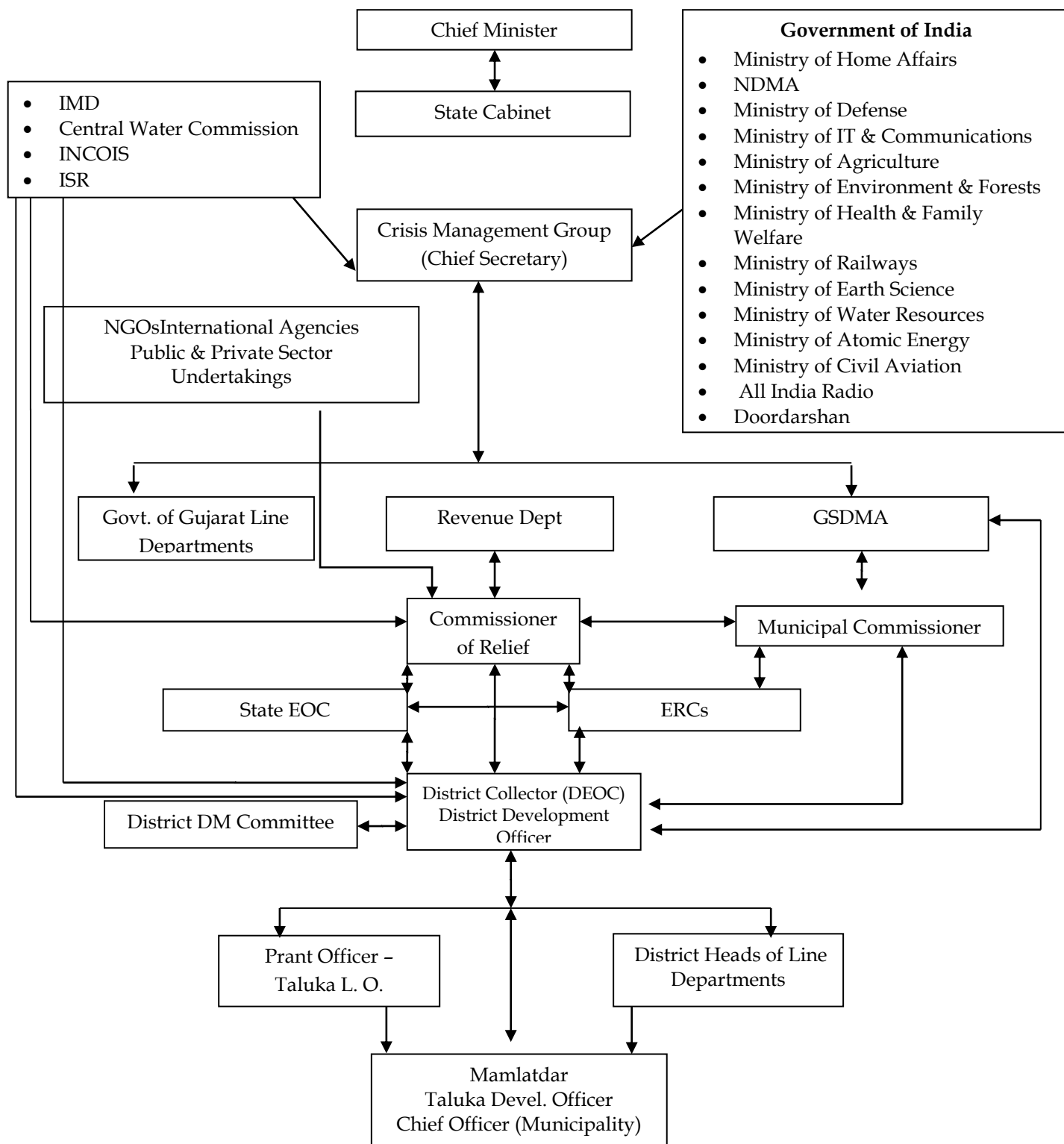
<b>Indicator of Heat Wave (as defined by Indian Meteorological Department)</b>
<p>Heat wave need not be considered till the maximum temperature of a station reaches at least 40°C for plains and at least 30°C for Hilly regions.</p> <p><b>When normal maximum temperature of a station is less than or equal to 40°C</b></p> <ul style="list-style-type: none"> <li>• Heat wave Departure from normal is 5°C to 6°C</li> <li>• Severe Heat wave Departure from normal is 7° or more</li> </ul> <p><b>When normal maximum temperature of a station is more than 40°C</b></p> <ul style="list-style-type: none"> <li>• Heat Wave Departure from normal is 4°C to 5°C</li> <li>• Severe Heat Wave Departure from normal is 6° or more</li> </ul> <p><b>When actual maximum temperature remains 45°C or more irrespective of normal maximum temperature, heat wave should be declared.</b></p> <p>Source: Indian Meteorological Department, <a href="http://www.imd.gov.in">http://www.imd.gov.in</a></p>

## Chapter 4: Institutional Arrangements

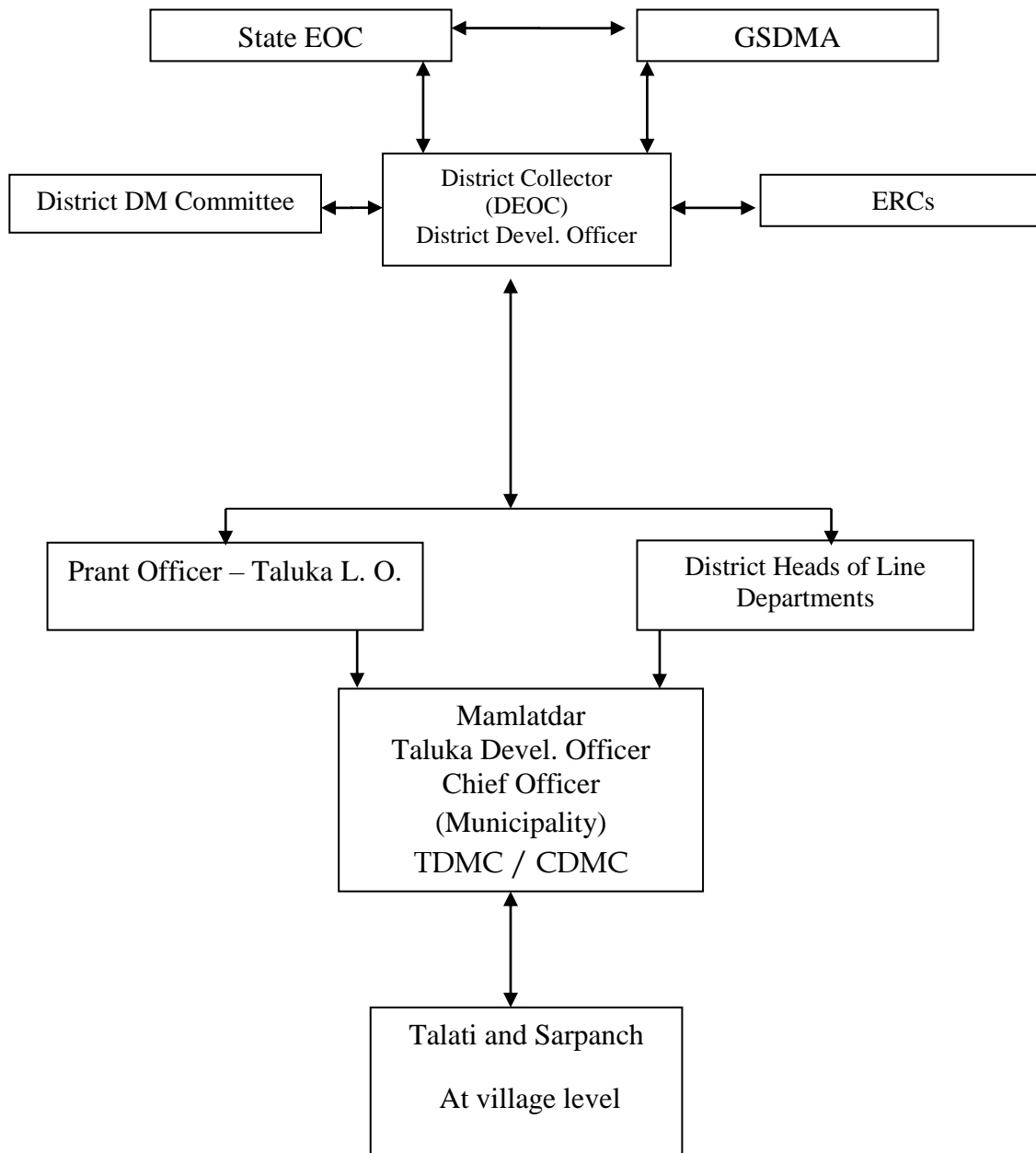
The DM structure in the State is as per the Gujarat State Disaster Management Act – 2003. The National Disaster Management Act – 2005 resembles the State Act with only a few provisions which are not a part of the State Act but are there in the Central Act. Those provisions include designating a Vice Chairman to the GSDMA, the constitution of a State Executive Committee, the establishment of a District Disaster Management Authority in each District and creation of a District Disaster Response and Mitigation Funds. The State has existing institutional arrangements in place for addressing the roles/responsibilities envisaged through the above provisions and hence does not find it compelling to implement the provisions fresh.

The Revenue Department of the State is the Nodal Department for controlling, monitoring and directing measures for organizing rescue, relief, and rehabilitation. All other concerned line departments should extend full cooperation in all matters pertaining to the response management of the disaster whenever it occurs. The State EOC, ERCs and other control rooms at the State level as well as district control rooms should be activated with full strength. The State Government may publish a notification in the official Gazette, declaring such area to be the disaster-affected area under GSDMA Act (Section 32 (2) (a)).

Under this State Disaster Management Plan, all disaster specific mechanisms would come under a single umbrella allowing for attending to all kinds of disasters. The existing arrangements, therefore, will be strengthened by defining this administrative arrangement. This arrangement proposes Chief Secretary as the head supported by the Relief Commissioner through the branch arrangements at the Emergency Operations Centres (EOC), both at State level and at the district levels. There is a formal Incident Response System in the State. The GSDMA Act 2003 empowers Commissioner of Relief to be the Incident Commander in the State and District Collector in the respective districts.



**Figure 2: D.M. Organizational Structure in the State**



**Figure 3: D.M. Organizational Structure in the District**

#### 4.1 District Disaster Management Committee:

The District Collector will be responsible for coordinating all disaster management activities at the district level. There shall be a District Disaster Management Authority headed by Collector. The District Disaster Management Authority shall approve a district disaster management planning and review all measures relating to preparedness and response to various hazards. The District Disaster Management Committee comprises members from Jilla Panchayat, different line departments, NGOs, and others to be notified by the Department of Disaster Management from time to time. In times of disasters, Dist. collector shall constitute a District Relief Committee to oversee management of relief. The following member should be club at district level committee.

**Table 12: District Disaster Management Committee**

Sr. No.	Designation	Position in DCMG
1	Collector/ District Magistrate	Chairmen
2	District Development officer	Member
3	District Superintend Police (East/ West)	Member
4	District Additional Collector	Member
5	District Supply Officer	Member
6	Exe. Engineer-R&B State	Member
7	Exe. Engineer-R&B Panchayat	Member
8	Exe. Engineer-R&B State Irrigation	Member
9	Superintending Engineer- PGVCL	Member
10	District Home guard commandant	Member
11	Superintendent Civil Hospital	Member
12	Port Officer-KPT	Member
13	District Forest Officer (west)	Member
14	District Forest Officer (east)	Member
15	Dy. Director-Information Department	Member
16	District Municipality Officer	Member
17	Regional Officer-GPCB	Member
18	District Agriculture Officer	Member
19	All S D M	Member
20	Regional Transport officer	Member
21	Divisional Controller-State transport	Member
22	Dy. Controller –Civil Defense	Member
23	District Education Officer	Member
24	District Primary Education Officer	Member
25	NGO Member	Member
26	Media Person	Member

#### 4.2 Incident Response System in the Kutch District:

##### 4.2.1 Disaster Response and District Incident Command System:

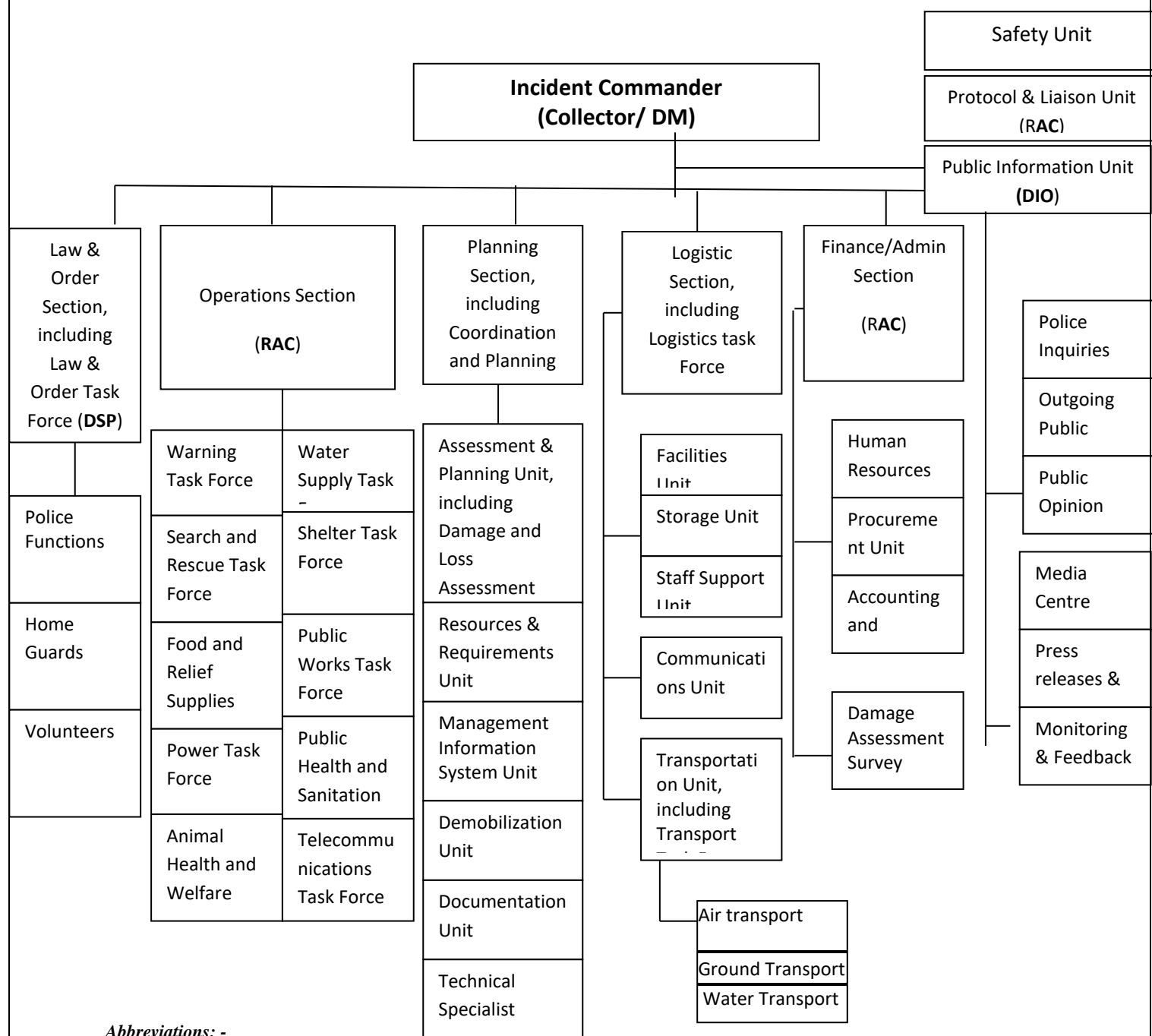
The Guidelines on the Incident Response System (IRS) are issued by the National Disaster Management Authority (NDMA) under Section 6 of the DM Act, 2005 for effective, efficient and comprehensive

management of disasters in India. The vision is to minimize loss of life and property by strengthening and standardising the disaster response mechanism in the country. The response to disasters in the district will be organized according to the Incident Command System as adapted to conditions in Gujarat State (ICS/GS). The argument for the ICS is that its fundamental elements –unity of command, clarity of objectives and efficient resource use are common to the effective response to any disaster.

In Kutch district, the multi-hazard response plan focused on sector-specific action plans unlike the department specific planning approach in the previous plan documents. The disaster response is led by the **District Emergency Operation Center (EOC)** under the command and control of the District Collector.

**The organizational structure of the Incident command system of Kutch district is provided in the next page.**





**Abbreviations: -**

DSP - District Superintendent of Police

RAC - Resident Deputy Collector

RAC - Additional District Collector

DDO - District Development Officer

DIO - District Information Officer

**Figure 4: Incident Command Structure-Kutch District**

#### 4.2.2 ICS-Basic Functions:

The basic functional descriptions for key elements in the district Incident Command System is described below. Not all these functions need to be filled (activated) in every disaster. However, the ensemble of these functions represents all the key tasks, which need to be accomplished in a well-planned manner and execute an effective and cost-efficient disaster response effort.

##### **I. Incident Commander :**

Responsible for overall management of an incident based on clearly stated mandate from higher authority and based on focused objectives responding to the immediate impact of the incident.

An Incident Commander, who can be assisted by a Dy. Incident Commander, leads the Incident command. In each incident will have as many as many commanders and other staff as there are shifts in the incident operation. Shifts will normally not exceed 12 hours at a time and should be standardized to 8 hours each as soon as possible after the start of the incident.

##### **II. Command Staff Units:**

###### **A) Safety unit:**

Safety unit is responsible for ensuring the safe accomplishment of all activities undertaken in response to the incident. This task is accomplished through developing incident specific safety guidance documents, reviewing and advising on the safety of plans and monitoring actual operations to ensure the safety of personnel and survivors.

###### **B) Protocol and Liaison unit:**

Responsible for all official visits as well as liaison between the incident command and organizations providing personnel or material support being used to manage the incident. The first point of contact for NGOs and others coming to the disaster as well as responsible for managing coordination meetings (some of which may actually be held by taskforces or sections).

###### **C) Public Information Unit:**

Responsible for all media and public information tasks related to the incident. To accomplish its task, the unit can have the following sub units:

- **Public inquiries:** To handle on media requests for information
- **Outgoing public information:** To handle public information dissemination
- **Public opinion feedback:** To collect information from the public (incident survivors and the non-affected)
- **Media center:** To provide a single point of contact for all media involved in the incident.
- **Press release and media access:** Produce all releases and provide a single point of contact to arrange media access to the incident.
- **Monitoring and Feedback:** To monitor media reports and provide feedback to the incident management on coverage of the incident and to also take corrective measures and issue contradictions if required.

**III. Law and Order Section:**

Responsible for assuring the execution of all laws and maintenance of order in the area affected by the incident. The law and order section incorporates law and order task force that may be created to deal with a disaster.

**Police functions:** As determined by the normal mandate for and special duties assigned to the police service

**Home guard:** As determined by the normal mandate for and special duties assigned to the home guard

**Volunteers:** Supporting police and home guards in non-enforcement tasks, such as patrolling, monitoring and evacuations

**IV. Operation Section:**

Responsible for assuring specific operations according to objectives and plans to address the immediate impacts of the incident. Taskforces under the operation section will deal with specific functional tasks, such as search and rescue, the provision of water or shelter. The composition and size of these taskforces depend on the nature of the incident.

The District administration of Kutch has identified 16 expected task forces for key response operation functions that are described below. Additional taskforces can be added under the operations section as needed by the circumstances of a disaster. Each Taskforce is led by one organization and supported by other organizations.

**Table 13: Emergency Operation Taskforce Functions**

Sr. No.	Emergency Operation Taskforce	Functions
1	Coordination and Planning	Coordinate early warning, Response and Recovery Operations
2	Administration and Protocol	Support Disaster Operations by efficiently completing the paper work and other Administrative tasks needed to ensure effective and timely relief assistance
3	Warning	Collection and dissemination of warnings of potential disasters
4	Law and Order	Assure the execution of all laws and maintenance of order in the area affected by the incident.
5	Search and Rescue (including Evacuation)	Provide human and material resources needed to support local evacuation, search and rescue efforts.
6	Public Works	Provide the personnel and resources needed to support local efforts to re-establish normally operating infrastructure.
7	Water	Assure the provision of sufficient potable water for human and animal consumption (priority), and water for industrial and agricultural uses as appropriate.

8	Food and Relief Supplies	Assure the provision of basic food and other relief needs in the affected communities.
9	Power	Provide the resources to reestablish normal power supplies and systems in affected communities.
10	Public Health and Sanitation (including First aid and all medical care)	Provide personnel and resources to address pressing public health problems and re-establish normal health care systems.
11	Animal Health and Welfare	Provision of health and other care to animals affected by a disaster.
12	Shelter	Provide materials and supplies to ensure temporary shelter for disaster-affected populations
13	Logistics	Provide Air, water and Land transport for evacuation and for the storage and delivery of relief supplies in coordination with other task forces and competent authorities.
14	Survey (Damage Assessment)	Collect and analyze data on the impact of the disaster, develop estimates of resource needs and relief plans and compile reports on the disaster as required for District and State authorities and other parties as appropriate.
15	Telecommunications	Coordinate and assure operation of all communication systems (e.g; Radio, TV, Telephones, Wireless) required supporting early warning or post disaster operations.
16	Media (Public Information)	Provide liaison with and assistance to print and electronic media on early warning and post-disaster reporting concerning the disaster.

The specific response roles and responsibilities of the taskforces indicated above is that these roles and responsibilities will be executed and coordinated through the ICS/GS system. For example, in flood, search and rescue would come under the Operations section, Transport would come under the Logistics Section and Public Information under the Public Information Unit.

#### **V. Planning Section:**

Responsible for collecting and analyzing information and developing plans to address the objectives set to address the incident. The overall work of the planning section will include efforts undertaken by any planning and coordination taskforce which is established as part of the response to a disaster. Units under the section include:

1. Assessment and planning
2. Resources and Requirements
3. Management information system
4. Documentation
5. Demobilization and
6. Technical specialists

**Vi. Logistic Section:**

Responsible for all task and functions related to the provision of material and other resources needed for operations and the physical and material support and operation of the incident management team. This section includes transportation taskforce established to support disaster operations. Logistics tasks are the following units:

1. Storage and supply
2. Facilities
3. Staff support
4. Communications
5. Transportation (include ground, air water)

**VII. Finance and Administration:**

Responsible for managing all financial and administrative tasks related to incident field operations. These tasks may, but would not usually include disbursement of financial aid to those affected by an incident. The task of this section is accomplished through following units:

1. Human resources
2. Procurement
3. Accounting and records

**Table 14: Cross-Task Force Action Matrix**

(Gray areas indicate where cooperation between task forces was not as needed during action plan development.)

Task Force	Warning	Law & Order	SAR & Evacuation	Public Works	Water	Food & Relief Supplies	Power	Health	Animal Health	Shelter	Logistics	Damage Assessment	Telecommunications	Media
Coordination & Planning														
Warning														
Law & Order														
S & R/Evacuation														
Public Works														
Water														
Food & Relief Supplies														
Power														
Health														

Animal Health														
Shelter														
Logistics														
Damage Assessment														
Telecommunications														



**Table 15: Taskforce, supporting organizations vis-a-vis ICS/GS section matrix**

S. No.	Task Force	Taskforce Leader	Supporting members / Organizations	ICS/GS Section / Unit
1.	Planning and Coordination	Collector/ DM	DDO, DSP, RAC, SDM and Mamlatdar	Planning
2.	Administration & Protocol	RAC	DDO, DSP, RAC and Mamlatdar	Finance & Administration
3.	Damage Assessment/Survey	RAC	DIC, Dy. DDO, Ex. Engr., R&B, DAO, Fisheries	Planning
4.	Warning	RAC	RAC, Dy. Mamlatdar, Control Room, District Information Officer (DIO)	Operation
5.	Communications	RAC	Dy. Mamlatdar, Mobile Operators, TV, Radio, Post Office GMB, Police, Forests	Logistics
6.	Media	District Information Officer	Information Department, Print, Media, TV, Journalists, NGOs	Public Information
7.	Logistics	DDO	RTO, DSO, FPS, Private & Public sector, Municipal water supply board, Mamlatdar, Dist. Supply Mamlatdar	Logistics
8.	Law & Order	DSP	Dy. SP, Home Guards Commandant, NGOs, Para-military and Armed Forces	Law & Order
9.	Search & Rescue	Dy. Collector Civil Defense	Mamlatdar, TDO, Police, Executive Engr., Fire Brigade, RTO, State Transport, Health Deptt.	Operation
10.	Public Works	Ex. Engr. R&B (State)	Irrigation, Ex. Engr., Panchayat, NGOs, Water Supply Board, Municipalities, Home Guards, Police	Operation
11.	Shelter	Dist. Primary Education Officer	School Principal, Teachers, Health, PHC, State Transport, Water Supply, RTO, Mamlatdar, TDO.	Operation
12.	Water Supply	Ex. Engr. GWSDB / Ex. Engr. Water Works	Dy. Ex. Engr., Talati, Mamlatdar, TDO, Health, Dy. Engr.	Operation
13.	Food & Relief Supplies	Dist. Supply Officer	FPS, PDS, Mamlatdar, NGO, RTO, State Transport, Municipality, DRDA, Police, Home guard	Logistics
14.	Power	Supt. Engr. GEB	Ex. Engr., Dy. Engr. Technical, GEB, Transport	Operation
15.	Public Health & Sanitation	Chief District Health Officer (CDHO)	Supt. Hospital, PHCs, CHCS, Municipality, Fire Brigade, civil defense, R&B, NGOs, Doctors, TDO, Mamlatdar	Operation
16.	Animal Health & Welfare	Dy. Director Animal Husbandry	Veterinary Inspector, NGOs	Operations

**4.3 District Incident Command Structure-Key Officers:****Incident Commander** District Collector, 9978406213**Alternate Incident Commander** – Resident Additional Collector, 9978405212**Table 16: District Incident Command Structure-Key Officers**

<b>Sr. No.</b>	<b>Taskforce</b>	<b>Taskforce Operation Room/Contact Number</b>	<b>Taskforce leader/Contact Number</b>	<b>TASKFORCE-Alternate LEADER /Contact Number</b>
1	Incident Commander	District Collector	9978406213	9978405212
2	Alternate Incident Commander	Resident Additional Collector	9978405212	--
3	Warning and Communications	RAC Office	RAC 02832 250650 09978405212	Mam. Disaster Management 9537798343 02832-252347
4	Law & Order	Police Control Room (CR)	DSP 02832 250444 9978405073	Dy. SP 02832 250444 F: 02832 250427
5	Search & Rescue	Dy. Collector Civil Defense	Chief fire Officer or Deputy Collector (Civil Defense)- 02832230603	District Municipality officer
6	Public Works	R&B-CR	Ex. Engr, R&B 02832-251450 9824340099	Dy. Engr. 02832-221103
7	Shelter	Primary Education. Office-CR	District Primary Edu. Officer 02832 250156 95120096504	Dy. District Primary Edu. Officer 02832 250156
8	Water Supply	GWSDB-CR	Ex. Engr. GWSDB 9978406901 9978442900	Ex. Engr. GWSDB
9	Food & Relief supplies	DSO-CR &DDO office	District Supply Officer 02832-221453 99250 27322 8141021735	Dy. DDO officer 98798 90124
10	Public Health & Sanitation	District Health Centre,	CDHO 02832-252207 9909941234	Add. CDHO 02832 252207
11	Power	GEB-CR	Supt. Engr. GEB	Ex. Egg. GEB

			02832-253550 9925603183 9879200789	02832-253752
12	Logistics	DDO office 7567020037	DDO 02832-250080 9978406238	Dy. DDO/ 02832-251150
13	Animal Health & Welfare	AH Office	Dy. Director, AH/ 02832-221650 9426704429	Ass. Director AH 02832-221650
14	Damage Assessment/Survey	RAC office	Addl. Collector/ 02832-250650 9978405212	Mamlatdar Disaster Management 02832-250923 02832-224150
15	Media/public Information	Information Dept. CR	District Info Officer/ 02832-224859 9879155142	Dy. DIO/ 02832-224859
16	Planning and coordination	Collector office	Collector/ 02832-250020 9978406213	RAC 02832-252704 9978405212
17	Finance/ Administration/ protocol	RAC office	RAC 02832-250650 9978405212	Mamlatdar Disaster Management 02832-250923 02832-224150-F

**Note:** for municipal areas, the Chief fire Officer is the taskforce leader of the Search and Rescue. While a Deputy collector should be appointed as taskforce leader for search and Rescue operation in non-municipal areas.

#### 4.4 District Emergency Operation Centers/Control Rooms (DEOC)

The District Control Room is located at Near Bhada office, opposite New Swaminarayan Temple. It is also the central point for information gathering, processing and decision making more specifically to combat the disaster. Most of the strategic decisions are taken in this control room with regard to the management of disaster based on the information gathered and processed. The Incident Commander takes charge at the District Control Room and commands the emergency operations as per the Incident Command System organizational chart.

All the task force leaders shall take aposition in the District Control Room along with Incident Commander to enable one-point coordination for the decision-making process.



#### 4.4.1 Design and Layout of DEOC, Kutch:

The layout and infrastructure of the DEOC, Kutch is designed as per the Emergency Guidelines prepared by Gujarat State Disaster Management Authority (GSDMA) and National Disaster Management Authority (NDMA), Delhi. The DEOC of Kutch is fortified with all basic and latest technology to operate during emergency situation. DEOC is also equipped with advance and latest communication and IT service system e.g. Computers, LED sets, emergency lights, Generator, Telephone sets, Camera and TV.

- Facilities at District Emergency Operation Centers**

**Table 17: Equipment in District Control Room**

Sr. No.	Item/ Facility	Unit/ Number of item
1	Telephones	3
2	Handheld Radios and Base Stations	1
3	Satellite Telephone	2
4	PC with GSWAN Internet and website facilities	1

5	Marker board	1
6	Conference table	1
7	A copy of Disaster Management Plan	2
8	Drawings showing Disaster information	10
9	Other relevant documents of district information	--
10	Chairs	16
11	Fax machine	1
12	Printer	1
13	Scanner	1

#### 4.4.2 Role and Objectives of DEOC, Kutch:

The role of District Emergency Operation Centre is very important during Emergency Operation activity in the district. During the time of Disaster impact and normal time there are different roles and objectives of the DEOC which are following;

- During the disaster impact, DEOC would act as the main control center to operate emergency situation.
- Disaster Risk Management within the district would be implemented, monitor and coordinate from District Emergency Operation Center.
- DEOC coordinate the actions of different line agencies or departments during the disastrous situation.
- DEOC helps to increase the coping capacity of the society and encourage the people and stakeholder of the various department within the districts to prepare their primary action plans for the specific hazard and receive reports of their preparedness. Subsequently, DEOC sends these reports to GSDMA.
- DEOC of Kutch act as a data bank for various departments with respect to vulnerability and risk and give importance to mitigation measures in the planning procedure.
- A web-based inventory for all resources available with all related department within the Kutch district is maintained by DEOC and update it through the State Disaster Resource Network (SDRN).
- DEOC accept suitable proposals on disaster mitigation measures, risk reduction and preparedness from different agencies and due approval by Deputy Commissioner is it place the same for consideration of the chief secretary.
- Ensure the communication, warning systems and instruments are in working conditions in all line departments.
- Monitor preparedness and mitigation measures by various industries and departments at the district levels including simulation exercise undertaken by different agencies.
- Relay disaster-related information at the district level, local level and to disaster vulnerable areas through suitable media. Give information to media about the situations and during disasters prepare day to day reports and inform the actual scenario and various action taken by District administration.
- Maintain the database of trained volunteers and personnel and concerned departments who could be contacted during or before the disaster.



**Figure 5: Functions of DEOC, Kutch**

### **Taluka Emergency Operation Centers (TEOC)**

The Taluka Emergency Operation Centers located at the Office of Mamlatdar. The Liaison Officers of the respective Talukas shall take charge of the Control Room. The respective Liaison Officers shall coordinate between the task group members working at disaster sites and TFOR for mobilization of resources and dissemination of instructions received from TFOR/DEOC.

### **Task Force Operation Room (TFOR)**

Individual Task Force function shall activate and operate their respective control rooms in their office manned by a competent person who is proficient in communication and technically capable of coordinating with Taluka Level Control Room and District Control Room and mobilize requisite resources to the disaster site.

### **Facilities at Task Force Operation Rooms (TFOR)**

The following facilities are maintained inside TFCR:

- Telephones
- Facsimile
- Satellite Phone (if needed)



- Handheld Radios/Base Stations
- Markerboard (1)
- A copy each of Disaster Management Plan and Task Force Plan
- Other relevant documents, if any

● **Facilities at Taluka Level Control Rooms (TLCR)**

The following facilities are maintained inside TFCR:

- Telephones
- Facsimile
- Satellite Phone (desirable)
- Hand-held Radios/Base Stations
- Markerboard (1)
- A copy each of Disaster Management Plan and Taluka Level Plan
- Other relevant documents, if any

The responsibility of up keeping and maintenance of all the above items/facilities in the respective Control rooms is given as below.

DCR (DEOC): District Collector or any person nominated

TFCR: Respective Task Force Leader

TLCR (TEOC): Respective Taluka Liaison Officer

The above responsible Depts./personnel shall carryout periodic inspection of such facilities in their respective control rooms at the frequency set by them and maintain records on the same.

**Emergency Communication Systems:**

The communication system is very crucial for effective control of any disaster. The communication philosophy adopted by Disaster Management team during the disaster is given as below:

In the event of a collapse of any communication facility/Communication infrastructure as a cascading effect/consequence of the disaster, Telecommunication Task Force Leader shall ensure immediate restoration of such facility or infrastructure to ensure uninterrupted communication for effective disaster management operations.

**Synthesized Radio Communication:**

All the Control Rooms are equipped with Radio base stations and all the task force leaders and their teams are provided with hand held radio sets. The different user groups are operating at different frequency channels allotted to them for ease of communication in respective groups. The table below shows the allotted frequency channel for individual Task Force. All the sets are programmed for different groups' frequencies to facilitate horizontal communication among the different task groups.

**Table 18: Radio Channel for Task Force**

Sr. No.	Task Force / Functional Area	Channel
1.	DCR	1
2.	Law and Order and its TFOR	2
3.	Search and Rescue and its TFOR	3

4.	Public Works and its TFOR	4
5.	Shelter and its TFOR	5
6.	Water Supply and its TFOR	6
7.	Food and Social Service and its TFOR	7
8.	Power and its TFOR	8
9.	Public Health and Sanitation and its TFOR	9
10.	Logistics and its TFOR	10
11.	Animal Health and Welfare and its TFOR	11
12.	Relief Supplies and its TFOR	12
13.	Communication and its TFOR	13
14.	Survey and its TFOR	14
15.	Taluka Level Control Room (TLCR)	15

At present, “Satellite Phone” provided by GSDMA is with District Magistrate and “Handheld radio” sets are with the District Magistrate, DDO, DSP, fire Brigade and Forest department. If possible, Health Personnel may be given these sets later.

### **Telephones**

Telephones and Fax Machine had provided at DEOC and all TEOC Control Rooms.

### **4.5 Alternate EOC Available and Its Location:**

The Kutch District Control Room is located at Near Bhada office, opposite New Swaminarayan Temple. It is also the central point for information gathering, processing and decision making more specifically to combat the disaster but when such kind of situation where DEOC will collapse so alternate EOC will be started at Collector office.

### **Alternate Communication System**

There could be a situation when all the communication facilities and systems may come to halt due to the collapse of communication facilities/infrastructures. In the event of such a failure, till the facility/infrastructure is restored made functional, following alternate systems shall be used based on the seriousness of the situation:

### **Satellite Communication System**

Satellite communication shall be activated once all the communication systems fail. This facility is installed at all the control rooms. The Telecommunication Task Force Leader shall ensure that this facility is resumed on all such occasions.

### **Messengers**

- Use of messengers as a last resort to carrying the handwritten messages to persons concerned in dealing with the disaster.
- A dedicated vehicle shall be made available by the Transport Task Force Leader upon request

**The right use of a Communication facility**

- The sense of urgency that everyone experiences during a disaster may lead to a chaotic situation if communication systems are not properly used.
- Communication shall be brief and simple.
- Telephones/Hot Lines shall be used wherever possible to avoid congestion of Radio communication.
- All task force members shall communicate only through their allotted frequency channel to avoid congestion in the particular channel.

Personnel who use Radios should be acquainted with the operation of the equipment, various channels, code words, length of speech, etc.

**4.6 Public and Private Emergency Service Facilities Available in The District:**

Kutch district has 6 Fire Stations in Respective 6 Municipality and in addition, the district has one Emergency Response Center (ERC) located in Gandhidham. This emergency service is fully equipped with various equipment and trained personnel which is used in search and rescue operation during a disaster situation.

**4.7 Forecasting and Warning Agencies:****Alert Mechanism – Early Warning**

On the receipt of warning or alert from any such agency, which is competent to issue such a warning, or on the basis of reports from District Collector of the occurrence of a disaster, the response structure of the State Government will be put into operation. The Chief Secretary/Relief Commissioner will assume the role of the Chief of Operations during the emergency. The details of agencies competent enough for issuing warning or alert pertaining to various types of disasters are given below;

**Table 19: Forecasting and Warning Agencies**

<b>Sr. No.</b>	<b>Disaster</b>	<b>Agencies</b>
1	Earthquakes	IMD, ISR
2	Floods	IMD, Irrigation Department
3	Cyclones	IMD
4	Tsunami	IMD, ISR, INCOIS
5	Drought	Agriculture Department
6	Epidemics	Health and Family Welfare Department
7	Industrial & Chemical Accidents	Industry, Labour and Employment Department, DISH
8	Fire	Fire and Emergency Services

## Chapter 5: Prevention and Mitigation Measures

### 5.1 Prevention measures in development plans and programmers:

For disaster prevention and mitigation, both structural and non-structural interventions can be planned. Structural interventions include construction of physical engineering and on engineering structures to reduce hazard risks. Nonstructural mitigation includes awareness and capacity building at official and community level, formulation of new plans and overall promoting a commitment to safety.

Mitigation measures can be divided into two categories:

- i) Structural measures: On site works, construction, and engineering works and
- ii) Non-structural measures: Which include studies, research, regulations, policy changes and capacity building activities that support the structural measures.

The taluka disaster management plan includes hazard specific structural and not structural mitigation plans in consultation and convergence with various Departments. For example, the MGNREGA work can take up activities on the construction of embankment for flood safety or the forest department may take up mangrove plantation in the coastal areas, while the water supply department can construct hand pumps on raised platforms. Departments shall draw out its own plan, goals, and milestones and review it annually for its achievements and planning for next year.

Mitigation, preparedness, and prevention actions are to be taken before a disaster to reduce the likelihood of a disaster (risk reduction) or the level of damage (vulnerability reduction) expected from a possible disaster. Vulnerability reduction is given priority over a risk reduction. The district can avail itself of four mechanisms (singularly or together) to reduce risk and vulnerability;

- Long term planning for mitigation, preparedness and prevention investments in the district,
- Enforcement of regulations, particularly building and safety codes and land use plans,
- Review and evaluation of development plans and activities to identify ways to reduce risks and vulnerability, and,
- Capacity building, including warning, the provision of relief and recovery assistance and community-level identification of risk and vulnerability.

The Collector, assisted by the District Development Officer, is responsible for developing plans and activities to effect mitigation, preparedness and prevention using the mechanism noted above. Base on the interim assessment of risk and vulnerabilities, the District will focus on the following areas for mitigation, preparedness, and prevention;

- Resilience of lifeline systems (water, power, and communications)
- Reduction in disaster impact on health care facilities, schools, and roads
- Vulnerability reduction in flood-prone areas
- Vulnerability reduction to high winds
- Improvement of Off-site Preparedness near Industrial sites.

## 5.2 Hazard wise Structural and Non- Structural Mitigation Measures:

### Hazard: Flood

**Table 20: Structural Mitigation Measures for Flood**

Probable Mitigation Measures	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Desalting and deepening of water channel (khans)	Irrigation and Rural Development, GLDC	Departmental program & MGNREGS,	Regularly
Construction of embankments/ protection wall	Rural Development, Forest	Departmental program & MGNREGS, watershed, Integrated coastal zone management program	Regularly
Repair of embankments/ protection wall	Rural Development, R&B department	Departmental program & MGNREGS	Regularly
Repair and maintenance of Flood Channels, canals, natural drainage, stormwater lines	Irrigation department Concern Municipality	Departmental or special plan	Regularly
Construction of Safe Shelters (new construction through Pradhan Mantri Awas, Sardar Awas, and Ambedkar Awas)	Collector and R&B District Panchayat	NCRMP	Regularly
Protection wall and mangroves and vegetative cover against sea level intrusion and land erosion	Forest and Rural development department GEC	Department schemes, MGNREGA, IWMP Integrated coastal zone management	Regularly
Desalting of water bodies like river and ponds	Irrigation DDO Rural Development	MGNREGA and Land Development	Regularly

**Table 21: Non-Structural Mitigation Measures for Flood**

Non-Structural Measures	Implementing Departments	Convergence with agency/program	Time Frame
Safety audit of existing and proposed housing stock in risk prone areas	DDO, Rural development	PMAY, Sardar Awas, and other rural housing schemes	Regularly

Non-Structural Measures	Implementing Departments	Convergence with agency/program	Time Frame
Promotion of Traditional, local and innovative practices like bamboo/plastic bottle rafts etc, clean city green city	DDMC, TDMC, CDMC, SHGs and youth groups, NGOs Volunteers	Training and capacity building plan for disaster management At all level	Regularly
Capacity building of volunteers and technicians	DDMC, TDMC, CDMC	Training and capacity building plan for disaster management	Regularly
Awareness generation on health and safety of livestock	veterinary officer, rural development	Departmental Scheme	Regularly

**Hazard: Cyclone****Table 22: Structural Mitigation Measures for Cyclone**

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/Program	Time Frame
Plantations (mangroves) and Shelter Belt in the Coastal Area	Cyclone prone 72 villages Kutch district	Forest department, Port Authority, DIC, TDO, Rural development department, GEC	Departmental schemes, MGNREGA Integrated coastal zone management	Regularly
Identification and repair/ retrofitting of houses and buildings unsafe for cyclone		R & B (District Panchayat)	Departmental Scheme	Regularly

Five villages have been selected for the Multi Purpose Cyclone Shelter which are shown below;

Sr. No.	Taluka	Village
1.	Mandvi	Mandvi (M)
2.	Mandvi	Maska
3.	Bhachau	Moti Chirai
4.	Gandhidham	Bharapar
5.	Gandhidham	Chudva

**Table 23: Non-Structural Mitigation Measures for Cyclone**

<b>Non-Structural Measures</b>	<b>Location/ coverage area</b>	<b>Implementing Departments</b>	<b>Convergence with agency/ program</b>	<b>Time Frame</b>
Strengthening of Early warning mechanisms	Cyclone prone 72 villages	DDMC, TDMC	District administration Line department	Regularly
Training and awareness generation for use of safety jackets/rings/buoys/rope etc for fisher folks	In Kutch district	DDMC, TDMC, VDMC, CDMC	TDMP, VDMC	Regularly
Enforcing strict compliance to coastal regulation zone and awareness regarding hazard		Department of Environment & Forest Depart. Fishing GEC	Integrated Coastal Zone Management CRZ Regulation	Regularly
Registration of fishing boats		Fisheries Department	CRZ Regulation	Regularly
Regulate and issue orders for poor quality hoardings/buildings or any other objects		R&B Department		Regularly

**Hazard: Earthquake****Table 24: Structural Mitigation Measures for Earthquake**

<b>Structural measures</b>	<b>Identified Locations and Villages</b>	<b>Implementing Departments</b>	<b>Convergence with Scheme/ Program</b>	<b>Time Frame</b>
Retrofitting (if required) of public utility buildings like offices, schools/banks/markets etc	Earthquake-prone 10 Taluka under zone 5 In district	R & B (State and Panchayat), DDO, Rural department	Town Plan and all development plan	Regularly
Retrofitting of unsafe rural houses		DDMC, DDO, R & B State and panchayat	Rural housing schemes and departmental programs	Regularly
Identifying and safely dismantling unsafe structures		R & B department	Development plan	Regularly
Issue permission for Earthquake registrant house		Area Development Authority	TP plan	Regularly



**Table 25: Non-Structural Mitigation Measures for Earthquake**

<b>Non-Structural Measures</b>	<b>Location/ coverage area</b>	<b>Implementing Departments</b>	<b>Convergence with agency/ program</b>	<b>Time Frame</b>
Capacity building of architects, engineers, and masons on earthquake resistant features	EQ prone 10 Taluka under zone 5	R & B (State and panchayat) DDMC, TDMC, CDMC	DRM, DRR, special training programme	Regularly
Registration of trained and certified Mason		R & B (State and Panchayat), DDMC	--	Regularly
Strict enforcement of guideline pertaining to seismic safety for government rural housing, urban development structure		DDO, DDMC, CDMC, TDMC, VDMC	Rural housing schemes	Regularly
Mock-drills for Schools, Hospitals and, Public Buildings and training for Mason, engineers, and architects		DDMC, Schools	DRM, Nssp, DRR DM regulation	Regularly

**Hazard: Drought****Table 26: Structural Mitigation Measures for Drought**

<b>Structural measures</b>	<b>Identified Locations and Villages</b>	<b>Implementing Departments</b>	<b>Convergence with Scheme/ Program</b>	<b>Time Frame</b>
Development of Pasture land in common property, seed farms, and trust land	Drought-prone Taluka :5 in district	Forest, Rural Development, Panchayat	Departmental Scheme, MGNREGA	Regularly
Rain Water Harvesting storage tanks at household level and public buildings		GWSSB, (WASMO), Rural Development	MGNREGA, Swajaldhara	Regularly
Structures for water harvesting and recharging like wells, ponds, check dams, farm ponds, etc		DDO, Rural development, irrigation department	MGNREGA, Watershed program, departmental schemes	Regularly
Development of fodder plots/banks		DDMC, Forest department, animal husbandry department	Development plan	Regularly
Repair and maintenance, de-silting of water sources, check dams,		Irrigation, Rural Development	MGNREGA, Watershed	Regularly

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/ Program	Time Frame
hand pumps etc.				

**Table 27: Non-Structural Mitigation Measure for Drought**

Non-Structural Measures	Locations/ coverage area	Implementing Departments	Convergence with agency/ program	Time Frame
Listing/developing shelf of work for drought-proofing/scarcity works including identification of potential sites of water bodies	Drought-prone Taluka :5 in district	Rural Development	MGNREGS	Regularly
Farmer education to practice drought-resistant crops and efficient water use		Agriculture & horticulture department	Departmental schemes	Regularly
Setup control mechanism for regulated water use (ponds, small dams, check dams) on the early onset.		Panchayat		Regularly

**Table 28: Hazard: Industrial (Chemical) Structural Measures**

(In coordination with LCMG, DCG district and state level authorities)

Structural measures	Activities	Implementing Departments	Convergence with agency/ program	Time Frame
Monitoring impact of industries on NRM (land, water, and air)	Data collection of impact on natural resources (groundwater monitoring wells, air quality test, etc)	DDMC, DCG GPCB	Environment protection act	Regular intervention
Safety assessment	Carry out structural safety inspection/audit	DISH, DCG (Asst. Director. Industrial safety and health)	Industrial act	Regular intervention
Protection wall	Build protection wall for minimize risk of disaster	Industrial unit	Industrial act	Regular intervention

**Table 29: Industrial (Chemical) Non-Structural Measures**

<b>Nonstructural Measures</b>	<b>Activities</b>	<b>Implementing Departments</b>	<b>Convergence Agencies</b>	<b>Time Frame</b>
Planning	Prepare an onsite and offsite emergency plan	Occupier, DISH	Various Industrial act	-
	Conduct mock drills as per the regulations	DISH and LCMG	Various Industrial act	Regular intervention
	Update the DM plan as per the requirement	Occupier, DISH	Various Industrial act	Industrial Act
	Monitor similar activities in all the factories/ industries	DISH and LCMG	Various Industrial act	Industrial act
Capacity Building	Develop Information Education and Communication (IEC) material for Publication & Distribution	TDMC	Various Industrial act	Industrial act
	Awareness generation to general public and medical professional residing near MAH factories for immediate steps	TDMC, LCMG	Various Industrial act	Industrial act
	Organize training programmers, seminars, and workshops (e.g. for drivers of HAZMAT transport, line departments officers, Mamlatdar etc)	TDMC, LCMG	Various Industrial act	Industrial act
	List of experts/ resource person/ subject specialist (District emergency Off-site plan)	TDMC, LCMG	Various Industrial act	Industrial act
	Encourage disaster insurance	Labor& employment department	Various Industrial act	Industrial act
Medical	Listing of hazardous chemicals and gases.	Occupier, LCMG, DISH, THO	Various Industrial act	Industrial act
	Keep check on availability and validity of relevant antidotes for chemical hazards prevalent in Taluka	Occupier, LCMG, DISH, THO	Various Industrial act	Industrial act
	Workshops and training for medical professionals to handle potential chemical and industrial hazard	THO, Occupier, LCMG, DISH	Various Industrial act	Regularly
Compliance	Environmental Protection Act, Factory Act, Mutual Aid	DISH, GPCB	Various Industrial act	Regular interval

Nonstructural Measures	Activities	Implementing Departments	Convergence Agencies	Time Frame
	SOPs			

At the District level, the District Crisis Management Group (DCG) is an apex body to deal with major chemical accidents and to provide expert guidance for handling them. DCG has a strength of 34 members which includes District Collector, SDM, and Dy. Collector, DDO, Dy. Director – Industrial Safety & Health, DSP, PI, Fire Superintendent of the City Corporations or important Municipalities, Chief District Health Officer, Civil Surgeon, SE, Chief Officer, Dy. Chief Controller of Explosives, Commandant – SRPF, Group-I, Dy. Director – Information to name a few. At Taluka level, Local Crisis Management Group (LCMG) is formed for coordination of activities and executing the operations.

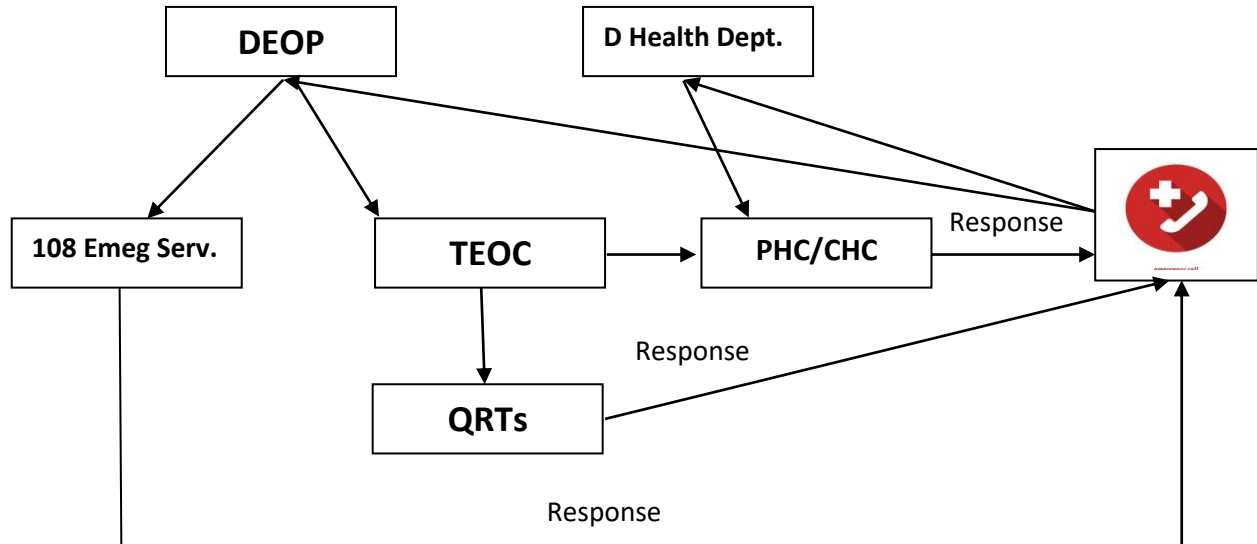
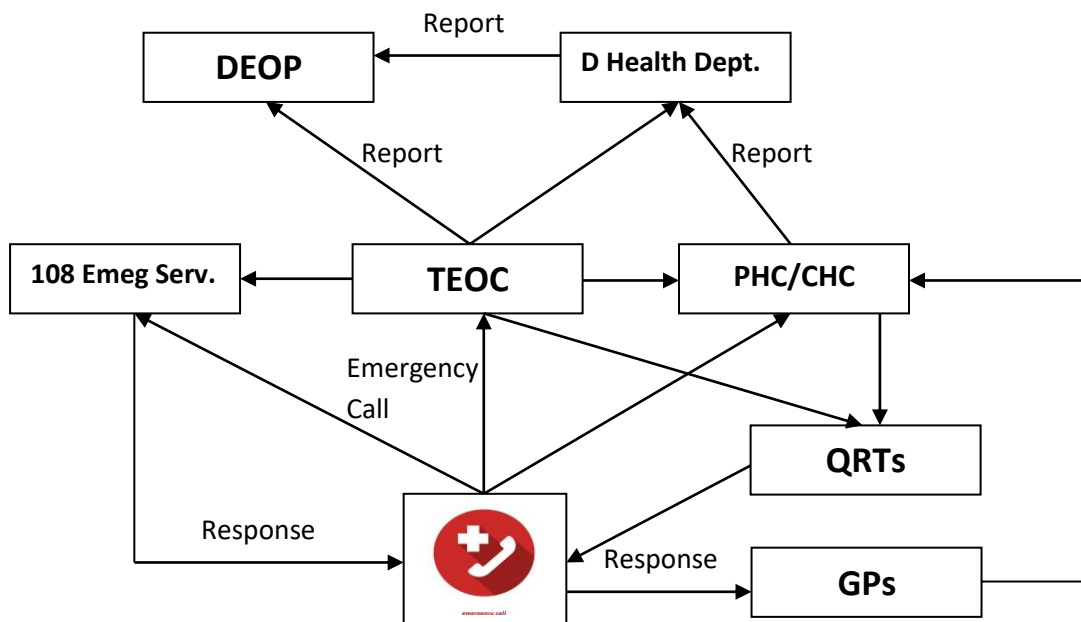
#### **Hazard: Tsunami**

**Table 30: Structural Mitigation Measures for Tsunami**

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Constructing shelter belts in coastal areas	Tsunami prone 72 villages	Rural Development	Departmental programs, MGNREGA	Long-term planning
Contraction Sea water brake structure		R & B State and Panchayat	Departmental programs , MGNREGA	Long term planning

**Table 31: Non-Structural Mitigation Measures for Tsunami**

Non-Structural Measures	Locations/ coverage area	Implementing Departments	Convergence with agency/program	Timeframe
Provisions of Coastal Regulation Zone to be effectively implemented	Tsunami prone 72 villages	Department of Environment & Forest GEC	ICZMP	Long term planning
Capacity building of task forces in coastal villages		TDMC, DDMC, CDMC, VDMC	DRM	Periodically
Awareness activity in prone/ vulnerable area		DDMC , TDMC, CDMC, VDMC	DRM	Regularly

**Hazard: Heat Wave****Administrative approach for Non-Structural Mitigation Measure for Heat-wave****Top to down approach****Bottom to up approach**

### 5.3 Special Projects and Ongoing Programmes for Preventing the Disasters:

#### 5.3.1 Disaster Risk Management Programme (DRMP)

Disaster Risk Management Programme (DRM) has taken strong roots at various levels of administration in Gujarat. The Department of Revenue and Disaster Management is the nodal Department in Government of Gujarat that handles the subject with GSDMA. Disaster Management Committees are formed at various levels and are assigned the task of implementing the programme. Representation for these committees are drawn from elected representatives, officials of line departments, professional bodies, Civil Defense, NGO and Community Based Organisations (CBO) representatives and local opinion leaders. Major Activities are being carried out under DRM program are Plan Development at Various Levels, Emergency Resources Database maintain through SDRN/IDRN, Capacity Building through Trainings and Resource Mobilization, Disaster Awareness through Orientations, Campaigning, Media Management and IEC distribution. Coordinate District Administration for all Disaster Management Activities with expertize knowledge, logistics, and fund allocation.

#### 1. National School Safety Programme:

A national school safety programmer is a pilot project of NDMA and Government of India. Under a project Kutch and Jamnagar are selected from Gujarat state and 200 schools selected from Kutch District. NSSP project focus of School Safety and done avarious activity like the Capacity building of Teacher, student, Awareness programme at school level on Disaster management, conducting hazards wise mock drill, preparation of school disaster management plan etc.

#### 2. National Cyclone Risk Mitigation Project (NCRMP):

Gujarat being prone to cyclones, it is the topmost priority of the State Government to reduce the effect of the cyclone and minimize the loss to property and lives in the coastal regions of the State through the creation of suitable infrastructure. Gujarat has therefore been included in the NCRMP initiated by the National Disaster Management Authority and funded by the World Bank. Under NCRMP project various activity will carry out like Construction of Multi Purpose cyclone shelter (MPCS) for selected area. In Kutch district, 5 villages are selected for this project.

### 5.4 Structural: Structural Mitigation Measures

- a. **Retrofitting of Buildings:** Kutch district comes in Zone V in Earthquake. In Kutch region maximum buildings are engineered or, having good seismic resistant capacity. There are mainly four major types of constructions:

Category A: Adobe, fieldstone Masonry Buildings

Category B: Brick Construction Masonry Buildings

Category C: R. C. C. Construction

Category X: Traditional and Conventional Construction

The buildings of Category A are very weak and may be damaged even due to a lower intensity earthquake. There is a need for detailed assessment of buildings, which are vulnerable and may cause losses to life. Assessment of these buildings will help to evolve a strategy for their retrofitting.

After assessment of the vulnerability of buildings, the priority for structural mitigation has to be defined. Generally, public buildings are given first priority because they are lesser in number and at the time of disaster, people can take shelter in these public buildings. Some examples of important buildings are hospitals, clinics, communication buildings, fire and police stations, water supply, cinema halls, meeting halls, schools and cultural buildings such as museums, monuments, and temples. The second priority goes to other type of buildings like housing, hotels, offices, warehouses, and factories.

**b. Construction control:** The best protection against earthquake is a strong built environment. The quality of buildings, measured by their seismic resistance is of fundamental importance. Minimum design and construction standards for earthquake and flood resistant structures legislated nationally are an important step in establishing future minimum levels of protection for important structures. India now has building codes and regulations for seismic and flood-resistant design. These codes are under constant review by the experts. The below-mentioned building codes are generally practiced in India:

- **IS: 1893, 1984** - Criteria for earthquake resistance design of structures
- **IS: 13828, 1993** - Guidelines for improving low strength earthquake resistant masonry buildings
- **IS: 13920, 1993** - Ductile detailing of reinforced concrete structures subjected to seismic forces-code of practice
- **IS: 13827, 1993** - Guidelines for improving earthquake resistance of earthen buildings
- **IS: 13935, 1993** - Guidelines for repairing and seismic strengthening of buildings

In building by-laws and the Seismic Code must be enforced by the municipal, Area Development Authority and Panchayat bodies.

### 5.5 Non-structural:

**Land use planning:** Damage to a building depends primarily upon the soil conditions and topology of the area. Kutch district comes under High-risk zone in terms of earthquake (Zone 5)

**Training and awareness programmers:** Mitigation also includes training of people for making the houses safe from earthquakes and floods. Training modules have to be prepared for different target groups viz. engineers and masons about safe building practices and general 'do's and don'ts' for the public.

### Mitigation strategies

The mitigation strategy for Kutch district involves the following elements:

- Further growth of human settlements in the low-lying areas should be check through land-use planning. Such areas are vulnerable not only from flood hazards but are also vulnerable to earthquake liquefaction, which may increase the damage manifold. The department of Town and Country Planning will take care of seismic hazards while preparing the development plans for the district;
- Appropriate building codes will be made applicable for new engineered and non-engineered constructions and should be strictly enforced by the local body. The Municipal Corporation of local area will ensure the construction as per Indian Standard Building Codes;



- Infrastructure department will do the retrofitting of public buildings under their maintenance charge. Generally, PWD, Rural Engineering Services, and Housing Board maintain the public buildings. The expenditure for such retrofitting will be taken care under maintenance head.
- Community awareness will be rising regarding seismic-resistant building construction techniques and seismic retrofitting of existing buildings. Housing Board will be the nodal agency to provide training through workshops and demonstrations. PWD and RES will support MPH in these efforts;
- Community awareness will be raised regarding 'do's and don'ts' in the event of an earthquake with the involvement of Panchayati Raj institutions and CBOs. Revenue department will be the nodal agency for this activity.

## 5.6 Development Schemes:

### **MGNREGS:**

The MGNREGA achieves twin objectives of rural development and employment. The MGNREGA stipulates that works must be targeted towards a set of specific rural development activities such as water conservation and harvesting, a forestation, rural connectivity, flood control and protection such as construction and repair of embankments, etc. Digging of new tanks/ponds, percolation tanks and construction of small check dams are also given importance. The employees are given work such as land leveling, tree plantation, etc. It has a very broad spectrum which can be used for the benefit of the population that are vulnerable and are likely to be affected.

1. Construction of Tube wells can be done.
2. The building of Roads for places which are not connected to other parts of the district.
3. Leveling of low-lying areas during the flood to a higher level to prevent those areas.
4. Construction of check dams and embankments and drainage systems to prevent flooding of those areas.

### **Pradhan Mantri Awas Yojana:**

This scheme can be used for the rehabilitation of the affected villages by making constructions for the affected population.

### **Sarva Shiksha Abhiyan:**

This scheme can be used for creating awareness about mitigation and preparedness about accidents that are in control of man, in collaboration with educational institutions to the people so that they can make use of it when required.

### **NRHM:**

National Rural Health Mission scheme can be used to facilitate for voluntary first aid during a disaster and training the local population to deal with minor injuries so that they do not have to wait for professional help to help any individual. Training of nurses can be carried out as a preparatory plan.

**Mukhyamantri Avas Yojana:**

The scheme can facilitate the rehabilitation programs among the affected villages or the ones that are likely to be affected and lie in the vulnerable zone. They can come up with collaboration with the construction norms.

**Jal- Abhishekh Abhiyan:**

The aim of the scheme is to provide safe drinking water so it can be used to provide for clean drinking water during response and relief period. It can work in collaboration with sanitation systems during relief period and help in avoiding any kind of future epidemics in the affected region.

**Samagra Swachta Abhiyan:**

This scheme can also be used for providing sanitation in the relief camps to the affected population. Since relief camps are the places where a lot of diseases and epidemics may break out, proper defecation and sanitation should be ensured by this scheme.

**Madhyamah Bhojan Karyakram:**

The scheme can provide for food supply during emergency situations in the affected areas or even in the relief camps.

***Risk Management Funding***

Short term provisions are expected to cover the immediate loss, incurred due to disasters. Whereas long term provisions include the set up of fire stations, watershed management, planting trees along the river etc.

Insurance schemes are an important source of funds for the restoration of private business enterprises. The Collector will coordinate with Insurance Companies to speed up the settlement of insurance claims. It will help in the restoration of private business enterprises. He will also coordinate with commercial banks for ensuring smooth flow of financial assistance from commercial banks for the restoration of private business enterprises.

Agriculture department shall provide seeds and the required finance as loans through local banks for the resumption of agriculture activities. The district administration shall elicit the support funding of agencies like Care, CRS etc. for the resumption of agriculture and livelihood activities.

Revenue/Book Circulars contains standing instructions of the Government for distribution of ex-gratia payments to poor families, who suffer from disasters to initiate their recovery process. This assistance will be provided very promptly to the poor families by the functionaries of the Revenue Department.

Over and above the softer issues highlighted above, GSDMA has provided all the existing Government schools in Gujarat with ISI marked portable Water-CO2 type of Fire Extinguisher (31746 Government schools covered of which 1732 are primary and 410 are secondary and higher secondary schools). For the necessary guidance/instruction for use of fire extinguishers, GSDMA has prepared an 18-minute short education film in Gujarati on fire safety for schools. This was shown to all government primary schools through the satellite network.

## 5.7 Prevention and mitigation responsibility of each department:

### Agriculture

#### **Prevention Activities:**

- Awareness generation regarding various plant diseases, alternate cropping practices in disaster-prone areas, Crop Insurance, provision of credit facilities, proper storage of seeds, etc.
- Hazard area mapping (identification of areas endemic to Pest infections, drought, flood, and other hazards)
- Develop database village-wise, crop-wise, irrigation source wise, insurance details, credit etc.
- Regular monitoring at block level; the distribution and variation in rainfall
- Prepare the farmers and department officers to adopt contingency measures and take up appropriate course of action corresponding to the different emerging conditions.
- Detail response manuals to be drawn up for advising the farmers for different types of disasters, e.g., rain failure in July or September and development of a dynamic response plan taking into account weekly rainfall patterns.
- Develop IEC materials to advise the farming communities on cropping practices and precautionary measures to be undertaken during various disasters
- Improving irrigation facilities, watershed management, soil conservation and other soil, water and fertility management
- Measures keeping in mind the local agro-climatic conditions and the proneness of the area to specific hazards.
- Promotion of alternative crop species and cropping patterns keeping in mind the vulnerability of areas to specific hazards
- Surveillance for pests and crop diseases and encourage early reporting.
- Encourage promotion of agro service outlets/enterprise for common facilities, seed and agro input store and crop insurance.

### Health Department

#### **Prevention Activities:**

- Assess preparedness levels at State, District, and Block levels.
- Identification of areas endemic to epidemics and natural disasters
- Identification of appropriate locations for testing laboratories
- Listing and networking with private health facilities
- Developing a network of volunteers for blood donation with blood grouping data
- Strengthening of disease surveillance, ensuring regular reporting from the field level workers (ANMs/LHV etc) and its compilation and analysis at the PHC and District levels, on a weekly basis (daily basis in case of an epidemic or during natural disasters), forwarding the same to the State Disease Surveillance Cell and monthly feedback from the State to the district and from the District to the PHC
- Formation of adequate number of mobile units with trained personnel, testing facilities, communication systems and emergency treatment facilities
- Identification of locations in probable disaster sites for emergency operation camps
- Awareness generation about various infectious diseases and their prevention
- Training and IEC activities
- Training of field personnel, Traditional Birth Attendants, community leaders, volunteers,

- NGOs and CBOs in first aid, measures to be taken to control outbreak of epidemics during and after a disaster, etc
- Arrangement of standby generators for every hospital
- Listing of vehicles, repair of departmental vehicles that will be requisitioned during emergencies for transport of injured

### **Preventive activities During Epidemics:**

- Supply of safe drinking water, water quality monitoring, and improved sanitation
- Vector Control programme as a part of overall community sanitation activities
- Promotion of personal and community latrines
- Sanitation of sewage and drainage systems
- Development of proper solid waste management systems
- Surveillance and spraying of water bodies for control of malaria
- Promoting and strengthening Primary Health Centers with network of paraprofessionals to improve the capacity of surveillance and control of epidemics
- Establishing testing laboratories at appropriate locations to reduce the time taken for early diagnosis and subsequent warning
- Establishing procedures and methods of coordination with the Health Department, other local authorities/departments and NGOs to ensure that adequate prevention and preparedness measures have been taken to prevent and/or minimize the probable outbreak of epidemics
- Identification of areas prone to certain epidemics and assessment of requirements to control and ultimately eradicate the epidemic
- Identification of appropriate locations and setting up of site operation camps for combating epidemics
- Listing and identification of vehicles to be requisitioned for transport of injured animals.
- Vaccination of the animals and identification of campsites in the probable areas
- Promotion of animal insurance
- Tagging of animals
- Arrangement of standby generators for veterinary hospitals
- Provision in each hospital for receiving large number of livestock at a time
- Training of community members in carcasses disposal

## **Water Supplies and Sanitation (GWSSB)**

### **Prevention Activities:**

- Provision of safe water to all habitats
- Clearance of drains and sewerage systems, particularly in the urban areas
- Assess preparedness level
- Annual assessment of danger levels and wide publicity of those levels
- Identify flood-prone rivers and areas and activate flood monitoring mechanisms
- Provide water level gauge at critical points along the rivers, dams, and tanks
- Identify and maintain of materials/tool kits required for emergency response
- Stock-pile of sand bags and other necessary items for breach closure at the Panchayat level

**Police:****Prevention Activities:**

- Keep the force in general and the RAF in particular fighting fit for search, rescue, evacuation and other emergency operations at all times through regular drills.
- Procurement and deployment of modern emergency equipment while modernizing existing infrastructure and equipment for disaster response along with regular training and drills for effective handling of these equipment.
- Focus on better training and equipment for RAF for all types of disasters.
- Rotation of members so that the force remains fighting fit.
- Ensure that all communication equipment including wireless are regularly functioning and deployment of extra wireless units in vulnerable pockets.
- Ensure interchangeability of VHF communication sets of police and GSDMA supplied units if required.
- Keeping close contact with the District Administration and Emergency Officer.
- Superintendent of Police is made Vice Chairperson of District Natural Calamity Committee.
- Involvement of the local army units in response planning activities and during the preparation of the contingency plans, ensure logistics and other support to armed forces during emergencies.

**Civil Defense:****Prevention Activities**

- Organize training programmers on first-aid, search, rescue and evacuation.
- Preparation and implementation of first aid, search and rescue service plans for major public events in the State.
- Remain fit and prepared through regular drills and exercises at all times.

**Fire Services:****Prevention Activities:**

- Develop relevant legislations and regulations to enhance adoption of fire safety measures.
- Modernization of fire-fighting equipment and strengthening infrastructure.
- Identification of pockets, industry, etc. which highly susceptible to fire accidents or areas, events which might lead to fires, building collapse, etc. and educate people to adopt safety measures. Conduct training and drills to ensure a higher level of prevention and preparedness.
- Building awareness in use of various fire protection and preventive systems.
- Training the communities to handle fire emergencies more effectively.
- VHF network for fire services linked with revenue and police networks.
- Training of masons and engineers in fireproof techniques.
- Making clearance of building plans by fire services mandatory.

**Civil Supplies:****Preventive Activities**

- Construction and maintenance of storage goods storage at strategic locations
- Stock piling of food and essential commodities in anticipation of disaster.
- Take appropriate preservative methods to ensure that food and other relief stock are not damaged during storage, especially precautions against moisture, rodents, and fungus infestation.

**Public Works/ Rural Development Departments****Prevention Activities:**

- Keep a list of earth moving and clearing vehicles / equipment (available with Govt. Departments, and private contractors, etc.) and formulate a plan to mobilize those at the earliest
- Inspection and emergency repair of roads/ bridges, public utilities, and buildings.

**Energy: PGVCL:****Prevention Activities:**

- Identification of materials/tool kits required for emergency response.
- Ensure and educate the minimum safety standards to be adopted for electrical installation and equipment and organize training of electricians accordingly.
- Develop and administer regulations to ensure the safety of electrical accessories and electrical installations.
- Train and have a contingency plan to ensure early electricity supply to essential services during emergencies and restoration of electric supply at an early date.
- Develop and administer a code of practice for power line clearance to avoid electrocution due to broken/fallen wires.
- Strengthen high-tension cable towers to withstand high wind speed, flooding, and earthquake, modernize electric installation, strengthen electric distribution system to ensure minimum damages during natural calamities.
- Conduct public/industry awareness campaigns to prevent electric accidents during normal times and during and after a natural disaster.

**Fisheries****Prevention Activities**

- Registration of boats and fishermen.
- Building community awareness on weather phenomena and warning system especially on Do's and Don'ts on receipt of weather related warnings.
- Assist in providing life-saving items like life jackets, hand radios, etc.
- Certifying the usability of all boats and notifying their carrying capacities.
- Capacity building of traditional fishermen and improvisation of traditional boats which can be used during emergencies.
- Train up young fishermen in search and rescue operation and hire their services during emergency

**Forest Department****Prevention activities**

- Promotion of shelter belt plantation
- Publishing for public knowledge details of forest cover, use of land under the forest department, the rate of depletion and its causes
- Keep saws (both power and manual) in working conditions
- Provision of seedling to the community and encouraging plantation activities, promoting nurseries for providing seedlings in case of destruction of trees during natural disasters

**Transport Department:****Prevention Activities**

- Listing of vehicles which can be used for the emergency operation.
- Safety accreditation, enforcement, and compliance
- Ensuring vehicles follow accepted safety standards.
- Build awareness on road safety and traffic rules through an awareness campaign, use of different IEC strategies and training to school children.
- Ensure proper enforcement of safety regulations Response Activities.
- Requisition vehicles, trucks, and other means of transport to help in the emergency operations.
- Participate in post-impact assessment of emergency situation
- Support in search, rescue, and first aid.
- Cooperate and appropriation of relief materials.

**Panchayati Raj Institutions****Preventive Activities**

- Develop prevention/mitigation strategies for risk reduction at the community level.
- Training of elected representatives on various aspects of disaster management
- Public awareness on various aspects of disaster management
- Organize mock drills
- Promote and support community-based disaster management plans.
- Support strengthening response mechanisms at the G.P. level (e.g., better communication, local storage, search and rescue equipment, etc.).
- Clean drainage channels, trimming of branches before cyclone season.
- Ensure alternative routes/means of communication for movement of relief materials and personnel to marooned areas or areas likely to be marooned.
- Assist all the government departments to plan and prioritise prevention and preparedness activities while ensuring active community participation.

**Information and Public Relations Department****Prevention Activities**

- Creation of public awareness regarding various types of disasters through media campaigns.
- Dissemination of information to public and others concerned regarding do's and don'ts of various disasters
- Regular Liaisoning with the media



## Chapter 6: Preparedness Measures:

### 6.1 Formation of Person training for Search and rescue:

It is the duty of the DDMA to provide specialized life-saving assistance to district and local authorities. In the event of a major disaster or emergency, its operational activities include locating, extricating and providing on site medical treatment to victims trapped in collapsed structures. In the event of any disaster the Home Guards along with the support of the Police dept. form teams to locate injured and dead and try to rescue the ones in need. There are other bodies too that help these departments in this work, like the PWD, Health dept, Fire dept and also the people that voluntarily form teams to help the ones in need. Proper training for search and rescue process needs to be undertaken so as to minimize the time taken in rescuing someone. Also, proper methodology and resources are needed to carry out a search and rescue mission.

The tactics used in the search and rescue process vary accordingly with the type of disaster that we are dealing with. In the case of flood, a boat and trained swimmers are a must while in the case of an earthquake sniffer dogs and cutting tools with trained manpower is a binding requirement. The household register that is maintained by the warden should be maintained for every village as it proves to be of great help in case of a disaster like an earthquake. Because in the case of the aforementioned disaster people get trapped in the debris of buildings and houses and it becomes difficult to estimate how many people are present in the debris. But if a household register is maintained then the task becomes quite easy and effective to find out almost correctly that how many people would be present in any building/house at any given time. Thus the resources can be justifiably distributed and more lives can be saved. This kind of process is highly recommended in this particular district which lies in moderate earthquake prone region.

For flood, it is recommended that the boats that are used should be light weight and the motor should be of 'luma' type so that it becomes easy for the rescue team to lift the boat and carry it to the spot.

**Table 32: Search and Rescue (S&R) Team**

<b>Designation of trained S&amp;R Team member</b>
<p><i>The Search and Rescue team is formed as and when required and the members and equipment are taken according to the nature of the disaster (and also on their availability).</i></p> <ul style="list-style-type: none"> <li>• Police Officers (2 or more)</li> <li>• Home guards (2 or more)</li> <li>• Swimmers (In case of flood)</li> <li>• A construction engineer (From P.W.D.)</li> <li>• Driver (For Every vehicle)</li> <li>• Any person with the prior experience of the disaster (From Home Guard/Police Dept.)</li> <li>• A doctor or nurse or at least a person having first aid training</li> <li>• A Class IV Officer (Health Dept.)</li> </ul>

### 6.2 Early Warning:

The early warning systems for different disasters should be in place so that the concerned administrative machinery and the communities can initiate appropriate actions to minimize loss of life and

property. These should give an indication of the level of magnitude of the mobilization required by the responders. The goal of any warning system is to maximize the number of people who take appropriate and timely action for the safety of life and property. All warning systems start with the detection of the event and with their timely evacuation. Warning systems should encompass three equally important elements viz detection and warning, dissemination of warning down to the community level and the subsequent quick response.

The State acknowledges the crucial importance of quick dissemination of early warning of impending disasters and every possible measure will be taken to utilize the lead-time provided for preparedness measures. As soon as the warning of an impending calamity is received, the EOCs at the State, District and Block levels will be on a state of alert. The Incident Commander will take charge of the EOC and oversee the dissemination of warning to the community. The District Collector will inform the District Disaster Management Committees who will alert the block and Village level DMCs and DMTs to disseminate the warning to the community. On the basis of assessment of the severity of the disaster, the State Relief Commissioner (Incident Commander) shall issue appropriate instructions on actions to be taken including evacuation to the District Collector, who will then supervise evacuation. In situations of emergency, the District Collector will use his own discretion on the preparedness measures for facing the impending disaster.

At the village level, members of the VDMCs and DMTs or village level will coordinate the evacuation procedures to the pre-designated relief centers, taking special care of the vulnerable groups of women, children, old people etc. according to the plans laid down earlier.

### **6.3 Evacuation:**

Evacuation is a risk management strategy, which may be used as a means of mitigating the effects of an emergency or disaster on a community. It involves the movement of people to a safer location. However, to be effective, it must be correctly planned and executed. The process of evacuation is usually considered to include the return of the affected community.

The shelter provides for the temporary respite to evacuees. It may be limited in facilities, but must provide protection from the elements as well as accommodate the basic personal needs, which arise at an individual level in an emergency.

The plan must allocate responsibility for management of each of the elements of shelter. Considering the wide range of services, agencies, and issues to be managed, it becomes essential for 'shelter' to be managed within a structure, which facilitates the coordination of agencies and services and support of emergency workers. The following factors may need consideration:

- Identification of appropriate shelter areas based on safety, availability of facilities, capacity and number of victims
- Approaches to the shelter location in light of disruption due to hazard impact and traffic blockades
- Temporary accommodation
- Provision of essential facilities like drinking water, food, clothing, communication, medical, electrical and feeding arrangements, etc

- Security
- Financial and immediate assistance
- First-aid and counseling

### **Types of evacuation**

For planning, all evacuations may be considered to be one of two generic types:

- (a) Immediate evacuation, which allows little or no warning and limited preparation time as in the case of earthquakes and air accident
- (b) Pre-warned evacuation resulting from an event that provides adequate warning and does not unduly limit preparation time as in the case of flood and cyclones.

### **Principles of Evacuation Planning**

- Establishment of a management structure for organization, implementation, coordination, and monitoring of the plan
- Determination of legal or other authority to evacuate
- Clear definition of roles and responsibilities
- Development of appropriate and flexible plans
- Effective warning and information system
- Promoting awareness and encouraging self-evacuation.
- Assurance of movement capability
- Building confidence measures and seeking the cooperation of the affected community.
- Availability of space for establishment of relief camps having requisite capacity and facilities
- Priority in evacuation to be accorded to special need groups like women, old and sick, handicapped and children
- For effective evacuation, organization and running of relief centers, cooperation and involvement of all agencies viz. Community, volunteers, NGOs, NCC / NSS, Home guards and civil defense, district and village bodies be ensured
- Security arrangement and protection of lives and property
- Preparation and updating of resource inventories
- Appropriate welfare measures throughout all stages
- Test exercise of prepared plans and recording of lessons learned
- Documentation

### **Stages of Evacuation**

There are five stages of evacuation as under:

- Decision of authorities to evacuate victims
- Issue of warning and awareness
- Ensuring smooth movement of victims to designated relief camps
- Ensuring provision of all requisite facilities like security, safe-housing, feeding, drinking-water, sanitation, medical and allied facilities

- Safe return of personnel on return of normalcy

**Decision to Evacuate**

Vulnerability analysis may indicate that for certain hazards and under certain conditions, sheltering in place could well be the best protection. Available lead-time may influence the decision to evacuate the public before the impact of emergency (e.g. floods) and reducing the risk to lives and property. The decision would also be dependent on factors like ready availability of suitable accommodation, climatic condition, and severity of likely hazard and time of the day.

The Collector would be the authoritative body to issue directions for evacuation. The OIC of DECR would convey directions to Desk Officers of concerned agencies, which are responsible to execute evacuation.

**Basic consideration for Evacuation**

The DCG will define the area to be evacuated as also the probable duration of evacuation based on meteorological observations and intimations by the concerned forecasting agencies. It should also identify a number of people for evacuation, the destination of evacuees, lead-time available, welfare requirements of evacuees as also identify resources to meet the needs of victims, viz. manpower, transport, supplies equipment, communications and security of the evacuated area.

The evacuation agency should set priorities for evacuation in terms of areas likely to be affected and methodology to execute evacuation:

- Delivery of warning
- Transport arrangement
- Control and timing of movement
- Fulfill welfare needs including medical treatment
- Registration of evacuees

All agencies involved in evacuation operation like Home guards, Police, PWD, PHED, etc. will coordinate in the field. They will remain in touch with the Desk officials in the DECR for issuing warning, information and advise the public.

**Evacuation Warning**

An evacuation warning must be structured to provide timely and effective information. Factors, which may influence the quality and effectiveness of warning, include time, distance, visual evidence, threat characteristic and sense of urgency e.g. the more immediate the threat, the greater the resilience of people to accept and appropriately react to the warning.

The warning should be clear and target specific. The warning statement issued to the community should be conveyed in a simple language. The statement should mention as below:

- The issuing authority, date and time of issue
- An accurate description of likely hazard and what is expected

- Possible impact on population, area to be in unrated or affected due to earthquake
- Need to activate evacuation plan
- Do's and Don'ts to ensure appropriate response
- Advice to the people about further warnings to be issued, if any

#### **6.4 Damage and Loss Assessment:**

Immediately after the disaster, there is an urgent need of damage assessment in terms of loss of life, injury and loss of property. The objectives of damage assessment are to mobilize resources for better rescue and relief, to have detailed information of damage extent and severity of disaster and to develop strategies for reconstruction and restoration facilities.

Damage is assessing with regard to building stock, standing crops, agricultural area, livestock lost, forest cover decimated, vital installations etc. In damage assessment of building stock, generally three types of flags are used; green, yellow and red. The green color is given to the buildings that are safe and require 2-3 days to return to their original function. Yellow flags depict the considerable damage to the buildings and considered unsafe for living, as they require proper structural repairs and careful investigation. The red flag is assigned to buildings that are partially or completely collapsed. Immediately after a disaster event, damage assessment will be conducted in 2 phases viz. Rapid Damage Assessment and Detailed Damage Assessment.

#### **Training Need Analysis -Education and Capacity Building and Arrangement for Training:-**

Although education about disaster mitigation and prevention and capacity building would seem to be ideal district-level efforts, the lead for both probably best rests with the state level, with districts having a facilitating role. The issue is that if 26 districts independently embark on education and capacity building it will be hard to coordinate and standardize the results across districts. A significant consequence would be an inequality in capacities across districts, and thus uneven mitigation and prevention results, how to fund these activities remains open. Options range from GSDMA grants to set-asides in budget allocations. Project Impact in the US and similar programs in Australia and Canada are good models for the former approach.

**Table 33: Training, Capacity building, and other proactive measures Training**

<b>Sr. No.</b>	<b>Task / Activity</b>	<b>Responsibility</b>
1	Training to civil defense personnel in various aspect of disaster management	Home Department
2	Training to home Guards personnel in various aspect of disaster management including search and rescue	Dy.Controller Civil Defense District Home Guards Commandant
3	Training to NCC and NSS personnel in various aspect of disaster management	Education Department NCC Collector Office

4	Training to educational and training institutions personal in various aspect of disaster management	DDMC
5	Training to civil society, CBOs and corporate entities in various aspect of disaster management	DDMC
6	Training to fire and emergency service personnel in various aspect of disaster management	Fire Dept, CDMC DDMC
7	Training to police and traffic personnel in various aspect of disaster management	DDMC Police Dept.
8	Training to media in various aspect of disaster management	DDMC Information Dept.
9	Training to govt. officials in various aspect of disaster management	DDMC
10	Training to engineers, architects, structural engineers, builders and masons in various aspect of disaster management	DDMC, R & B

### **Awareness**

<b>Task</b>	<b>Activity</b>	<b>Responsibility</b>
Information, education, And communication	Advertisement, hoarding, booklets, leaflets, banners, shake-table, demonstration, folk dancing and music, jokes, street play, exhibition, TV Spot, radio spot, audio-visual and documentary, school campaign, Rally,  - Planning and Design - Execution and Dissemination	<ul style="list-style-type: none"> <li>• Information Dept</li> <li>• Education Dept</li> <li>• All line dept</li> <li>• Dist. Collector</li> <li>• Chief officer</li> <li>• Other Dist. Authorities</li> </ul>

### **6.5 Activation of Incident Response System in the District and identification of quick response team:**

#### **Command:**

This function establishes the framework within which a single leader or committee can manage the overall disaster response effort. A single Incident Commander is responsible for the successful management of the response during the operational period in an area. If the incident grows in size and extends throughout many jurisdictions, multiple incident commanders can be used with an area command authority may be established to coordinate among the incidents. Incident Commander requires the following Command Staffs to support him, which is as followings,

- Public Information Officer – the single media point of contact

- Safety Officer – Responsible for identifying safety issues and fixing them, he has the authority to halt an operation if needed.
  - Liaison Officer – Point of contact for the agency to agency issues.
1. **Operations:** this section carries out the response activities described in the Incident Action Plan (IAP) along with coordinating and managing the activities taken the responding agencies and officials that are directed at reducing the immediate hazard, protecting lives and properties. This section manages the tactical fieldwork and assigns most of the resources used to respond to the incident. Within operations, separate sections are established to perform different functions, such as emergency services, law enforcement, public works...etc.
  2. **Planning:** this section supports the disaster management effort by collecting, evaluating, disseminating, and uses information about the development of the emergency and status of all available resources. This section creates the action plan, often called “Incident Action Plan” (IAP), which shall guide emergency operations/response by objectives.

Followings are the six primary activities performed by the planning section, including,

- Collecting, evaluating, and displaying incident intelligence and information
  - Preparing and documenting IAPs
  - Conducting long-range and contingency planning
  - Developing plans for demobilization
  - Maintaining incident documentation
  - Tracking resources documentation
3. **Logistics:** the process of response includes personnel, equipment, vehicles, facilities...etc, all of which will depend upon the acquisition, transport, and distribution of resources, the provision of food and water, and proper medical attention. The Logistic section is responsible for the mentioned process.
  4. **Finance and Administration:** this section is responsible for tracking all costs associated with the response and beginning the process for reimbursement. The finance and administration section becomes very important when the national government provides emergency funds in place that guarantee local and regional response agencies that their activities, supply use, and expenditures will be covered.

A traditional command structure exists in the administrative hierarchy which manages disasters in India. It has been planned to strengthen and professionalize the same by drawing upon the principles of the ICS with suitable modifications. The ICS is essentially a management system to organize various emergency functions in a standardized manner while responding to any disaster. It will provide for specialist incident management teams with an incident commander and officers trained in different aspects of incident management, such as logistics, operations, planning, safety, media management, etc. It also aims to put in place such teams in each district by imparting training in different facets of incident management to district level functionaries. The emphasis will be on the use of technologies and contemporary systems of planning and execution with connectivity to the joint operations room at all levels.



The local authorities do not have the capacity to play an efficient role at the local level to support the DEOC's requirements for field information and coordination. The DEOC therefore needs to send its own field teams and through them establish an Incident Command System. The system will comprise:

- Field command
- Field information collection
- Inter-agency coordination at field level

Management of field operations, planning, logistics, finance, and administration

#### **6.5.1 Checking and certification of logistics, equipment and stores:**

Kutch district has various types of logistics and equipment. It should be checked and certified by a concerned officer periodically. Disaster Management cell is regularly monitoring this activity and got certification of this equipment. (Detail information of Equipment is given in Annexure)

#### **6.5.2 Operational check-up of Warning System:**

The warning system is checked periodically like, Satellite phone, Hot Line, Telephone connection, GSWAN connectivity etc. In Pre-monsoon meeting also give direction for checking warning system like port signals.

#### **6.5.3 Operational check-up for Emergency Operation Centre:**

Operational checkup of Emergency Operation Centre are carried out month wise and check out all facility and equipment in DEOC.

### **NGOs and other stakeholders coordination – identify their strengths and allocation of responsibilities in area/sector/duty/activities – Activate NGO coordination cell**

NGO and Voluntary group are doing a very important activity and response during a disaster. DDMA also organized capacity-building programmes, awareness programmes on Disaster Management for NGO and Voluntary group. For the arrangement of water supply, temporary sanitation facilities, search, and Rescue activity, Relief distribution can be sought with help of special agencies, NGOs and CBOs. (Information of NGO and Voluntary group refer Annexure)

#### **6.6 Awareness Generation: -**

As a part of Preparedness Awareness, generation among community will be a continuous process. From District to Taluka, Village level awareness programme must be conducted with the help of Print Media, Electronic media, folk media authority can create awareness among the community.

#### **6.7 Seasonal preparedness for Seasonal Disasters like Flood and Cyclone: -**

Whether personal or institutional, all collections are subject to risks that can seriously affect the lifetime and value of a collection. For many museums, galleries, and private collectors, an essential aspect of Collection Management are maintaining a loss prevention plan for seasonal disasters.

Hazards from these storms come in many forms including high winds, tornadoes, storm surges, and flooding. Natural disasters make all of us acutely aware of our vulnerabilities to disaster. Fortunately,

catastrophes of a large magnitude are rare, but disaster can strike in many ways. Large or small, natural or man-made, emergencies put collections in danger. Hazards can often be mitigated or avoided altogether by a comprehensive, emergency-preparedness plan. Such plans provide a means for recognizing and responding effectively to emergencies. The goal is to hopefully prevent damage or, at least, to limit the extent of the damage.

#### **6.7.1 Identifying Risks:**

A prudent first step is to list geographic and climatic hazards and other risks that could jeopardize the building and collections. These might include geographical susceptibility to hurricanes, tornadoes, flash flooding, earthquakes, or forest fires, and even the possibility of unusual hazards such as volcanic eruptions. Consider man-made disasters such as power outages, sprinkler discharges, fuel or water supply failures, chemical spills, arson, bomb threats, or other such problems. Take note of the environmental risks that surround you. Chemical industries, shipping routes for hazardous materials, and adjacent construction projects all expose you to damage. Any event that is a real possibility should be covered under your Emergency Preparedness Plan. It is also important to determine the vulnerability of the objects within the collections. What types of materials are included? Are they easily damaged? Are they particularly susceptible to certain types of damage such as moisture, fire, breakage, and the like? How and where are collections stored? Are they protected by boxes or other enclosures? Is shelving anchored to structural elements of the building? Is it stable? Are any artifacts stored directly on the floor where they could be damaged by leaks or flooding? All items should be raised at least four inches from the floor on waterproof shelves or pallets. Are materials stored under or near water sources? Analyze your security and housekeeping procedures. Do they expose collections to the dangers of theft, vandalism, or insect infestation? Consider vulnerabilities. Are your collections insured? Is there a complete and accurate inventory? Is a duplicate of the inventory located at another site? Although there may be a wide range of disaster scenarios, the most common is water, fire, physical or chemical damage, or some combination of these. The specific procedures of a disaster plan focus on the prevention and mitigation of these types of damage.

#### **6.7.2 Decreasing Risks:**

Once your hazards are specified, the disaster planner should devise a program with concrete goals, identifiable resources, and a schedule of activities for eliminating as many risks as possible. While water damage is the most common form of disaster for collections, everyone needs a good fire-protection system. Wherever possible, collections should also be protected by a fire suppression system. Preservation professionals now recommend wet-pipe sprinklers for most collections. In addition, water misting suppression systems have become available within the last several years; these can provide fire suppression using much less water than conventional sprinkler systems. Before choosing a fire-protection system, be sure to contact preservation professional or a fire-protection consultant for information about the latest developments in fire protection and for advice appropriate to your collections and situation. An inventory will provide a basic list of holdings and will be essential for insurance purposes. Improved collection storage, such as boxing and raising materials above the floor level, will reduce or eliminate damage when emergencies occur. Comprehensive security and housekeeping procedures will ward off emergencies such as theft, vandalism, and insect infestation. They will also ensure that fire exits are kept clear and fire hazards eliminated.

### **6.7.3 Identifying Resources:**

An important step in writing your plan is to identify sources of assistance in a disaster. Research these services thoroughly--it is an essential part of the planning process. These can range from police, fire, and ambulance services to maintenance workers, insurance adjusters, and utility companies. If possible, invite local service providers to visit in order to become familiar with your site plan and collections in advance of an emergency. For example, you may want to provide the fire department with a list of high-priority areas to be protected from water if fire-fighting efforts permit.

Other valuable sources of assistance are local, state, or federal government agencies.

### **6.8 SDRN/IDRN data updation: -**

State disaster Resource network and India Disaster Resource Network is a crucial database for a response any disaster. SDRN, a decision support tool, is layered using the existing IT Wide Area Network (WAN) of the State - GSWAN. SDRN uses the map-based Geospatial Information Systems developed by the Gujarat based organization Bhaskaracharya Institute for Space Applications and Geo-Informatics (BISAG). Currently, the SDRN network is being integrated with the GIS-based Decision Support System using Java, MS-Access, Visual Studio 2005 with Database SQL Server 2005. The GIS Visualize does not require any GIS software. The GIS visualize contains multi-layered options depicting roads-highways, taluka, district boundaries, rivers, ports, airways, etc. SDRN and IDRN updation are regularly base work and it is updating.

#### **6.8.1 India Disaster Resource Network (IDRN) : -**

IDRN, a web-based information system, is a platform for managing the inventory of equipment, skilled human resources and critical supplies for emergency response. The primary focus is to enable the decision makers to find answers on the availability of equipment and human resources required to combat any emergency. This database will also enable them to assess the level of preparedness for specific vulnerabilities. Total 226 technical items listed in the resource inventory. It is a nationwide district level resource database. Each user of all districts of the state has been given unique username and password through which they can perform data entry, data updation on IDRN for resources available in their district. The IDRN network has the functionality of generating multiple query options based on the specific equipment, skilled human resources, and critical supplies with their location and contact details.

### **6.9 Community Warning System, Education, Preparedness DRM Programme: -**

#### **6.9.1 GSDMA DRM activities:**

Disaster Risk Management Programme (DRM) has taken strong roots at various levels of administration in Gujarat. The Department of Revenue and Disaster Management is the nodal Department in Government of Gujarat that handles the subject with GSDMA. Disaster Management Committees are formed at various levels and are assigned the task of implementing the programme. Representation for these committees are drawn from elected representatives, officials of line departments, professional bodies, Civil Defense, NGO and CBO representatives and local opinion leaders. Major Activities are being carried out under DRM program are Plan Development at Various Levels, Emergency Resources Database maintain through SDRN / IDRN, capacity building through Training and Resource Mobilization, Disaster Awareness through Orientations, Campaigning, Media Management and IEC distribution. Coordinate District Administration for all Disaster Management Activities with expertize knowledge, logistics, and fund allocation.

The Disaster Risk Management Program (DRM) being implemented by Gujarat State Disaster Management Authority (GSDMA) aims to strengthen the response, preparedness and mitigation measures of the community, local self-government, the District administration and the State in Gujarat. Under the DRM Programme

**For the Prepared level, specific plan following process will follow.**

**District Level Process**

1. The orientation of District level officers and PRI members including line department officials
2. Formation of District Disaster Management Committee
3. Development of manuals and guidelines Capacity building of DDMC members, government officials, training institutes, other concerned organizations at the district level
4. Development of the District Disaster Management Plan
5. Use of IEC materials for awareness generation for preparedness, risk reduction, and mitigation
6. Data updation on IDRN/SDRN

**Taluka level process**

1. Orientation cum sensitize Taluka level officers and PRI members.
2. Formation of Taluka Disaster Management Committee
3. Capacity building of government officials
4. Development of the TDMP
5. Use of IEC material and media sources to create awareness at taluka level
6. TDMP update on SDRN

**City-ULB level process**

1. The orientation of City-level officers elected members and leaders.
2. Formation of CDMP
3. Capacity building of municipal official and concerned organizations at the city level
4. Development of the CDMP.
5. Use of IEC material to create awareness at the city level
6. CDMP updation on SDRN

**Village Level Process**

1. Formation Cluster within 10 to 12 village and conduct cluster meetings over 10-12 villages
2. Organize Gramsabha in each village
3. Undertake PRA exercise at village level for hazard, vulnerability assessment, and resource analysis
4. Facilitate the formation of the Village Disaster Management Committee (VDMC)
5. Conduct training programs for DMT and DMC Members and volunteers
6. Awareness campaigns on risk reduction mechanisms, Risk Transfer- insurance, disaster resistant construction
7. Developed Village Disaster Management Plan (VDMP)
8. Conduct mock drills for test the VDMP
9. Update VDMP twice in a year (by VDMC)

Kutch district had taken the preparedness measures from village level to District level. At the villages, village Task forces were formed and trained in First aid and Health, Search and Rescue and Disaster Management. Some volunteers were also trained in Disaster Management and plans like VDMP were prepared and updated. Officers reviewed the disaster preparedness of the villages and interacted with the Village level Disaster Management team members, in the pre-monsoon meeting all departments, and stakeholders were asked to get prepared departmental plan. SOP's were also discussed with them so that quick response can be assured and any kind of risk due to water logging, flood, heavy rainfall and dam overflow can be reduced.

Prevention and Mitigation and preparedness actions are to be taken before a disaster to reduce the likelihood of a disaster (risk reduction) or the level of damage (vulnerability reduction) expected from a possible disaster. Vulnerability reduction is given priority over a risk reduction.

Base on the interim assessment of risk and vulnerabilities, certain majors for mitigation, preparedness and prevention has been taken with respect to Kutch District.

The proposed state-level disaster-planning format sets out priorities for mitigation, prevention and preparedness activities. The underlying concept is to incorporate these three types of activities into normal (developmental) policies, procedures and undertakings and targeting specific areas for a concerted effort.

Complimentary priorities, plans, and activities need to be established at the district level. This process is complicated by five realities:

1. Developmental policies and budgets are set at the state-level and project implementation is not always under the control of district authorities
2. District authorities have limited policy and funding independence.
3. The range of possible mitigation, prevention and preparedness actions within a district is significant but can be difficult to prioritize.
4. Many activities require popular participation and should be a focus on the family or community, which requires time and effort to effectively organize.
5. The local commercial sector is cost-conscious and tends to avoid investments in activities which do not immediately improve profits.

A set of possible district-level approaches to mitigation, prevention, and preparedness are summarized below based on these realities. These approaches need to be reviewed at the district and state level and, to the degree possible, harmonized vertically within the government structure and across public and private sector organizations and districts. At the same time, the focus of efforts can vary between and even within districts depending on their particular hazards, risks, and vulnerabilities.

One approach to developing this harmonization is to hold a state-district conference on mitigation, preparedness, and prevention, complemented by annual review workshop. The initial conference would define and harmonize policies, procedures, and approaches vertically and horizontally. The workshop would serve to recognize progress and adjust plans to take into account changing local and state-level conditions.

## 6.10 District-level Approaches to Mitigation, Prevention and Preparedness:

### Preventive measure (for all disasters)

Preventive actions have to be taken before a disaster to reduce the likelihood of a disaster (risk reduction) or the level of damage (vulnerability reduction) expected from a possible disaster. Vulnerability reduction is given priority over a risk reduction. The district can avail itself of four mechanisms (singularly or together) to reduce risk and vulnerability.

1. Long-term planning for mitigation, preparedness and prevention investments in the district,
2. Enforcement of regulations, particularly Structural-building and safety codes and land use plans,
3. Review and evaluation of development plans and activities to identify ways to reduce risks and vulnerability, and,
4. Capacity building, including warning, the provision of relief and recovery assistance and community level identification of risk and vulnerability.

The Collector, assisted by the District Development Officer, is responsible for developing plans and activities to effect mitigation, preparedness and prevention using the mechanism noted above. Based on the interim assessment of risk and vulnerabilities, the Kutch District will focus on the following areas for mitigation, preparedness, and prevention;

- Resilience of lifeline systems (water, power, and communications)
- Reduction in disaster impact on healthcare facilities, schools, and roads
- Vulnerability reduction in flood-prone areas
- Vulnerability reduction to high winds
- Improvement of off-site Preparedness near Industrial sites.

### Mitigation measure (for all disasters)

#### Town and Country Planning Acts and their related provisions:

The Department of Disaster Management, being a member of all regulatory bodies will coordinate with the Town and Country Planning Board and constitute a committee of experts to evaluate the provisions of the State Town and Country Planning Act in place. The Committee will consist of experts from the fields of disaster management, town and country planning and legal experts and will be chaired by the State Relief Commissioner.

#### Zoning Regulations and their related provisions:

The State Urban Development Department, in consultation with the Department of Disaster Management will constitute a committee of experts with, members from the Institute of Town Planners, town development, State Pollution Control Board, Chairpersons of major Development Authorities/Notified Area Authorities, eminent faculty from planning, architecture and civil engineering departments of engineering colleges, eminent resource persons and such other experts nominated from time to time to study the existing zoning regulations and suggest necessary amendments to incorporate components for vulnerability reduction. The State Chief Town Planner will be the Convener of the Committee.

**Development Control regulations:**

The same committee of experts constituted to evaluate the zoning regulations will also evaluate the development control regulations and suggest measures to incorporate the disaster management concerns into them.

**Government-sponsored programmers and schemes:**

The State Planning Department will prepare a report on the government sponsored programmers, schemes running in the State and how far each programme/scheme addresses the issue of disaster management, and submit to the government. The Disaster Management Group which is constituted under the chairmanship of the Chief Secretary with concern Secretaries of the Departments of Disaster Management, Urban Development, Rural Development, Health, Home, Finance, Science and Technology, Transport, and Agriculture to evaluate and suggest disaster mitigation measures to be incorporated.

**6.11 Community Warning system-Early Warning System (EWS):**

It is often observed that communities living in remote and isolated locations do not receive timely and reliable warnings of impending disasters. Hence, it is necessary to have robust and effective early warning systems, which can play a crucial role in saving lives and limiting the extent of damage to assets and services. Outreach and reliability of warnings are key factors for planning and implementing response measures. Post disaster advisories like information on rescue, relief, and other services are important to ensure law, order, and safety of citizens.

Table 34: Early Warning Action Plan

Type of Action	Flood	Cyclone	Chemical and industrial accidents	Tsunami
Existing EWS	Irrigation department /dam authority/ IMD ↓ Collector ↓ Mamlatdar/ TDO ↓ Villages	IMD ↓ Collector ↓ Mamlatdar/TDO ↓ Villages	Industrial Association/industries ↓ DCG ↓ LCMG ↓ Mamlatdar ↓ Villages	IMD ↓ Collector ↓ Mamlatdar /TDO ↓ Villages
Responsible Agency for warning	DDMC	DDMC	DDMC	DDMC



dissemination	Mamlatdar office/TDO	Mamlatdar office/TDO	Mamlatdar office/TDO	Mamlatdar office/TDO
	VDMC	VDMC	VDMC	VDMC
Trained personnel and operators available (Y/N)	Yes	Yes	No  (Team to be formed and trained )	No  (Team to be formed and trained )
Villages covered	All risk prone villages			
Villages/habitation not covered or difficult to access	Communities in remote locations ( fisher folk, salt pan workers, Maldharis etc)VDMC			
Measures required to improve	Contact of communities in remote locations (fisher folk, saltpan workers, Maldharis etc)			

**Table 35: During and Post Disaster Advisory Action Plan**

Type of Hazard	Flood	Cyclone	Earthquake	Drought	Industrial accidents	Tsunami
Responsible Agency	DDMC, Mamlatdar office and TDO					
Villages covered	All risk prone villages					
Villages/habitation not covered or difficult to access	communities in remote locations ( fisher folk, salt pan workers, Maldharis etc)					
Measures required for outreach	Contact of communities in remote locations ( fisher folk, salt pan workers, Maldharis etc)					

**6.12 Procurement various Resource :-**

Provide logistical support to government and agencies for procurement of relief goods, transportation, Tents, blankets, tarpaulins, equipment etc, and monitoring illegal price escalations, stocking etc. during the crisis. DDMA and other local authority should do procurement of such resource and If they have such resource so keep them in ready to use in disaster situation.

**6.13 Protocol and arrangement for VIP Visit:**

It is important that immediately inform VIPs and VVIPs on impending disasters and current situation during and after disasters. Appeals by VIPs can help in controlling rumors and chaos during the disaster. Visits by VIPs can lift the morale of those affected by the disaster as well as those who are involved in the response. Care should be taken that VIP visits do not interrupt rescue and life-saving work. Security of VIPs will be an additional responsibility of local police and Special Forces. It would be desirable to restrict media coverage of such visits, in which case the police will liaise with the government press officer to keep their number to minimum.

### 6.14 Media Management:

The role of media, both print and electronic, in informing the people and the authorities during emergencies becomes critical, especially the ways in which media can play a vital role in public awareness and preparedness. Media through educating the public about disasters; warning of hazards; gathering and transmitting information about affected areas; alerting government officials, helping relief organizations and the public towards specific needs; and even in facilitating discussions about disaster preparedness and response. During any emergency, people seek up-to-date, reliable and detailed information.

The State Government has established an effective system of collaborating with the media during emergencies. At the State Emergency Operation Centre (SEOC), a special media cell has been created which is made operational during emergencies. Both print and electronic media are regularly briefed at predetermined time intervals about the events as they occur and the prevailing situation on the ground. A similar set up is also active at the District Emergency Operation Centre (DEOC).

### 6.15 Documentation

Documentation is a very important activity in disaster management. DDMA also appoints duty for Documentation to the information department. Documentation should be in a good manner. It can be in summary and detail form. It is reliable and authentic.

### 6.16 Responsibility of Each department for Preparedness:

#### 6.16.1 Agriculture:

##### Preparedness Activities before disaster seasons

- Review and update precautionary measures and procedures, especially ascertain that adequate stock of seeds and other agro inputs are available in areas prone to natural calamities.
- Review the proper functioning of rain gauge stations, have stock for immediate replacement of broken/non-functioning gadgets/equipment, record on a daily basis rainfall data, evaluate the variation from the average rainfall and match it with the rainfall needs of existing crops to ensure early prediction of droughts.

#### 6.16.2 Health Department:

##### Preparedness Activities before Disaster

##### For heat wave:

Preparation and distribution of IEC materials, distribution of ORS and other life-saving drugs, training of field personnel on measures to be taken for management of patients suspected to be suffering from heatstroke;

##### For flood and cyclone:

- Assessment and stock piling of essential medicines, anti-snake Venom, halogen tablets, bleaching powders. ORS tablets, Pre-positioning of mobile units vulnerable and strategic points

##### Epidemics Preparedness activities before disaster seasons

- Stock piling of water, fodder and animal feed

- Pre-arrangements for tie-up with fodder supply units
- Stock-piling of surgical packets
- Construction of mounds for safe shelter of animals
- Identification of various water sources to be used by animals in case of prolonged hot and dry spells
- Training of volunteers and creation of local units for carcass disposal
- Municipalities/Gram Panchayats to be given responsibility for removing animals likely to become health hazards.

#### **6.16.3 Water Supplies and Sanitation (GWSSB):**

##### **Preparedness Activities for disaster seasons**

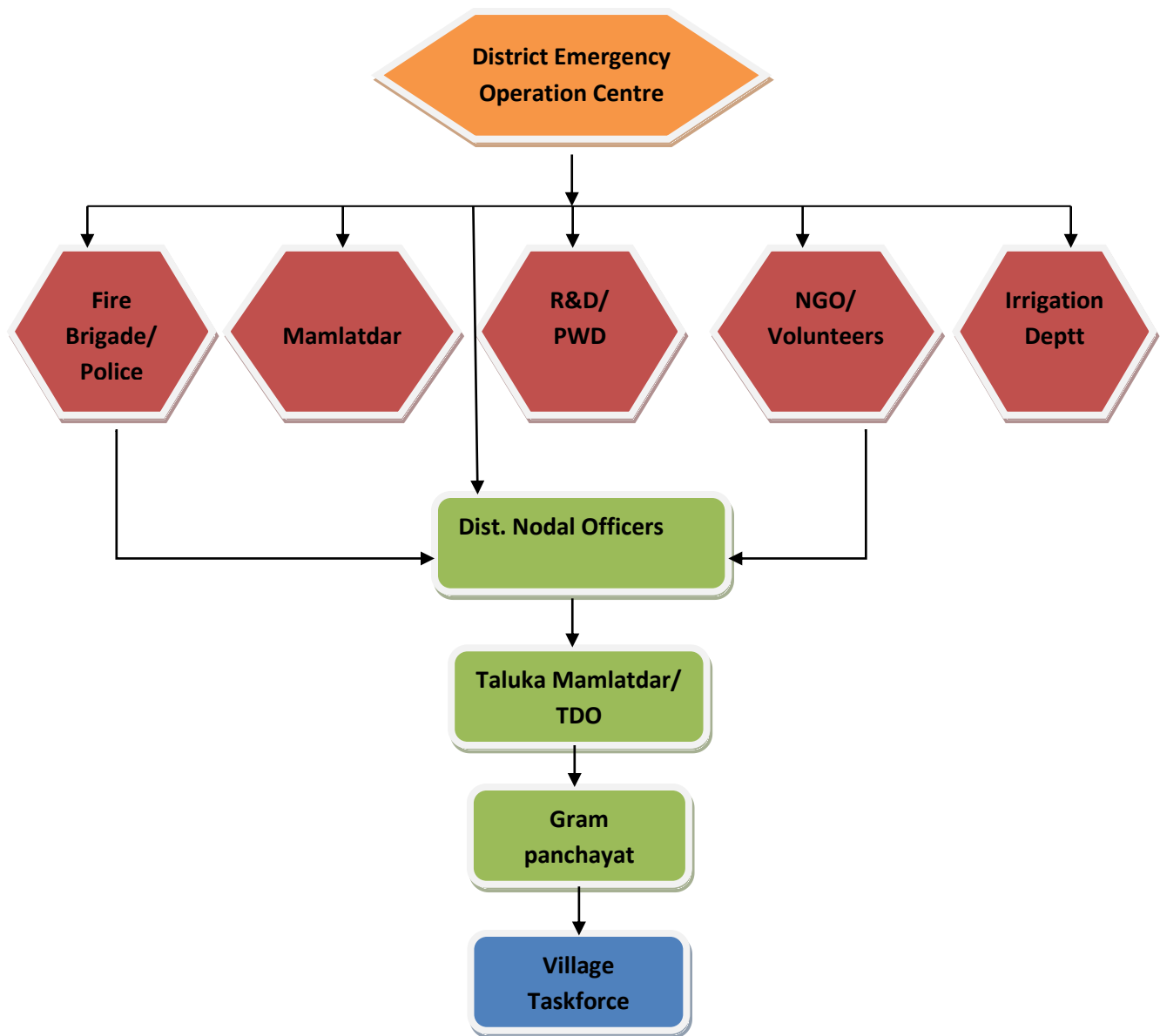
- Prior arrangement of water tankers and other means of distribution and storage of water.
- Prior arrangement of standby generators
- Adequate prior arrangements to provide water and halogen tablets at identified sites to used as relief camps or in areas with high probability to be affected by natural calamities.
- Rising of tube-well platforms, improvement in sanitation structures and other infrastructural measures to ensure least damage during future disasters
- Riser pipes to be given to villagers

## **Chapter 7: Response Measures (Multi-Hazard):**

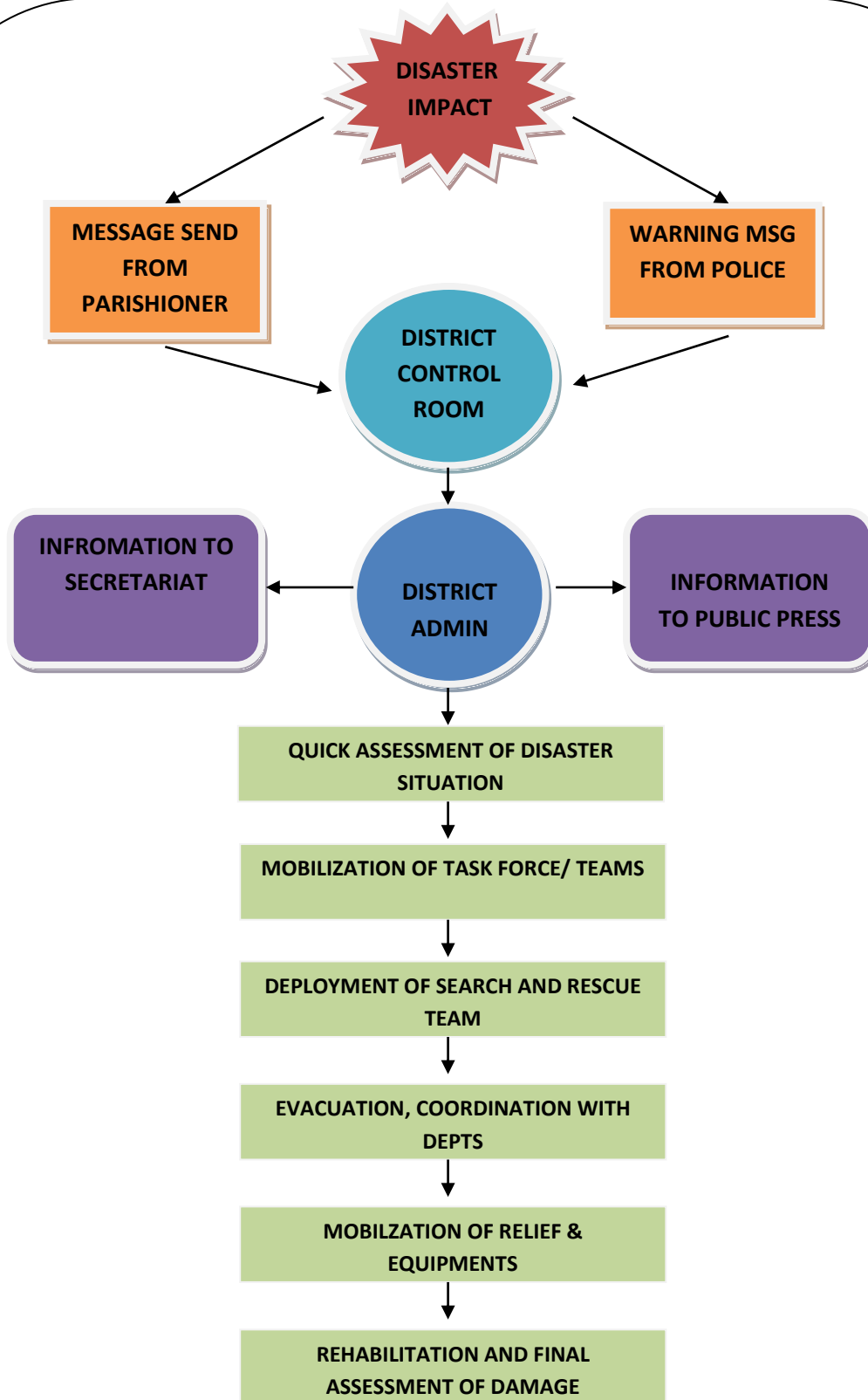
Response measures are those which are taken instantly prior to, and following, a disaster aimed at limiting injuries, loss of life and damage to property and the environment and rescuing those who are affected or likely to be affected by the disaster. Response process begins as soon as it becomes apparent that a disastrous event is imminent and lasts until the disaster is declared to be over. Since the response is conducted during periods of high stress in a highly time-constrained environment and with limited information and recourses (in the majority of the cases), it is by far, the most complex of four functions of disaster management. The response includes not only those activities that directly address the immediate needs, such as search and rescue, first aid and shelters but also includes systems developed to coordinate and support such efforts. For an effective response, all the stakeholders need to have a clear perception/vision about hazards, its consequences, and actions that need to be taken in the event of it.

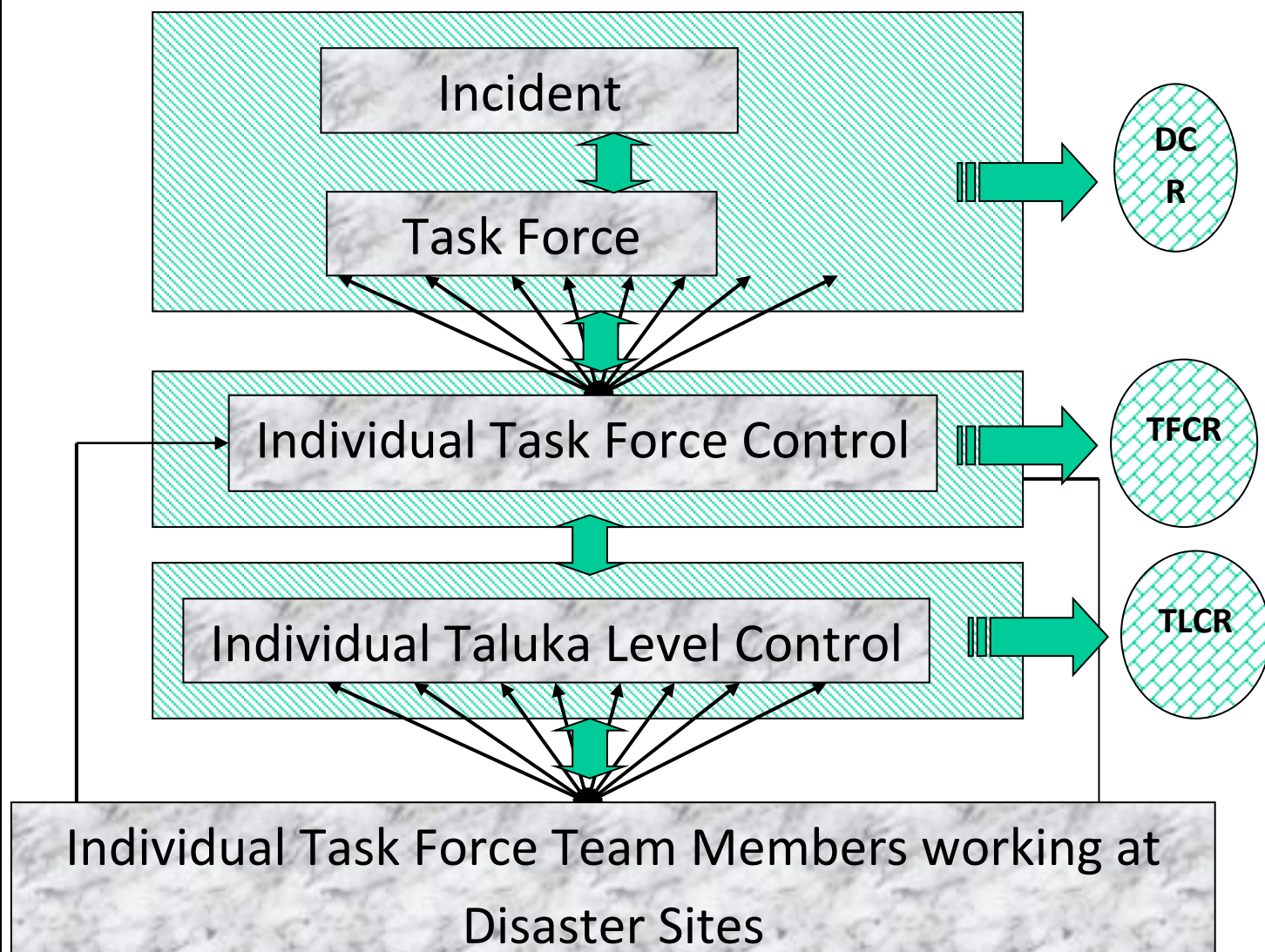
The Revenue Department of the State is the Nodal Department for controlling, monitoring and directing measures for organizing rescue, relief, and rehabilitation. All other concerned line departments should extend full cooperation in all matters pertaining to the response management of the disaster whenever it occurs.

The District EOC, ERCs and other control rooms at the District level should be activated with full strength and begun active for search and rescue according to disaster.



**Figure 6: Search, Rescue and Evacuation Process:**



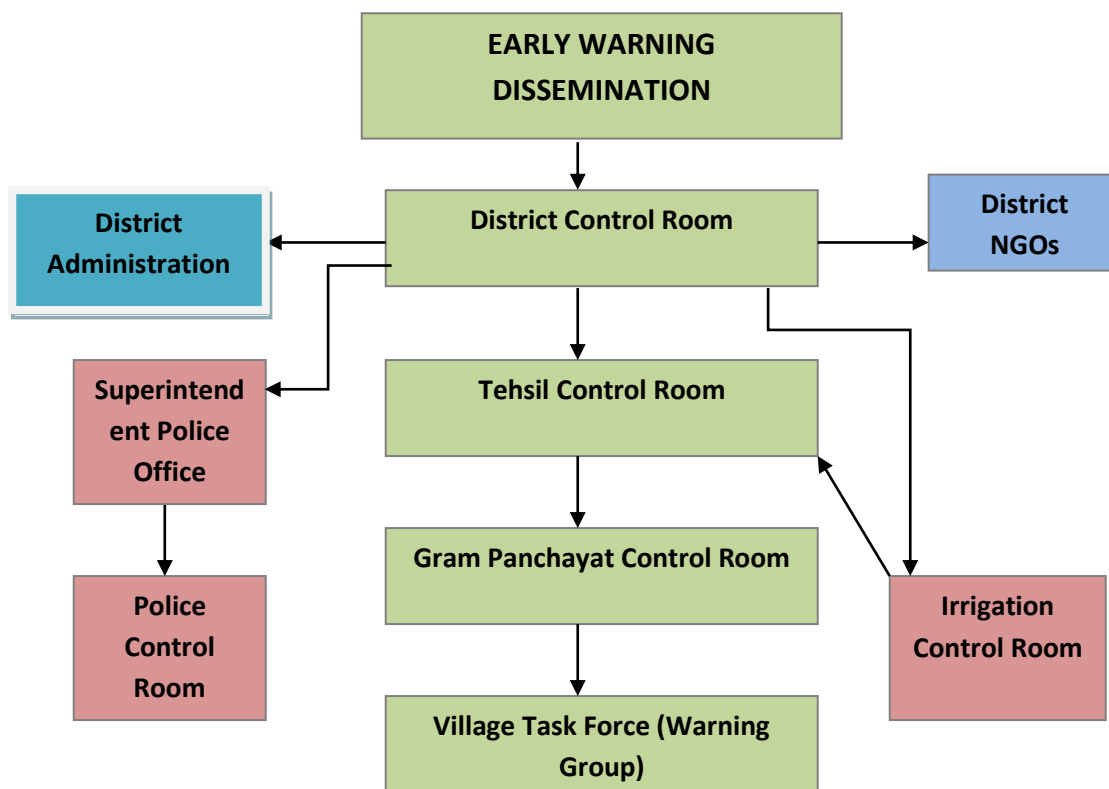


**Figure 8: Response flow chart and Communication Flow Chart during Disaster Management:**

### 7.1 Warning, Alert and Warning Dissemination:

On the receipt of warning or alert from any such agency, which is competent to issue such a warning or on the basis of reports from District Collector of the occurrence of a disaster, the response structure of the State Government will be put into operation. The Chief Secretary/Relief Commissioner will assume the role of the Chief of Operations during the emergency. The details of agencies competent enough for issuing warning or alert pertaining to various types of disasters are given below;





**Figure 9: Flow Chart of Response Mechanism after Early Warning**

**Table 36: Responsible Agencies to concerned department**

Sr. No.	Disaster	Agencies
1	Earthquakes	IMD/ISR
2	Floods	Meteorological Department, Irrigation
3	Tsunamis	IMD/ISR/INCOIS
4	Cyclones	IMD
5	Epidemics	Public Health Department
6	Road Accidents	Police
7	Industrial and Chemical Accidents	DISH, Police, Collector
8	Drought	Agriculture, Scarcity department
9	Fire	Fire Brigade, Police, Collector
10	Rail Accident	Railways, Police, Collector
11	Air Accident	Police, Collector, Airlines
12	Ammunition Depot-Fire	Army, Police, Collector.

1. Cyclone/flood forecasting is generally the responsibility of the Indian Meteorological Department (IMD). IMD is the nodal agency for providing cyclone-warning services. IMD's INSAT satellite-based Cyclone Warning Dissemination System (CWDS) is one of the best warning system currently in use in India to communicate cyclone warnings from IMD to community and important officials in areas likely to be affected directly and quickly. There are 19 CWDS stations in Gujarat. Location of CWDS in Gujarat State are shown below:

**Location of Cyclone Warning Dissemination System (CWDS) 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. Valsad
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

2. After getting information from IMD, warning dissemination is a responsibility of State Government/Commissioner of Relief (COR). The COR under the Revenue Department is responsible for disseminating cyclone warnings to the public and Line Departments.

3. On receiving an initial warning, the office of the COR disseminates the warning to all Line Departments, the District administration, and DG Police. Warning messages are transmitted through wireless to all districts and Talukas. District Collectors are provided with satellite phones and a Ham radio to maintain effective communication, even if terrestrial and cell-phone communication fails.

4. The state EOC and control rooms of the other line departments at the State level as well as district level also get the warnings. The control rooms are activated on receiving the warnings.

**7.2 District CMG meeting**

At the District level, the District Crisis Management Group (DCG) is an apex body to deal with major chemical accidents, disaster and to provide expert guidance for handling them. DCG has a strength of 34 members which includes District Collector, SDM and Dy. Collector, DDO, Dy. Director – Industrial Safety and Health, DSP, PI, Fire Superintendent of the City Corporations or important

Municipalities, Chief District Health Officer, Civil Surgeon, SE, Chief Officer, Dy. Chief Controller of Explosives, Commandant – SRPF, Group-I, Dy. Director – Information to name a few. At Taluka level, Local Crisis Management Group (LCMG) is formed for coordination of activities and executing the operations. DCGs as well as LCMG. The meeting will meet periodically twice in a year.

### **7.3 Activation of EOC**

Emergency Operation Center (EOC) is a physical location and normally includes the space, facilities, and protection necessary for communication, collaboration, coordination and emergency information management.

The EOC is a nodal point for the overall coordination and control of relief work. In the case of a Level 1 Disaster the Local Control room will be activated, in the case of a Level 2 disaster, DEOC will be activated along with the SEOC.

### **7.4 Resource Mobilization**

Any disaster happens in the district so resources are very important for response disaster. Resource mobilization is one of most important and crucial activity. As mentioned above about IDRN and SDRN portal has information regarding which kind of resource are available and location of the resource. IDRN and SDRN should be used for resource mobilization. DDMC, TDMC, CDMC and VDMC should be updated regularly.

### **7.5 Media Management**

The role of media (both print and electronic) in informing the people and the authorities during emergencies becomes critical, especially the ways in which media can play a vital role in public awareness and preparedness through educating the public about disasters, warning of hazards, gathering and transmitting information about affected areas, alerting government officials, helping relief organizations and the public towards specific needs, and even in facilitating discussions about disaster preparedness and response. During any emergency, people seek up-to-date, reliable and detailed information.

The State Government has established an effective system of collaborating with the media during emergencies. At the State Emergency Operation Centre (SEOC), a special media cell has been created which is made operational during emergencies. Both print and electronic media is regularly briefed at predetermined time intervals about the events as they occur and the prevailing situation on the ground. A similar setup is also active at the District Emergency Operation Centre (DEOC).

Media can play a crucial role during response time. Media management to ensure precise communication of the impact of disaster and relief measures being taken and generate goodwill among community and other stakeholders;

### **7.6 Emergency Response Functions**

Responsible for assuring specific operations according to objectives and plans to address the immediate impacts of the incident. Taskforces under the operation section will deal with specific

functional tasks, such as search and rescue and the provision of water or shelter. The composition and size of these taskforces depend on the nature of the incident.

The District administration of Kutch has identified 16 expected task forces for key response operation functions that are described below. Additional taskforces can be added under the operations section as needed by the circumstances of a disaster. Each Taskforce is led by one organization and supported by other organizations.

**Table 37: Emergency Operation Taskforce Functions**

<b>Sr. No.</b>	<b>Emergency Operation Taskforce</b>	<b>Functions</b>
1	Coordination and Planning	Coordinate early warning, Response and Recovery Operations
2	Administration and Protocol	Support Disaster Operations by efficiently completing the paper work and other Administrative tasks needed to ensure effective and timely relief assistance
3	Warning	Collection and dissemination of warnings of potential disasters
4	Law and Order	Assure the execution of all laws and maintenance of order in the area affected by the incident.
5	Search and Rescue (including Evacuation)	Provide human and material resources needed to support local evacuation, search and rescue efforts.
6	Public Works	Provide the personnel and resources needed to support local efforts to re-establish normally operating infrastructure.
7	Water	Assure the provision of sufficient potable water for human and animal consumption (priority), and water for industrial and agricultural uses as appropriate.
8	Food and Relief Supplies	Assure the provision of basic food and other relief needs in the affected communities.
9	Power	Provide the resources to reestablish normal power supplies and systems in affected communities.
10	Public Health and Sanitation	Provide personnel and resources to address pressing public health problems and re-establish normal health care systems.
11	Animal Health and Welfare	Provision of health and other care to animals affected by a disaster
12	Shelter	Provide materials and supplies to ensure temporary shelter for disaster-affected populations
13	Logistics	Provide Air, water and Land transport for evacuation and for the storage and delivery of relief supplies in coordination with other task forces and competent authorities.
14	Survey (Damage Assessment)	Collect and analyzed data on the impact of the disaster, develop estimates of resource needs and relief plans and compile reports on the disaster as required for District and State authorities and other parties as appropriate.

15	Telecommunications	Coordinate and assure operation of all communication systems (e.g; Radio, TV, Telephones, Wireless) required supporting early warning or post disaster operations.
16	Media (Public Information)	Provide liaison with and assistance to print and electronic media on early warning and post-disaster reporting concerning the disaster.

The specific response roles and responsibilities of the taskforces indicated above is that these roles and responsibilities will be executed and coordinated through the ICS/GS system. For example, in flood, search and rescue would come under the Operations section, Transport would come under the Logistics Section and Public Information under the Public Information Unit.

### **Each Department and Government agency involved in Disaster Management and Mitigation will**

- Designate a Nodal officer for emergency response and will act as the contact person for that department/agency.
- Ensure establishment of fail-safe two-way communication with the state, district and other emergency control rooms and within the organization.
- Emphasis on communication systems used regularly during LO with more focus on the use of VHF's with automatic repeaters, mobile phones with publicized numbers, VHF radio sets etc. It should be remembered that SAT phones fail during prolonged emergencies and electric failure if the phones cannot be re-charged.
- Work under the overall supervision of the IC/District Collectors during emergencies.

## **7.7 Response responsibility of Each Concerned Department**

### **7.7.1 Agriculture**

#### **Response Activities**

- Management of control activities following crop damage, pest infestation and crop disease to minimize losses  
Collection, laboratory testing, and analysis of viruses to ensure their control and eradication
- Pre-positioning of seeds and other agro inputs in strategic points so that stocks are readily available to replace damage caused by natural calamities.
- Rapid assessment of damage to soil, crop, plantation, irrigation systems, drainage, embankment, other water bodies and storage facilities and the requirements to salvage, replant, or to compensate and report the same for ensuring early supply of seeds and other agro inputs necessary for re-initiating agricultural activities where crops have been damaged.
- Establishment of public information centers with appropriate and modern means of communication, to assist farmers in providing information regarding insurance, compensation, repair of agro equipment and restarting of agricultural activities at the earliest.

### **7.7.2 Health Department**

#### **Response activities**

- Stock piling of life-saving drugs, detoxicants, anesthesia, Halogen tablets in vulnerable areas.
- Strengthening of drug supply system with powers for local purchase during disaster Level-0.

- c. Situational assessment and reviewing the response mechanisms in known vulnerable pockets.
- d. Ensure adequate availability of personnel in disaster site.
- e. Review and update precautionary measures and procedures.

### **Sanitation**

- a. Dispensing with post-mortem activities during Level-1, Level-2 and Level-3 of disaster when the relatives and/or the competent authority are satisfied with cause of death.
- b. Disinfection of water bodies and drinking water sources.
- c. Immunization against infectious diseases.
- d. Ensure continuous flow of information.

### **Recovery Activities**

- a. Continuation of disease surveillance and monitoring.
- b. Continuation of treatment, monitoring and other epidemic control activities till the situation is brought under control and the epidemic eradicated.
- c. Trauma counseling.
- d. Treatment and socio-medical rehabilitation of injured or disabled persons.
- e. Immunization and nutritional surveillance.
- f. Long term plans to progressively reduce various factors that contribute to high-level of vulnerability to diseases of population affected by disasters.

### **7.7.3 Epidemics**

#### **Response Activities**

- a. Control of animal diseases, treatment of injured animals, Protection of lost cattle.
- b. Supply of medicines and fodder to affected areas.
- c. Ensure adequate availability of personnel and mobile team.
- d. Disposal of carcasses ensuring proper sanitation to avoid an outbreak of epidemics.
- e. Establishment of public information center with a means of communication, to assist in providing an organized source of information.
- f. Mobilizing community participation for carcass disposal.

### **7.7.4 Water Supplies and Sanitation (GWSSB)**

#### **Response Activities:**

- a. Disinfection and continuous monitoring of water bodies.
- b. Ensuring provision of water to hospitals and other vital installations.
- c. Provision to acquire tankers and establish other temporary means of distributing water on the emergency basis.
- d. Arrangement and distribution of emergency tool kits for equipment required for dismantling and assembling tube wells, etc.
- e. Carrying out emergency repairs of damaged water supply systems.
- f. Disinfection of hand pumps to be done by the communities through prior awareness activities and supply of inputs.
- g. Monitoring flood situation.
- h. Dissemination of flood warning.

- i. Ensure accurate dissemination of warning messages to Gram Panchayat and Taluka Panchayat with details of flow.
- j. Monitoring and protection of irrigation infrastructures.
- k. Inspection of bunds of dams, irrigation channels, bridges, culverts, control gates and overflow channels.
- l. Inspection and repair of pumps, generator, motor equipment, station buildings.
- m. Community mobilization in breach closure.

#### **7.7.5 Police**

##### **Response Plan**

- a. Security arrangements for relief materials in transit and in camps etc.
- b. Senior police officers to be deployed in control rooms at State and district levels during Disaster Level- 3.
- c. Deploy personnel to guard vulnerable embankments and at other risk points.
- d. Arrangement for the safety in potential hazardous area.
- e. Coordinate search, rescue and evacuation operations in coordination with the administration.
- f. Emergency traffic management.
- g. Maintenance of law and order in the affected areas.
- h. Assist administration in taking necessary action against hoarders, black marketers etc.

#### **7.7.6 Civil Defense**

##### **Response Activities**

- a. Act as a Support agency for the provision of first aid, search and rescue services to other emergency service agencies and the public.
- b. Act as a support agency for movement of relief.
- c. Triage of casualties and provision of first aid and treatment.
- d. Work in coordination with medical assistance team.
- e. Help the Police for traffic management and law and order.

#### **7.7.7 Fire Services**

##### **Response Activities**

- a. Rescue of persons trapped in a burning, collapsed or damaged buildings, damaged vehicles, including motor vehicles, trains, and aircraft, industries, boilers, trenches and tunnels.
- b. Control of fires and minimizing damages due to explosions.
- c. Control of dangerous or hazardous situations such as oil, gas and hazardous materials spill.
- d. Protection of property and the environment from fire damage.
- e. Support to other agencies in the response to emergencies.
- f. The investigation into the causes of fire and assist in damage assessment.

#### **7.7.8 Civil Supplies**

##### **Response Activities**

- a. Management of procurement of relief materials.
- b. Management of material movement.



- c. Inventory management.

### **7.7.9 Public Works/Rural Development Departments**

#### **Response Activities**

- a. Clearing of roads and establish connectivity. Restore roads, bridges and where necessary make alternate arrangements to open the roads to traffic at the earliest.
- b. Mobilization of community assistance for clearing blocked roads.
- c. Facilitate movement of heavy vehicles carrying equipment and materials.
- d. Identification and notification of alternative routes to strategic locations.
- e. Filling of ditches, disposal of debris, and cutting of uprooted trees along the road.
- f. The arrangement of the emergency toolkit for every section at the divisional levels for activities like clearance (power saws), debris clearance (fork lifter) and other tools for repair and maintenance of all disaster response equipment.

### **7.7.10 Energy: PGVCL**

#### **Response Activities**

- a. Disconnect electricity after receipt of the warning.
- b. Attend sites of electrical accidents and assist in undertaking damage assessment.
- c. Standby arrangements to ensure temporary electricity supply.
- d. Prior planning and necessary arrangements for tapping private power plants like those belonging to ICCL, NALCO, RSP during emergencies to ensure uninterrupted power supply to the secretariat, SRC, GSDMA, Police Headquarters, All India Radio, Doordarshan, hospitals, medical colleges, Collector Control Rooms and other vital emergency response agencies.
- e. Inspection and repair of high tension lines/substations/transformers/poles etc.
- f. Ensure the public and other agencies are safe guarded from any hazards, which may have occurred because of damage to electricity distribution systems.
- g. Restore electricity to the affected area as quickly as possible.
- h. Replace/restore of damaged poles/salvaging of conductors and insulators.

### **7.7.11 Fisheries**

#### **Response Activities**

- a. Ensure warning dissemination to fishing communities living in vulnerable pockets.
- b. Responsible for mobilizing boats during emergencies and for payment of wages to boatmen hired during emergencies.
- c. Support in mobilization and additional deployment of boats during emergencies.
- d. Assess the losses of fisheries and aquaculture assets and the needs of person and communities affected by the emergency.

### **7.7.12 Transport Department**

#### **Recovery Activities**

- a. Provision of personal support services e.g. counseling.
- b. Repair/restoration of infrastructure e.g. roads, bridges, public amenities.
- c. Supporting the Gram Panchayats in the development of storage and in playing a key role and in the coordination of management and distribution of relief and rehabilitation materials.

- d. The Gram Panchayat members to be trained to act as an effective interface between the community, NGOs, and other developmental organizations.
- e. Provide training so that the elected representatives can act as effective supportive agencies for reconstruction and recovery activities.

#### **7.7.13 Panchayati Raj Institutions**

##### **Response Activities**

- a. Train up the Gram Panchayat members and support for timely and appropriate delivery of warning to the community.
- b. Clearance of blocked drains and roads, including tree removal in the villages.
- c. Construct alternative temporary roads to restore communication to the villages.
- d. PRIs to be a part of the damage survey and relief distribution teams to ensure popular participation.
- e. Operation emergency relief centers and emergency shelter.
- f. Sanitation, drinking water and medical aid arrangements.
- g. IEC activities for greater awareness regarding the role of trees and forests for protection during emergencies and also to minimize environmental impact which results in owing to deforestation like climate change, soil erosion, etc.
- h. Increasing involvement of the community, NGOs, and CBOs in plantation, protection and other forest protection, rejuvenation and restoration activities.
- i. Plan for reducing the incidence, and minimize the impact of a forest fire.

#### **7.7.14 Forest Department**

##### **Response Activities**

- a. Assist in road clearance.
- b. Provision of tree cutting equipment.
- c. Units for tree cutting and disposal to be put under the control of GSDMA, ERC and Collector during Level 1 disaster event.
- d. Provision of building materials such as timber, bamboos etc. for construction of shelters.

#### **7.7.15 Information and Public Relations Department**

##### **Response Activities:**

- Setting up of a control room to provide authentic information to public regarding impending emergencies.
- Daily press briefings at fixed times at district level to provide official version.
- Media report and feedback to field officials on a daily basis from disaster Level-1 onwards.
- Keep the public informed about the latest emergency situation (area affected, lives lost, etc).
- Keep the public informed about various post-disaster assistances and recovery programmers.

#### **7.7.16 Revenue Department**

- Coordination with Govt. of Gujarat, Secretariat and Officers of Govt. of India.
- Overall control and supervision.
- Damage assessment, finalization of reports and declaration of Level 1/Level 2 disasters.
- Mobilization of finance.

**7.7.17 Home Department**

- Requisition, deployment and providing necessary logistic support to the armed forces.
- Provide maps for air dropping, etc.

**7.7.18 Gujarat Disaster Rapid Action Force****Response:**

- To be trained and equipped as an elite force within the Police Department and have the capacity to immediately respond to any emergency.
- Unit to be equipped with life-saving, search and rescue equipment, medical supplies, security arrangements, communication facilities and emergency rations and be self-sufficient.
- Trained in latest techniques of search, rescue and communication in collaboration with international agencies.

**7.8 Reporting****7.8.1 Media and Information Management**

*Taskforce Leader: District Information Officer*

*Note: As per the above format the Media taskforce of the district will prepare its taskforce action plan.*

➤ **Activation of the Plan:**

The District Disaster Response structure is activated on warning or occurrence of a disaster. Task Forces are activated on a specific request of the District Collector or according to pre-determined SOPs, as appropriate for the nature of the hazard or disaster. Activation can be:

- In anticipation of a District level disaster, or
- Occur in response to a specific event or problem in the district.

On activation, coordination of warning and response efforts will operate from the District Control Room and Information Centre (DCIC).

To activate a task force, the Collector or designated Incident Commander will issue an activation order. This order will indicate:

- a. The nature of needs to be addressed.
- b. The type of assistance to be provided.
- c. The time limit within which assistance is needed.
- d. The district or other contracts for the provision of the assistance.
- e. Other Task Forces with which coordination should take place.
- f. Financial resources available for task force operations.

Special powers are conferred on Incident Controller during disasters. The Principle organization leading each task force is responsible for alerting the appropriate authority when the use of these special powers is required to accomplish warning, relief or recovery objectives give to a task force.

### **7.8.2 End of Emergency**

The end of emergency shall be declared through an ALL CLEAR siren/message. The Incident Controller in consultation with the ICS GROUP leaders shall declare the same once the situation is totally controlled and normalcy is restored.

### **7.9 Humanitarian Relief and Assistance**

Response defines provision for assistance/intervention during and after an emergency. Response plan includes clear Incident Command System (ICS) operated through emergency operation centers (EOCs) with effective 3C (Command, Control and Communication) mechanism. ICS covers early warning, search and rescue, humanitarian assistance, medical response, relief, temporary shelter, water and sanitation, law and order, animal care, public grievance, recovery and rehabilitation.

Specific Task Forces should be formed for Food distribution, drinking water management, medicine, and health related facility, clothes distribution and other essential needs.

#### **Helpline:**

Establish Information/reception centers and setting up telephone helpline numbers for public utility. True information must be released by media to the concerned person and in case of rescue activity public can call on help line number. in that point of view help line must be activated at DEOC (toll free no. 1077).

### **7.10 The arrangement of VIP Visit**

It is important that immediately inform to VIPs and VVIPs on impending disasters and current situation during and after disasters. Appeals by VIPs can help in controlling rumors and chaos during the disaster. Visits by VIPs can lift the morale of those people who are affected by the disaster as well as those who are involved in the response. Care should be taken that VIP visits do not interrupt rescue and life-saving work. Security of VIPs will be an additional responsibility of local police and Special Forces. It would be desirable to restrict media coverage of such visits, in which case the police will liaise with the government press officer to keep their number to a minimum.

**Responsibility Matrix should be evolved for each response measures with period and responsibility matrix for major stakeholders should be given in Annexure**

## 7.11 Taskforce action plans

### 7.11.1 Coordination and Planning

Coordinate early warning, response and recovery operations.

**Table 38: Responsibility matrix for response functions**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a Disaster</b>		
Establish a disaster management structure to the village level. (DDMC)	Links to State level and establishment of ICS structure	On-going
Develop disaster plans at all levels down to the village level. (DDMC)		On-going
Hold regular meetings on disaster management including government, NGOs, and private sectors. (DDMC)		Quarterly
Continual training, including public awareness. (DDMA and Media Task Force)	Involvement of GSDMA	On-going
Check warning, communications and other systems (DDMC), including the use of drills		On-going
<b>Warning</b>		
Hold Crisis Management Committee (Collector)	Communications between Districts and with State Control Room	On receipt of the warning.
Mobilize task forces at all levels (District, Taluka, village depending on disaster) (CMC, Telecommunications, Media Task Forces)	Communications systems and procedures	As decided by CMC.
Disseminate Information (CMC, Media Task Force)		As decided.
Mobilize resources to be positioned near vulnerable points depending on the type of disaster.	Telecommunications systems, plans	As decided.
Establish alternate communications system (Telecommunications Task Force)		As decided.

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Disaster</b>		
Start Search, Rescue and Evacuation activities. (CMC)	SAR Task Force operational	Immediately
Begin Collecting Information on the extent of damage	Assessment teams have	Started in 4 hours

and areas affected. (CMC)	communications and transport	
Start plan development and provide instructions on where Task Forces should go and what they should do. (CMC, Collector)	Information on damage and areas affected	Started in 4 hours
Mobilize outside resources (CMC)	Information on damage and needs	Started in 5 hours
Provide Public Information (CMC, Media Task Force)		should be started in 6 hours
<b>12 Hours</b>		
Begin regular reporting on actions taken and status by Task Forces. (Task Forces)	Operating communications system	Started at 12 hours
Reassess damage information, resources, needs and problem areas/activities. (CMC)		Started at 12 hours
Begin rotation of staff (CMC)		Start at 12 hours
Establish regular liaison with State Control Room.	Working communications systems	Start at 12 hours
Shift the focus of efforts to relief. (CMC)		Open
Restore key infrastructure (CMC through Public Works and other Task Forces)		Before 48 hours
<b>48 Hours</b>		
Continue review and reassessment of operations (CMC)	Information on operations	
Conduct broad damage assessment (CMC and Damage Assessment Task Force)		
Establish Temporary Rehabilitation Plan (CMC)		
Begin demobilization based on the situation. (CMC)		
Focus on creating a sense of normalcy. (CMC)		Before 72 hours
<b>72 Hours</b>		
Start Rehabilitation activities. (CMC)	Plan	
Conduct a detailed survey of damage and needs. (CMC and Damage Assessment Task Force)		
Begin regular reporting on operations	Information on operations	As early as possible
Restore all public and private sector services (CMC)		As early as possible
Lessons Learned meeting. (CMC and others)		After 2 weeks
Final Report/Case Study (CMC)		After activities completed

**7.11.2 Warning:**

Collection and Dissemination of Warnings of Potential Disasters

**Table 39: Task Force Leader: Resident Additional Collector**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can	Timeframe
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	<b>occur.</b>	
<b>Before a Disaster</b>		
Verify communication and warning systems are functioning - drills		Every 15 days
Have warning messages prepared in advance.		
<b>Warning</b>		
Receive and dispatch warnings. (Task Force)	Coordinate with Telecommunications Task Force	As received.
Verify warnings received and understood. (Task Force)		Within 1-2 hours of dispatch.
Independently confirm warnings if possible (Task Force)		As time allows.

### 7.11.3 Law and Order

Assure the execution of all laws and maintenance of order in the area affected by the incident.

**Table 40: Task Force Leader: District Superintendent of Police**

<b>Action and (Who Should Take It)</b>	<b>Requirements or Conditions to be met for the action can occur.</b>	<b>Timeframe</b>
<b>Before a Disaster</b>		
Evaluate expected disaster needs versus normal resources. (Task Force)		Completed in 8 days.
Estimate personnel and resources needed for disasters. (Task Force)	Based on standard for number of security personnel per population depending on severity of disaster	Completed in one week
Planning and coordination with Revenue Dept. (Task Force)		
Conduct drills, including public awareness raising. (Task Force)	Includes participation of Media Task Force	Every 45 days
<b>Warning</b>		
Verify communications system. (Wireless Inspector)		1-2 hours of warning
Alert police and other Task Force members (Superintendent of Police)		1-2 hours of warning
Implement duty distribution SOP for personnel and other resources. (Superintendent of Police)		1-2 hours of warning
Develop a preliminary estimate of requirements to support other Task Forces. (Superintendent of Police)		1-2 hours of warning
<b>Disaster</b>		



Get orders on deploying personnel from Control Room. (Superintendent of Police)	Operating communications system	Immediately
Determine status of staff and facilities. (Superintendent of Police)	Operating communications system	1-2 hours of disaster
Deploy additional staff. (Superintendent of Police)	Transport available	2-3 hours of disaster
Monitor resources. (Superintendent of Police)		1 hour of disaster
Establish VVIP unit. (Superintendent of Police)		Immediately
Request additional resources, if needed. (Superintendent of Police)	Operating communications system	4 hours of disaster
<b>12 Hours</b>		
Institute regular reporting. (Task Force)	Operating communications systems	At start of period
Begin staff rotation. (Task Force)		At start of period
Address crowd control problems. (Task Force)		As needed
Implement anti-looting/Anti-theft SOP. (Task Force)		As needed
Establish rumor control. (Task Force)	Involves Collector, Media Task Force, NGOs, and local eminent persons	As needed
Provide information to the public, e.g., road status. (Task Force)	Involves Control Room, Media Task Force, and Deputy Magistrate.	As needed.
<b>48 Hours</b>		
Implement a Force Management Plan (increase, reduction, redeployment, of forces). (Superintendent of Police)		From start of period
Plan for return to normal (Superintendent of Police, Task Force, Control Room)		From 72 hours after the disaster
Conduct Lessons Learned Session (Task Force with input from other parties)		1 week after the disaster
Final Report		2 weeks after the disaster

#### 7.11.4 Search and Rescue (including evacuation)

Provide human and material resources to support local evacuation, search and rescue efforts.

**Table 41: Task Force Leader: Deputy Commander (Civil Defense)/ Chief Fire Officer**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a Disaster</b>		

Risk assessment and vulnerability mapping (Task Force)		Before warning
Develop an inventory of personnel and material resources. (Task Force)		Before warning
Training (Task Force)	Input from GSDMA and NDMA	Before warning
Establish public education program. (Task Force)	Media Task Force	Ongoing
Establish adequate communications system. (Task Force)	Additional equipment required.	
Drills. (Task Force).		Before warning
Establish transport arrangements for likely SAR operations. (Task Force)	With Logistics Task Force	Before warning
Develop Rescue SOP. (Task Force)		Before warning
<b>Warning</b>		
Mobilize Task Force and SAR teams. (Task Force)		On warning
Verify equipment is ready. (Task Force)		On team activation
Confirm transport is ready. (Task Force)	Logistics Task Force.	On warning
Undertake precautionary evacuation. (Task Force)	Logistics and Shelter Task Forces	As directed.
Re-deploy teams and resources, if safe. (Task Force)	Logistics Task Force	Based on conditions
Start public awareness patrols. (Task Force)	Media, Law and Order and Logistics Task Forces.	As required
<b>Disaster</b>		
Assure the safety of staff.		Immediately
Restore own communications. (Task Force)		Immediately
Dispatch rescue/evacuation teams based on assessments. (Task Force)	Input from Control Room.	Immediately
Call for additional resources if needed. (Task Force)	Communications systems in operation	3-4 hours of disaster
Provide reports on operations. (Task Force)		Starting at 3-4 hours
Begin handling of deceased per SOP. (Task Force)	Various Revenue officers and Police involved.	Starting at 3-4 hours
<b>12 Hours</b>		
Begin staff rotation system. (Task Force)		Starter at 12 hours
Begin specialized rescue (may begin earlier). (Task Force)	May require outside resources, coordination with Logistics Task Force	Started at 12 hours

Begin debris removal in cooperation with Public Works Task Force.	Focus on critical infrastructure. Liaison with Control Room	Start at 12 hours
Secure additional resources (e.g., fuel, personnel) for continued operations. (Task Force).		Start at 12 hours.
<b>48 Hours</b>		
Demolish/Stabilize damaged buildings in cooperation with Public Works Task Force.	Logistics Task Force, workers, equipment.	Starting at 48 hours.
Demobilization, reconditioning, repair and replace equipment and other resources. (Task Force)		Based on nature of the disaster.
Remain on standby for additional operations, particularly related to the safety of recovery work. (Task Force).		As needed.
<b>72 Hours</b>		
Lessons Learned meeting. (Task Force and others)		After 2 weeks.
Final Report. (Task Force)		After major activities completed.

### 7.11.5 Public Works

Provide the personnel and resources needed to support local efforts to re-establish normally operating infrastructure.

**Table 42: Task Force Leader: Executive Engineer, Roads and Buildings**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Inventory of personnel, equipment, and status of infrastructure. (Taskforce)	Link to UNDP project data based development.	One week before the warning.
Identify critical infrastructure. (Task Force)	Need to define what is critical infrastructure.	Before warning.
Identify alternate transport routes and publish the map. (Task Force)		Before warning.
Plan for prioritized post-disaster inspection of infrastructure. (Task Force)		
Establish and maintain a resources and staffing plan. (Task Force)		
Plan to provide sanitation and other facilities for shelters. (Task Force)		
<b>Warning</b>		
Establish Control Room. (Task Force)		No later than 6 hours from warning

Mobilize Task Force and personnel.	Requires communications	No later than 6 hours from warning
Liaise with District Control Room. (Task Force)		No later than 6 hours from warning
Verify status and availability of equipment and re-deploy if appropriate and safe. (Task Force)	Coordination with Logistics Task Force and Control Room.	24 hours from warning
Review plans. (Task Force)		No later than 6 hours from warning
<b>Disaster</b>		
Begin damage assessment and inspections. (Task Force)	Coordination with Damage Assessment Task Force.	Within 12 hours of disaster
Develop operations plan and communicate to Control Room.		Within 12 hours of disaster
Mobilize and dispatch teams based on priorities. Teams will (1) repair, (2) replace, (3) Build temporary structures (e.g., rest facilities, shelters).	Coordination with Logistics, Water, Power Task Forces and Control Room.	Within 12 hours of disaster
Collaborate with other Task Forces.		Continuous
<b>12 Hours</b>		
Begin staff rotation system and manpower planning. (Task Force)		Starter at 12 hours
Mobilize additional resources based on expected duration of operations. (Task Force)	Coordination with Logistics Task Force, Contractors. May need additional funding.	Started at 12 hours
Assure safety. (Task Force)		Start at 12 hours
Establish security arrangements. (Task Force)	Law and Order Task Force.	Start at 12 hours.
Provide public information on roads, access, and infrastructure. (Media Task Force)	Coordination with Control Room	Start at 12 hours.
<b>48 Hours</b>		
Start detailed survey. (Task Force)	In cooperation with Damage Assessment Task Force	Starting at 48 hours.
Begin reporting on operations (Task Force)		Starting at 3 days
Reconditioning, repair and replace equipment and other resources. (Task Force)		Based on nature of disaster

Plan and start demobilization. (Task Force)		Starting at 3 days
<b>72 Hours</b>		
Develop long-term restoration plan and start activities. (Task Force)		From 72 hours
Lessons Learned meeting. (Task Force and others)		After 2 weeks
Final Report. (Task Force)		After major activities completed

### 7.11.6 Water Supply

Assure the provision of sufficient potable water for human and animal consumption (priority), and water for industrial and agricultural uses as appropriate.

**Table 43: Task Force Leader: Executive Engineer, Gujarat Water Supply Board**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Establish water availability, capacities, reliabilities and portability. (Task Force)	Standard of 20 liters of drinking water per person per day.	3 months before the warning.
Plan for alternate water delivery and storage. (Task Force)	May need tankers, tanks, generator set.	3 months before the warning.
Secure new and additional equipment. (Task Force)	Requires funding.	
Secure extra stocks of chemicals, expendable supplies, and equipment. (Task Force)	May require additional funding.	3 months before the warning.
Open Water Control Room in Monsoon. (Task Force)		Done.
<b>Warning</b>		
Establish staff rotation and shift system. (Task Force)		No later than 24 hours from the warning
Provide public awareness on the use of water. (Task Force)	Media Task Force.	No later than 24 hours from the warning
Provide instructions to government and private sectors on the protection of water supplies. (Task Force)		No later than 24 hours from the warning
Mobilize Task Force members		24 hours from the warning.
Mobilize additional personnel and vehicles. (Logistics Task Force)	May be difficult to locate additional personnel locally. Recourse to outside or contractor sources may be required.	24 hours from the warning.

Coordinate activities with Power and other Task Forces.	Involves District Control Room.	24 hours from the warning.
Verify water source status and protection. (Task Force).		No later than 24 hours from the warning.
<b>Disaster</b>		
Plan and prioritize supply of water to users. (Task Force)	Requires information on needs, damage, and demand.	Completed by 24 hours into disaster.
Assess status and damage to water systems. (Task Force)	Coordination with Damage Assessment Task Force.	Completed by 24 hours into disaster.
Mobilize water tankers. (Task Force)	Coordination with Logistics Task Force and Control Room.	Started by 24 hours into disaster.
Repair/restore water systems, based on the plan. (Task Force)	Coordination with Power and Logistics Task Forces.	Started by 24 hours into disaster.
Assure supply point/distribution security. (Law and Order Task Force)		Started as soon as distributions begin.
Coordinate distribution of water and storage and provision of information on safe water use. (Task Force).	Coordination with Media Task Force and Control Room	Started by 24 hours into disaster.
<b>12 Hours</b>		
Establish temporary water systems. (Task Force)		Up to 72 hours from disaster.
Move toward permanent water supply system. (Task Force)		After 72 hours.
Complete long-term recovery plan and needs. (Task Force)		After 72 hours.
Begin reporting and documentation. (Task Force)		From 48 hours.
Begin demobilization. (Task Force)	Coordinated with Control Room.	From 48 hours.
Lessons Learned meeting. (Task Force and others)		After 2 weeks.
Final Report. (Task Force)		After major activities completed

#### 7.11.7 Food and Relief Supplies

Assure the provision of basic food and other relief needs in the affected communities.

**Table 44: Task Force Leader: District Supply Officer**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Establish procedures and standards. (Task Force)	Need standards.	On-going.

Maintain two months stock of essential supplies. (Task Force)		Done
Develop transportation plan. (Task Force)	In cooperation with Logistics Task Force.	Completed in 8 days
Develop a list of NGOs. (Task Force)		Done
Plan staffing for disaster. (Task Force)		Done
Identify locations, which can be isolated and increase stock as needed. (Task Force)		On-going.
Identify food preparation locations. (Task Force)		Done
<b>Warning</b>		
Pass on warning. (Task Force)		Within 12 hours of receipt of the warning.
Alert NGOs to prepare food. (Task Force)	Contact with NGOs.	Within 12 hours of receipt of the warning.
Verify stock levels and make distribution plan. (Task Force)	Possible cooperation with Logistics Task Force.	Within 48 hours of receipt of the warning.
Alert transport contractors to prepare for transport. (Task Force)	Coordinate with Logistics Task Force.	Within 5 hours of receipt of the warning.
Mobilize staff. (Task Force)		Within 6 hours of receipt of the warning.
<b>Disaster</b>		
Receive and respond to instructions from Control Room. (Task Force)		As received.
Monitor conditions of stocks and facilities. (Task Force)	Need for communications.	
Develop distribution plan. (Task Force)	Need information on needs and locations.	As requested by Control Room.
Order food packets and provide supplies as needed. (Task Force)	Coordination with Logistics Task Force.	Per distribution plan.
Establish relief supplies receptions centers. (Task Force)	Coordinate with Control Room and Logistics Task Force.	As required.
<b>12 Hours</b>		
Start distribution operations. (Task Force)	In coordination with Logistics and Shelter Task Forces.	At beginning of period.
Formalize reporting, communications, and monitoring. (Task Force)		Completed by 48 hours.

Start staff rotation system. (Task Force)		At beginning of period.
Begin mobilizing and managing additional supplies.	Coordination with Logistics and, Control Room.	Underway in 48 hours.
Establish security for all sites. (Law and Order Task Force)		At beginning of period.
Begin public announcement of distribution plan and standards. (Media Task Force)		Underway in 48 hours.
<b>48 Hours</b>		
Shift to normal operations. (Task Force)		Within 1 week.
Reconcile receipts and distribution records. (Task Force)		Within 30 days.
Continue providing relief to special areas/populations. (Task Force)		For 15 days from the disaster
<b>72 Hours</b>		
Restore Public Distribution System. (Task Force)		From 1 week after the disaster.
Lessons Learned meeting.		Within 14 days

**7.11.8 Power**

Provide resources to re-establish normal power supplies and systems in affected communities

**Table 45: Task Force Leader: Superintending Engineer, Gujarat Electricity Board**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster and warning phases</b>		
Develop an inventory of current status of power system and resources. (Gujarat Electricity Board – GEB)		
Establish minimum stock levels and procure necessary additional stocks. (GEB)		
Conduct monthly meetings. (GEB)		On-going
Develop contact lists. (GEB)		
Conduct an informal hazard and risk assessment. (GEB)		Completed.
Develop disaster plan. (GEB)		
<b>Disaster</b>		
Assess impact according to SOP. (GEB)	Coordinate with Control Room and Damage Assessment Task Force.	
Prioritize response actions. (GEB)	Need to establish priorities.	
Collect more information. (GEB)		
Mobilize additional resources. (GEB)	Coordination with Control	



	Room and other Task Forces.	
Check for unforeseen contingencies.		
<b>12 Hours</b>		
Revise plans based on feedback and assessments. (GEB)		Continuous
Monitor status of actions. (GEB)		Continuous
Begin staff rotation plan. (GEB)		At beginning of period.
Disseminate public information. (Media Task Force)		At beginning of period.
Secure support for staff (food, lodging) from NGOs. (GEB)		
Assure security as needed. (Law and Order Task Force)	Coordinate with Control Room.	
Establish constant communications on needs, requirements and resources with Control Room and GEB/HQ.		
<b>48 Hours</b>		
Look for improvements in efforts. (GEB)		
Reinforce central coordination. (GEB)		
Conduct regular coordination meetings with other actors. (GEB)		
Begin formal documentation of efforts. (GEB)		
<b>72 Hours</b>		
Review shift plan for safety. (GEB)		
Plan for situation turn to normal, including additional security if needed. (GEB)	Involvement of Law and Order Task Force.	

### 7.11.9 Public Health and Sanitation

(Including first aid and all medical care)

Provide personnel and resources to address pressing public health problems and re-establish normal health care systems

**Table 46: Task Force Leader: Chief District Health Officer**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Develop an inventory of personnel, resources, and facilities. (Task Force)		1 week.
Training. (Task Force)	Coordination with GSDMA	6 months.
Establish Control Room.		Completed.
Prepare for specific diseases by season (e.g., monsoon)		Completed.

Establish Epidemiological Reporting System (ERS). (Task Force)		Completed.
Identify disease vulnerable areas. (CDHO)		Completed.
Improve public awareness. (Media Task Force)		
<b>Warning</b>		
Send out a warning to health facilities. (Task Force)		As received.
Mobilize health teams to possible disaster areas. (Task Force)	In coordination with Control Room.	As needed.
Activate Task Force for the whole district. (CDHO)		On warning.
<b>Disaster</b>		
Begin first aid efforts. (Task Force)		Within 1 hour of disaster.
Establish status of health care system. (Task Force)	Requires communications.	Within 6 hours of disaster.
Begin referral of injured to upper-level facilities. (Task Force)		Within 1 hour of disaster.
Implement SOP for management of deceased. (Task Force)	Involves cooperation with Law and Order and SAR Task Force.	Within 1 hour of disaster.
Coordinate efforts with Control Room and other Task Forces.		Within 2-3 hours of disaster.
<b>12 Hours</b>		
Begin to call in outside resources. (Task Force)	Involves Telecommunications and Logistics Task Forces and Control Room.	Within 3 hours.
Establish temporary medical facilities where needed. (Task Force)	Coordination with Public Works, Power, Water, and Law and Order Task Forces.	Within 24 hours.
Expand surveillance of health status. (Task Force)		Within 24 hours.
Establish shift system for staff. (Task Force)		At beginning of period.
Visit and review health status in shelters. (Task Force)		Within 24 hours.
Develop health care system recovery plan. (Task Force)	In coordination with Control Room.	2-3 hours.
<b>48 Hours</b>		
Establish formal health care system reporting. (Task Force)		At beginning of period.
Start solid waste and vector control management SOP. (Task Force)		At beginning of period.
Start waste water management SOP. (Task Force)		At beginning of

		period.
Focus health status surveillance on children 0 to 5 years.		Implements in one week.
Establish public awareness and IEC efforts. (Task Force and Media Task Force)		At beginning of period.
<b>72 Hours</b>		
Develop demobilization plan.		By the beginning of period.
Lessons Learned meeting.		Within 14 days of disaster.
Final Report		Within 14 days of disaster.

#### 7.11.10 Animal Health and Welfare

Provision of health and other care to animals affected by a disaster

**Table 47: Task Force Leader: Deputy Director, Veterinary and Animal Husbandry**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Update animal list. List of staff and training for disposal of the carcass. (Task Force)		Done.
Stock medical supplies and vaccines. (Task Force)		Done
<b>Warning</b>		
Alert staff (by phone). (Task Force)		As warnings received.
Distribute supplies to vulnerable areas. (Task Force)		During warning period.
Contact Control Room. (Task Force)		As required.
<b>Disaster</b>		
Remove and destroy carcasses. (Task Force)	Need fuel and logistics.	As soon as possible.
Treat injured animals. (Task Force)		As soon as possible.
Issue certification of death. (Task Force)	For insurance purposes.	Within 48 hours.
Call in staff from other districts as needed. (Task Force)		As needed.
Assist local authorities in a survey of damage and reconciliation of records.		As required.
<b>48 Hours and beyond</b>		
Assist local authorities in providing fodder as needed.		As required.
Collect feedback. (Task Force)		
Final Report. (Task Force)		In 15 days.

**7.11.11 Shelter**

Provide materials and supplies to assure temporary shelter for disaster-affected populations.

**Table 48: Task Force Leader: District Primary Education Officer**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Develop shelter operating procedures. (Task Force)		
Develop an inventory of shelters (location and capacity). (Task Force)	SDRN updating, project inventory.	On going
Provide information to other Task Forces on the location of shelters. (Task Force)	Logistics, Water, Power, SAR, Food/Relief Supplies Task Forces and Control Room	
Training for shelter managers. (Task Force)	Need training module.	
<b>Warning</b>		
Mobilize shelter managers. (Task Force)		Within 6 hours of warning.
Review shelter locations for operating status. (Task Force)	Communications needed.	Within 6 hours of warning.
Open shelters as instructed.	Coordination with Control Room.	Within 6 hours of warning.
Mobilize additional resources for shelters and camps. (Task Force)	Cooperation with Logistics, Food and Relief Supplies, Water and Power Task Forces.	Within 6 hours of warning.
Provide public announcements on locations and status of shelters. (Media Task Force)		Within 6 hours of warning.
<b>Disaster</b>		
Beginning logging-in of occupants. (Shelter managers).		Immediately.
Report on status of shelters. (Task Force)	To Control Room.	As needed.
Plan for prioritization of shelter use. (Task Force)	Coordination with evacuation operations and Control Room.	Immediately.
Coordinate with other Task Forces on water, power, food, health, security. (Task Forces)		Immediately.
Provide support and assistance to occupants. (Task Force)	Liaise with Animal Task Force on the management of animal and with Health Task Force on health care.	
<b>12 Hours</b>		
Continue operations. (Task Force)		Continuously
Monitor shelter status and movement of people.		Continuously

(Task Force)		
Mobilize additional resources. (Task Force)	Coordinate with Control Room and Logistics Task Force.	Continuously
<b>48 Hours and beyond</b>		
Begin Demobilization as appropriate. (Task Force)		
Begin reconditioning/repairs to shelters. (Task Force)	In cooperation with Public Works Task Force.	As needed.
Lessons Learned session. (Task Force)	Involvement of other Task Forces and evacuees.	14 days after completion of operations.
Final Report. (Task Force)		1 month after completion of activities.

#### 7.11.12 Logistics

Provide air, water and land transport for evacuation and for the storage and delivery of relief supplies in coordination with other Task Forces and competent authorities.

**Table 49: Task Force Leader: District Development Officer**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Conduct resource inventory (air/land/water transport and storage; inside and outside the district.). (Task Force)		1 month.
Establish deployment requirements, procedures and alternate options. (Task Force)		1 month.
Conduct drills. (Task Force)		1 month.
Coordinate with other Task Forces.	Work through Control Room.	As needed.
<b>Warning</b>		
Alert and mobilize Task Force members. (Task Force)		Within 1 hour of receiving a warning.
Mobilize transport and other resources for action on short notice depending on disaster expected. (Task Force)	Coordination with Control Room	Within 2-3 hours of warning.
Liaise with Control Room and SAR, Shelter and Food/Relief Supplies Task Forces.		Within 1 hour of receiving a warning.
Review plan and determine if outside resources are needed. (Task Force)		Within 6 hours of receiving a warning.

Plan for logistics based depending on nature of the disaster. (Task Force)	Coordinate with Control Room and Food and Relief Supplies Task Force.	As needed.
<b>Disaster</b>		
Take action based on an instruction from Control Room. (Task Force)		Within 2 hours of receiving a warning.
Continually review requirements and resources. (Task Force)		Continuous.
Develop operations plan. (Task Force)	Coordinate with Control Room and Food and Relief Supplies Task Force.	Within 2 hours of receiving a warning.
Strengthen liaison with Control Room and key Task Forces. (Task Force)		Within 2 hours of receiving a warning.
Verify quality of service. (Task Force)	Requires set a standard of service and information on operations.	Daily.
<b>12 Hours</b>		
Respond to increased demand for logistics. (Task Force)		Continuous.
Begin rotation of staff. (Task Force)		At the start of the period.
Establish logistics bases as needed. (Task Force)	Coordinate with Control Room and Food and Relief Supplies Task Force.	Continuous.
Review plans and communicate with other Task Forces. (Task Force)		Continuous.
Begin regular reporting and documentation. (Task Force)		At the start of the period.
<b>48 Hours</b>		
Reassess needs and requirements. (Task Force)		Continuous.
Begin demobilization as appropriate. (Task Force)		
<b>72 Hours</b>		
Lessons Learned meeting.	Include Shelter, Food and Relief Supplies in the meeting.	Within 14 days of the disaster.
Final Report		Within 14 days of the disaster.

#### 7.11.13 Damage Assessment and Survey

Collect and analyze data on the impact of the disaster, develop estimates of resource needs and relief plans, and compile reports on the disaster as required for District and State authorities and other parties as appropriate.

**Table 50: Task Force Leader: Resident Additional Collector**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Establish assessment procedures and forms. (Task Force)	Collaboration with GSDMA and COR.	
Compile baseline data. (Task Force)	Collaboration with GSDMA project.	
Establish assessment groups and teams. (Task Force)		
Develop an assessment coordination plan. (Coordination and Planning Task Force)		
Develop a communications plan. (Task Force)	In cooperation with Telecommunications Task Force	
<b>Warning</b>		
Mobilize Task Force. (Task Force)		Within 6 hours of warning.
Review Plan. (Task Force)		Within 6 hours of warning.
Consider pre-disaster impact assessment. (Task Force)	Based on expected nature of the disaster.	Within 6 hours of warning.
Active village-level assessment teams. (Task Force)		Within 6 hours of warning.
<b>Disaster</b>		
Consider the safety of assessment teams. (Task Force)		Immediately.
Start planning for assessment. (Task Force)		As initial impact information is available.
Begin initial assessment procedures. (Task Force)		When conditions allow.
Communicate assessment plans to Control Room. (Task Force)		Once initial plan is developed.
<b>12 Hours</b>		
Publicly disseminate assessment plans and reports. (Media Task Force)		As available.
Initiate continual updating of assessment information. (Task Force)	Coordinate with Coordination and Planning Task Force.	
Initiate continual updating of assessment plans. (Task Force)	Coordinate with Coordination and Planning	

	Task Force.	
Coordinate with other Task Forces. (Task Force)		
Begin staff rotation and secure more staff as needed.		At beginning of period.
<b>48 Hours</b>		
Prepare detailed damage, losses, needs assessment and long term recovery plans. (Task Force)	Coordinate with other Task Forces.	3-5 days after the disaster.
Coordination of requirements, plans and activities.	Working through Control Room and Coordination and Planning Task Force.	Continuous.
<b>72 Hours</b>		
Lessons Learned meeting.	Include Shelter, Food and Relief Supplies in the meeting.	Within 14 days of the disaster.

#### 7.11.14 Telecommunications

Coordinate and assure operation of all communications systems (e.g., radio, TV, phones, wireless) required to support early warning or post-disaster operations.

**Table 51: Task Force Leader: Resident Additional Collector**

Action and (Who Should Take It)	Requirements or Conditions to be met for the action can occur.	Timeframe
<b>Before a disaster</b>		
Develop telecommunications inventory and SOPs. (Task Force)	Telecommunications training.	
Coordinate with other Task Forces. (Task Force)		
Identify sites of vulnerable system components (e.g., switches). (Task Force)		
Ensure redundancy in communications systems. (Task Force)	May require close liaison with private sector providers.	
Training in communication skills and methods. (Task Force)		
<b>Warning</b>		
Verify communication systems are working. (Task Force)		Within 24 hours of warning.
Mobilize Task Force.		Within 24 hours of warning.
Repair down systems and establish alternate communications systems. (Task Force)	Coordinate with Control Room.	Within 24 hours of warning.
Mobilize resources. (Task Force)		Within 24 hours of warning.
Facilitate telecom demands of other Task Force		



members. (Task Force)		
<b>Disaster</b>		
Check the status of communications systems. (Task Force)		In 2-3 hours.
Identify damage to systems. (Task Force)		First information available in 2-3 hours.
Contact Control Room and other Task Forces on telecom needs. (Task Force)		In 2-3 hours.
Start repairs. (Task Force)		In 2 hours.
<b>12 Hours</b>		
Mobilize outside resources (may start earlier). (Task Force)		Continuous.
Complete plans for repairs and re-establishment of systems. (Task Force)	Coordinate with Control Room.	Continuous.
Liaise with Control Room and other Task Forces.		
Start shift system for staff. (Task Force)		At beginning of period.
<b>48 Hours and beyond</b>		
Continue to assist other Task Forces. (Task Force)		
Continue repair work. (Task Force)		
Begin demobilization. (Task Force)		
Lessons Learned meeting.	Include Shelter, Food and Relief Supplies	Within 14 days of the disaster.
Final Report. (Task Force)	Involve other Task Forces.	Within one month of the end of operations.

## Chapter-8: Recovery Measures

Recovery is defined as decisions and actions were taken after a disaster with a view to “restoring or improving life and assets of the stricken community while encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery and reconstruction (R&R) or comprehensive rehabilitation is the last step in the cycle of disaster management. In addition, this is the phase of the new cycle, where the opportunity for reconstruction and rehabilitation should be utilized for building a better and more safe and resilient society.

Strategies for restoring physical infrastructure and lifeline services may be:

### **Build Back Better:**

This ensures greater resilience, preparedness; and minimum loss in an event of a future disaster.

### **Participatory Planning:**

Infrastructure improvement measures need to be balanced with or at least be in line with, the social and cultural needs and preferences of beneficiaries.

### **Coordination:**

A plan of recovery will help better coordination between various development agencies. Damage Assessment and Needs Assessment shall be the basis for recovery planning. Various Sectors for recovery process may be:

- Essential Services: Power, Water, Communication, Transport, Sanitation, Health
- Infrastructural: Housing, Public Building, and Roads
- Livelihood: Employment, Agriculture, Cottage Industry, Shops and Establishments

Basic services such as power, water supply, sanitation, wastewater disposal etc. should be restored in shortest possible time. An alternate arrangement of water supply, temporary sanitation facilities can be sought with help of special agencies.

Special arrangements for the provision of essential services should be ensured. It can include creating temporary infrastructure for storage and distribution of water supply, running tankers, power supply, and sanitation facilities.

### **8.1 Damage Loss Assessment:**

Restoration of Essential Services and Infrastructure

Following tables are to be filled after an event of a disaster

**Table 52: Power**

Item/ Services	No. of unit damaged	No of villages affected	Populati on affected	Recovery measures	Implementing Agency	Tentative Duration (Months)	Budget
Feeder							
Transformers							
HT Lines							
LT Lines							
Electric Poles							

**Note:** To be planned after initial damage assessment by departments

**Table 53: Health**

Item/ Services	PHC (village name)	CHC	Sub Centre	Drug Store	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
No of buildings damaged								
No of health centers inaccessible								
Refrigeration and other vital equipment for storage								
Drugs and medicines perished	(Location and qty)							
No of Ambulance damaged								

**Note:** To be planned after initial damage assessment by departments

**People in need of immediate rehabilitation including psychosocial support (due to disaster)**

**Table 54: Social**

Village	Men	Women	Children	Total	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget

**Table 55: Water Supply**

Type	Village	No. of unit affected	Faliya/ Population affected	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
Well							
Borewells							
Pond							
Water Supply Disrupted							
Contamination							
ESR damaged							

Type	Village	No. of unit affected	Faliya/ Population affected	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
GLR Damaged							
Sump damaged							
Pipelines damaged							
Stand post damaged							
Cattle trough damaged							
Hand pump							

Table 56: Road and Transport

Road damage	Location	Severity	Km	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
Panchayat							
State Roads							
National Highway							
Nagar Palika							

Item/ services	Village/ Ward	Population	Alternate road/route	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
Road Cut off							
Rail Connectivity							

Table 57: Communication

Type	Office/Tower Damaged	Villages affected	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
Landline connectivity	(No. of unit and location)					
Mobile connectivity						
Wireless Tower						
Radio						

**Table 58: Food Supply**  
**List of village affected by the disruption in food supply**

Type	No. of godown damage	Type of grains perished (Ton)	Qty of grain perished (Ton)	Qty of grain at risk (Ton)	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
Civil Supply								
APMC								
Other								

**Table 59: Housing**

Partial Damage		Fully Damaged/Collapsed		Recovery Measures	Program/Scheme	Implementing Agency	Tentative Duration (Months)	Budget
Kucha	Pucca	Kucha	Pucca					

**Table 60: Public Utilities**

Public Buildings	Partial damage (No. of units)	Fully Damaged/Collapsed (No. of Unit)	Recovery Measures	Program/Scheme	Implementing Agency	Tentative Duration (Months)	Budget
Panchayat							
Educational Buildings							
Aanganwadi							
Hospitals							
Office Buildings							
Market							
Police station							
Community Halls/ Function plots							

**Table 61: Restoration of Livelihood Provisioning of Employment**

Occupational category	No. of workers	Implementing Agency	Tentative Duration (Months)	Budget
Skilled laborers				
Unskilled and, Agricultural laborers				
Small and marginal farmers				

Construction workers				
Salt pan workers				
Fisherfolk				
Weavers				
Other artisans				

**Table 62: Land Improvement**

Land erosion/ siltation (Hectare)	HHs affected	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget

**Table 63: Agricultural**

Crop failure (Hectare)	HHs affected	Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget

**Table 64: Nonfarm Livelihood**

Cottage Industry	Extent of damage/disruption		Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
	Tools and equipment (Specify no. and type)	Goods and material (Specify type and qty)				
Handloom						
Pottery						
Food Processing						
Diamond sorting etc						
Printing/ Dying						
Other						

**Table 65: Shops and establishment**

Extent of damage/disruption			Recovery Measures	Implementing Agency	Tentative Duration (Months)	Budget
Building (No. and location)	Tools and equipment(Speci fy no. and type)	Goods and materials (Specify type and qty)				

**A) Short-Term and Instant Recovery Measures:**

Depending upon the amount of damage to the area, Immediate Recovery phase remains from a day to two months. The time-bound action plan must be created for the damage assessment by District administration along with relevant departments.

**SHORT TERM AND LONG TERM RECOVERY TIMETABLE****Table 66: Recovery and Reconstruction**

Activity/Action	Estimate of Duration	Estimate of Duration
Period	Short-Term	Long-Term
Warning	Hours to a few days	
Response/Operations	Ongoing	Ongoing
Emergency	1-15 days	1-60 days
Preparation of damage assessment	1-4 days	4-8 days
Disaster declaration (state or federal)	1-10 days	0-30 days
Federal/State mitigation Strategy	1-15 days	15-30 days
Recovery	7-150 days	150-365 days
Temporary building moratorium	<=30 days	<=60 days
Letter of intent to submit HM Grant	<=60 days	<=60 days
Short-term reconstruction	<= 1 year	200-365 days
State mitigation	<= 180 days	365 days
HMGP proposal	70-200 days	200-365 days

**8.2 Restoration of Basic infrastructure:****8.2.1 Roads and Bridges:**

Building or Restoration of critically damaged roads and bridges needed to be considered. It should be in need to provide connectivity with instant effect. These roads can be Village roads or National highway to connect with main Arterial roads and Hospital or health centers. The building of bridges can be very important of accessing or connecting blocks/panchayats/villages.

**8.2.2 Drinking Water Supply:**

New hand pumps, tube wells should be reinstated for drinking water supply or setting up of water supply pipelines in the regions with no access to potable water.

**8.2.3 Electricity:**

Power Supply has the important function during recovery operation so it should be fixed quickly for immediate recovery. Electricity failure can create chaos in the response period during a disaster because the impact of a disaster can be increased due to a prolonged power cut.

**8.2.4 Communication Network:**

During disaster impact, communication system gets affected. Terrestrial networks of mobile services providers should fix the error at their earliest possible time. This step can help search and rescue operation easier, as well as lead to a synchronised response.

**8.2.5 Reconstruction and Repair of Lifeline Buildings:**

Lifeline buildings have the important role during a disaster in the response phase. These important buildings should keep working for the functioning of the administrative mechanism during a critical time. The following buildings should be repaired at first.

- A. Collector building
- B. District Emergency Operation Centre
- C. Line Department Buildings
- D. Court Building
- E. Block and Circle Offices.

**8.2.6 Rehabilitation:**

The Disaster may cause havoc to life and property. During this type of immense disaster, the large population may have to be transported or rehabilitated to other location on a temporary basis. If some area is affected by river course change, there may be a need of permanent relocation. Affected people will have to be provided relief material and food supplies and shelter.

Mass Care and Sheltering and Housing: Sheltering and housing are very important from response phase to recovery phase and done through Incident Response System. This response operation is supervised by Incident Response system and the liability of the Relief Camp Manager is to manage the shelter. During this period, identification of victims for whom shelter and houses have to be constructed under IAY and RAY shall be sanctioned.

Foods Security: Monitor the food supply to the relief camps and Food for Work Programmer.

Debris Removal and Disposal of Dead Bodies: For the effective response and recovery procedure, debris or trees must be first removed from main transportation means. Many bodies can be found within debris and hence health department must work with debris removal agencies in tandem.

Psychosocial Support: Psychosocial care must be important to victims who have lost their family member, who have suffered physical damage or their house get affected due to disaster.

Health Care: Emergency health care support must be delivered to the affected areas at the earliest possible time. During disaster many health care centers get affected and damaged, in this situation, temporary medical relief camps must be established while the building is retrofitted or reconstructed. Reconstruction of buildings has to begin in this phase.

Livelihoods Recovery: There are total three types of intersecting phases for livelihoods interventions: Livelihood Provisioning, Livelihoods Conservancy and Livelihoods Promotion. The first two phases shall be in a part of Quick and Short Term recovery.

Livelihoods Provisioning: Food and Non-food items are very necessary for survival in the form of relief must be provided.



**Mitigation Measures:** Mitigation activities is very important to reduce the impact of the hazard. For that, vulnerability and risk assessment have to be done in the disaster-prone areas to mitigate any future damage. Retrofitting or reconstruction of damaged houses or other buildings and repairing of embankments work should be done as a part of mitigation measures.

### **b) Medium-Long-term Recovery**

Post-disaster mitigation phases consist of a long-term and complex process, which includes several dimensions for example Rehabilitation of the environment, reconstruction of infrastructure, livelihood regeneration, psychological care etc. This process requires strong bonding between different NGOs, Government organization as well as international organizations and communities in the district.

Disaster recovery typically occurs in phases, with initial efforts dedicated to helping those affected meet immediate needs for housing, food and water. As homes and businesses are repaired, people return to work and communities continue with cleanup and rebuilding efforts. Many government agencies, voluntary organizations and the private sector cooperate to provide assistance and support.

Some individuals, families, and communities that are especially hard hit by a disaster may need more time and specialized assistance to recover and a more formalized structure to support them. Specialized assistance may be needed to address unique needs that are not satisfied by routine disaster assistance programs. It may also be required for very complex restoration or rebuilding challenges. Community recovery addresses these ongoing needs by taking a holistic, long-term view of critical recovery needs, and coordinating the mobilization of resources at the, and community levels.

Oftentimes, committees, task forces or other means of a collaboration formed with the goals of developing specific plans for Community recovery, identifying and addressing unmet or specialized needs of individuals and families, locating funding sources, and providing coordination of the many sources of help that may be available to assist. Some collaboration focuses on the community level and relies on the expertise of community planning and economic development professionals. Other collaborations focus on individual and family recovery and are coordinated by social service and volunteer groups. All such efforts hope to lay the groundwork for wise decisions about the appropriate use of resources and rebuilding efforts.

Under the National Response Framework, Emergency Support Function (ESF) Community Recovery coordinates the resources of federal departments and agencies to support the long-term recovery of States and communities and to reduce or eliminate risk from future incidents. While consideration of long-term recovery is embedded in the routine administration of the disaster assistance and mitigation programs. Some incidents, due to the severity of the impacts and the complexity of the recovery, will require considerable interagency coordination and technical support.

ESF efforts are driven by State/local priorities, focusing on permanent restoration of infrastructure, housing, and the local economy. When activated, ESF provides the coordination mechanisms for the Federal government to:

- Assess the social and economic consequences in the impacted area and coordinate Federal efforts to address Community recovery issues resulting from an Incident of National Significance;
- Advice on the Community recovery implications of response activities, the transition from response to recovery in field operations and facilitate recovery decision-making across ESFs;
- Work with State, local, and tribal governments, NGOs, and private-sector organizations to conduct comprehensive market disruption and loss analysis and develop a forward-looking market-based comprehensive long-term recovery plan for the affected community;
- Identify appropriate Federal programs and agencies to support the implementation of the Community recovery plan, ensure coordination, and identify gaps in resources available;
- Avoid duplication of assistance, coordinate to the extent possible program application processes and planning requirements to streamline assistance and identify and coordinate resolution of policy and program issues; and
- Determine/identify responsibilities for recovery activities and provide a vehicle to maintain continuity in program delivery among Federal departments and agencies and with State, local, and tribal governments and other involved parties, to ensure follow-through of recovery and hazard mitigation efforts.

### 8.2.7 Grievances Redressed System:

Grievance redressed is an important aspect in the context of providing need-based assistance to affected communities with transparency and accountability. It also ensures the protection of their rights and entitlements for disaster response services.

#### Grievance Redressed System

No.	Key Person/ Establishment	Contact No	Address
1	DEOC/ RAC	02832-250650	Collector Office District Emergency Operation centre
2	DDO	02832-250080	District Panchayat
3	Police	02832-250444	SP Office, Kutch

8.2.8 Matrix Form of Short-Term and Long-Term Recovery Programme Disaster recovery has three distinct but interrelated meanings. First, it is a goal that involves the restoration of normal community activities that were disrupted by disaster impacts – in most people’s minds, exactly as they were before the disaster struck. Second, it is a phase in the emergency management cycle that begins with stabilization of the disaster conditions (the end of the emergency response phase) and ends when the community has returned to its normal routines. Third, it is a process by which the community achieves the goal of normal life.

## 8.3 Recovery measures by the concerned department

### 8.3.1 Agriculture

#### Recovery Activities:

- a. Arrange for early payment of compensation and crop insurance dues.
- b. Facilitate provision of seeds and other agro-inputs.
- c. Promotion of drought and flood tolerant seed varieties

- d. Review with the community, the identified vulnerabilities and risks for crops, specific species, areas, which are vulnerable to repetitive floods, droughts, other natural hazards, water logging, increase in salinity, pest attacks etc. and draw up alternative cropping plans to minimize impacts to various risks.
- e. Facilitate sanctioning of soft loans for farm implements.
- f. Establishment of a larger network of soil and water testing laboratories
- g. Establishment of pests and disease monitoring system
- h. Training in alternative cropping techniques, mixed cropping, and other agricultural practices which will minimize crop losses during future disasters

### **8.3.2 Health Department**

#### **Recovery Activities:**

- g. Continuation of disease surveillance and monitoring
- h. Continuation of treatment, monitoring and other epidemic control activities till the situation is brought under control and the epidemic eradicated
- i. Trauma counseling
- j. Treatment and socio-medical rehabilitation of injured or disabled persons
- k. Immunization and nutritional surveillance
- l. Long-term plans to progressively reduce various factors that contribute to high-level of vulnerability to diseases of the population affected by disasters

### **8.3.3 Epidemics**

#### **Recovery Activities:**

- a. Assess losses of animal's assets and needs of persons and communities.
- b. Play a facilitating role for early approval of soft loans for buying animals and ensuring insurance coverage and disaster-proof housing or alternative shelters/ mounds for animals for future emergencies.
- c. Establishment of an animal disease surveillance system

### **8.3.4 Water Supplies and Sanitation (GWSSB)**

#### **Recovery Activities:**

- a. Strengthening of infrastructure.
- b. Sharing of experiences and lessons learned.
- c. Training to staff, Review, and documentation.
- d. Development of checklists and contingency plans.
- e. Strengthening of infrastructure and human resources.
- f. Review and documentation.
- g. Sharing of experiences and lessons learned.
- h. Training of staff.
- i. Development of checklists and contingency plans.

### **8.3.5 Civil Supplies**

#### **Recovery Activities:**

Conversion of stored, unutilized relief stocks automatically into other schemes like Food for work. Wherever, it is not done leading to damage to stock, it should be viewed seriously.

**8.3.6 Public Works/ Rural Development Departments****Recovery Activities:**

- a. Strengthening and restoration of infrastructure with an objective to eliminate the factor(s) which caused the damage.
- b. Sharing of experiences and lessons learned.
- c. Training to staff, Review, and documentation.
- d. Development of checklists and contingency plans.

**8.3.7 Fisheries****Recovery Activities:**

Provide compensations and advice to affected individuals, community.

**8.3.8 Transport Department****Recovery Activities:**

- f. Provision of personal support services e.g. counseling.
- g. Repair/restoration of infrastructure e.g. roads, bridges, public amenities.
- h. Supporting the GPs in the development of storage and in playing a key role and in the coordination of management and distribution of relief and rehabilitation materials.
- i. The G.P. members to be trained to act as an effective interface between the community, NGOs, and other developmental organizations.
- j. Provide training so that the elected representatives can act as effective supportive agencies for reconstruction and recovery activities.

**8.3.9 Panchayati Raj Institutions:****Recovery Activities**

Take up plantation to make good the damage caused by tree cover.

## Chapter-9: Financial Arrangement

To ensure the long-term sustenance and permanency of the organization funds would be generated and deployed on an ongoing basis. There are different ways to raise the fund in the State as described below.

### 9.1 State Disaster Response Fund

To carry out Emergency Response and Relief activities after any disaster the State Disaster Response Fund is making available to Commissioner of Relief, Revenue Department under which the Central Government will share 75% and the Govt. of Gujarat has to share 25% as per the recommendation of 13th Finance Commission.

### 9.2 State Budget

The Authority, submit to the State Government for approval a budget in the prescribed form for the next financial year, showing the estimated receipts and expenditure and the sums which would be required from the State Government during that financial year. As per the provisions of The Gujarat State Disaster Management Act, 2003 the Authority may accept grants, subventions, donations, and gifts from the Central or State Government or a local authority or any individual or body, whether incorporated or not.

### 9.3 District Planning Fund

For preparedness, mitigation, capacity building and recovery fund can be raised from MP or MLA grant as received for developmental work also from the departmental arrangement.

### 9.4 Partnerships

There are projects/schemes in which funding can be done by a public sector authority and a Private Party in Partnership (also called on PPP mode funding). In this State Govt. along with Private organizations and with Central Govt., share their part.

**Table 67: Centrally Sponsored Scheme**

Name	Purpose	Finance Arrangements	Activities that can be taken under scheme	Nodal Agency
NDRF (NCCF)	Relief Assistance	100% Central Govt	Cash and kind relief	Revenue Department
SDRF (CRF)	Relief Assistance	75% Centre, 25% State	Cash and kind relief	Revenue Department
Planning Commission (13 Finance commission) Year 2011-15	Capacity Building	100% Centre	Trainings Awareness Generation, IEC material, Mock drills	Revenue Department

## Chapter- 10: Dam Safety and Precautions

### 10.1 Rivers of Kutch Region

The flood forecasting and flood warning system for the rivers and dams of Kutch district is being looked after by the Superintending Engineer, Kutch Irrigation Circle, Bhuj through his Executive Engineer (1) Kutch Irrigation Division, Bhuj and (2) Kutch Irrigation Construction Division, Bhuj. The gauge, discharge and rainfall data are being communicated through wireless stations located at various stations on the main rivers as well as tributaries except Water Supply Scheme.

The flood forecasting and flood warning arrangements for Tapper water supply project under Gujarat Water Supply and 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 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.

Kutch 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.

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.

#### 10.1.1 Appropriate Authority (Focal Officer)

##### a. For Kutch District:

Superintending Engineer  
Kutch Irrigation Circle,  
Sinchai Sadan, Bhuj (Kutch)

##### b. Appropriate Authority (Focal Officer) for Water Supply Scheme:

Superintending Engineer  
Public Health Circle,  
Bhuj.

### 10.2 Most common Observed Problem for Dam Failure:

- a. Under-designed spillways.
- b. Deficiencies in hoisting system and gates.
- c. Deformity & erosion of up and down slopes, erosion of settlement and abutments & cracks along dam crests.
- d. Pitting and cracks in spillways and outlet gate structures, erosion of energy dissipation systems.

- e. Malfunctioning of dam monitoring instruments.
- f. Excessive seepage through masonry or concrete dams.

### 10.3 Flood Control Cell

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.

### 10.4 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.

### 10.5 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.
Severe 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 kachchha house
90-120 kmph	Trees uprooted; Pucca houses damaged; Communication disrupted
More than 120 kmph	Big trees uprooted; Widespread damage to houses and Total disruption of installation of communication

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.

### **10.6 Flood Warning Announcement Through All India Radio/Doordarshan**

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 authorized 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.

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 number of simultaneously be conveyed to Flood Control Cell, State Water Data Centre Building, Sector-8, Gandhinagar.

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.

### **10.7 Disaster Preparedness for Flood**

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 below:

### **10.8 Model Action Plan for disaster preparedness (for Flood) in Kutch district**

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 or the rivers in the state?
5. Is there a co-ordination committee for relief?
  - a. Are the district level officers and Block Development Officer of health, Water Resources, Roads and Building, Telephones and Police, represented on it? Does it meet at least 3 weeks before the onset of monsoon?



- b. Are the Sub-divisional Officers and Block Development Officers of flood-prone areas invariably asked to attend the meetings? Are Voluntary Relief organizations 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.
10. Are the flood prone blocks connected with to the telephones and police?
  - a. Mobile water tankers, canvas water tanks, drums and Jerry cans for transporting water buckets are kept ready?
  - b. Sand bag for repairs of flood protection embankment are kept ready?
  - c. 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.
  - a. Disinfectants such as bleaching powder, chlorine liquid chloroschope, orthotoludine solution, water purifying tablets, phenyl (for ensuring quantity of free chlorine for supplying safe and potable drinking water)
  - b. Essential medicines for mobile team and dispensaries in the evacuee camps are available? are such stations provided with wireless set?
  - c. Who is responsible for disseminating the flood warning at the village level? Has the village Mukhiya 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, anti malaria drugs, anti phytotics and analgesic and anti allergic drugs chlorosel 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?
  - a. Are the pucca buildings situated on raised ground beyond the reach of normal level of flood water?
  - b. What steps have been taken to make people aware of these shelters?
  - c. Has the list of such shelter been published in the local news papers and displayed in the blocks, taluka and tehsil officers?
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 or 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 and 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 helipad 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 fisherman 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?

- a. Are you searching for alternatives sites which can be allotted to such families?
- b. 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?

### 10.9 Vulnerable villages of Kutch district to Floods Hazards

List of Villages Likely to be affected by floods on Downstream of the Dams in Kutch Region

**Table 68: Irrigation Scheme with vulnerable villages to flood disaster**

Sr.	Name of Scheme	Name of	Name of Taluka	Name of Villages
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No.		District		
1	Fatehghadh Irrigation Scheme	Kutch	Rapar	1. Gedi 2. Fatehghadh
2	Gajod Irrigation Scheme	Kutch	Mundra	1. Beraja 2. Bhujpur 3. Gelad 4. Ramania 5. Tumbadi
3	Godhatad Irrigation Scheme	Kutch	Lakhpat	1. Kapurashi 2. Koriyani
4	Kaila Irrigation Scheme	Kutch	Bhuj	1. Zura
5	Kalaghogha Irrigation Scheme	Kutch	Mundra	1. Somaghogha
6	Kankawati irrigation Scheme	Kutch	Abdasa	1. Hajapur 2. Miyani 3. Nundhtad 4. Vinzan
7	Kaswati irrigation Scheme	Kutch	Bhuj	1. Khengarpur 2. Lodia 3. Umedpur
8	Nara-Gajansar irrigation Scheme	Kutch	Lakhpat	1. Gajansar 2. Hajipur 3. Nara 4. Uthangadi 5. Zumara
9	Niruna irrigation Scheme	Kutch	Nakhatrana	1. Niruna
10	Rudramata irrigation Scheme	Kutch	Bhuj	1. Dhori 2. Kunaria 3. Sumarasar
11	Sanandro irrigation Scheme	Kutch	Lakhpat	1. Mindhiyari 2. Panandhro 3. Subhaspur
12	Suvi irrigation Scheme	Kutch	Rapar	1. Gauripur 2. Suvi
13	Tappar (W.S.) irrigation Scheme	Kutch	Anjar	1. Bhimsar 2. Tappar
14	Bhukhi irrigation Scheme	Kutch	Nakhatrana	1. Bhimsar

				<ol style="list-style-type: none"> <li>2. Dador</li> <li>3. Godhiyar</li> <li>4. Hirapur</li> <li>5. Karodia</li> <li>6. Wang</li> </ol>
15	Berachiya irrigation Scheme	Kutch	Abdasa	<ol style="list-style-type: none"> <li>1. Bitiyari</li> <li>2. Bhachundra</li> <li>3. Berachiya</li> <li>4. Rava</li> </ol>
16	Don irrigation Scheme	Kutch	Mandvi	<ol style="list-style-type: none"> <li>1. Don</li> <li>2. Rajada</li> </ol>
17	Jangadia irrigation Scheme	Kutch	Abdasa	<ol style="list-style-type: none"> <li>1. Aida</li> <li>2. Butta</li> <li>3. Jangadia</li> <li>4. Liyari</li> </ol>
18	Mathal irrigation Scheme	Kutch	Nakhatrana	<ol style="list-style-type: none"> <li>1. Deshalpar</li> <li>2. Dhamay</li> <li>3. Guntali</li> <li>4. Jinjay</li> <li>5. Nura</li> <li>6. Umarapar</li> </ol>
19	Mitti	Kutch	Abdasa	<ol style="list-style-type: none"> <li>1. Trambo</li> <li>2. Rampar</li> <li>3. Chhasara</li> <li>4. Vadasara</li> <li>5. Korwali-Wandh</li> </ol>

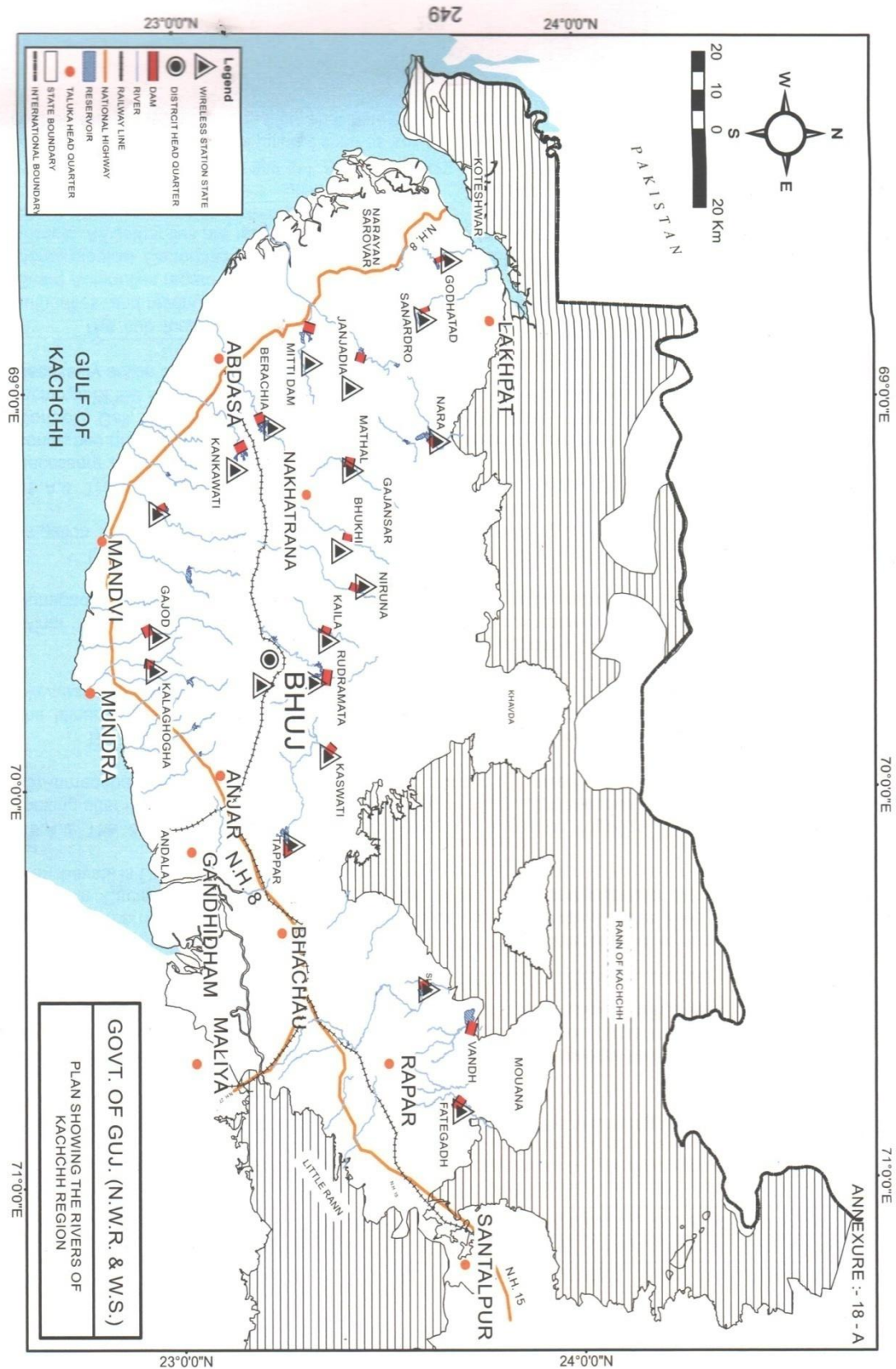


Figure 10: Plan of Kutch district with irrigation schemes

**Table 69: Detail of capacity of reservoir in Kutch district with concerned officer**

Sr. No.	Name of River Gauge Station	Danger level H.F.L. in Meter (Fleet)	Full Reservoir Level in Meter (Feet)	Officer in Charge
1.	Fatehgadh 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	94.90 (311.27)	90.82 (297.98)	EE, Kutch Irri Dn., Bhuj
4.	Godhatad Dham	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, Kutch Irri Dn., Bhuj
6.	Kalaghogha Dam	41.19 (135.10)	37.00 (121.40)	EE, Kutch Irri Dn., Bhuj
7.	Kankawati Dam	133.95 (439.36)	131.67 (432.01)	EE, Kutch Irri Const. Dn., Bhuj
8.	Kaswati Dam	53.73 (176.23)	51.20 (167.99)	EE, Kutch Irri Const. 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, Kutch 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)	Executive Engineer, Public Health Division, Bhuj, Kutch
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, Kutch Irri Const. Dn., Bhuj
17.	Don Dam	54.33 (178.20)	47.75 (156.67)	EE, Kutch Irri Const. Dn., Bhuj
18.	Jangadia Dam	42.81 (140.42)	38.60 (126.64)	EE, Kutch 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)	18.25 (59.86)	EE, Kutch Irri Const. Dn., Bhuj

**Table 70: Important Points of Guidelines Published by NDMA to be followed by field officers**

Sr. No.	Points of Guidelines
<b>A</b>	<b>To be followed in the event of dam failure/ sudden release of water.</b>
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>B</b>	<b>Devising a well defined, adequate and reliable advance alarm system before release of water.</b>		
1.	Pre warning system consisting of hooters/sirens of high capacity with district sound audible up to a minimum distance of one Km. installed in series up to 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:		
	<b>Sr.No.</b>	<b>Type of Emergency</b>	<b>Duration</b>
	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.		

**Table 71: List of Wireless stations to be installed during monsoon by State Government**

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

Sr. No.	Name of wireless stations	Name of wireless
1.	Bhuj (KIC)	Nara
2.	Niruna (KIC)	Kasvati
3.	Godhatad (KIC)	Tapper
4.	Suvi (KIC)	Bhukhi
5.	Gajod (KIC)	Berachia
6.	Kaila (KIC)	Don
7.	Sanandro (KIC)	Mathal
8.	Fategadh (KIC)	Jangadia
9.	Kankavati (KIC)	Mitti
10.	Kalaghogha	Rudramata

**Table 72: List of Concerned person of irrigation scheme in Kutch**

Sr.	Sinchai Yojna	Under Residance			Contact of village person		Dept. related details		
		Village	Taluka	Population	Phone no	Details of Officers	Phone no	Designation	
1	2	3	4	5	6	7	8	9	
Kutch sinchai cirlee,bhuj									
Bhuj									
1	Rudramata	Dhori	Bhuj	7000	9712925188	Head	9825198709	A.M.E	
		Kunariya	Bhuj	1500	9913055305	Sarpanch			
		Sumarasar	Bhuj	6000	9428749995	Head			
		Loariya	Bhuj	800	9426494700	President			
2	Kayla	Zura	Bhuj	2000	9825833779	Sarpanch	9033456334	M.E	
Bhuj(shri r.g.sonkesriya)									
3	Kasvati	Loday	Bhuj	7000	9825647226	Sarpanch	9898694055	M.E	
		Khengarpar	Bhuj	2000	9978221936	Head			
		umedpar	Bhuj	2000	9998745283	Head			
Mundra,P.P vala									
4	Gajod	Beraja	Mundra	500	9979733612	Head	9898674080	M.E	
		Bhujpur	Mundra	500	9909525944	Sarpanch			
		Gelda	Mundra	1500	9825825856	Sarpanch			
		Tumbadi	Mundra	2000	9825397251	Head			
5	kalaghogha	Samaghoga	Mundra	2000	9979861998	Sarpanch	9924402397	M.E	
		Dhrumb	Mundra	1000	9979719914	Head			
		Nana kapaya	Mundra	1000	9712413430	Head			
Na. Ka. Ee. Shree, Gujvatta Niyaman Peta Vibhag, Anjar (Shree A. R. Mata) mo. 9925041713									
6	Tappar dem	Navi chirai	Bhachau	2000	9979720481	Head	9825730674	A.M.E	
		Juni chirai			9426217943	Head	9427766199	overshiyar	
		Nani chirai							
		Gokul gam	Bhachau	4500	9825512230	Head			
		Nandgam							
		Jasoda			9426849283	Head			
		Nani chirai							
		bhimasar		Anjar	3000	9825228422	Mem. of jila panchayat		
					9879360793	Sarpanch			
					9825022912	Head			
		Tappar			1500	9979721763	Sarpanch		
		Pasuda			700	9879250141	Head		
		Pasuda				9825057428	Head		



Sr.	Sinchai Yojna	Under Residence			Contact of village person		Dept related details	
		Village	Taluka	Population	Phone no.	Details of Officers	Phone no.	Designation
1	2	3	4	5	6	7	8	9
Kutch sinchai								
Na. Ka. Ei., Sinchai Bandhkam Peta Vibhag, Naliya (Shree S.J.Patil) mo. 9979897164								
7	kankavati	Hajapar	abdasa	500	9978795850	sarpanch	90335580018	M.E
		miyani	abdasa	700			8238233384	Work assist
		nundhatad	abdasa	2000	9909227887	Sarpanch		
		vinjan	abdasa	300	9879714820	Sarpanch		
8	Berachiya	bhachunda	abdasa	500	9727322733	Sarpanch	90335580018	M.E
		bittiyari		175	9913492505	Sarpanch	8238233384	Work assist
		sandhav			9925616346	Sarpanch	9726686535	Chowkidar
		rava		500	9979524962	Member of gram panchayat		
Na. Ka. Ei. Shree, Kshaar ankush Peta Vibhag, Naliya (Shree S J Patil) Mo. 9979396879								
9	Jangadiya	Eida	abdasa	500	9978248689	Sarpanch	9825581448	M.E
	Sinchai yojana	Goyala		250	8758576475	Sarpanch		
		Mokhara			9978350416	Sarpanch		
		Jangadiya			9429296793	Sarpanch		
10	Mitti yojana	Rampar	abdasa	700	9909581900	Ta.member		A.M.E
		rampar			9879398262	Sarpanch		
		trambo			9878740969	Gram member		chowkidar
		kervandh		500	9687703508	Dy.Sarpanch		
		Laiyari		240	(02831)294743	Head		
		Vadsar			9979184986	Head		
		Kosha			9427441084	Head		
		Chasara		400	9687191385	Head		
Na. Ka. Ei. SHree, shar praveshe sanshodhan peta vibhag, mandvi (shree. J B Ganatra) Mo. 9825229008								
11		Dona	mandavi	1000	9998192156	sarpanch		A.M.E
		Rajada		500	8758965719	Gram member		
		Ratadiya		2500	3313061001	head		
		Godhra		1200	9909516462	sarpanch		
12		Hajipir	Bhuj	500	9879033069	sarpanch		A.M.E
		Nara	Lakhpat	700	9427766489			
		Uthgandi	Nakhtrana	300				
		jumara	Lakhpat	150				
13		Kapurasi	Lakhpat	1500	7069566180	President ghodhatad	9428856967	
		Koriyni	Lakhpat	1500	9925854193		9879253503	

14		Pandhro	Lakhpat	2000		Sarpanch		
		Subhashpur	Lakhpat	2000				
		Mindiyari	Lakhpat	500				
15		Nirona	Lakhpat	3000	9879558110	Head	9601370671	M.E
16		Gondhiyar	Lakhpat	900	9426608797	sarpanch	9825361973	A.M.E
		Dador		800	9979948968	head	9426453735	Rojamdar
		vang		3000	9825679131	Ta.member		Rojamdar
Nakhtrana								
17	Mathal	Mathal	Nakhtrana	2800	9427768238	Sarpanch	9825361963	A.M.E
		Desalpar		2200	9712296469	Sarpanch		
		Jinjay		650	9662700566	Sarpanch	9601703627	Rojamdar
		dhamay		770	9427763074	Sarpanch	9687876547	Rojamdar
Bhuj-kutch								
Rapar								
18	Suvi	Jesda	Rapar	1100	9979720760	sarpanch	9998838297	A.M.E
					9712206898	head		
		Suvi	Rapar	2300	9974187192	sarpanch		
					9879360380	President		
		Gauripar	Rapar	900	9979307293	sarpanch		
		Vanoi	Rapar	1600	9913241988	sarpanch		
					9875882979	Head		
19	Fatehghadh	Gedi	Rapar	1500	9924665202	Sarpanch	9998838297	A.M.E
		Fathehghadh	Rapar	1500	9825765778	Sarpanch		
					9574814108	Head		Rojamdar
					9925890292	President		
					9879318761	Head		

### 10.5 Satellite website for storm prediction:

<http://en.allmetsat.com/images/asia/.php>

[http://en.allmetsat.com/images/met5\\_cimss\\_irc.php](http://en.allmetsat.com/images/met5_cimss_irc.php)

<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>

[http://www.imd.ernet.in/main\\_new.htm](http://www.imd.ernet.in/main_new.htm)

<http://www.sat.dundee.ac.uk/abin/geobrowse/IODC/2007/8/7/600>

# **A N N E X U R E**

**Annexure: 1****Table 72: History of past disasters in District:**

Disaster	Year	Magnitude /extent	Talukas & no. of villages affected	Life & cattle loss	Damage to property	Economic losses
<b>Earthquake</b>	2001	4	10 Taluka 884 Village Affected	12216	146087 houses fully damage, 278217 houses medium damage infrastructures were damaged to avariable extent.	around 448 crore privet and public property
<b>Cyclone</b>	1998	4	Gandhidham, Mundra, Anjar	---	---	----
<b>Flood</b>	2011	4	2 taluka 200 village	1 life 41 cattle loss		18947 lakhs Rs.
<b>Heat wave</b>	--	--	--	--	--	--
<b>Cold wave</b>	--	--	--	--	--	--
<b>Industrial disaster</b>	--	--	--	--	--	--

**Annexure: 2****List of vulnerable talukas and villages with risk ranking (Hazard wise)****Cyclone and Tsunami Vulnerable Number Taluka and village**

<b>Villages Near by coastline</b>						
<b>Sr. No</b>	<b>Taluka</b>	<b>Distance of village from coastal line</b>				<b>Total</b>
		<b>0 to 1 km</b>	<b>1 to 5 km</b>	<b>5 to 10 km</b>	<b>10 to 15 km</b>	
<b>1</b>	<b>Mandvi</b>	<b>4</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>12</b>
<b>2</b>	Mundra	<b>0</b>	<b>8</b>	<b>7</b>	<b>3</b>	<b>18</b>
<b>3</b>	Anjar	<b>0</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>7</b>
<b>4</b>	Gandhidham	<b>1</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>9</b>
<b>5</b>	Bhachau	<b>2</b>	<b>7</b>	<b>7</b>	<b>2</b>	<b>18</b>
<b>6</b>	Abdasa	<b>5</b>	<b>11</b>	<b>4</b>	<b>0</b>	<b>20</b>
<b>7</b>	Lakhpatri	<b>3</b>	<b>17</b>	<b>15</b>	<b>4</b>	<b>39</b>
<b>Total</b>		<b>15</b>	<b>52</b>	<b>40</b>	<b>16</b>	<b>123</b>

### Details of Villages Situated on Sea Beach Area

Sr. No.	Taluka	Sr. No	Name of Village	Population as on 2011	Sr. No.	Name of Village	Population as on 2011
1	Mandvi	1	Maska	4097	7	Bada	1442
		2	Gundiyali	3169	8	Panchetiya	666
		3	Tragadi	824	9	Bambhdai	804
		4	Nana Bhadiya	799	10	Motasalaya	8500
		5	Kathada	2537	11	Bhada	742
		6	Mothava	903	12	Nanalayaja	781
2	Abdasa	1	Jakhaou Solt	448	11	Charopadi	358
		2	Rapra(Gadh)	465	12	Kamdb	94
		3	Sindhodi Moti	464	13	ladhedi	654
		4	Mohadi	110	14	Buyado	474
		5	Pigaleshwar	45	15	kervadh	891
		6	Chhachi	547	16	DaradVandh	125
		7	Kosa	321	17	Valarivandh	80
		8	Suthari	1997	18	Namanivas	45
		9	Ashiravadh	595	19	Bharuvandh	286
		10	Bhagonivadh	98	20	Gelari	375
3	Lakhpat	1	Naraynsarovr	984	21	Medi	125
		2	Koteswar	2	22	Garapaivadh	62
		3	Chhernani	465	23	Kapurrachi	1425
		4	Sinapar	307	24	Punrajpar	333
		5	Cher moti	495	25	Sheh	165
		6	Kanoj	257	26	Kanoj	257
		7	Guhar moti	207	27	Rodasar	368
		8	Guneri	848	28	Kunari	55
		9	Lacki	92	29	Koriyani	965
		10	Bhutav	85	30	Muthavay	333
		11	Pipar	752	31	Kaiyari	89
		12	Ragavadh	98	32	Kegarpar	38
		13	Gugariyana	220	33	Mardo	96
		14	Khirasara	260	34	Saira	269
		15	Andharvandh	69	35	Shigera	125
		16	Kehara	170	36	Beiyavo	107
		17	Mori	129	37	Umarsar	117
		18	Kaner	232	38	Naredi	158
		19	Lakhpat	436	39	Gohdathar	63
		20	Khirashara	106			

4	Anjar	1	Tuna	2087	5	Varsana	1047
		2	Sanghad	2801	6	Rampar	953
		3	Vira	1314	7	Vandi	1000
		4	Mathak	1925			
5	Gandhi-dham	1	Kandla	19700	6	Chudav	293
		2	Antarjad	6036	7	Kharirohar	4150
		3	Kidana	9285	8	Patana	1764
		4	Gadpadar	5537	9	Shinai	3201
		5	Mithirahan	4259			
6	Bhachau	1	Surajbari	634	10	Laliyana	2189
		2	Lakhapar	823	11	Sadavana	2277
		3	Sikarpur	4842	12	Vadiya	3039
		4	Jangi	4880	13	Voth	4741
		5	Ambaliyara	2373	14	Motichirai	4412
		6	Lagadhiraghad	308	15	Naransari	308
		7	Modhpar	365	16	Navakatariya	608
		8	Godpar	519	17	Chopadava	1051
		9	NAni chirai	4808	18	Lunava	1371
7	Mundra	1	Tundavandh	1207	10	Shekhardima	715
		2	Kandagara mota	2306	11	Loni	2666
		3	Siracha	923	12	Bhadreshwar	3516
		4	Navinal	1146	13	Kukadsar	721
		5	Jarpara	5762	14	Nanakapaya	1262
		6	Dranb	2007	15	Borana	400
		7	Mundra	12930	16	Kuvapandhar	109
		8	Baroi	2741	17	Vadala	1751
		9	Gokarsama	727	18	Ratha	130

**Annexure: 3****List of Villages Vulnerable for Flood Due to Dam**

Sr.	Name of Dam	Taluka	Name of Vulnerable Villages	Irrigation Spot	Irrigation Area (H)
1	Bhukhi	Nakhatrana	Godhiyar, Dadar, Vang	Devisar	1672
2	Mathal	Nakhatrana	Deshalpar, Mathal, Jijay	Mathal	853
3	Nirona	Nakhatrana	Nirona	Nirona	2430
4	Berachiya	Abdasa	Bhachunda, Bitiyari, Rava	Berachiya	358
5	Jangadiya	Abdasa	Jangadiya, Aida, Sukhpar, Vadjar, Chasara, Kervandh, Kosha, Rampar, Laiyari	Jangadiya	1118
6	Miti	Abdasa	Trambo, Rampar, Chasara, Korvali, Vandh,	Trambo	2025
7	Kankavati	Abdasa	Hajapar, Miyani, Nundhatal, Vinjan	Kharoa	1559
8	Donn	Mandavi	Donn, Rajada	Donn	294
9	Tapar	Anjar	Tapar, Pasuda, Bhimasar, Varsana, NaniChiray, Motichirai,	Tapar	0
10	Fatehghadh	Rapar	Gedi, Fatehghadh	Fatehghadh	513
11	Suvi	Rapar	Gauripar, Suvai	Suvai	984
12	Gajod	Mundra	Beraja, Bhujpar, Belada, Rumaniya, Tumadi	Gajod	1154
13	Kalaghogha	Mundra	Samaghogha,	Kalaghogha	322
14	Godhatal	Lakhpat	Kapurasi, Koriyani	Godhatal	664
15	Sandhro	Lakhpat	Mindhiyali, Pandhro, Subhaspar	Sandhro	668
16	Gajansar	Lakhpat	Gajansar, Hajipir, Uthat Gadi, Jumara	Gajnsar	1731
17	Nara	Lakhpat	Nara	Nara	1731
18	Kayala	Bhuj	Jura	Bhakhara	876
19	Kaswati	Bhuj	Khengarpar, Loriya, Umedpar,	Lodai	607
20	Rudramata	Bhuj	Dharoi, Kunariya, Sumrasar	Lokhaniya	2997

**Annexure: 4****Area Vulnerable Due to Flood Hazard Area of Kutch**

<b>Taluka-Mandavi (Village area)</b>				
<b>Sr. No.</b>	<b>Name of Area</b>	<b>Population</b>	<b>Effected Area</b>	<b>Safe Spot</b>
1	Donn	1083	Surrounding Area	Primary School - Donn
2	Rajada	299	Surrounding Area	Primary School - Rajada
<b>Taluka- Mundra</b>				
1	Mundra	11652	Surrounding Area	Primary School - Mundra R.D.High School – Mundra Shah muradpir Dargah-Mundra
2	Patri	1877	Surrounding Area	Primary School - Patri
3	Vanki	1315	Surrounding Area	Primary School and HealthCenter Patri
4	Lakhapar	949	Surrounding Area	Primary School - Lakhapar
5	Toda	473	Surrounding Area	Primary School - Toda
6	Beraja	1281	Surrounding Area	Primary School - Beraja
7	Chasara	855	Surrounding Area	Primary School - Chasara
8	Mokha	453	Surrounding Area	Primary School - Mokha
9	Vadala	1277	Surrounding Area	Primary School - Vadala
10	Babiya	100	Surrounding Area	Primary School - Babiya
11	Pavadiyara	198	Surrounding Area	Primary School - Pavadiyara
12	Hatdi	439	Surrounding Area	Primary School - Hatdi
13	Fachariya	293	Surrounding Area	Primary School - Fachariya
14	Ratadiya	965	Surrounding Area	Primary School - Ratadiya
15	Vovar	1130	Surrounding Area	Primary School - Vovar
16	Gundala	1425	Surrounding Area	Primary School - Gundala
17	Bhadreshwar	3470	Surrounding Area	Primary School - Bhadreswar
<b>Taluka-Bhuj</b>				
1	Bhuj		Surrounding Area	Govt. High School-Bhuj Primary School – Bhuj Lohana Mahajan Wadi-Bhuj Visha Oshwal Jain Mahajan Wadi-Bhuj
2	Kalyan par		Surrounding Area	Primary School – Kalyanpar
3	Godpar		Surrounding Area	Primary School –Godpar



4	Jikadi		Surrounding Area	Primary School – Jikadi
5	Kunariya	1120	Surrounding Area	Rudrani Jagir
6	Sumarasar	3581	Surrounding Area	Govt. Food Godaoun-Bhuj
7	Dhori	2895	Surrounding Area	Primary School – Dhori
8	Jura	3385	Surrounding Area	Rudrani Jagir
9	Lodai	3068	Surrounding Area	Primary School – Jikadi
10	Umedpur	200	Surrounding Area	Primary School – Raydhanpar
11	Khengarpar	443	Surrounding Area	Godhara Dharmashala Near railway Station Bhuj

### Taluka – AnjarCity

1	Mafatnagar Anjar		Surrounding Area	Town Hall –Anjar D.V.High School – Anjar
2	Momay Nagar- Anjar		Surrounding Area	K.K.M.S. High School Anjar
3	Khatri Colon y		Surrounding Area	Primary School – Anjar SwamiVivekanandHigh School, Anjar

### Taluka – Anjar Village Area

1	Tuna	2613	Surrounding Area	Primary School – Siyan and antarjal
2	Sanghad	2285	Surrounding Area	Primary School – Navalagavaladiya
3	Vira	1084	Surrounding Area	Primary School – Nagavaladiya
4	Mathak	1496	Surrounding Area	Primary School – Nagavaladiya Primary School – Sinay
5	Varsana	432	Surrounding Area	Primary School – Bhimasar
6	Rapar	627	Surrounding Area	Primary School – Siyan Primary School – Antarjal
7	Vandi		Surrounding Area	Primary School – Siyan Primary School – Antarjal

### Taluka – Gandhidham

1	Area of Railway Station	Railway Station, North South of Vallbhabhai Statue ST Bus Stand KPT Office Shiv Mandir Chavala Chowk Area		Lohana mahajanwadi- Gandhidham
2	Navi Sundarpuri		Surrounding Area	Adarsh GirlsSchoolSadhuVasvaniSchool Gandhidham,
3	Juni Sundarpuri		Surrounding Area	Lions Club Gandhidham

				P.n.AmarsinhSchool Gandhidham
4	Maheswari nagar Sonal Nagar Bharat nagar		Surrounding Area	SaraswatiSchool Gandhidham
5	Jagjivan nagar Near kargo MotorsGopalpuriNah eruPark		Slums and Surrounding Area	Mordan School Gandhidham Bhartiya Vidhya mandir Gandhidham Town Hall Gandhidham
6	Sector 5-6 Near Sathwara Mandir		Surrounding Area	Mount KarnvelSchoolGandhidhamMordanSchool 1 Gandhidham
7	Adipur Police Station		Surrounding Area	JillaPanchyatPrimary School
8	Adipur Charwadi and Sat wadi Line		Surrounding Area	Lohana mahajan Wadi Adipur
9	Adipur Ashram and B/h Janta petrol pump		Surrounding Area	Maitri mahavidhyalay and kanyavidhyalayadipur
10	B/h Adipur z Banglo		Surrounding Area	Gujarat Vidhyalay Adipur
11	Sarva kandlalabour camp and slums		Surrounding Area	Bhartiy Vidhyamandir nava kandla
12	Siyan Dem		Surrounding Area	Maitri vidhyalay Adipur
13	Antar jal		Surrounding Area	Primary School – Antarjal
14	Kidana		Surrounding Area	Primary School – Kidana
15	Miti rohar		Surrounding Area	Primary School – Mithirohar
16	Khari rohar		Surrounding Area	Primary School – Khari rohar
<b>Taluka - Bhachua</b>				
1	Chobari	5035	Surrounding Area	Primary School – Manfara
2	Adhoi	6769	Surrounding Area	Primary School – Samkharyari
3	Ratanpar	630	Surrounding Area	Primary School – Gadhada
4	Janna	779	Surrounding Area	Primary School – Gadhada
5	Ganeshpar	756	Surrounding Area	Primary School – Gadhada
6	Jadsa	400	Surrounding Area	Primary School – Kanthkot
7	Lunava	832	Surrounding Area	Primary School – Chopadva and sukhapar
8	Shivlakha	1409	Surrounding Area	Primary School – Samkhiyari
9	Juna katariya	2431	Surrounding Area	Primary School – Vandhiya
10	Narayansari	359	Surrounding Area	Primary School – Modpar
11	Shikarpur	2558	Surrounding Area	Primary School – LakhdhirgadhPrimary School – Godpar
12	Moti chiray	3392	Surrounding Area	Govt. HoghSchoolBhauchua  Primary School – Bhachua
13	Nani chiray	2555	Surrounding Area	Govt. School Bhachua  Primary School – Bhachua
<b>Taluka – Rapar</b>				
1	Gedi		Surrounding Area	Primary School – Primary Health Center -  Gram Panchayat – gedi

2	Deshalpar		Surrounding Area	Primary School –Primary Health Center - Gram Panchayat – Deshalpar
3	Anandpar		Surrounding Area	Primary School –Primary Health Center - Gram Panchayat – Anandpar
4	Vrujvanu		Surrounding Area	Primary School –Primary Health Center - Gram Panchayat – Vrujvani
5	Shivgadhi		Surrounding Area	Primary School – Primary Health Center - Gram Panchayat
6	Suvai		Surrounding Area	Primary School – PrimaryHealthCenter - Gram Panchayat – Suvai
7	Gauvripar		Surrounding Area	Primary School – Primary Health Center - Gram Panchayat
8	Narayanpar		Surrounding Area	Primary School –Primary Health Center - Gram Panchayat – Narayanpar
9	Jadavas		Surrounding Area	Primary School – PrimaryHealthCenter - Gram Panchayat – Jadavas
10	Jilarvandh		Surrounding Area	Primary School – PrimaryHealthCenter - Gram Panchayat – Jatawada
11	Palasava		Surrounding Area	Primary School – PrimaryHealthCenter - Gram Panchayat – Palasava
12	Lakadavandh		Surrounding Area	Primary School – PrimaryHealthCenter - Gram Panchayat – Jatawada
<b>Taluka – Nakhatrana</b>				
1	Lakhodi		Surrounding Area	Primary School – Tara
2	Moti aral		Surrounding Area	Primary School – Motriaral
3	Nani Aral		Surrounding Area	Primary School –Nani Aral

4	Nana Angiya		Surrounding Area	Primary School – Nana Angiya
5	Mota angiya		Surrounding Area	Primary School – Mota Angiya
6	Chandranagar		Surrounding Area	Primary School – Chandranagar
7	Tharawada		Surrounding Area	Primary School – Dharawada
8	Jalu		Surrounding Area	Primary School – Jalu
9	Sanganara		Surrounding Area	Primary School – Sanganara
10	Godhipar	200	Surrounding Area	Primary School – Bibar
11	Vang	878	Surrounding Area	Primary School – Bibar
12	Dador	290	Surrounding Area	Primary School – Bibar
13	Jinjay	426	Surrounding Area	Primary School – Deshalpar
14	Dhamaya	216	Surrounding Area	Primary School – Deshalpar
15	Nirona	4348	Surrounding Area	Primary School – Palnpur (Badi)
<b>Taluka – Abdasa</b>				
1	Nundhatad	1163	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – Nundhatad
2	Hajapar	748	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – Hajapar
3	Miyani	47	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – Hajipir
4	Vijan	767	Surrounding Area	Primary School and Business Association – Vijan
5	Hingariya	272	Surrounding Area	Jain Mahajan Trust Pragati Mandal- Naredi
6	Aida	571	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – Aida
7	Mokhara	271	Surrounding Area	Business Association-Goyala Bhanushali Mahajan Khokhara
8	Goyala	343	Surrounding Area	Business Association-Goyala Gram panchayat Goyala
9	Rava	612	Surrounding Area	Bhanushali mahajan Wadi Bhanu farm Rava
10	Bitiyari	163	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – bhacuda
11	Nagor	313	Surrounding Area	Madresh kamiti Nagor Gram panchyat Gadhvaravada
12	Bhachunda	454	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – Bhachunda
13	Trambo	232	Surrounding Area	Bhanushali mahajan Wadi Rampar Abda
14	Rampar Abda	1276	Surrounding Area	Bhanushali mahajan Wadi Rampar Abda Vivekanand Trust Naliya
15	Vadsar	154	Surrounding Area	Bhanushali mahajan Wadi Rampar Abada Vivekanand Trust Naliya
16	Chasara	281	Surrounding Area	Bhanushali mahajan Wadi Gram panchayat – Chasara
17	Kervandh	731	Surrounding Area	Madresh Gram Panchayat Kervandh
18	Kosa	251	Surrounding Area	Madresha Gram panchayat Kervandh

19	Suthari	1907	Surrounding Area	Jain MahajanWadiPrimary School Suthari
20	Chachi	414	Surrounding Area	Jain Mahajan Trust Sandhan
21	Dhuvai	90	Surrounding Area	Jain Mahajan Trust Snadhan
22	Khudiya	185	Surrounding Area	Jain Mahajan Wadi Jakhua Bhanushali mahajan Jakhua
23	Sindhodi nani	22	Surrounding Area	Jain MahajanWadiPrimary School Rapar Gadhvadi
24	Kaduli	232	Surrounding Area	Jain MahajanWadiPrimary School Rapar Gadhvadi
25	Khuado	222	Surrounding Area	Primary School Jain Mahajan Trust Sandhan
26	Thumadi	64	Surrounding Area	Primary School Business Association Vior
27	Garad Vandh	51	Surrounding Area	Govt. High School Jain mahajan Trust Jakhua
28	Valavari Vandh	150	Surrounding Area	Ramvada Mandir Trust Ramvada
29	Navavas	118	Surrounding Area	Sanghi Cement Co. Motiber
30	Golai	375	Surrounding Area	Sanghi Cement Co. Motiber
31	Bhadra Vandh	99	Surrounding Area	Jain Mahajan Trust Jakhau
<b>Taluka – Lakhpat</b>				
1	Subhas par	711	Surrounding Area	Primary School – Subhas par
2	Mindhiyari	737	Surrounding Area	Primary School – Mindhiyari
3	Nara	1026	Surrounding Area	Primary School – Nara
4	Jumara	661	Surrounding Area	Primary School – Jumara
5	Kapurasi	528	Surrounding Area	Primary School – Kapurasi
6	korirasi	1024	Surrounding Area	Primary School – Koriyani
7	Khasot	277	Surrounding Area	Primary School – Khasot
8	Dhareshi	406	Surrounding Area	Primary School – Dhareshi
9	Junachiya	186	Surrounding Area	Primary School – Junachiya
10	Ashapar	523	Surrounding Area	Primary School – Ashapar
11	Sambhada	127	Surrounding Area	Primary School – Sambhada
12	Ramaniya	103	Surrounding Area	Primary School – Ramaniya
13	Chamara	138	Surrounding Area	Primary School – Chamda
14	Kanoj	175	Surrounding Area	Primary School – Kanoj
15	Guhar	321	Surrounding Area	Primary School - Guhar

**Annexure: 5****List of resources available in district****Life Jacket, Life buoy, Ropes etc**

Sr. No.	Name of taluka and office	Lifejacket	Life buoy	Pp ropes 26mm 100ft	Pp ropes 26mm 200ft	Portable Inflatable Emergency Lighting	Generator
1	Collector office	49	49	8	2	3	1
2	DSP office	5	5	2	1	0	1
3	DDO office	2	2	1	0	0	1
4	Abdasa	10	10	2	1	0	1
5	Anjar	10	7	2	1	0	1
6	Bhachau	5	5	2	1	0	1
7	Bhuj	10	12	1	1	0	1
8	Lakhpat	1	1	2	1	0	1
9	Mandvi	10	10	2	1	0	1
10	Mundra	3	0	1	1	0	1
11	Nakhatrana	5	9	1	1	0	1
12	Rapar	10	10	1	1	0	1
Total		120	120	25	12	3	12

**Annexure:6****List of resources or equipment available in Municipality of district**

Sr. No.	Name on Municipality	Portable Inflatable Emergency Lighting system	Motor-cycled Mounted Water Mist	Trolley Mounted Water Mist	Water Bowser	Mini Fire Tender
1	Bhuj	2	1	0	2	2
2	Anjar	2	1	0	1	1

3	Bhachau	2	0	0	1	1
4	Rapar	2	0	0	1	1
5	Gandhidham	2	3	2	1	2
6	Mandvi	2	1	0	1	1
	<b>Total</b>	<b>12</b>	<b>6</b>	<b>2</b>	<b>7</b>	<b>8</b>

### Annexure: 7

#### List of resources or equipment, Search and Rescue Equipments/Vehicles available in Gandhidham ERC (Kutch)

Sr.	Equipments	Number of equipments
1	Multi Functional Rescue Vehicle with Crane	1
2	High Capacity Pump	2
3	Water Tanker	2
4	Foam Nurse	1
5	Emergency Rescue vehicle	3
6	Water Transport Unit	1
7	Pickup Truck	1
8	Command Vehicle	1
<b>Vehicles - Total - A</b>		<b>12</b>
1	USAR Container	2
2	Medical Mass Casualty container	1
3	Hook Arm Truck (2012)	2
<b>Containers - Total - B</b>		<b>5</b>
1	Self Contained Clean Air Breathing Apparatus	4
2	Personal Protection Suit	12
3	Gas Tight Suits	5
4	Leak Sealing Equipment	2
5	Non Sparking tools	1
6	Multi Gas Detector	1
7	Emergency Lighting System	2
<b>Equipments-Total-C</b>		<b>27</b>
<b>Total A+B+C(12+5+27)</b>		<b>44</b>

**Annexure: 8****List of Boats available with Fishery Department of Kutch District**

Sr. No.	Taluka	Name of Boat	Name of Owner	Location	Contact Number
1	Bhuj	Tin	Ladha Mamadbhai	Bhuj, Sharpat Naka	87589 19535
2	Bhuj	Fiber	Collector office	Fishery department	02832 250292

**Annexure: 9****List of resources or equipment available with R&B (State)**

Sr. No.	Location	Items / equipment	Number of Items	Contact No.
1	Bhuj	Damper 2		D.B. Chavada 02832 220252
		Water tanker	1	
2	Anjar	Damper	1	02836 242486
		Water tanker	1	
3	Mandvi			Mayankbhai shah -8128907820 02834 223920
4	Nakhatrana	Damper	1	02835222148
5	Rapar	Damper	1	Janibhai/02830 220600

**List of resources or equipment available with R & B Contractor**

Sr. No.	Taluka	Equipment	No of Unites	Contact No.
1	Bhuj	JCB	2	Ashok Doshi 9825229033
		Loader	1	
		Damper	3	
		Man Power	10	
2	Nakhatrana	JCB	2	R B Panchal 9877571863  02835222148
		Loader	2	
		Damper	1	
		Man Power	15	
3	Mandvi	JCB	4	Pragness Thakkr  98250 83375
		Damper	2	
		Man Power	10	
4	Anjar	JCB	1	Ravji Hudiya
		Loader	1	



		Damper	5	98252 29306
		Man Power	10	
5	Bhachau	JCB	2	Ramesh m. Shoradhiya  98253 25948
		Loader	1	
		Damper	4	
		Man Power	10	
6	Adipur			Pankaj Thakkar  98252 25692
		Loader	1	
		Damper	2	
7	Lakhpat	JCB	2	R. B. Panchal
		Man Power	5	

### Annexure: 10

#### List of resources or equipment available with R & B (panchayat)

Sr. No.	Location	Items / equipment	Number of Items	Contact No.
1	Bhuj	Jeep	1	02832 250834
	Sub division bhuj	Jeep	1	02832 222857
		Tempo	1	
2	Subdivision Mandvi	Jeep	1	02834 223354
3	Sub division Mundra	Jeep	1	02838 246363
4	Subdivision Nakhatrana	Jeep	1	02835 222163
5	Subdivision Bhachavu	Jeep	1	02837 244056
6	Subdivision Dayapar	Jeep	1	02839 233353
7	Subdivision Naliya	Jeep	1	02831 222143
	<b>Total</b>		<b>9</b>	

### Annexure: 11

#### List of resources or equipment available with R & B Contractor

Sr.no	Name of owner	Type of vehicle/equipment	No of vehicle	Contact no
1	Ravji manji sorathiya	JCB	2	9825227359
		Dumper	15	

2	M.M infastructur pvt.ltd	JCB	2	9825225948
		Dumper	13	
3	Valjimaya construction	JCB	2	9825730544
		Dumper	16	
4	Mepani construction	JCB	2	9426382165
		Dumper	3	
5	Bhimji velji shorathiya	JCB	3	9925561720
		Dumper	18	
6	Katira construction	JCB	3	9825225092
		Dumper	17	
7	Rabadiya construction	JCB	2	9426227342
		Dumper	15	
8	Nirav construction	JCB	2	9909885174
		Dumper	16	
9	M.K.C infastructur	JCB	2	825603321
		Dumper	19	
10	Vijay construction	JCB	2	9825730449
		Dumper	17	
11	Dharti construction	JCB	1	9879608377
		Dumper	14	
12	Krishna construction	JCB	1	9825225692
		Dumper	16	
13	Prabhat construction	JCB	2	9825083375
		Dumper	13	

## Annexure-12

### Infrastructure in the district (Public and Private)

#### District Fire Station Numbers

Sr.No.	District Fire Station	Phone No.	Fax
1	Fire Station Bhuj Municipality	02832 247030 9925170506	224404
2	Fire StationMandavi Municipality	02834 224910	224910
3	Fire Station Bhachau	02837 224028	224028

4	Fire Station Gandhidham	02836 226573	233288
5	Fire Station Rapar	02830 220011	220011
6	Fire Station Anjar	02836 242544	240325 242909
7	Fire Station Kandal Port, Kandla	02836 270176	02836 270176
8	Fire Station Control Room Adani Port Mundra	02838 289440	289200
9	Fire Station IFFCO Kandla	02836 270352 99790 26415	02836 270642
10	Fire Station F.O.C.T. Kandla	02836 270987 8980018340	270814
11	Fire Station Control Room GAIL(India) Lakadia(Bhachau)	02837 293009 8837293009	-

### Gujarat State Road Transportation Nigam Limited Number of Bus

Sr. No	Taluka	Office	Number Of Bus
1	Bhuj	02832220102	59
2	Mandavi	02834223004	42
3	Mundra	02838224200	23
4	Anjar	02836242692	36
5	Bhachau	02837224049	26
6	Rapar	02830220035	24
7	Naliya	02831222119	27
8	Nakhatrana	02835222129	33

## Annexure-13

### Storage Infrastructure of Supply Department of Kutch District

Sr. No.	Name of Taluka	No. of Nigam's Storage	Capacity in M.tonns	Contact Number
1	Bhuj	5	2500	94263 65956
2	Madavi	1	500	02834 222356
3	Mundra	2	100	02838 224136
4	Nakhatrana	1	500	02835 222194
5	Dayapar	1	500	02839 291501
6	Naliya	1	500	02831 222118
7	Anjar	2	1000	02836 242334

8	Bhachau	3	1500	-
9	Rapar	2	1000	-
10	Khawada	1	500	02832 288228
<b>Total</b>		<b>19</b>	<b>9500</b>	

### Annexure-14

#### PHC and CHC Facility and Infrastructure of Kutch District

Sr.	Block	Name of PHC	Landline No.		Medical Officer
			STD Code	Landline	Mobile
1	Anjar	Khedoi	02836	275254	99099 49361 75730 08015
2		Chandrani		-	-
3		Bhimasar-C		285437	7573008013
4		Ratnal		-	99099 49361
5		Mathak		-	99740 03412
6		Meghapar		-	99257 76475
7		Sanghad		02836	7573008017
8	Mandvi	Darsadi	02834	276662	99099 49337
9		Talvana		244146	99099 49365
10		Gadhsisa		282020	99099 49339
11		Godhara		247449	99099 49340
12		Layja mota		283311	99099 49370
13		Bhadai moti		-	99099 49371
14		Nana aasambiya		-	97273 74595
	Bhachau	Koday		-	99099 49373
		Gundiyari		-	95378 09360
16	Bhachau	Juna Kataria	02837	273960	99099 49324
17		Adhoi		284410	99099 49325
18		Manfara		286806	99099 49326
19		Jungi		274477	99099 49395
20		Dhoravira		277402	99099 49327
21		Samakhyari		-	99099 49395
22		Aamaradi		-	94086 93493
23	Rapar	Adesar	02830	287541	99099 49323
24		Fatehgadh		284457	99099 49391

25		Bella		285303	99099 49319
26		Bhimasar-B		288376	99099 49318
27		Gagodar		285341	99099 49322
		Suvai		281336	99099 49342
		Chitrod		-	747300 8037
		Gedi		-	99099 49342
28		Balasar		-	97277 34156
29		Dhaneti	02832	273206	99099 49331
30		Gorewali	02803	284275	99099 49332
31		Kodki		275307	99099 49333
32		Kukma		271234	99099 49363
33		Kera		271234	99099 49363
34		Mota Dinara	02832	-	99099 49364
35		Deshalpar		-	89807 52305
36		Madhapar		-	99099 49362
37		Bhirandiyara		-	99099 49336
38	<b>Gan</b>	Kidana			99099 49330
39	<b>dhid</b>	Mithi rohar			94289 50940
40		Tera		289229	99099 49349
41		Mothala		272240	9726429250
42		Kothara	02831	282266	99099 49349
43		Vayor		282266	99099 49349
44		Jakhavu		-	99099 49384
45		Ghaduli		252225	99099 49353
46		Matanamadh		287421	96876 42452
47		Baranda	02839	-	99099 49389
48		N. Sarovar		256150	99099 49375
49		Bhujpar		240017	99099 49376
50		Bhadreshwar		-	99099 49379
51		Tumbadi nani		-	98251 20999
52		Ratadiya	02838	-	97264 34638
53		Kandagra mota		-	99099 49376
54		Zarpara		-	97264 34634
55		Deshalpar-G		279238	99099 49343
56		Netra	02835	274464	99099 49344
57		Nirona		277750	99099 49346

58	Vithon	283342	99099 49344
59	Mangvana	294046	99099 49347
60	Ravapar	-	97264 34805
61	Dumara	-	99099 49350

### Contact Detail of Community Health Center and Hospital

Sr.	Block	Name of CHC	Landline No.		Medical Officer	
			STD Code	Landline	Mobile	Name of suprintendent
1	Anjar	Anjar	02836	242455	7567876185	Dr. T.M Dhani
2		Dudhayi	--	--	9408619908	Dr. Anuj Shrivastav
3	Mandvi	Gadhasisa			9909949339 7567876184	Dr Rajesh verma.
4	Mundra	Mundra	02838	222144	7567876192	Dr S.K. Damani
5	Bhachau	Bhachavu	02837	224034	9427234231	Dr.K.k. Kurmi
6		Lakadia		273307	7567876191	Dr. Sujeet kumar.
7		Janan			7567876270	Dr.K.A. Jaru
8	Rapar	Rapar	02830	220080	9727734002 7567876195	Dr.R O lodhra
9		palasva	02806	262300	9712637884 7567876276	Dr. V.K.das
10	Bhuj	Khavda	02803	288229	9727734011 7567876262/63	Dr.Nupurkumari M. Prasad
11		Dhori			7567876188	Dr.M. K Akhani
12						
13	Abdasa	Naliya	02831	222127	7567876194	Dr D.D.Dhulera
14	Lakhpat	Dayapar	02839	233326	7567876188	
15	Nakhatrana	Nakhatrana	02835	222304	9727734010	Dr.T.G Panday

### Contact Detail of Block Health Office

Sr . no	Block Health Office	Name of BHO	Landline No.		Block Health Officer
			STD Code	Landline	Mobile

1	Rapar	Dr. Paul	02830	220080	9909949321
2	Bhachau	Dr. A.R Singh	02837	223378	9909949312
3	Anjar	Dr. R. A. Anjariya	02836	246717	9909949313
4	Bhuj	Dr. D. K. Gala	02832	250752	9909949314
5	Mandvi	Dr. K.P. Paswan-I/C	02834	222486	9909949315
6	Nakhatrana	Dr. A.K. Azad	02835	221717	9909949316
7	Abdasa	Dr. D.S. Jadeja	02831	222906	9909949317
8	Gandhidham	Dr. D.S. Suthariya	--	--	9687684236
9	Mundra	Dr.D. S. Suthariya	02838	222486	9687684236
10	Lakhpat	Dr Manooj Kpoor	02839	222906	9909949385

### Annexure-15

#### List of Participants in Special Flood Rescue training of Kutch District

Sr. No	Name	Mobile No.	Designation
1	Bhangi sanjay	9586650895	Public Volunteers
2	Bhatti Jay	--	Helper
3	Buchiya Mahesh	--	Helper
4	Charan valji	9909728581	Public Volunteers
5	Chauhan K. Dilipbhai	9711417961	Fireman
6	Chauhan Kalpeshkumar Dilip	9725337803	Public Volunteers
7	Chauhan Vijaysingh Ranjitsingh	9328043401	Public Volunteers
8	Damor raman	9099189395	Public Volunteers
9	Dodiya kanji	9979915779	Public Volunteers
10	Gadhavi kishorbhai	9979051950	Public Volunteers
11	Gohil pratap	9274246214	Public Volunteers
12	Joshi Jitesh Kishorchandra	9879028330	Public Volunteers
13	Joshi Jiteshbhai	9879028330	Fireman
14	Kanojiya Sandip Kishorbhai	9016727074	Public Volunteers
15	Kumar Praveen Harpalsingh	9712347363	Public Volunteers
16	Locha Narendra N	--	Helper
17	Maheshwary Prajesh M.	9924499720	Public Volunteers
18	Maheta Bharatbhai	9727326096	Public Volunteers
19	Makani madhusudan	9427167405	Public Volunteers
20	Makani navian	9974767641	Public Volunteers
21	Makvana Sunilbhai	9979252664	Fireman
22	Makwana Pratik Dilipbhai	9687626984	Public Volunteers
23	Maru Anilbhai	9978246682	Fire officer
24	Meriya jemalbhai	9099062594	Public Volunteers
25	Mkani bhavesh	9974999254	Public Volunteers
26	Mori Dharmesh Raisinhbhai	9376715907	Public Volunteers

27	Parmar Jigneshkumar Amrutlal	9429006841	Public Volunteers
28	Parmar Punit Dipakbhai	9428818627	Public Volunteers
29	Parmar Sachinbhai	99254 28576	Fireman
30	Patel Dhavalkumar Jayantilal	9726470015	Public Volunteers
31	Patel Hardikkumar Amrutlal	9033892445	Public Volunteers
32	Rajgor mahesh	9726680688	Public Volunteers
33	Rajgor Maheshkumar Shantilal	9726680688	Public Volunteers
34	Rathod manubhai		Public Volunteers

## Annexure-16

### List of Participants of Urban Search and Rescue Training of Kutch District

#### Urban Search and Rescue Training-2

**Date: - 28/08/2012 To 02/09/2012**

**Venue: - FAES, Jamnagar**

Sr. No	Name	Municipality/ Corporation	District	Mobile No.
1	Paragbhai K.Jethi	Bhuj	Kutch	9824886919
2	Pratik B.Makwana	Bhuj	Kutch	9687626984
3	Sunil J.Makwana	Bhuj	Kutch	9979252664
4	Dilip R.Chauhan	Bhuj	Kutch	9714117961
5	Jitesh K.Joshi	Bhuj	Kutch	9879028330
6	Sachin B.Parmar	Bhuj	Kutch	9925428576
7	Girish S.Dafda	Bhachau	Kutch	9909724619
8	Manubhai R.Rathod	Bhachau	Kutch	8758910433
9	Jemalbhai L.Meriya	Rapar	Kutch	9099062594
10	Mansukhbhai k.Meriya	Rapar	Kutch	9537743804
11	Mohanbhai K.Koli	Rapar	Kutch	9586440190
12	Kanjibhai M.Dodia	Rapar	Kutch	9979915779
13	SANJAYBHAI M.BHANGI	Rapar	Kutch	9979199960
14	Dhavalbhai M.Gohil	Mandavi	Kutch	9727738565
15	Rayshibhai U.Maheshwari	Mandavi	Kutch	9727738576
16	Samirbhai A.Gadhvi	Mandavi	Kutch	9737373772
17	Vijaybhai H.Goswami	Mandavi	Kutch	9099986426
18	Sunilbhai B.Barot	Mandavi	Kutch	9727870848



**Annexure-17****List of Swimmers of Kutch District**

<b>Sr. No.</b>	<b>Name of Taluka</b>	<b>Name of Swimmers</b>	<b>Address</b>	<b>Mobile No.</b>
1	Mandvi	Jam Abhu Nurmama	Tragadi	9726680340
2	Mundra	Haji Jakum Manek	Bhradeswar	9586599910
3	Mundra	Mamad Ushman Majaliya	Bhradeswar	8141465566
4	Mundra	Taiyab Ali Vagher	Jarpara	9979796904
6	Mundra	Sali Ibrahim Vagher	Jarpara	9427769037

**Annexure- 18****Aapda Mitra Volunteers of Kutch district**

<b>Sr. No.</b>	<b>Name of Volunteer</b>	<b>Sex</b>	<b>Knowledge of Swimming</b>	<b>Concerned Taluka/District</b>	<b>Phone Number</b>	
1	Sama Intiyaz Ibrahim	Male	No	Mandvi	9099840989	
2	Pulkit Anil Kumar Ruhela	Male	No	Mandvi	9712159713	
3	Goswami Hiral	Female	No	Mandvi	9979381705	
4	Maheshwari Haresh Ravji Bhai	Male	No	Mandvi	9016975791	
5	Seda Hansbai M.	Female	No	Mandvi	7874860239	
6	Tapariya Nagshri Manga	Female	No	Mandvi	9586857538	
7	Gadhavi Asha	Female	No	Mandvi	9913529409	
8	Maheshwari Aarti laxman bhai	Female	No	Mundra	9712485290	
9	Parmar Pooja Rajendra Bhai	Female	No	Mundra	9574537915	
10	Maheshwari Jagdish	Male	No	Mundra	9909311978	
11	Parmar Jigar Harilal	Male	No	Mundra	8758270667	
12	Patariya Govind Daya	Male	No	Mundra	9558711569	
13	Maheshwari Haresh	Male	No	Bhuj	9979638770	
14	Khalifa Ramzan A	Male	No	Bhuj	8141934073	
15	Chauhan Bhavik	Male	No	Bhuj	8511869958	
16	Matang Kishor Meghji	Male	No	Bhuj	9998647383	
17	Luhar Aarti M.	Female	No.	Bhuj	9979179454	
18	Bhumi Luhar	Female	No	Bhuj	9638559457	
19	Chhanga Navghan K.	Male	No	Anjar	9426608058	

20	Maheshwari Ravi Khimji	Male	No	Anjar	9726451990	
21	Navin Varchand	Male	No	Anjar	9727336305	
22	Makwana Vishal Ishwar Bhai	Male	No	Anjar	9537625005	
23	Mata Rajniben V.	Female	No	Anjar	9737652641	
24	Varsha Loncha	Female	No	Anjar	8980447187	
25	Maheshwari Rekha	Female	No	Anjar	8511168777	
26	Sadhu Jignasa	Female	No	Anjar	9727842987	
27	Waghela Bhavini	Female	No	Anjar	7490096823	
28	Maheshwari Rahul H.	Male	No	Nakhatrana	9913057693, 8200025117	
29	Matiya Kamlesh Devji	Male		Nakhatrana	9979744646	
30	Harijan Ishwarlal H	Male	Yes	Nakhtrana	7567611497	
31	Parmar ishvarbhai	Male	`Yes	Rapar	9727333259	
32	Bhanjibhai Arjanbhai Koli	Male	Yes	Rapar	9978730880	
33	Babubhai Rajabhai koli	Male	Yes	Rapar	9512593020	
34	Rupa Bhai Ramji Bhai Koli	Male	Yes	Rapar	9909694435	
35	Pravin Bhai Dayaram Koli	Male	Yes	Rapar	8980928701	
36	AkbarJusab Raja	Male	Yes	Rapar	9638432419	
37	Jitendra Bhai Kathad Parmar	Male	Yes	Rapar	9712803455	
38	Lalji Mahadev Koli	Male	Yes	Rapar	7874926759	
39	Bharadiya Hitesh	Male	No	Abdasa	7874423349	
40	Fufal Mahendra Poonam Sinh	Male	No	Abdasa	8469722080	
41	Meghwal Nitin	Male	No	Abdasa	9558340851	
42	Maheshwari Riya	Female	No	Abdasa	9512943666	
43	Maheshwari Priya	Female	No	Abdasa	8141483500	

44	Luhar Darshna	Female	No	Abdasa	9512211657	
45	Dangi Lal Singh	Male	No	Bhachau	7779090570	
46	Shikha Sarala Ben	Female	No	Bhachau	8758324463	
47	Harijan Manoj Dhanji	Male	No	Lakhpur	9687599623, 8160403090	
48	Choudhari Devabhavi	Male	No	Gandhidham	8758937537	
49	Patel Harsh Kumar Vinodbhai	Male	No	Gandhidham	9712763634	
50	Sachin MukeshBhai Prajapati	Male	No	Gandhidham	8401326910	
51	Nikul PravinBhai Prajapati	Male	No	Gandhidham	9638433872, 9106676854	
52	Gorkha Krishna H.	Female	No	Gandhidham	9054754632	
53	Dami Bhikharam Nai	Female	No	Gandhidham	9099208222	
54	Payal Parmanand Meghani	Female	No	Gandhidham	7041669099	

### Annexure-19

#### List of NGOs and CBOs – of Kutch District

Sr.	Name Of NGO/ CBO	Address	Contact Parson	Contact Number
1	Kutch nav nirman Abhiyan	70/B,bankars coloney, opp. jubeli ground,Bhuj, highway.370001	Sh. lalbhai Rambhiya	02834 287393
2	Ashapura Foundation	Mani Nagar, Virani Road, Nakhtrana-Kutch	Mr. Danabhai A. Zapdiya <a href="http://www.ashapurafoundation.org">www.ashapurafoundation.org</a>	(02835) 223605
3	Bhimani Khadi Mandal	Lilpur Taluka: Rapar – Kutch – 370 165	Mr. Kanubha Jadeja	(02830) 220068 263114
4	Bhojay Sarvodaya Trust	Bhojay, Taluka: Mandvi – Kutch – 370 450	Mr. Hiralalbhai Savla <a href="mailto:bhojayhospital@yahoo.co.in">bhojayhospital@yahoo.co.in</a>	(02834) 278602 278610 9879506059
5	Bidada Sarvodaya Trust	Bidada, Taluka: Mandvi – Kutch	Mr. Santilalbhai Vira <a href="mailto:bidadahospital@hotmail.com">bidadahospital@hotmail.com</a> <a href="http://www.bidada.org">www.bidada.org</a>	(02834) 244444 244143 244466

6	Cohesion Foundation Trust	Ravibhai Soni's House, Opp. Banglow No. 4, Nr. English School, Ayodhyapuri-Kutch	Kalyanbhai Dangar <a href="http://www.cohesionfoundation.org">www.cohesionfoundation.org</a> <a href="mailto:cohesionrapar@indiatimes.com">cohesionrapar@indiatimes.com</a>	(02830) 220302 9828309408
7	Gram Swaraj Sangh	C/o Sontekari Post: Neelpar, Taluka: Rapar – Kutch	Mr. Dineshbhai Sanghavi <a href="http://www.gramswarajsangh.org">www.gramswarajsangh.org</a> Mo. 98791 59755	(02830) 293218
8	Kutch Fodder, Fruit & Forest Development Trust	102, Kaushik Appartment, Bhanusali Nagar, Bhuj–Kutch–370 001	Mr. Jayeshbhai Lalka <a href="mailto:kfffdt@rediffmail.com">kfffdt@rediffmail.com</a>	(02832) 231173 650750
9	Gujarat Institute Of Desert Ecology	Opp. Changleshwar Mahadev, Mundra Road, Bhuj – Kutch –	Dr. Vijay Kumar <a href="mailto:desert_ecology@yahoo.com">desert_ecology@yahoo.com</a> <a href="http://www.gujaratdesertecology.org">www.gujaratdesertecology.org</a>	(02832) 329408
10	Kutch Mahila Vikas Sangathan	16, “Yogeshwar”, Nr. Aasutosh Appt. Ghanshyam Nagar, Bhuj – Kutch - 370 001	Ms. Lataben Sachde, Ms. Preeti Soni <a href="mailto:kmvskutch@gmail.com">kmvskutch@gmail.com</a>	(02832) 222124 223311
11	Kutch Yuvak Sangh	Opp. Mandvi Octroi, Bhuj – Kutch – 370 001	Mr. Komalbhai Chheda <a href="http://www.kutchyuvaksangh.org">www.kutchyuvaksangh.org</a>	(02832) 225163 225163
12	Yusuf Meherally Centre	Bhadreshwar, Taluka: Mundra – Kutch	Sh. Dharmendra Kumar <a href="mailto:yumeher@rediffmail.com">yumeher@rediffmail.com</a> <a href="http://www.yusufmeherally.org">www.yusufmeherally.org</a>	(02838) 283476 9825287275
13	Rural Agro Research & Development Society	C/o. Krishi Vigyan Kendra, Sadau, Taluka : Mundra – Kutch	Mr. Narendrabhai Patwa <a href="mailto:kvkkutch@rediffmail.com">kvkkutch@rediffmail.com</a> <a href="mailto:kvkkutch@gmail.com">kvkkutch@gmail.com</a>	(02838) 222384 222758
14	Lions Club Of Bhuj	Smt. Zaverben Kantilal Thacker, "LIONS BHAVAN", Hospital Road, Bhuj – Kutch	Mr. Ashokbhai Munshiani	02832 255990 252816
15	Manav Kalyan Trust	Selari Naka Road, Nr. Khodiyar Mandir, Rapar- Kutch-370165	Sh. Lallubhai Desai <a href="mailto:ggisgujarat@rediffmail.com">ggisgujarat@rediffmail.com</a> <a href="mailto:mktgujatat@gmail.com">mktgujatat@gmail.com</a>	(02830) 221947 9825228901
16	Sahjeevan	175, Jalaram Society, Bhuj – Kutch	Mr. Sabysachi Das <a href="mailto:sahjeevan@gmail.com">sahjeevan@gmail.com</a> <a href="http://www.sahjeevan.org">www.sahjeevan.org</a>	(02832) 251814 251914
17	Shri Sarva Seva Sangh, Bhuj	Opp. V. D. High school, Bhuj – Kutch – 370 001.	Mr. Upendrabhai Upadhyay 9824484011	(02832) 222830
18	Saraswatam	Nr. Old Post Office, Mandvi – Kutch	Mr. Shivdasbhai Patel <a href="mailto:saraswatam@gmail.com">saraswatam@gmail.com</a>	(02834) 223017
19	Shrujan	Behind G.E.B. Sub station	Ms. Chandaben Shroff <a href="mailto:shrujanad1@sancharnet.in">shrujanad1@sancharnet.in</a>	(02832) 240272/

		Po. Bhujodi, Bhuj – Kutch	<a href="mailto:mktshrujan@rediffmail.com">mktshrujan@rediffmail.com</a> <a href="http://www.shrujan.org">www.shrujan.org</a>	241903
20	Shree Sangh	Ratadiya, Taluka: Mundra – Kutch	Shri Monghiben Myatra <a href="http://www.shreesangh.co.in">www.shreesangh.co.in</a>	02838 286670
21	Shroff Foundation Trust	C/o. Agrocell Ind. Ltd., Nr. PCV Mehta School, Lotus Colony, Bhuj-Kutch-370001	Sh. Maganbhai Makwana <a href="mailto:sftkutch@rediffmail.com">sftkutch@rediffmail.com</a> <a href="http://shroffsfoundation.org">shroffsfoundation.org</a>	02832  2324154
22	Unnati	Nr. Euro Ceramic, Village : Navagam Bhachau –Kutch 3	Shri Bhanubhai <a href="mailto:unnati@sancharnet.in">unnati@sancharnet.in</a> <a href="http://www.unnati.org">www.unnati.org</a>	(02837) 223294
23	Veerayatan Vidyapeeth	Jakhaniya, Post- Talvana Taluka-Mandvi	Sh. Sadhvi Shilapiji Dr.Kaushikbhai shah <a href="mailto:shilapiji@hotmail.com">shilapiji@hotmail.com</a> <a href="mailto:anil@veerayatan.org">anil@veerayatan.org</a> <a href="http://www.veerayatan.org">www.veerayatan.org</a>	(02834) 275483 8980191698
24	The Corbett Foundation	Khatau Mankanji Bungalow, Tera, Taluka: Abdasa – Kutch – 370 660	Sh. Bhupendrasinhji <a href="mailto:kerc99@rediffmail.com">kerc99@rediffmail.com</a> <a href="http://www.corbettfoundation.org">www.corbettfoundation.org</a>	(02831) 289305 222158
25	Vivekanand Gramodhyog Society	VRTI Campus, Nagalpar Road, Nr. Jain Ashram,Mandvi - Kutch 370 465	Sh. Kishorbhai Bhadra <a href="mailto:vgsbatik@rediffmail.com">vgsbatik@rediffmail.com</a> <a href="http://www.vgsbatik.org">www.vgsbatik.org</a>	(02834) 221024 / 230651 223838
26	Viksat	Craft Park, Nr. B.M.C.B. City, Kukma	Sh. Dhanjibhai Bhingradiya <a href="mailto:viksathuj@gmail.com">viksathuj@gmail.com</a> <a href="http://www.viksat.org">www.viksat.org</a>	(02832) 271555
27	Vivekanand Research & Training Institute	Nagalpar Road, Mandvi – Kutch – 370 465	Sh. Mavjibhai Baraiya <a href="mailto:vrti_mandvi@yahoo.com">vrti_mandvi@yahoo.com</a> <a href="http://www.vrti.org">www.vrti.org</a>	02834) 223253 / 223934
28	Arid Communities & Technologies	Swajan Jivan Kendra, Mundra Road Relocation Site, Bhuj- Kutch-	Yogeshbhai Jadeja <a href="mailto:mail@act-india.org">mail@act-india.org</a> <a href="http://www.act-india.org">www.act-india.org</a>	(02832) 645152, 651531
29	Shri Vagad Sarvodaya Trust	National Highway No.8, Opp. Custom Check Post,Bhachau – Kutch- 370 140	Sh. Dr.Manharbhai Shah	02837) 224041, 224641 224614
30	Shri Navchetan Andhjan Mandal	Viklang Vidya Vihar Opp. Kachchh Dairy, P.B.No.-12, Madhapar Kutch 370020	Sh. Laljibhai Prajapati <a href="mailto:info@navchetan.org">info@navchetan.org</a> , <a href="http://www.navchetan.org">www.navchetan.org</a>	(02832) 240210, 242989 242079
31	Shri Maldhari Mangal Mandir	Bhujodi, Bhuj – Kutch – 370	Sh. Punjalbhai Rabari	(02832) 240851

	Trust	020		227262
32	Satvik: Promoting Ecological Farming	26, First Lane, Banker's Colony, Bh. Syndicate Bank, Nr. Jubilee Ground, Bhuj – Kutch – 370 001	Sh. Shaileshbhai Vyas E-mail: <a href="mailto:satvik.india@gmail.com">satvik.india@gmail.com</a>	(02832) 254872
33	Khamir- Craft Resource Center	Khamir Craft Park, Bh. BNCB city, Off. Dudhi Road, Post: Kukma Bhuj – Kutch – 370 001	: Sh. Meeraben Goradiya : <a href="mailto:khamir.crc@gmail.com">khamir.crc@gmail.com</a>	(02832) 271422, 271272
34	Ujjas Mahila Sangathan	Krishi Vigyan Kendra compound, Gundala Road, Village : Sadau, Tal.: Mundra– Kutch	Sh. Aminaben Gadh <a href="mailto:umsmundra@gmail.com">umsmundra@gmail.com</a>	(02838) 223104
35	Saiyere Jo Sangathan	Maninagar, Virani Road, Nakhatrana– Kutch	Sh. Nanduba Jadeja <a href="mailto:sjskutch@yahoo.co.in">sjskutch@yahoo.co.in</a>	(02835) 221124
36	Dhan Vallabh Charitable Turst	C/o. Tulsi Vidhyamandir, Village: Nana Bhadiya, Tal.: Mandvi– Kutch - 370475	Sh. Lalbhai Rambhiya	(02834) 287393
37	India Renal Foundation	Aadani Foundation, Block NO. 1, GK General Hospital, Madhapar Road, Bhuj- Dist-Kachchh	Shr. Rajat Gandhi	85111 48228
38	Indian Red Cross Society Kutch	Indian Red Cross Society Airport ring road Near Tri Mandir, Bhuj Kutch	Shr. Arun Jain	9825173994

**Items and Norms of assistance From the State Disaster Response Fund (SDRF) and The National Disaster Response Fund (NDRF) for the period 2015 to 2018**

Sr. No.	Items	Norms of Assistance
1.	<b>Gratuitous Relief</b>	
	a) Ex-Gratia payment to	Rs. 4.00 lakh per deceased person including those involved in

	families of deceased persons.	relief operations or associated in preparedness activities subject to certification regarding cause of death from appropriate authority.
	b) Ex-Gratia payment for loss of a limb or eye(s)	Rs. 59100/- per person, when the disability is between 40% and 60%  Rs. 2.00 lakh per person, when the disability is more than 60%  Subject to certification by a doctor from a hospital or dispensary of Government, regarding extent and cause of disability.
	c) Grievous injury requiring hospitalization	Rs. 12,700 /- per person requiring hospitalization for more than a week.  Rs. 4,300/- per person requiring hospitalization for less than a week.
	d) Clothing and utensils/ house-hold goods for families whose houses have been washed away/ fully damaged/severely inundated for more than two days due to a natural calamity.	Rs. 1,800/- per family, for loss of clothing.  Rs. 2,000/- per family, for loss of utensils/ household goods.
	e) Gratuitous relief for families whose livelihood is seriously affected	Rs. 60/- per adult and Rs. 45/- per child, not housed in relief camps, State Govt. will certify that identified beneficiaries are not housed in relief camps. further State Government will provide the basis and process for arriving at such beneficiaries district-wise  Period for providing gratuitous relief will be as per assessment of the State Executive Committee (SEC) and the Central Team (in case of NDRF). The default period of assistance will upto to 30days, which may be extended upto 60 days in the first instance, if required, and subsequently upto 90 days in case of drought/ pest attack. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribe limits subject to that expenditure on this account should not exceed 25% of SDRF allocation for the year.
<b>2.</b>	<b>Search &amp; Rescue Operations</b>	
	a) Cost of search and rescue measures/ evacuation of people affected/ likely to be affected	As per actual cost incurred, assessed by SEC and recommended by the Central Team (in case of NDRF)  By the time the Central Team visits the affected area, these activities are already over. Therefore, the State Level Committee and the Central Team can recommend actual/ near-actual costs.
	b) Hiring of boats for carrying immediate relief and saving lives.	As per assessment of need by SEC and recommendation of the Central Team (in case of NDRF),  The quantum of assistance will be limited to the actual



		expenditure incurred on hiring boats and essential equipment required for rescuing stranded people and thereby saving human lives during a notified natural calamity.
<b>3.</b>	<b>Relief Measures</b>	
	a) Provision for temporary accomodation, food, clothing, medical care, etc .for people affected/ evacuated and sheltered in relief camps.	As per assessment of need by SEC and recommendation of the Central Team (in case of NDRF), for a period upto 30 days. The SEC would need to specify the number of camps, their duration and the number of persons in camps. In case of continuation of a calamity like drought, or widespread devastation caused by earthquake or flood etc. this period may be extended to 60 days, and upto 90 days in cases of severe drought. Depending on the ground situtation, the State Executive Committee can extend the time period beyond the prescribed limit subject to that expenditure on this account should not exceed 25% of SDRF allocation for the year.  Medical care may be provided from National Rural Health Mission (NRHM)
	b) Air dropping of essential supplies	As per actual, based on assessment of need by SEC and recommendation of the Central Team (in case of NDRF)  The quantum of assistance will be limited to actual amount raised in the bills by the Ministry of Defence for airdropping of essential supplies and rescue operations only;
	c) Provision of emergency supply of drinking water in rural areas and urban areas.	As per actual cost, based on assessment of need by SEC and recommended by the Central Team (in case of NDRF), up to 30 days and may be extended upto 90 days in case of drought. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribed limit subject to that expenditure on this account should not exceed 25% of SDRF allocation for the year.
<b>4.</b>	<b>Clearance of Affected Areas</b>	
	a) Clearance of debris in public areas.	As per actual cost within 30 days from the date of start of the work based on assessment of need by SEC for the assistance to be provided under SDRF and as per assessment of the Central team for assistance to be provided under NDRF.
	b) Draining off flood water in affected areas	As per actual cost within 30 days from the date of start of the work based on assesment of need by SEC for the assistance to be provided under SDRF and as per assesment of the Central team (in case of NDRF)
	c) Disposal of dead bodies/ Carcases	As per actuals based on assesment of need by SEC and recommendation of the Central Team (in case of NDRF)
<b>5.</b>	<b>Agriculture</b>	
	i) Assistance farmers having landholding upto 2 ha.	
A.	Assistance for land and other loss	
	a) De-silting of agricultural land (where thickness of	Rs. 12,200/- per Hectare for each item.

	sand/ silt deposit is more than 3", to be certified by the competent authority of the State Government)	(Subject to the condition that no other assistance/ subsidy has been availed of by/ is eligible to the beneficiary under any other Government Scheme)
	b) Removal of debris on agricultural land in hilly areas	
	c) De-silting/ Restoration/ Repair of fish farms	
	d) Loss of substantial portion of land caused by landslide, avalanche, change of course of rivers.	Rs. 37,500/- per Hectare to only those small and marginal farmers whose ownership of the land is legitimate as per the revenue records.
B.	Input subsidy (where crop loss is 33% and above)	
	a) for agriculture crops, horticulture crops and annual plantation crops	Rs. 6,800/- per Ha, in rainfed areas and restricted to sown areas.  Rs. 13,500/- per ha. in assured irrigated areas. subject to minimum assistance not less than Rs. 1000 and restricted to sown areas.
	b) Perennial crops	Rs. 18,000/- ha. for all types of perennial crops subject to minimum assistance not less than Rs 2000/- and restricted to sown areas.
	c) Sericulture	Rs. 4,800/- per ha. for Eri, Mulberry, Tussar  Rs. 6,000/- per ha for Mags.
ii)	Input subsidy to farmers having more than 2 Ha of landholding	Rs. 6,800/- per hectare in rainfed areas and restricted to sown areas.  Rs. 13,500/- per hectare for areas assured irrigation and restricted to sown areas.  Rs. 18,000/- per hectare for all types of perennial crops and restricted to sown areas.  Assistance may be provided where crop loss is 33% and above subject to ceiling of 2 ha. per farmer.
6.	<b>Animal Husbandry Assistance to Small and Marginal Farmers</b>	

	<p>i) Replacement of milch animals, drought animals or animals used for haulage.</p>	<p>Milch animals:</p> <p>Rs. 30,000/- Buffalo/Cow/Camel/Yak/Mithun etc</p> <p>Drought animals</p> <p>Rs. 25,000/- Camel/Horse/Bullock etc</p> <p>Rs 16,000/- Calf/Donkey/Pony/Mule</p> <p>-The assistance may be restricted for the actual loss of economically productive animals and will be subject to a ceiling of 3 large milch animals or 30 small milch animals or 3 large drought animals or 6 small drought animals per household irrespective of whether a household has lost a larger number of animals. (The loss is to be certified by the Competent Authority designated by the State Government)</p> <p>Poultry:</p> <p>Poultry @ 50/- per bird subject to a ceiling of assistance of Rs 5000/- per beneficiary household. The death of the poultry birds should be on account of a natural calamity.</p> <p>Note: Relief under these norms is not eligible if the assistance is available from any other Government Scheme, E.g. loss of birds due to Avian Influenza or any other diseases for which the Department of Animal Husbandry has a separate scheme for compensating the poultry owners</p>
	<p>ii) Provision of fodder/ feed concentrate including water supply and medicines in cattle camps.</p>	<p>Large animals- Rs. 70/- per day.</p> <p>Small animals- Rs 35/- per day.</p> <p>Period for providing relief will be as per assessment of the State Executive Committee (SEC) and the Central Team (in case of NDRF). The default period for assistance will be upto 30 days, which may be extended upto 60 days in the first instance and in case of severe drought up to 90 days. Depending on the ground situation, the State Executive Committee can extend the time period beyond the prescribed limit, subject to the stipulation that expenditure on this account should not exceed 25% of SDRF allocation for the year.</p> <p>Based on assessment of need by SEC and recommendation of the Central Team, (in case of NDRF) consistent with estimates of cattle as per Livestock Census and subject to the certificate by the competent authority about the requirement of medicine and vaccine being calamity related.</p>

	iii) Trasport of fodder to cattle outside cattle camps	As per actual cost of trasport, based on assessment of need by SEC and recommendation of the Central Team (in case of NDRF) consistent with estimates of cattle as per Livestock Census.
<b>7.</b>	<b>Fishery</b>	
	i) Assistance to Fisherman for repair/ replacement of boats, nets- damaged or lost  Boat  Dugout- Canoe  Catamaran  Net  (This assistance will not be provided if the beneficiary is eligible or has availed of any subsidy/ assistance, for the instant calamity under any other Government Scheme)	Rs. 4,100/- for repair of partially damaged boats only  Rs. 2,100/- for repair of partially damaged net  Rs. 9,600/- for replacement of fully damaged boats  Rs. 7,600/- for replacement of fully damaged net
	ii) Input subsidy for fish seed farm	Rs. 8,200/- per hectare.  (This assistance will not be provided if the beneficiary is eligible or has availed of any subsidy/ assistance, for the instant calamity, under any other Government Scheme, except the one time subsidy provided under the Scheme of Department of Animal, Husbandry, Dairying and Fisheries, Ministry of Agriculture)
<b>8.</b>	<b>Handicrafts/ Handloom Assistance to Artisans</b>	
	i) For replacement of damaged tools/ equipment	Rs. 4,100 per artisan for equipments.  Subject to certification by the competent authority designated by the Government about damage and its replacement.
	ii) For loss of raw material/ goods in process/ finished goods	Rs. 4,100 per artisan for raw material.  Subject to certification by Competent Authority designated by the State Government about loss and its replacement
<b>9.</b>	<b>Housing</b>	
	a) Fully damaged/ destroyed houses	

	i) Pucca house	Rs. 95,100/- Per house, in plain areas.
	ii) Kutcha house	
	b) Severely damaged houses	Rs. 1,01,900/- per house, in hilly areas including Integrated Action Plan (IAP) districts
	i) Pucca house	
	ii) Kutcha house	
	c) Partially Damaged Houses	
	i) Pucca (other than huts) where the damage is at least 15%	Rs. 5,200/- per house
	ii) Kutcha (other than huts) where the damage is at least 15%	Rs. 3,200/- per house
	d) Damaged/ destroyed huts:	Rs. 4,100/- per hut,  (Hut means temporary, make shift unit, inferior to Kutcha house, made of thatch, mud, plastic sheets etc. traditionally recognized as hut by the State. District authorities)  Note: The damaged house should be an authorized construction duly certified by the Competent Authority of the State Government
	e) Cattle shed attached with house	Rs. 2,100/- per shed.

#### Illustrative List of Activities Identified As of an Immediate Nature:

##### 1. Drinking Water Supply:

- i) Repair of damaged platforms of hand pumps/ ring wells/ spring-tapped chambers/ public stand posts, cisterns.
- ii) Restoration of damaged stand posts including replacement of damaged pipe lengths with new pipe lengths, cleanign of clear water reservoir (to make it leak proof)
- iii) Repair of damaged pumping machines, leaking overhead reservoirs and water pumps includings damaged intake- structure, approach gantries/ jetties.

**2. Roads**

- i) Filling up of breaches and pathholes, use of pipe for creating waterways, repair and stone pitching of embankments.
- ii) Repair of breached culverts.
- iii) Providing diversions to the damaged/ washed out portions of bridges to restore immediate connectivity.
- iv) Temporary repair of approaches to bridges/ embankments of bridges, repair of damaged railing bridges, repair of causeways to restore immediate connectivity, granular sub base, over damaged stretch of roads to restore traffic.

**2. Irrigation:**

- i) Immediate repair of damaged canal structures and earthen/masonry works of tanks and small reservoirs with the use of cement, sand bags and stones.
- ii) Repair of weak areas such as piping or rat holes in dam walls/ embankments.
- iii) Removal of vegetative material/ building material/ debris from canal and drainage system.

**3. Health:**

Repair of damaged approach roads, buildings and electrical lines of PHCs/ community Health Centres.

**4. Community assets of Panchayat**

- a) Repair of village internal roads.
- b) Removal of debris from drainage/sewerage lines.
- c) Repair of internal water supply lines.
- d) Repair of street lights.
- e) Temporary repair of primary schools, Panchayat Ghars, Community halls, Anganwadi. etc.

**Annexure: 20****Evacuation and Shelter Plan****Temporary Shelter:****Urban Area:-**

Local Nagar Palika and TEOC, -District Primary and Secondary Education Officer will be Responsible to Shift safely of Affected Population during any kind of Disaster ,In Kutch District mainly use school, collage /community hall ,and Samaj Vadi for shifting of Affected people.Also already it has been identified ward wise by TEOC AND Nagar Palika. The list of Safe Shelter Included in CDMP Plan. Also find list on SDRN Side. At Urban level City Disaster Management Committee and District Administration directly responsible to Evacuate affected people at Safe Place.

**Village area:**

Mainly village area looking by District and Taluka Panchyat with the support of Liaison officer and Respective Mamlatdar. Also already Identified Village wise Safe Shelter at village level, like school/community hall/Samajvadi etc. put Detail List in VDMP Plan. Also find list on SDRN Side. District /Taluka/Village Level - District /Taluka /Village Disaster Management Team directly responsible to Evacuate affected people at Safe Place

**Annexure:21****Media Management Plan****1. Preparedness****External**

- Broadcast programs to raise people's awareness of disaster prevention measures
- Develop news sources in emergency situation
- Liaison with community leaders
- Publicize station frequency
- Broadcast public planning meetings
- Outreach to the elderly, women, children, mentally and physically disabled people, as well as other marginalized and other vulnerable groups
- Encourage stockpiling of (hand –powered) radio receivers
- Compile local knowledge on signs of impending disaster and share it with community

**Internal**

- g. Back up important documents and files (including audio content) and store in a safe location
- h. If possible, place a set of minimum broadcast equipment such as a microphone, tape/CD player, transmitter and antennae in a safe location
- i. Plan radio programs to raise people's awareness of disaster prevention
- j. First aid training for station personnel
- k. Technical preparedness (generator, APS, securing, transmitter
- l. Guidelines for managing staff and volunteers
- m. Arrange emergency drills in the station
- n. Develop a contact list and post in station
- o. Map community (ethnicity, religion, race, culture, vulnerability)
- p. Prepare pre-recorded Emergency Response
- q. Announcements and scripts and post in the studio

**2. Mitigation**

Develop networks with local Disaster Management and Response (DMR) NGOs, local government and key stakeholders: hold regular meeting with them

- r. Arrange emergency drills in the community
- s. Training of on-air personnel - what and how to broadcast

### **3. Response**

#### **External-on air**

- t. Broadcast pre-prepared announcements
- u. Broadcast emergency public meetings
- v. Broadcast emergency evacuation announcements
- w. All announcements broadcast in a reassuring and calm
- x. manner
- y. Dispel myths and rumors and provide timely and accurate
- z. updates
- aa. Broadcast updates on damage situation
- bb. Produce programs in which victims can express themselves
- cc. Establish contact with the meteorological office and
- dd. broadcast weather information

#### **Internal-behind the scenes**

- ee. Ensure safety of all station personnel
- ff. Call station briefing meeting
- gg. Notify CR networks of status
- hh. Monitor all official announcements and activities of
- ii. national government, local government and aid
- jj. agencies(NGOs)
- kk. Enact station evacuation plan if needed
- ll. Log all communications for reference
- mm. Stay calm
- nn. Divide information work so that all voices of the community can be heard and not just male leaders.

### **4. Relief**

Establish Information Support Centre for information sharing and logistic distribution

### **5. Rehabilitation**



**External – Networking and Support**

- oo. Broadcast pre-prepared announcements
- pp. Broadcast programs to heal victim's psychology trauma.
- qq. Interview trauma counselors, monks, Imams and priests
- rr. Broadcast recovery announcements
- ss. Cooperate with DMR NGOs, local government and key stakeholders
- tt. Broadcast recovery public meetings
- uu. Provide call in or talk-back programs for people to people interactions

Broadcast positive entertainment programming

**Annexure: 22****Contacts directory**

On receipt of information about the incident, all Task force leaders shall report immediately to the collector in the district EOC. The coordinator of each taskforce shall send communication to their members to report immediately in their respective control rooms. Taluka liaison Officers shall report to Mamlatdar in their respective Taluka control rooms

**Annexure: 22.1****State Level Emergency Contacts Number**

Sr. No.	EOCs/ Control rooms	Code	Contact Numbers
1	State Emergency Operation Center	079	23251900  23251902  23251914  F- 23251916
2	Relief Commissioner	079	23251509  23251568
3	Director of Relief	079	23251611  23251916  23251912
4.	CEO, GSDMA	079	23259220

			23259275
			23259289
5	Pri. Secretary Revenue Department	079	23251591
			23251591
6	Dy. Collector (SEOC)	079	23251990
			23251916-12
7	India Meteorological Department , Ahmadabad	079	22865012
			22865449
			22865165
			22861413
8	Institute of seismological Gandhinagar	079	66739000
			23257641
			23252703
9	NDRF team Gandhinagar	079	23201551
			F- 23202540
10	Commandant of NDRF team Gandhinagar	079	23202540
			094288 26445
11	District EOC Help line	02832	1077
12	States EOC Help line		1070

**Annexure: 22.2****Task Force Operation Room**

<b>Sr. No.</b>	<b>Name TASK FORCE</b>	<b>Phone Number</b>
1	Warning and Communications	02832-250650
2	Law and Order	02832-250444
3	Search and Rescue	02832-253593
4	Public Works	02832-221450
5	Shelter	02832-221103
6	Water Supply	02832-252310
7	Food and Relief supplies	02832-221453
8	Public Health and Sanitation	02832-252207
9	Power	02832-253550
10	Logistics	02832-250080
11	Animal Health and Welfare	02832-221650
12	Damage assessment/Survey	02832-252704
13	Media/public Information	02832-250954
14	Planning and coordination	02832-252704
15	Financial arrangement	02832 252704
16	Emergency Response Center Gandhidham	098255 72188

**Annexure: 22.3****Sub Divisional Emergency Operation Center**

<b>Sr. No.</b>	<b>Sub Divisional</b>	<b>Contact Number</b>
1	<b>Bhuj</b>	02832 251007
2	<b>Anjar</b>	02836 243345
3	<b>Bhachau</b>	02837 224101
4	<b>Mundra</b>	02838 222127
5	<b>Nakhatrana</b>	02835 222122
6	<b>Abdasa</b>	02831 222188

**Annexure: 22.4****Taluka Emergency Operation Center**

<b>Sr. No</b>	<b>Taluka Emergency Operation Center</b>	<b>Code</b>	<b>Phone Number</b>
<b>1</b>	<b>Bhuj</b>	02832	230832
<b>2</b>	<b>Mandavi</b>	02834	222711
<b>3</b>	<b>Mundra</b>	02838	222127
<b>4</b>	<b>Abdasa</b>	02831	222131
<b>5</b>	<b>Nakhatrana</b>	02835	222124

<b>6</b>	<b>Lakhpat</b>	02839	233341
<b>7</b>	<b>Anjar</b>	02836	242588
<b>8</b>	<b>Gandhidham</b>	02836	250270
<b>9</b>	<b>Bhachau</b>	02837	224026
<b>10</b>	<b>Rapar</b>	02830	220001

**Annexure: 22.5****District Level Flood and Cyclone Control Phone Number**

<b>Sr.No.</b>	<b>Designation</b>	<b>Office</b>	<b>Fax</b>
1	District EOC	02832 252347	224150
2	DDO Control Room	02832220007	250355 /220240
3	DSP Police Control room	02832 250 960/ 253593	250427
4	Department of Fisheries Control Room	02832 253785	250292
5	Irrigation Control room	02832 252507	252507
6	Water supply Board Control Room	02832 252310	261806
7	Methodological Department	02832 250575	250575
8	Port office Kandla	02836 220016 /257903 02836 233192	220016
9	Port office Mandvi	02834 223033 02834 222633	230033 222633
10	Port office Mundra	02838 222136	-
11	Port office Jakho	02831 287235	02831 287235
12	Commanding Officer Jakho Coastguard	02831 286430	02831 286432
13	Geographical control room	02832 223551	02832 223551
14	Department of Seismological	02832 221352	--
15	Air force control room Bhuj	02832 244000	02832 244104
16	Army Control room Bhuj	02832 258441/42/43	02832 258441
17	BSF Bhuj Control room	02832 299659 02832 256770	02832 256770
18	Border Wing Bhuj	02832 221495	02832 221495
19	Chief Engineer PGVCL	02832 255831	250048
20	Executive Engineer R & B(State)	02832 251450/ 220252	250424
21	Executive Engineer R & B (Panchayat)	02832 250834	250355
22	Director DRDA	02832 231577	231342
23	RTO Bhuj	02832 221950	251566

**Annexure: 22.6****District Level Important Contact Number**

<b>Sr. no.</b>	<b>Designation</b>	<b>Office</b>	<b>Mobile</b>	<b>Fax</b>
<b>1</b>	Collector -Kutch	02832250020	9978406213	250430
<b>2</b>	DDO-Kutch	02832250080	9978406238	250355
<b>3</b>	DSP-Bhuj	02832250444	9978405073	250427
<b>4</b>	DSP-Gandhidham	02836280287	99784 05690	280211
<b>8</b>	Resident Additional Collector-Kutch	02832250650	9978405212	250430
<b>9</b>	DSO-Kutch	02832221453	99784 05275	227495
<b>10</b>	Dy. Collector MDM	02832223952	94296 27093	--
<b>11</b>	Dy. Collector Stamp Duty	02832253510	94296 27093	-
<b>12</b>	Dy. Collector Civil Defense	02832230603	--	--
<b>13</b>	District Planning Officer	02832252302	98242 71658	--
<b>14</b>	Disaster Mamlatdar	02832250923	9537798343	224150
<b>15</b>	District Project officer GSDMA	02832250923	9557920767	224150
<b>16</b>	Chief Engineer GWS&D Board	02832221806	99784 06534	250378
<b>17</b>	Chief Engineer Irrigation Dept.(State)	02832250214	99250 27093	254834
<b>18</b>	Chief Engineer PGVCL	02832255831	9825603183	250048
<b>19</b>	Executive Engineer R & B(State)	02832251450	98243 40099	250424
<b>20</b>	Executive Engineer R & B (Panchayat)	02832250834	98798 48794	250834
<b>21</b>	Director DRDA	02832 231577	75670 35930	231342
<b>22</b>	RTO Bhuj	02832221952	99250 36119	251566
<b>23</b>	Executive Engineer Irrigation (Panchayat)	02832 251879	97371 39680	220240
<b>24</b>	Dy. Information Officer Bhuj	02832224859	9825011708	250954
<b>25</b>	Assistant Controller Of Food and Medicine	02832223253	94260 43763	223253
<b>26</b>	Assistant Director of Fisheries Department Bhuj	02832250292 253785	99243 12245	250292
<b>27</b>	CDHO Bhuj	02832252207	9909949302	221666
<b>28</b>	Dy. Animal Director Panchayat Bhuj	02832221650	94267 04429	221650
<b>29</b>	Departmental Director S.T.Bhuj	02832221602	99989 53243	205064
<b>30</b>	Civil Surgeon Bhuj	02832250150	9825229007	
<b>31</b>	Chief Forest Officer Bhuj	02832220937		250336
<b>32</b>	DFO Bhuj (East)	02832250227	9825313233	229630
<b>33</b>	DFO Bhuj (West)	02832231500	9426721370	231500
<b>34</b>	General Manager DIC	02832250501	94275 32101	251874
<b>35</b>	Dy. Commissioner of Charity, Bhuj	02832221403	99793 86162	221403
<b>36</b>	Town Planning Officer	02832250879	9978914655	250879
<b>37</b>	Sale tax office	02832220952	9904264096	
<b>38</b>	District Education Officer Bhuj	02832250156	99099 70204	250156
<b>39</b>	District Education Training Center	02832221491	94272 65352	221492

40	Backward Caste Development officer	02832220621	98257 57967	220621
41	Commander Border Wing Bhuj	02832252150		252150
42	Bhuj City Police Station	02832253050	99095 66325	
43	Ex, Er. Salt Control Department	02832221752	94270 36330	221752
44	Corruption Control Burro	02832250254	99250 04022	250254
46	Kutch Leva Patel Edu. & medical Trust	02832231122	99252 55366	231133
47	District Registrar Bhuj	02832251753	96879 03089	251753
48	District Treasurer Officer	02832231202	98241 66714	
49	District Employment Officer	02832 221758	94289 52094	
50	District de-Addiction Control Officer Bhuj	02832221855	98259 77456	
51	Sub-Registrar Bhuj	02832230710	94264 54834	
52	District Sport Officer	02832223471	99790 99890	
53	Mine and Resources Office Bhuj	02832256038		256038
54	Umed Bhavan	02832252934	98250 45936	
55	Kutch Museum	02832220541	9427736256	220541
56	Bhuj Area Development Authority	02832 221862		223899
57	Anjar Area Development Authority	02836245676	99784 05069	241866
58	Bhachau Area Development Authority	02837224567	99090 13962	224567
59	Rapar Area Development Authority	02830221385	99090 13962	221385

**Annexure: 22.7****District Panchayat officers Important contact Number**

Sr	Designation	Office(02832)	Mobile	Fax
1	District Development officer	250080	99784 06238	250355
2	Dy. DDO (Revenue)	251150	94275523441	250355
3	Dy. DDO Panchayat	251323	--	251323
4	Dy. DDO Development	251323	98798 90124 75670 20037	250355
5	Ex. Er. Irrigation Panchayat	251879 220240	97371 39680	251879
6	Executive Engineer R & B Panchayat	250834 221050	99885 62668	250834
7	District Statistical office	221402	99985 62668	--
8	District Agriculture Officer	221155	94264 19265 81286 85681	221115
9	District Social Welfare	220654	94294 81220 82380 82630	--
10	CDHO	252207	9909941234	221666
11	Add. CDHO	223575	99099 49304	--
12	District Immunization officer	224702	9909949303	--

13	Dy. Director of Animal Welfare	221650	94267 04429	--
14	District Primary Education Officer	221103	9909971683	252403
15	Programme officer ICDS	221904	94263 35062	--
16	District Ayurvedik Officer (I/C)	222998	99099 49314	--
17	Project Director Water shade	231963	98253 13233	--
18	District Information And Education Media	223575	9909949307	--
19	Dy. District Primary Education officer	211103	98255 15529	--
20	District Malaria Officer	222307	9909949306	222307
21	District Epidemic Controller officer	221666	99099 49305	--
22	Administrative officer Health	252207	99099 49381	--
24	District TB Officer	223201	--	--
25	P. A. To DDO	250080	9428214561	--
26	P.A. To President	252407	94202 14556	--

**Annexure: 22.8****Sub-Divisional Magistrate**

Sr.no.	SDM	Code	Office	Fax	Mobile
1	Bhuj	02832	251007	222127	9925384482
2	Mundra	02838	223112	223112	9925232338
3	Anjar	02836	243345	234345	9978405069
4	Bhachau	02837	224101	224101	9408146800
5	Nakhatrana	02835	222122	222122	9920503086
6	Abdasa	02831	222188	222188	7567008032
7	Gandhidham	02836	243345	--	9978405069
8	Lakhpat	02839	222122	--	9920503086
9	Mandvi	02834	223112	--	9925232338
10	Rapar	02830	224101	--	9408146800

**Annexure: 22.9****Mamlatdar Contact Details**

Sr. No	Mamlatdar(Taluka)	Code	Office	Fax	Mobile
1	Bhuj	02832	230832	251250	9724363100
2	Mandavi	02834	222711	222075	7567003835
3	Mundra	02838-	222127	223704	9924826711
4	Anjar	02836	242588	243362	7567003944
5	Gandhidham	02836	250270	250339	7567003975
6	Bhachau	02837	224026	224009	9428468040
7	Rapar	02830	220001	220057	7567003846
8	Nakhatrana	02835	222124	222147	9979745570
9	Abdasa	02831	222131	222132	7567004065
10	Lakhpat	02839	233341	233340	9825386683

**Annexure: 22.10****Taluka Development Officer Contact Details**

Sr. No	TDO(Taluka)	Code	Office	Fax	Mobile
1	Bhuj	02832	221711	256851	75670 13588
2	Mandavi	02834	223082	223079	7574827565
3	Mundra	02838	222128	223231	9925796562
4	Anjar	02836	242595	245757	7567013775
5	Gandhidham	02836	280236, 280260	280263	7567013853
6	Bhachau	02837	223302	223302	9726668696
7	Rapar	02830	220003	220003	7567013798
8	Nakhatrana	02835	222144	222144	7567013520
9	Abdasa	02831	222135	222556	7567013553
10	Lakhsat	02839	233334	233334	7567019396

**Annexure: 22.11****Chief Officer of Municipality Contact Details**

Sr. No	Nagarpalika CO	Code	Office	Mobile	Fax
1	Bhuj	02832	220301	9825049312	224404
2	Mandavi	02834	223010	9925569999	231680
3	Anjar	02836	242544	9913863010	240325/242909
4	Gandhidham	02836	231610/234967	8511184600	233288
5	Bhachau	02837	224028	9825049312	224028
6	Rapar	02830	220011	9825049312	220011

**Annexure: 22.12****Taluka Police Station Contact Details**

Sr. No	Taluka	Code	Office
1	Bhuj	02832	253050
2	Mandavi	02834	231508-F-222308
3	Mundra	02838	222121
4	Anjar	02836	242517
5	Gandhidham	02836	229513 / 232500
6	Bhachau	02837	224036 / 291136
7	Rapar	02830	220013
8	Nakhatrana	02835	222133
9	Abdasa	02831	222122
10	Lakhsat	02839	233333



**Annexure: 22.13****Gujarat State Road Transportation Nigam Limited Contact Details**

<b>Sr. No</b>	<b>Taluka</b>	<b>Office</b>	<b>Mobile No.</b>
1	<b>Bhuj</b>	02832220102	9998953253
2	<b>Mandavi</b>	02834232544	9998953251
3	<b>Mundra</b>	02838224200	9998953252
4	<b>Anjar</b>	02836242692	9998953255
5	<b>Bhachau</b>	02837224049	9998953250
6	<b>Rapar</b>	02830220035	9998953249
7	<b>Naliya</b>	02831222980	9998818626
8	<b>Nakhatrana</b>	02835222200	9998953254

**Annexure: 22.14****Gujarat Maritime Board**

<b>Sr. No.</b>	<b>Name of Ports</b>	<b>STD Code</b>	<b>Office</b>	<b>Fax No</b>
1	Head Office, Gandhinagar	07923	238346-48	23234704
2	Magdalla VTMS	0261	2721700	2721700
3	Magdalla Port Office	0261	2474825	2475645
4	Hazira Port Pvt. Ltd., Hazira	0261	3051165	3051158
5	Bharuch (Dahej)	02642	241772	243140
6	Petronet LNG Ltd., Dahej	02641	300325	257252
7	Bhavnagar	0278	2210221	2211026
8	Alang PO	02842	235621	235955
9	Jafrabad	02794	245443	245165
10	Gujarat Pipavav Port Ltd., Pipavav	02794	302666	302667
11	Veraval	02876	220001	243138
12	Porbandar	0286	2242408	2244013
13	Jamnagar (Bedi)	0288	2755106	2756909
14	Okha	02892	262001	262002
16	Morbi for Navlakhi Port	02822	220435	232470
17	Mandvi Port Office	02834	223033 96012 54062	230033
18	Mundra (Asst. Conservator)	02838	222136	222136
19	Gujarat Adani Port Ltd. (GAPL), Mundra	02838	289221-289371 98250 19121	289270 289170

20	Jakhau (Asst. Conservator)	02831	287261 99783 23815	287261
21	I.M.D. Ahmedabad	07922861413/ 22865012		22867206

### Annexure: 22.15























#### Contact Detail of Fisheries Guard Which are providing Token to Fishermen

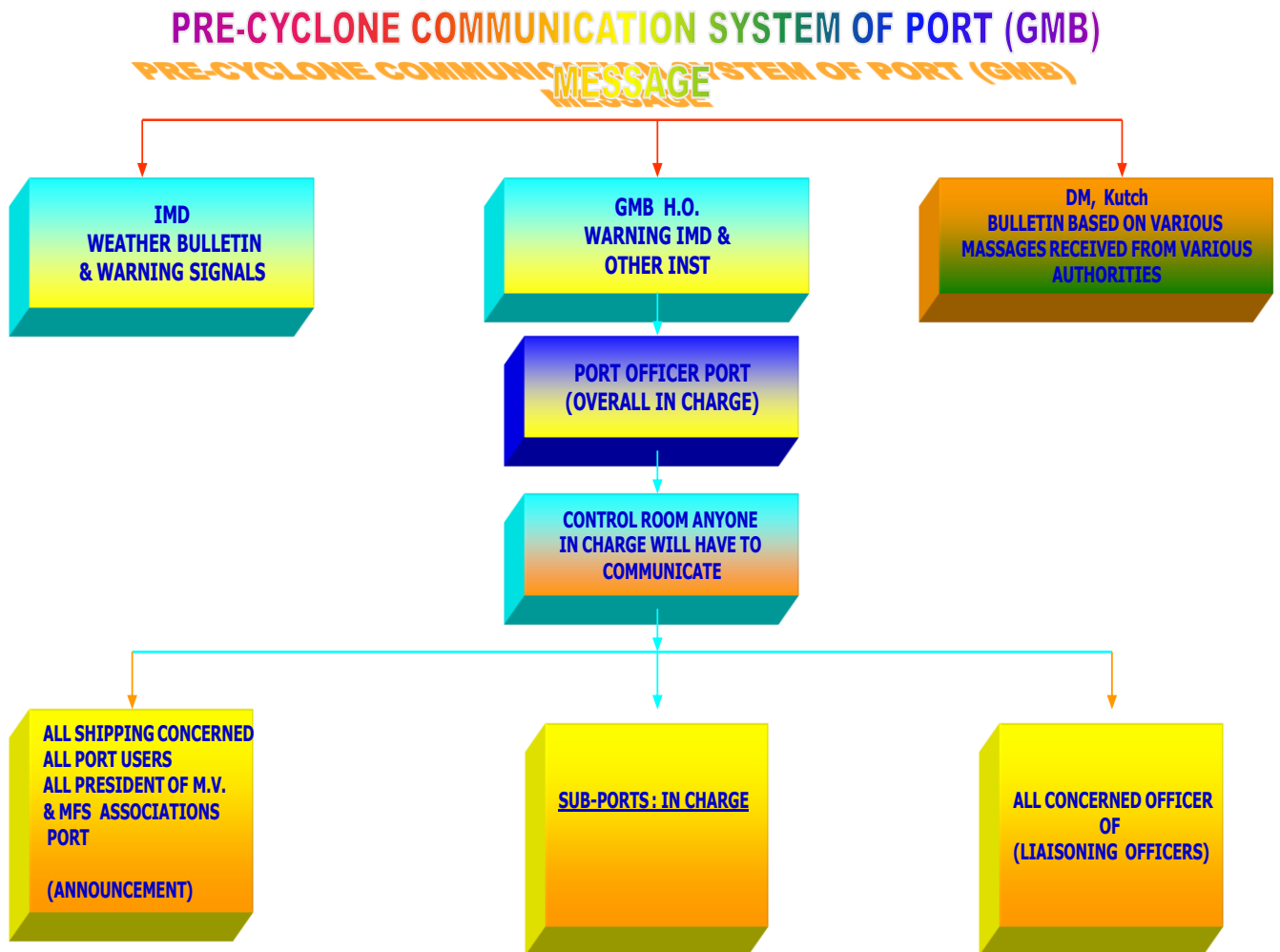
Sr No.	Name of Taluka	Name Fisheries Landing Center	Name of the Fisheries Guard	Mobile No. Fisheries Guard
1	Lakhapat	Na.Sarover	Deep Sinh Gohil	9925133127
2	Abadasa	Jakhau	Raju bhai	9913024056
3	Abadasa	Jakhau	Ram bhai gadhavi	9726111727
4	Abadasa	Jakhau	Karsanbhai lalabhal chavda	9712315472
5	Abadasa	Jakhau	Saiyyad Jenal abbudin	6353418763
6	Abadasa	Jakhau	Rajendrasingh A. Jadeja	9913824056
	Abadasa	Jakhau	Karim Salemamad Vagher	7567878274
7	Abadasa	Jakhau	Office of Jakhau	02831286437
9	Mandvi	Mandvi	Devaji Naran Harijan	9979330946
10	Mandvi	Mandvi	Haraji Mulji Maheswari	9726763803
11	Mandvi	Modhava	Pravingiri Motigar Gusai	9925737653
12	Mandvi	Modhava	Bharat hansaji Bhatti	8141814518
13	Mandvi	Tragdi	Abdul jusab Langhay	9909219951
14	Mundra	Navinad	Hitendrasinh Hathisinh Jadeja	9687504600
15	Mundra	Zarapra	Rameshchandra arajan Solanki	9979348565
16	Mundra	Mundra	Bhima Vela Meghavan	9712680603
17	Mundra	Luni	Rajendrasinh D.Jadeja	9712414721
18	Mundra	Bhadreswar	Suleman Hasam Mogal	9978319234
19	Mundra	Bhadreswar	Vanrajsinh juvansinh Jadeja	9978833577
20	Mundra	Bhadreswar	Ahemad Ramju Sota	9586402225
21	Mundra	Bhadreswar	Anirudh Jadeja	9727693654
22	Mundra	Shekhadiya	Kanji Namori Maheswari	9925738171
23	Anjar	Kukadsar	Maheshbhai Dharashi Parmar	9638283113
24	Anjar	Kutdinar	Mukesh Amulakh Makwana	9978219293
25	Anjar	Sanghad	Mithu Natha Dafada	9978004196
26	Anjar	Tunavandi	Ramesh dayabhai Katariya	9725879750
27	Gandhidham	Mithaport	Ramesggar Narangar Gosai	9925094667
28	Gandhidham	Mithaport	Vijaysinh Bahadursinh Zala	9726099701
29	Gandhidham	Mithaport	Naredrasinh Jadeja	9924219432

**Annexure: 22.16****District Fire Stations Important Contact Number**

<b>Sr.No.</b>	<b>District Fire Station</b>	<b>Phone No.</b>	<b>Fax</b>
1	Fire Station Bhuj	02832 299080 9925170506	224404
2	Fire Station Mandavi	02834 223010	231680
3	Fire Station Bhachau	02837 224028	224028
4	Fire Station Gandhidham	02836 226573 8511184600	233288
5	Fire Station Rapar	02830 220011	220011
6	Fire Station Anjar	02836 242544 99255 69999	240325 242909
7	Fire Station Kandal Port, Kandla	02836 270176 98252 27041	02836 270176
8	Fire Station Control Room Adani Port Mundra	02838 289440 9825019121 8980015455	289200
9	Fire Station IFFCO Kandla	02836 270352 99790 26415	02836 270642
10	Fire Station F.O.C.T. Kandla	02836 270987 8980018340	270814
11	Fire Station Control Room GAIL(India) Lakadia(Bhachau)	02837 293235 9228003673 84696 98323 02837 293009	
12	Emergency Response Center Gandhidham	98255 72188	

**Annexure: 23****Cyclone Signal****Port signal**

<b>PORT STORM WARNING SIGNAL NO.</b>	<b>DAY SIGNAL</b>	<b>NIGHT SIGNAL</b>	<b>MEANING</b>
1			<i>DISTANT CAUTIONARY (There is a region of squally weather in which a storm may be forming.)</i>
2			DISTANT WARNING ( A storm has formed.)
3			LOCAL CAUTIONARY (The port is threatened by squally weather.)
4			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. )
5			DANGER (The port will experience severe weather from a cyclone expected to move keeping the port to the left of its track. )
6			DANGER ( The port will experience severe weather from a cyclone expected to move keeping the port to the right of its track. )
7			DANGER ( The port will experience severe weather from a cyclone expected to move over or close to the port. )
8			GREAT DANGER ( The port will experience severe weather from a severe cyclone expected to move keeping the port to the left of its track. )
9			GREAT DANGER ( The port will experience severe weather from a severe cyclone expected to move keeping the port to the right of its track. )
10			GREAT DANGER ( The port will experience severe weather from a severe cyclone expected to move over or close to the port. )
11			FAILURE OF COMMUNICATIONS ( Communications with the Meteorological Warning center have broken down and the local officer considers that there is danger of bad weather. )

**Annexure 24****Cyclone Warning Mechanism**

## Annexure 25

### General Terminology Used in Weather Bulletins

#### (A). Intensity of Rainfall Terminology Used

Sr. No.	Rain in mm”(24 hrs)	Terminology
1	0.1.mm to 2.4 mm”	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) Special distribution of weather phenomenon

Sr. No.	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 and may lead to disaster.
4. When water levels are rising alarmingly.

#### (D) Evacuation

Sr. No.	Signal	Activity
1	White Signal	Alert condition
2	Blue Signal	Ready for Evacuation
3	Red Signal	Immediate Evacuation

## Annexure 26

### Dos and don'ts in various disaster

#### Cyclone Safety

A cyclone is a storm accompanied by high-speed whistling and howling winds. It brings torrential rains.

##### Where does a cyclone come from?

A cyclonic storm develops over tropical oceans like the Indian Ocean and Bay of Bengal and the Arabian Sea. Its strong winds blow at great speed, which can be more than 118 kilometers per hour.

##### What are the visible signs of a cyclone?

When a cyclonic storm approaches, the skies begin to darken accompanied by lightning and thunder and a continuous downpour of rain.

##### How does a cyclone affect us?

- A cyclone causes heavy floods.
- It uproots electricity supply and telecommunication lines. Power supply shuts down and telephones stop functioning.
- Road and rail movements come to halt because floods damage rail tracks and breach roads. Rail movements are also disrupted because of communication failure.
- The inclement weather conditions also disrupt Air services. Seaports stop work due to high winds, heavy rains and poor visibility. Sometimes ships overturn or are washed ashore. The high speed winds bends and plucks out trees and plants.
- A cyclone tears away wall sidings and blows off roofs of houses.
- Houses collapse and people are rendered homeless. In villages kacha houses get blown away. The speeding winds cause loose metal and wooden sheets to fly turning them to potential killers. Broken glass pieces can cause serious injuries.
- The floodwaters can take time to recede.
- The floodwaters can turn the fields salty.
- Bridges, dams and embankments suffer serious damages.
- Floods wash away human beings and animals and make water unfit for drinking. There can be outbreak of diseases like Cholera, Jaundice or Viral fever due to intake of impure water. Water gets contaminated because of floating corpses of animals and human beings and mixing of sewage stored food supplies, gets damaged.

**Which areas are exposed to a cyclone in Gujarat?**

In Gujarat, the Saurashtra-Kachchh region experiences a cyclone. The port towns of Veraval, Porbandar, Jamnagar, Dwarka, Okha, Kandla and Bhavnagar and other minor port towns suffer most.

**Does a cyclone follow a particular path?**

It is often difficult to predict where a cyclone will strike. When it starts moving from oceans (in Gujarat it is Arabian Sea) towards the land area, a cyclone can change track and hit areas other than those anticipated earlier.

**Has any early warning system been evolved for the occurrence of a cyclone?**

Yes. In India, the Indian Meteorological Department has developed a four-stage warning system for a cyclone.

**How does the system operate?**

This warning is about the possibility of a cyclone when a low pressure depression develops in oceans. For Gujarat, the development of such a depression in the Arabian Sea is indicative of a cyclone attack.

- **The Alert stage**

This warning is given 48 hours prior to the time when a cyclone is expected to hit the land.

- **The Warning stage**

This is the stage when a cyclone gets formed. The warning is given 24 hours before the anticipated time of arrival of a cyclone.

- **Cyclone arrival**

This warning is issued 12 hours before a cyclone is due to hit the land. The warning gives information about cyclone and will continue until the winds subside. In sea ports, danger signal are hoisted about the impending cyclone.

**From where can people access cyclone storm warnings?**

Warnings about storms, their intensity and the likely path they may take are regularly broadcasted by radio and television network continuously until the storm passes over.

**What to do before and during a cyclone.**

- Have your dwellings checked before a cyclone season starts and carry out whatever repairs that are needed.
- Talk to children and explain about cyclones without scaring them.



- Create storm awareness by discussing effects of a cyclonic storm with family members so that everyone knows what one can and should do in an emergency. This helps to remove fear and anxiety and prepares everyone to respond to emergencies quickly.
- Keep your valuables and documents in containers, which cannot be damaged by water.
- Keep information about your blood group.
- Keep lanterns filled with kerosene, torches and spare batteries. These must be kept in secure places and handy.
- Make plans for people who are either sick, suffer from disabilities, aged and children.
- Store up at least seven-day stock of essential food articles, medicines and water supply.
- Keep blankets and clothes ready for making beds. Also keep cotton bandages and several copies of photographs of family members in case they are needed for identification purposes after the storm.
- Store some wooden boards so that they can be used to cover windows.
- Keep trees and shrubs trimmed. Remove damaged and decayed parts of trees to make them resist wind and reduce the potential for damage. Cut weak branches and make winds blow through.
- All doors, windows and openings should be secured.
- Continue to listen to warning bulletins and keep in touch with local officials. Keep radio sets in working condition. Battery powered radio sets are desirable.
- Evacuate people to places of safety when advised.
- Take steps to protect your assets.
- Store extra drinking water in covered vessels.
- Remain calm.

#### **What one should not do during a Cyclone attack?**

- During the storm do not venture out unless advised to evacuate.
- If you have a vehicle and wish to move out of your house, leave early before the onset of a cyclone. It is often best to stay at home
- Avoid remaining on the top floor of dwellings. Stay close to the ground.

### **Earthquake safety**

- Tell the facts about earthquake to your family members
- Construct new buildings with earthquake resistant method and strengthen the old buildings
- Insure your house and family members
- Take the training for first aid and fire fighting
- Do not keep cots near the glass window
- Do not keep heavy and fragile things in the selves
- Do don't hang photo frames, mirrors, or glasses up your bed
- Keep your important documents, some cash and necessary articles ready in a bag
- Get your house insured before the earthquake
- Identify special skills of neighbor (medical, technical) so that it can be utilized in emergency

**During Earthquake**

- Do not panic
- If already inside, than Stay indoors! Get under a heavy desk or table and hang on to it.
- If fire breaks out, drop on the floor and crawl towards the exist
- If you are out doors during the quake, keep away from buildings, trees and electricity lines. Walk towards open places, in a calm and composed manner.
- If you are driving, quickly but carefully move your car as far out of traffic as possible and stop. Do not stop on or under a bridge or overpass or under trees, light posts, power lines, or signs. Stay inside the car until shaking stops
- If you are in a school, get under a desk or table and hold on

**After the Earthquake**

- Do not be afraid of the aftershocks
- Listen to radio-TV and other media for Government Announcement
- Check for injuries to yourself and those around you. Take first aid where you can
- Extinguish fire, if any
- Examine walls, floors, doors, staircases and windows to make sure that the building is not in danger of collapsing
- Do not enter into the unsafe or risky houses or buildings
- Inspect for Gas leaks-If you smell gas or hear blowing or hissing noises, open a window and quickly leave the building. Don't light your kitchen stove if you suspect a gas leak.
- Do not keep telephone lines busy unnecessarily
- Switch off electric lines

**Fire safety****Dos**

- Buy Fireworks from the licensed shop.
- Keep fireworks in a closed box
- Store crackers away from source of fire or inflammation
- Follow all safety precautions issued with the fire works
- Go to open spaces like playgrounds, fields
- Light them at arm's length using a taper.
- Stand back while lighting the crackers
- Discard used fireworks in a bucket of water
- Keep buckets of water and blankets ready, incase a firebreaks out.
- Wear thick cotton clothes for maximum safety from fire.
- If clothes catch fire, Stop, Drop and Roll
- In case of uncontrolled fire wrap the victim in a blanket, till it stop.
- In case of burns splash tap water (not ice water), the process may be repeated till the burning sensation reduces.

- If fingers or toes are burned, separate them with dry, sterile, non-adhesive dressings.
- Make sure the burn victim is breathing, if breathing has stopped or if the victim's airway is blocked then open the airway and if necessary begin rescue breathing.
- Elevate the burned area and protect it from pressure and friction.
- Cover the area of the burn with a moist sterile bandage, of clean cloth (do not use blanket or towel for healing burns).
- Consult the doctor as soon as possible for the proper medication
- Consult an ophthalmologist immediately in case of eye injuries.
- Do contact at the Fire Brigade (Tel.No. 101), for getting the details of the doctors on duty during the festival.

### **Don'ts**

- Don't burn crackers in crowded, congested places, narrow lanes or inside the house.
- Don't let children burst crackers unaccompanied by an adult
- Don't put fireworks in your pocket or throw them
- Don't cover crackers with tin containers or glass bottles for extra sound effect
- Don't dare to examine sunbursts crackers...leave it!! Light a new cracker
- Don't show the Dare-devilry of lighting crackers on own hands.
- Don't use fireworks inside a vehicle
- Avoid long loose clothes, as they are fast in catching fire
- Don't remove burnt clothing (unless it comes off easily), but do ensure that the victim is not still in contact with smoldering materials.
- Don't apply adhesive dressing on the burnt area.
- Don't break the burst blister

## **Flood Safety**

### **Do's and Don'ts after flood**

- There is a possibility of spread of water borne diseases after flood, and hence
- Medical treatment should be taken immediately.
- Do not enter deep, unknown waters.
- Do not go near the riverbank even after the floodwater has receded.
- Sprinkle medicines in the stagnant dirty water.
- Inspect your house for any cracks or other damage. Check all the walls, floor, ceiling, doors and windows, so that any chance of house falling down can be known and you can be aware about the immediate danger.
- If the floodwater has entered the house or has surrounded the house, then it is advisable not to enter such house.
- Keep listening to weather forecast on radio and television. Move to your residence only when instructed by the competent authority. It is not safe to believe that the problems have ended after the flood water have receded

- Inform the competent authority/officer for restoration of the necessary connections like gas, electricity, telephone, drainage, etc.
- Beware of the various insects or poisonous snakes that may have been dragged inside the house along with the floodwater.
- Destroy the food commodities that have been affected by floodwater.
- Check properly all the electric circuits, floor level furnace, boilers, gas cylinders, or electric equipments like motor pump etc. Check whether any inflammable or explosive item has not entered along with the floodwater.
- Switch off the main electric supply, if any damage is noticed to the electric equipments.
- If you find any breakage in the drainage system stop using latrines and do not use tap water.
- Do not use polluted water.
- Sewerage system should be checked and any damage should be repaired immediately so as to curtail spread of diseases.
- Empty the water clogged in the basement slowly with help of water pump so that damage to infrastructure can be minimized
- Check gas leakage which can be known by smell of gas or by hearing the sound of leakage; immediately open all windows and leave the house.
- Boil drinking water before usage and drink chlorinated water.
- Eat safe food.
- Rescue work should be undertaken immediately after flood situation as per the instruction. Do not follow any shortcut for rescue work.
- Do not try to leave the safe shelter to go back home until the local officials declare normalcy after flood and instruction to return home are not given.

## **Tsunami:**

**The phenomenon Tsunami is a series of traveling ocean waves of extremely long length generated primarily by earthquakes occurring below or near the ocean floor:**

**Following safety measures need to be learnt before, during and after the occurrence of tsunami:**

### **Before**

- Be familiar with the tsunami warning signals. People living along the coast should consider an earthquake or a sizable ground rumbling as a warning signal. A noticeable rapid rise or fall in coastal waters is also a sign that a tsunami is approaching.
- Make sure all family members know how to respond to a tsunami. Make evacuation plans. Pick an inland location that is elevated.
- After an earthquake or other natural disaster, roads in and out of the vicinity may be blocked, so pick more than one evacuation route.
- Teach family members how and when to turn off gas, electricity, and water
- Children should be taught in advance about the evacuation plans
- Prepare emergency kit beforehand. The emergency kit should contain Flashlight and extra batteries, battery-operated radio and extra batteries, First aid kit

- Emergency food and water, Essential medicines etc

### **During**

- Listen to a radio or television to get the latest emergency information, and be ready to evacuate if asked to do so.
- If you hear a tsunami warning, move at once to higher ground and stay there until local authorities say it is safe to return home.
- Move in an orderly, calm and safe manner to the evacuation site
- Stay away from the beach. Never go down to the beach to watch a tsunami come in.
- If you can see the wave you are too close to escape it.
- Return home only after authorities advise it is safe to do so.

### **After**

- Stay tuned to a battery-operated radio for the latest emergency information.
- Help injured or trapped persons.
- Stay out of damaged buildings. Return home only when authorities say it is safe.
- Enter your home with caution. Use a flashlight/torch when entering damaged buildings. Check for electrical shorts and live wires. Do not use appliances or lights until an electrician has checked the electrical system.
- Open windows and doors to help dry the building.
- Shovel mud while it is still moist to give walls and floors an opportunity to dry.
- Check food supplies and test drinking water.
- Fresh food that has come in contact with flood waters may be contaminated and should be thrown out

## **Heat Wave**

Do's and don'ts poster should be pasted in each government offices in order to increase the awareness, immediately after receiving the Heat Wave warning from the concerned department. To mitigate the effects of Heat Stroke, the following measures are useful:

### **Do's**

- Provide cool drinking water at the bus stand, railway stand and near workplace.
- If you work outside, use a cap or an umbrella and use a damp cloth on your head, face, neck and limbs.
- Drink sufficient water and make your body hydrated even if not thirsty.
- Use fans, damp clothing and take a bath in cold water frequently.
- Listen to Radio, watch local TV for a news alert, read Newspaper for the local weather forecast to know if a heat wave is on the way.
- Wear light-colored, lightweight, loose, and porous cotton clothes. Use protective genuine goggles, shoes or chappals while going out in sun.

- vii. Schedule strenuous jobs to cooler times of the day.
- viii. Pregnant workers and workers with a medical condition should be given additional attention.
- ix. Recognize the signs of heat stroke, heat rash or heat cramps such as weakness, dizziness, headache, nausea, sweating and seizures. If you feel faint or ill, see a doctor immediately.
- x. Increasing the frequency and length of rest breaks for outdoor activities.
- xi. Caution workers to avoid direct sunlight.
- xii. Keep animals in shade and give them plenty of water to drink.
- xiii. Keep your home cool, use curtains, shutters or sunshade and open windows at night.
- xiv. Use ORS, homemade drinks like lassi, lemon water, buttermilk, etc. which help to re-hydrate the body
- xv. While traveling, carry a water bottle with you.

### **Don't**

- i. Avoid high carbonated soft drinks, alcohol, tea and coffee, which dehydrates the body.
- ii. Avoid cooking during peak hours. Open doors and windows to ventilate cooking area adequately.
- iii. Avoid going out in the sun, especially between 12:00 noon and 3:00 PM
- iv. Do not leave children or pets in parked vehicles.
- v. Avoid wearing heavy, dark and tight clothing.
- vi. Avoid strenuous activities when the outside temperature is high.
- vii. Avoid high-protein food and do not eat stale food.

## **Annexure 27**

### **Details of Chemicals Properties, Fire Fighting Agents, Antidotes, First Aid and Medical Treatment**

<b>Sr No</b>	<b>Name Of Chemical</b>	<b>Hazard Characteristics</b>	<b>Fire Fighting Agent</b>	<b>Antidote / First Aid / Medical Treatment</b>
1	Acetic Acid	Corrosive	Carbon Dioxide, Dry Chemical Powder, Water Spray and Alcohol Resistant Foam	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. If heartbeats are absent, give external Cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
2	Ammonia	Flammable, Toxic	Stop flow of gas, use water spray to cool fire exposed	Remove the victim to fresh air. If there is a difficulty in breathing, give

			containers. Exposed fire fighter must wear positive pressure self-contained breathing-apparatus and full protective clothing.	Oxygen. Inhalation of steam or vinegar vapor is recommended. If substance has gone in eyes, wash with plenty of water for 15 minutes To relieve restlessness, ingestion morphine 15mg to relieve Dyspnoea, Oxygen inhalation.
3	Ammo-niam Carbonate	Corrosive	Non-flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open.
4	Ammonia Nitrate (Melt)	-	Use plenty of water to cool fire exposed containers. Exposed fire fighter must wear positive pressure self-contained breathing apparatus and full protective clothing. Container may explode in fire.	In case of burns due to hot Ammonium Nitrate solution, part should be flushed with large quantity of water and treated according to usual burns.
5.	Carbon Dioxide	Asphyxiant	Non-flammable	It is simple asphyxiant and can cause oxygen deficiency in confined space / non ventilated areas. Respiratory protection is required.
6.	Carbon Monoxide	Flammable, Toxic	Carbon monoxide, dry chemical powder, wear self contained breathing apparatus. Let fire burn, shut off gas while using the chemicals.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Administer 100% oxygen till carboxyhemoglobin level is measured. Cerebral edema and convulsions must be controlled. Ethylene blue must not be injected.
7.	Chlorine	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give external cardiac compression. In case of eye exposure, wash with copious amount of water for 15 minutes, keeping eyelids apart
8.	Coal	Flammable	Dry chemical powder, water supply	Incomplete combustion may produce CO1, suphur dioxide, hence respiratory protection may be required to fight the fire.
9.	Formic Acid	Flammable,	Carbon dioxide, dry chemical	Remove the victim to fresh air. If there

		Corrosive	powder, water spray and alcohol resistant, foam all purpose foam.	is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
10.	Fuel Oil	Flammable	Carbon dioxide, dry chemical powder, foam	Remove the contaminated clothes. Wash the affected parts of skin with plenty of soap and water and seek medical advice immediately for inhalation of vapors / fumes.
11.	High Speed Diesel	Flammable	Dry chemical powder, foam	- do -
12.	Hydro-chloric Acid	Corrosive	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give artificial respiration. Do not give alkaline substances or carbonate preparation. Skin should be treated with 5% Trietanol amine. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
13.	Hydrogen	Flammable, Explosive	Dry chemical powder, halon. Let fire burn under control. Stop flow of gas.	It is simple asphyxiate and can cause oxygen deficiency in confined space / non ventilated areas. Move victim to the fresh air and apply resuscitation methods.
14.	Hydrogen Iodide	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardiac compression. Incase of eye exposure, wash with copious amount of water for 15 minutes, keeping eyelids apart.
15	Hydrogen Sulphide	Flammable, Toxic	Carbon dioxide, dry chemical powder. Wear self-contained breathing apparatus. Alcohol resistant foam is also advisable to be used to stop fire.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Patient with significant exposure, should be hospitalized for 72 hours of medical observation for delayed pulmonary edema. The respiratory centre may be stimulated by injection of LOBGIN and nika thamide. Vitamin C



				may be injected intravenously. In case of eye exposure, it should be treated with boric acid solution.
16	Iodine	Toxic	Use water spray or carbon dioxide. Do not use foam or dry chemical. Wear full protective clothing and self contained breathing apparatus for fire fighting.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. Patient with significant exposure should be hospitalized for 72 hours of medical observation. Consider administration of multiple metered doses of topical steroid hormone or 30 mg/kg of methyl prednisolone IV.
17.	LPG	Flammable, Explosive	Carbon dioxide, dry chemical powder, water spray	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open.
18.	Methane	Flammable, Explosive	Carbon dioxide, dry chemical powder. Shut off gas.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance has gone in eyes wash with plenty of water.
19.	Methanol	Flammable, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Never administer anything by mouth if a victim is losing consciousness. Do not induce vomiting. Do not use mouth to mouth respiration. Massive alkalization in life saving and eye saving measures. Give small quantity of Ethyl alcohol every 4 hourly. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open.
20.	Methyl Acetate	Flammable, Toxic	Carbon dioxide, dry chemical powder and alcohol resistant foam. Water may be ineffective.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently.
21	Methyl Formate	Flammable, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give

				external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment.
22	Methyl Iodide	Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heartbeats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Keep under medical surveillance for 48 hours. Consider administration of multiple metered doses of topical steroid by inhalation and or upto 30 mg / kg of methyl prednisolone. Incase of eye, contact immediately, refer to ophthalmologist.
23	Mono Ethylene Glycol	Flammable, Toxic	Carbon dioxide, dry chemical powder and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heartbeats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water.
24	Naphtha	Flammable	Foam dry chemical powder, carbon dioxide. Apply water fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. The decision of whether to induce vomiting or not should be made by an attending physician. If heartbeats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water.
25	Natural Gas	Flammable	Stop flow of gas. Dry chemical powder, carbon dioxide.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open.
26	Nitric Acid	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Do not induce vomiting. If heartbeats are absent, give external Cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes, holding eyes open and obtain medical treatment urgently.
27	Nitric Oxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen.

				Do not allow to walk. Fatal symptoms may be delayed upto 48 hours even though victim may seem normal after exposure. If hearts beats are absent, give external cardiac compression. If substance has gone in eyes, wash with plenty of water for 15 minutes holding eyes open and obtain medical treatment urgently. Methemoglobinemia due to no resolve in hours with oxygen therapy.
28	Nitrogen	Asphyxiate	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts beats are absent, give external cardia compression. Treat for frostbite with lukewarm water.
29	Oxygen	-	Non flammable	Inhalation of 100 % oxygen can cause nausea, dizziness, irritation of lungs, pulmonary edema, pneumonia and collapse. Liquid oxygen will cause frostbite.
30	Nitrogen Dioxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Enforce complete rest for 24 to 48 hours. Incase of high exposure keep patient under medical observation for at least 72 hours. Some individuals, who had symptoms of acute exposure with or without edema, develop in immune reaction 10 days or 6 weeks after exposure. Symptoms include severe cough, cyanbosis (tuning blue) fever hypoxemia and X ray may show fire scattered nodes in the lungs are vulnerable to virus.
31	Potassium Hydroxide	Corrosive Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If substance heart beats are absent, give external cardiac compression. Incase of eye contact immediately refer for opt homological opinion. Treat skin burns conventionally.
32	PotassiumMeth oxide	Flammable, Toxic	Only dry chemical powder is allowed to be used. In reacts with water and CO2.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Never administer anything by mouth if a victim is losing consciousness. Do not induce vomiting. Do not use mouth to

				mouth respiration. Baking soda in glass of water should be given.
33	Prop ionic Acid	Flammable, Toxic, Corrosive	Foam, dry chemical powder, carbon dioxide. Apply water fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with water and soap.
34	Rhodium Trioxide	-	Non flammable	Remove the victim to fresh air. Material cause irritation of nose, throat and respiratory tract. Repeated exposure to skin can cause allergic sensitization. In case of eye contact, flush with plenty of water for 15 minutes.
35	Sodium Hydroxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with water and soap.
36	Sulphur Dioxide	Corrosive, Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. Atrophic rhinitis and pharyngitis may be treated by inhalation of 5% solution of sodium chloride, followed by inhalation of 5% solution of sodium chloride, followed by inhalation of vitamin A. In case of eye contact, flush with 2% sodium bicarbonate solution, drops of 2 to 3 % phedrine should be instilled in the nose.
37	Sulphuric Acid	Corrosive, Toxic	Non flammable, react with water to form large amount of heat and corrosive fumes. Do not use water to existing fire in the nearby area.	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. In case eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with plenty of water.
38	Tricolor Ethylene	Flammable, Toxic	Carbon dioxide, dry chemical powder, water spray and alcohol resistant foam.	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Do not induce vomiting. If heart beats are absent, give external Cardiac compression. If substance has gone in eyes, wash with plenty of water

				for 15 minutes, holding eyes open and obtain medical treatment urgently.
39	Ortho Dichloride Benzene	Flameable, Toxic	Foam dry chemical powder, carbon dioxide. Apply water fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
40	Trichloro Acetyl Chloride	Corrosive, Toxic	Foam dry chemical powder, carbon dioxide.	It is very corrosive liquid. Exposure will produce tears in the eyes and severe chemical burns. Move the person to fresh air. If not breathing, perform artificial respiration. If required, give oxygen. Wash the affected skin thoroughly with soap and water. Flush and irrigate eyes with copious quantity of water for at least 15 minutes. Do not induce vomiting.
41	Acrylo-nitrile	Flammable, Toxic	Carbon dioxide, dry chemical powder	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If the unconscious, crush an amyl nitrile ampoule in a cloth and hold it under the nose for 15 seconds in every minute. Do not interrupt artificial respiration during this process.
42	Copper Comp- ounds	-	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. If substance has gone in eyes wash with plenty of water for about 15 minutes, holding eyes open and obtain medical treatment urgently.
43	Aniline	Flammable, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Aniline is very toxic, if splashed on skin. It passes through the skin, causing methamoglobinemia. Antidotes are ethylene blue. In case of eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with plenty of water.
44	<i>Benzene</i>	Flammable, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Benzene is very toxic or if

				splashed on skin. Chronic exposure may lead to leukemia. In case of eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with plenty of water.
45	Nitro-benzene	Flammable, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. NB is very toxic if splashed on skin. It passes through the skin causing methemoglobinemia. Antidote is methylene blue. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
46	Phosgene	Corrosive Toxic	Non flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Phosgene is very toxic in case of inhalation. It has very low TLV – 0.1 ppm. Keep the person under observation for 72 hours for possibility of delayed effect. In case of eye contact, flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
47	Toluene	Flammable, Toxic	Foam, dry chemical powder, carbon dioxide	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Toluene is very toxic if splashed on skin. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
48	Di Nitro Toluene	Flammable, Explosive	Use plenty of water to cool fire exposed containers. Exposed fire fighter must wear positive self contained breathing apparatus. Foam and dry chemical powder and carbon dioxide can be used.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Di Nitro Toluene is very toxic if splashed on skin. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
49.	Metaol-uene Di Amine	Flammable, Toxic	Foam dry chemical powder, carbon dioxide. Apply water fog from as far distance as possible.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Metaoluene Di Amine is toxic, if splashed on skin. In case of eye contact flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.

50	Toluene Di Isocyanate	Corrosive, Toxic	Dry chemical powder, carbon dioxide. Do not apply water as it reacts violently with water at elevated temperature.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. Toluene Di Isocyanate is very toxic if inhaled.. In cause pulmonary edema. TLV of TDI vapor is very low i.e. 0.0005 ppm. If splashed on skin, incases sensitization of skin tissue. Incase of eye contact, flush with plenty of water for about 15 minutes. Remove wet clothes and wash affected area with plenty of water.
51	Methyl Iodine	Toxic	Non Flammable	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If heart beats are absent, give external cardiac compression. Do not use mouth to mouth ventilation. Keep under medical surveillance for 48 hours. Consider administration of multiple metered doses of topical steroid aerosol by inhalation and or upto 30 mg / kg of methyl prednisolone. Incase of eye, contact immediately, refer to ophthalmologist.
52	Chloro Sulphonic Acid	A poison to irritant, corrosive	Use DCP, foam if exposes to fire.	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain medical treatment urgently.
53	Carbon Di Sulphide	Flammable, Explosive	Use DCP, CO2	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain medical treatment urgently.
54	Ethylene Oxide	Flammable, Carcinogen	Use DCP	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain medical treatment urgently.
55	Acephate Anilo-phos Ethion Phorate Quinal-phos	Non flammable	Use DCP, foam if exposed to fire.	Atropine sulphate in dose 2 – 4 mg for adult, 2 pam 1000 – 2000 mg / im.
56	Alachor Carbenda-zim Thiophanate – M	Non flammable	Use DCP, foam is exposed to fire	Inject 1 gm of Eralidioxime chloride IV. Do not induce vomiting if the injected poison is principally a hydrocarbon solvent.
57	Mancozeb	Non flammable	Use DCP, foam is exposed to	Low toxicity, no specific treatment.

	Thiram		fire	
58	Allethrin Cyperm-ethrin Fevalrate	Toxic	Use DCP, foam is exposed to fire	The treatment is symptomatic.
59	Alumi-nium Phosphate	Non flamm-able	Use DCP, foam is exposed to fire	Injection copper sulphate 0.25 gm.
60	Isopro-turon	Non flamm-able	Use DCP, foam is exposed to fire	Supportive treatment.
61	Hexa- conazole Propi- conazole	Non flamm-able	Use DCP, foam is exposed to fire	There is no specific antidotes and treats the victim symptomatically.
62	Propane	Flamm-able, Explosive	DCP, Water	First aid.
63	Butadine	Flamm-able, Explosive	DCP, Water	First aid.
64	Propylene	Flamm-able, Explosive	DCP, Water	First aid.
65	Styrene Monomer	Flamm-able	DCP, Foam compound	-



## Maps of Kutch District:

### Map showing Kutch District



## District Map showing roads and Political Map



### List of Abbreviation

Sr. No	Abbreviation	Full form of Abbreviation
1.	AIDS	Acquired Immune Deficiency Syndrome
2.	APMC	Agricultural Produce Market Committee
3.	AE	Assistant Engineer
4.	AH	Animal Husbandry
5.	ATI	Administrative Training Institute
6.	ATS	Anti Terrorist Squad
7.	ATVT	Apno Taluko Vibrant Taluko
8.	BPL	Below Poverty Line
9.	BRC	Block Resource Centre
10.	CBO	Community Based Organization
11.	CDHO	Chief District Health Officer
12.	CDMC	Circle Disaster Management Committee
13.	CDPO	Child Development Project Officer
14.	CHC	Community Health Center
15.	COR	Commissioner of Relief
16.	CRC	Community Resource Centre
17.	CRF	Calamity Relief Fund
18.	CRZ	Coastal Regulatory Zone
19.	CSO	Civil Society Organization
20.	DC	District Collector or Deputy Commissioner
21.	DCMG	District Crisis Management Group
22.	DDMA	District Disaster Management Authority
23.	DDMC	District Disaster Management Committee
24.	DDMP	District Disaster Management Plan
25.	DDO	District Development Officer
26.	DEOC	District Emergency Operation Centre
27.	DGVCL	Dakshin Gujarat Vij Company Limited
28.	DISH	Directorate of Industrial Safety and Health
29.	DM	Disaster Management
30.	DPO	District Project Officer
31.	DRM	Disaster Risk Management
32.	DRR	Disaster Risk Reduction
33.	DSO	District Sports Officer
34.	DSP	Deputy Superintendent of Police
35.	Dy. Eng.	Deputy Engineer
36.	DySP	Deputy Superintendent of Police
37.	EMRI	Emergency Management and Research Institute
38.	EQ	Earth Quake
39.	ESR	Elevated Surface Reservoir

40.	EWS	Early Warning System
41.	Ex. Eng.	Executive Engineer
42.	FCI	Food Corporation of India
43.	FPS	Fair Price Shop
44.	FWP	Food for Work Program
45.	GDCR	General Development Control Regulation
46.	GEB	Gujarat Electricity Board
47.	GIDM	Gujarat Institute of Disaster Management
48.	GIS	Geographical Information System
49.	GLR	Ground Level Reservoir
50.	GMB	Gujarat Maritime Board
51.	GoI	Government of India
52.	GPs	Gram Panchayats
53.	GSDMA	Gujarat State Disaster Management Authority
54.	GWSSB	Gujarat Water Supply and Sewerage Board
55.	HFA	Hyogo Framework for Action
56.	HHs	Households
57.	HPC	High Powered Committee
58.	HQ	Head Quarter
59.	HRVA	Hazard Risk Vulnerability Analysis
60.	HRVC	Hazard, Risk, Vulnerability and Capacity
61.	IAY	Indira Aawas Yojana
62.	IMA	Indian Medical Association
63.	IC	Incident Commander
64.	ICS	Incident Command System
65.	ICZMP	Integrated Coastal Zone Management Project
66.	IDNDR	International Decade for Natural Disaster Reduction
67.	IDRN	India Disaster Resource Network
68.	IEC	Information Education Communication
69.	IMD	Indian Meteorological Department
70.	ISDR	International Strategy for Disaster Reduction
71.	ISR	Institute for Seismic Research
72.	ITI	Industrial Training Institute
73.	IWMP	Integrated Watershed Management Program
74.	LCMG	Local Crisis Management Group
75.	LO	Liaison Officer
76.	MAH	Major Accident Hazard
77.	MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
78.	MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
79.	MHA	Ministry of Home Affairs
80.	MLA	Member of Legislative Assembly
81.	mm	Mili Meter
82.	MP	Member of Parliament

83.	NAPCC	National Action Plan on Climate Change
84.	NCC	National Cadets Corps
85.	NCCF	National Calamity Contingency Fund
86.	NCRMP	National Cyclone Risk Mitigation Project
87.	NDM	National Disaster Management
88.	NDMA	National Disaster Management Authority
89.	NDRF	National Disaster Response Force
90.	NDRF	National Disaster Response Force
91.	NEC	National Executive Committee
92.	NFSM	National Food Security Mission
93.	NGO	Non Government Organization
94.	NIDM	National Institute of Disaster Management
95.	NRDWP	National Rural Drinking Water Program
96.	NRHM	National Rural Health Mission
97.	NSS	National Service Scheme
98.	NYK	National Yuva Kendra
99.	PCPIR	Petroleum Chemical and Petrochemical Special Investment Region
100.	PDS	Public Distribution System
101.	PHC	Primary Health Center
102.	PI	Police Inspector
103.	PMAY	Pradhan Mantri Awas Yojna
104.	PMGY	Pradhan Mantri Gramodya Yojna
105.	PPP	Public Private Partnership
106.	PRIs	Panchayati Raj Institutions
107.	R&R	Recovery and Reconstruction
108.	R&B	Roads and Buildings
109.	RTO	Regional Transport Office
110.	SC	Scheduled Caste
111.	SDM	Sub District Magistrate
112.	SDMA	State Disaster Management Authority
113.	SDRF	State Disaster Response Fund
114.	SDRN	State Disaster Response Network
115.	SE	Superintending Engineer
116.	SEOC	State Emergency Operation Centre
117.	SFO	Sub Focal Officer
118.	SEZ	Special Economic Zone
119.	SHGs	Self Help Groups
120.	SMC	School Management Committee
121.	SMS	Short Message Service
122.	SOP	Standard Operating Procedure
123.	SRPF	State Reserve Police Force
124.	SRT	Special Response Team
125.	SSA	Sarva Shiksha Abhiyan



126.	ST	Scheduled Tribe
127.	S&R	Search and Rescue
128.	Supt. Eng.	Superintendent Engineer
129.	SWO	Social Welfare Officer
130.	TDMA	Taluka Disaster Management Authority
131.	TDMC	Taluka Disaster Management Committee
132.	TDMP	Taluka Disaster Management Plan
133.	TDO	Taluka Development Officer
134.	TEOC	Taluka Emergency Operation Centre
135.	TFOR	Task Force Operation Room
136.	THO	Taluka Health Officer
137.	TNA	Training Needs Assessment
138.	TSC	Total Sanitation Campaign
139.	TSO	Taluka Supply Officer
140.	ULB	Urban Local Body
141.	UNDP	United Nations Development Programme
142.	UNFCC	United Nations Framework Convention on Climate Change
143.	VDMC	Village Disaster Management Committee
144.	VDMP	Village Disaster Management Plan
145.	WASMO	Water and Sanitation Management Organization

## Hazards wise Maps of Gujarat State

