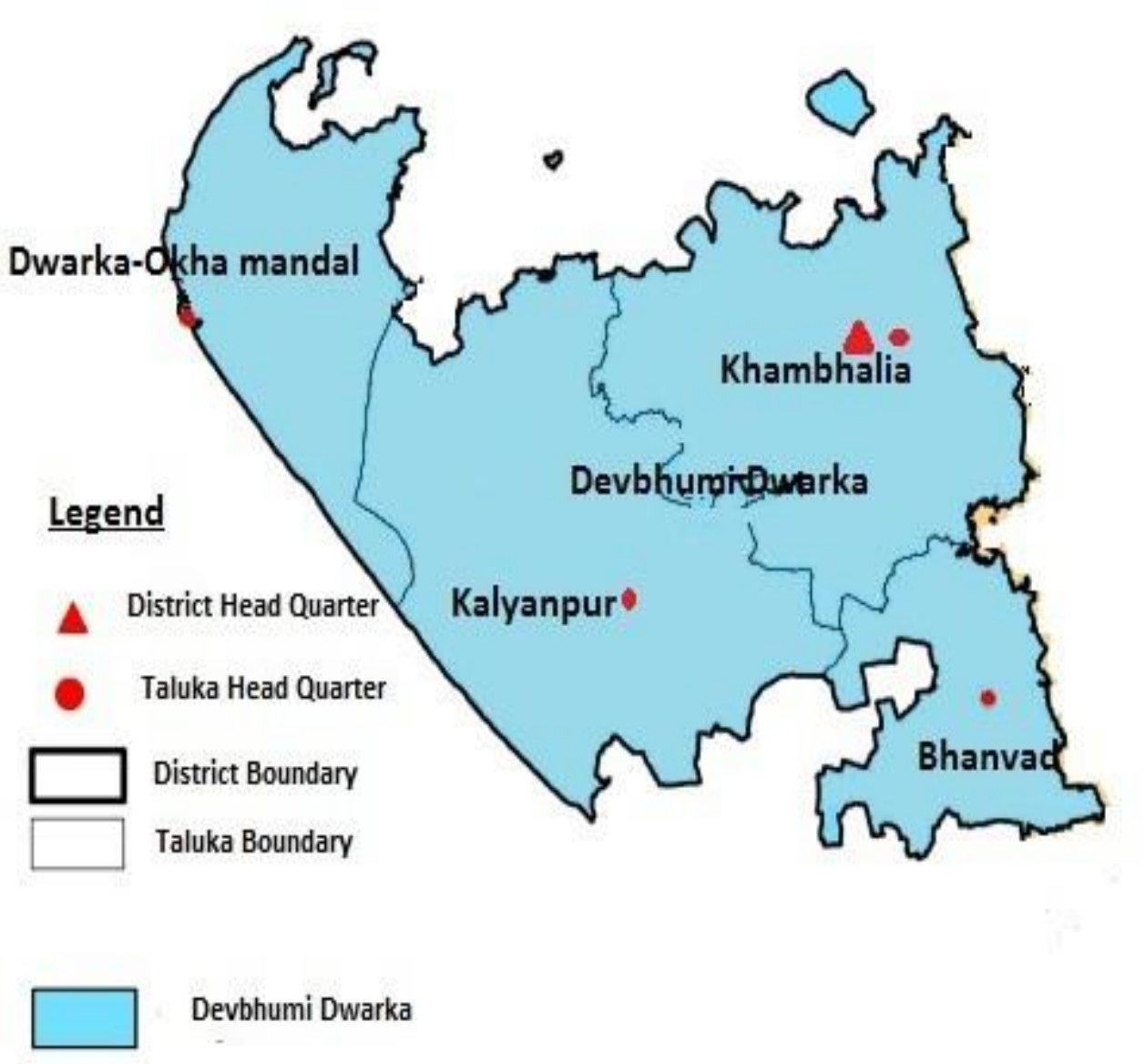
District Disaster Management Plan 2026

DEVBHUMI DWARKA



COLLECTOR OFFICE
DEVBHUMI DWARKA

GSDMA

सत्यमेव जयते

FOREWORD

The Government of Gujarat has been giving more focus on the Disaster Management in recent years. It is necessary to have timely and constructive planning to reduce the impact of disaster. Devbhumi Dwarka is prone to multiple hazards such as Floods, Cyclone, Heavy Rain, Lightening, Earthquake and Fire and have experienced and witnessed too on several occasions in the past. Disaster cannot be totally prevented but their impact can be reduced by proper preparedness. As a part of Disaster Risk Management Devbhumi Dwarka district have prepared their District Disaster Management plan and will updated every year.

This district Disaster Management plan is a summary document which present the detail of Hazards, its Vulnerability, risk assessment, Disaster preparedness, Response system, communication system, Capacity Building and Relief operations. I am very happy to present the District Disaster Management Plan for Devbhumi Dwarka. Which include the District Profile, Geographical Information, Inventories of Resources, Role of every line department in case of Emergency, Communication network of every Department.

The Industrial sector of the district have been asked to prepare such action plans which can be implemented during disasters. For this, "Mutual – Aid Scheme" along with neighboring district of Jamnagar is developed as an advanced preparation for the remedy of industrial accidents. Each action plan is tested in the form of mock drill.

I hope that each administrative unit of the district, industrial conglomerates and Mutual Aid Members will use this action plan in the true spirit. We wish that no disaster ever occurs, but in case of such occurrence, preparedness of macro to micro level will be very helpful to the people of the district. Hope for safe world.

I think this plan will be useful to all the departments to understand the roles and responsibilities- SOP in tackling the Disaster situations in a systematic way.

(Rajesh M Tanna IAS)
Collector & District Magistrate
Devbhumi Dwarka

Place:Khambhaliya
Date:24/04/2026

Preface

Disaster risk reduction must be an everyday concern for everybody. Due to natural and manmade disasters people are being tested time to time. As on today, it is observed that people of Gujarat are strong and bold to counteract disasters confidently. Technology is developed to work with such disasters.

Devbhumi Dwarka district is vulnerable towards multiple types of disasters. So, it is very necessary to be prepared for and respond in a timely manner to it.

Gujarat State Disaster Management Authority and Collector Office Devbhumi Dwarka Prepare the communities and Government Officials from grass root level to top level for securing quick response mechanism under the Disaster Risk Management Program. There are four DRM Components; these are Capacity Building, Awareness Generation, Mock drill and Plan Preparation. There are some other programs like Gujarat School Safety Program and Apadamitra project headed by GSDMA for preparing community.

I am elated by this Devbhumi Dwarka District Disaster Management Plan as it has been developed in a consultative manner with constant inputs and feedbacks from all the stakeholders. This Plan has moved beyond the reactive relief-based approach and has a concise plan of actions for different stakeholders at District level for disaster risk reduction, emergency response and recovery.

This District Disaster Management plan is a necessary document for reducing risks due to hazards and vulnerability. I hope this great document would be really helpful for protecting life and properties as well as sustainable development in the future.

(Bhupesh Jotania)
Resi. Additional Collector
Devbhumi Dwarka

District- Khambhaliya
Date: 24/04/2026

INDEX

Chapter 1
INTRODUCTION

Chapter: 1
Introduction

In recent years earthquakes, floods, tropical storms, droughts and other calamites have killed millions of people, inflicted injury, disease and caused homelessness and misery to around one billion others in the world. These have caused damage to infrastructure worth millions of rupees. Disaster destroys decades of human effort and investments, thereby, placing new demands on society for reconstruction and rehabilitation. Disaster management thus requires a multidisciplinary and proactive approach. The community, civil society organizations, media and the proverbial man on the street, everyone has to play a role in case such exigency occurs. The various prevention and mitigation measures outlined below are aimed at building up capabilities as also how to deal with disasters.

1.1 OBJECTIVE

The objective of a District Disaster Management Plan (DDMP) is to localize a Disaster and contain its effect to the greatest extent so as to minimize its impact on life, environment and property. Response to any disaster, in the absence of a well-defined plan, would be arbitrary, leading to overemphasis of some actions and absence of other critical actions. A formal plan for Managing Disaster is therefore necessary. This Disaster management plan has a strong preparedness focus which aims at reducing our vulnerability to disasters and at the same time, it includes a plan of action/response mechanism for dealing with earthquakes, floods, cyclones, epidemics, industrial and chemical accidents, road accidents and fires.

This document provides basic information required for the management of disasters in Devbhumi Dwarka District to:

- Define the Risks and Vulnerabilities of citizens of the district,
- Identify private and public sector stakeholders with prime and supporting responsibilities to reduce or negate these vulnerabilities
- Define actions to be taken to avoid or mitigate the impacts of possible disasters in the district.

Subsidiary plans are developed at the:

- Village Disaster Management Plan (VDMP) at village level,
- Taluka Disaster Management Plan (TDMP) at taluka level,
- City Disaster Management Plan (CDMP) at Nagarpalika/Municipality Level,
- Off-site Emergency Management Plan for major industrial sites located in the district

Standard Operating Procedures (SOPs) of all Line Departments detailing how specific disaster response actions will be accomplished. Developing and maintaining SOPsare the responsibility of parties with designated prime or supporting tasks assigned by this plan. Keeping in view all the possible aspects of the aforesaid problem in mind and to keep the Administration prepared in all possible ways to respond properly to various Disaster situations with minimum delay, possible Disaster situations have been identified and the component plans have also been identified & mentioned in detail in this document.
Human play roles directly or indirectly behind the occurrence of disaster, but largely disasters can be classified in following two categories:

1. Natural Calamities

* Floods * Earthquake
* Cyclone * Fire
* Biological Disaster or Epidemic of Human/livestock/crops

2. Man Made Calamities

* Industrial Disaster * Radiological Disaster
* Road Accidents * Railway Accident
* Oil Spill * Air Attack
* Building Collapse * Bomb Blast (Terrorist Activities)
* Stampede at crowded Places * Food Poisoning

The mode, degree and extent of response to fight out any Disaster depend upon the nature, degree and extent of Disaster, but some points are common to all kinds of situations. For example, first and foremost, appropriate and adequate steps for preventing the disaster should be undertaken. Secondly, preparedness is required to contain the damages and casualties resulting from the Disaster. Thirdly, steps for rehabilitation and restoration of community life within a reasonable time should be focused on.
Hence, some necessary and common steps are as below:

1. Establishment of Central Control Rooms and capacity enhancement of Emergency Operation Centers.
2. District Disaster Management Committee to meet post early warning or immediately post disaster occurrence.
3. A general line of action and some special duties to various officers and departments will have to be assigned, keeping in mind a timeline for finishing specific tasks.
4. Voluntary Organizations may have to be involved and their role will have to be clearly specified and coordinated.
5. Media may have to be briefed to suppress all kinds of rumors.
6. Information regarding resource inventory of Health Services, Transport Services, Evacuation& Rehabilitation Centers and Food etc. needs to be kept handy so that resources can be deployed where required.
7. Consistent follow-up of relief operations and constant reporting of pre and post disaster work.

Broad guidelines have been given in the following pages and "Standard Procedure" has been formulated which is to be adhered to by all concerned. Once the Disaster take place and the authorities are informed of the same, they will take the necessary action with the help of the individual Disaster management plans prepared for the respective Disaster/situations.

The main objectives of various preparedness measures are:

i) Minimize the loss of human lives.
ii) Minimize the loss of livestock.
iii) Minimize the loss to property and infrastructure.
iv) Minimize ill effects on the health of the affected population.
v) Bringing the human activities in the locality to normal soon after.

To achieve the above objectives, different tasks have to be performed by Government Departments and other agencies before, during and after the Disaster. Each Department's role and responsibilities have to be clearly identified and an action plan needs to be drawn up by each department. For close cooperation between the various Department and Agencies, close coordination is required between the Collector at the District Headquarters and Prant Officers (SDM) at the Sub-division or taluka level. The responsibility to manage any type of Disaster in the district rests with the **District Disaster Management Committee** headed by the Collector Devbhumi Dwarka, who may, depending upon the gravity of the situation, seek the help of **State Disaster Management Committee** and the **National Disaster Management Committee**. This tiered and hierarchical structure ensures that the best possible response is accorded to any disaster situation, depending upon the severity of damage. For operational expediency, the level of Disasters have been categorized and classified as under:

Level of Disasters

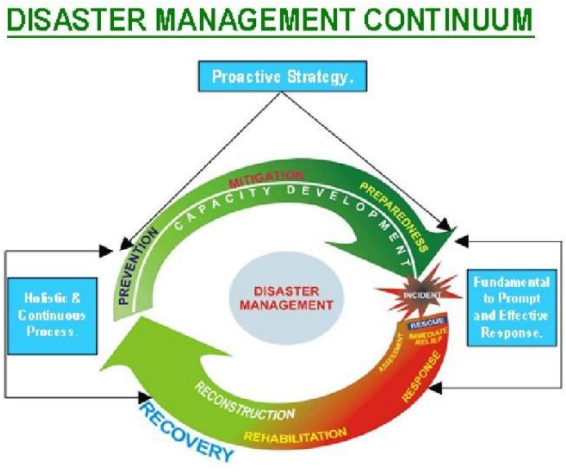
L concept has been developed to define different levels of disasters in order to facilitate the responses and assistances to States and Districts.

L0 level denotes normal times which will be utilized for close monitoring, documentation, prevention and preparatory activities. Training on search and rescue, rehearsals, evaluation and inventory updating for response activities will be carried out during this time.

L1 level specifies disaster that can be managed at the district level; however, the State and Centre will remain in readiness to provide assistance if needed.

L2 level disaster situations are those, which require assistance and active participation of the state, mobilization of its resources for management of disasters.

L3 level disaster situation is in case of large-scale disaster where the State and District authorities have been overwhelmed and require assistance from the Central Government for reinstating the State and District machinery as well as for rescue, relief, other response and recovery measures. In most cases, the scale and intensity of the disaster as determined by the concerned technical agency like IMD are sufficient for the declaration of L3 disaster.



1. Disaster Introduction:

a. What is Disaster?
b. Aim/Objective/Necessity of the plan
c. Authority and Responsibilities
d. Approach to Disaster Management: -
e. Plan Review and updating

a. What is disaster?

Disaster management is a process or strategy that is implemented when any type of catastrophic event takes place. Sometimes referred to as disaster recovery management, the process may be initiated when anything threatens to disrupt normal operations or puts the lives of human beings at risk. Governments on all levels as well as many businesses create some sort of disaster plan that make it possible to overcome the catastrophe and return to normal function as quickly as possible.

b. Aim/ Objective of the Disaster Management Plan

Recognizing the fact that most tasks and actions before and following a disaster are common at the district level, the Devbhumi Dwarka district administration hasused amulet-disaster approach **(**all disasters covered by one plan) while developing disaster management plan for the district. 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. This is simply a multi hazard Management Plan consisting details regarding different hazards affect the district with the response structure to deal with, and having linkages of subsidiary DM plans of all levels and of sectors with it.

♦ **Following are the main objectives of this Plan.**

- To protect and minimize loss of human lives from effects of disasters.
- Promoting a culture of prevention, preparedness and safety by ensuring that disaster management receives the highest priority at all levels.
- Ensuring that community is the most important stakeholder in the disaster management process.
- To minimize sufferings of people due to different disasters.
- Mainstreaming disaster management concerns into the developmental planning process.
- To minimize property and Infrastructure damage and losses.
- Reduce vulnerability aspect of both people and infrastructure due to different disasters.
- Ensuring efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society.
- To create awareness and preparedness and provide advice and training to the agencies involved in disaster management and to the community.
- To assess the risks and vulnerabilities associated with various disasters.
- To provide clarity on roles and responsibilities for all stakeholders concerned with disaster management so that disasters can be managed more effectively.
- To strengthen the capacities of the community and establish and maintain effective systems for responding to disasters.
- To strengthen the existing Response mechanism.
- To incorporate all concerned aspects of DM for pre, during and post disaster phenomena.
- To integrate and link up of all level specific and department specific DM plan.

Disaster Risk Reduction Post-2015

Post 2015, there has been a significant shift from the approach of Managing Disasters to Managing Risk. The three landmark global agreements viz. – the Sendai Framework for Disaster Risk Reduction 2015-30 (SFDRR), Sustainable Development Goals (SDG) and the Paris Agreement (CoP 21) set the stage for future global action on Disaster Risk Reduction (DRR), sustainable development and climate change.

Sendai Framework of Actions for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) was adopted at the Third United Nations World Conference on Disaster Risk Reduction held in Sendai, Japan in March 2015. The SFDRR is a document that outlines four priorities for action to achieve 7 targets, which in turn would lead to one outcome which is- a substantial reduction of disaster risk and losses in lives, livelihoods, health, the economy of persons, businesses, communities and countries. India is a signatory to the Sendai Framework for a 15-year, voluntary, non-binding agreement that recognizes that the State has the primary role in reducing disaster risk, but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders.

The Four priorities of action are: -

1. Understanding Disaster Risk
2. Strengthening Disaster Risk Governance to Manage Disaster Risk
3. Investing in Disaster Risk Reduction for Resilience
4. Enhancing Disaster Preparedness for Effective Response and to 'Build Back Better' in Recovery, Rehabilitation and Reconstruction

The seven global targets are: -

A. Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rates in the decade 2020-2030 compared to the period 2005-2015
B. Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020-2030 compared to the period 2005-2015
C. Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030
D. Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030
E. Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020
F. Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030
G. Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030

Sustainable Developmental Goals

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in September 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. The 17 SDGs are integrated—that is, they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth

– all while tackling climate change and working to preserve our oceans and forests. To make the 2030 Agenda a reality, broad ownership of the SDGs must translate into a strong commitment by all stakeholders to implement the global goals.

Paris Agreement on Climate Change Action and Disaster Risk Reduction (CoP 21)

The CoP 21 the Paris Climate Conference held in December 2015 led to a new international climate agreement, applicable to all countries, aiming at "holding the increase in the global average temperature to well below 2°C above-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". The Paris Agreement recognized the need for loss and damage associated with the effects of climate change. The agreement identified areas of cooperation central to DRR and called for investments to address the underlying risk drivers associated with rising greenhouse gas (GHG) emission levels and to inspire innovation and low-carbon growth.

The State Disaster Management Plan (SDMP) has tried to envisage coherence across the states. Efforts for DRR, sustainable development, and the actions in response to climate change.
Prime Minister's 10-Point Agenda towards Disaster Risk Reduction

The Prime Minister, Shri Narendra Modi, listed a Ten -Point Agenda in his inaugural speech at the Asian Ministerial Conference on Disaster Risk Reduction 2016, held in New Delhi in November 2016 (AMCDRR), which has also been incorporated in the SDMP. The ten key elements consist of the following:

1. All development sectors to imbibe principles of Disaster Risk Management
2. Work towards risk coverage for all-starting from poor households to small and medium enterprises to multi-national corporations to nation states.
3. Encourage greater involvement and leadership of women in disaster risk management.
4. Invest in risk mapping globally related to hazards such as earthquakes based on widely accepted standards and parameters.
5. Leverage technology to enhance the efficiency of disaster risk management efforts.
6. Develop a network of universities to work on disaster issues.
7. Utilize the opportunities provided by social media and mobile technologies.
8. Build on local capacity and initiative. Response agencies need to interact with the communities and make them familiar with the essential drill of disaster response.
9. Ensuring that disaster learning is well documented.
10. Bring about greater cohesion in international response to disasters.

♦ Scope of the Plan:

The Disaster Management and Response Plan for Devbhumi Dwarka District have been prepared for its operationalization 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.

c. Authority and Responsibilities: -

The requirement for district and subsidiary plans is set by the Gujarat State Disaster Management Authority (GSDMA) under the authority of the Gujarat State Disaster Management Act of 2003. The Act authorizes the collector to secure cooperation and assistance from other parties in efforts to mitigate or reduce the impact of disasters.

The Collector (Specifically) and Government authorities (generally) are responsible for managing hazards and disasters, which affect a district, with support from GSDMA, the relief commissioner and other public and private parties as, may be needed. The roles, responsibilities and obligation of the Collector and other parties are set out in detail in the Act and are considered as part of this plan.

Approach to Disaster Management: -

The Government of Gujarat takes an inclusive approach to disaster management. Disaster impact decrease is divided into three broad areas:

D.1 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 possible provision of warning, relief and recovery assistance to avoid or reduce losses and hardship.

The focal point for early warning, relief and recovery is 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 GSDMA and Revenue Department.

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 coordinate with the GSDMA in terms of policy and implementation.

D.2 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 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.

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

- Precise risk and Vulnerability assessment
- Planning and efficient allocation of resources,

- Capacity building and training
- Provision of ample resources
- The assignment of disaster management roles and responsibilities which correspond to normal roles and responsibilities (if possible) and,
- Use of diverse legal and operational mechanisms to accomplish disaster management objectives.

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.

D.3 Finance:

The financial arrangement is 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.

a. Preparations and Revision of The Plan: -

The District Collector is responsible for the preparation and revision of the District Disaster Management Plan in collaboration with the line departments and other organizations in the district. The plan should be reviewed annually/half yearly and updated:

- When significant changes in the nature of any hazards
- Lessons learnt following any major disaster or
- When there is any significant change to organization or responsibility of primary members of the task forces defined in the plan.
- DDMC shall compile its learning and proposed new mechanisms for improvement of the capacity to deal with disasters

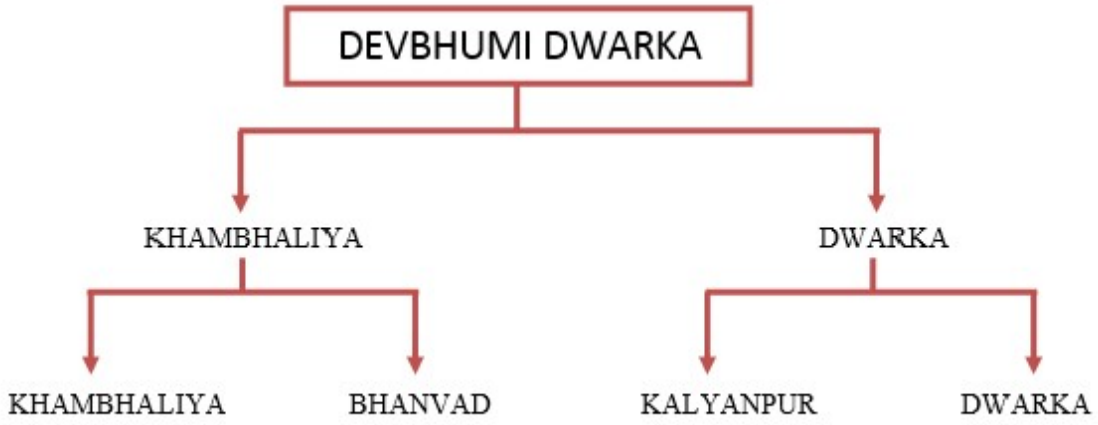
♦ District Profile:

1. Introduction: -

Devbhumi Dwarka District is located in southern coast of gulf of Kutch in Gujarat state. The district was bifurcated on August 15, 2013 from Jamnagar District. The Headquarter of the Devbhumi Dwarka District is at Khambhaliya. Mainland of the district extends between 21-degree - 42 min and 22 degrees - 58-min north latitude and between 68-degree 58 Min and 70 degree - 40-min longitude. It is bounded by Gulf of Kutch in the north, Porbandar district in the south, Jamnagar district in the east and Arabian Sea in the west. The district is having an area of 4051 Sq. Kms. population of 738,520lakhs persons (as per 2011 census) Density of population is 130 persons per sq. km. About 70 % of the population lives in the rural area. The literacy percentage of the district is 69%.

2. Area & Administration: - Geographical Information

The entire district is divided in to two Sub Divisions namely Khambhaliya and Dwarka for smooth and effective administration of the district. Each sub-Division has two Taluka under jurisdiction as per the new policy of the Government of Gujarat of ATVT (ApnoTaluko Vibrant Taluko).



249 Village Panchayat at Rural level

4 Taluka Panchayats

6 Nagar Palika at Urban level

Sr.no.	Name Of Taluka	Number of villages
1	Khambhalia	85
2	Bhanvad	53
3	Kalyanpur	66
4	Dwarka	45
	Total	249

Besides, there are 249 Village Panchayats at rural level, 4 Taluka Panchayats, A district Panchayat as Panchayati Raj system and 6 Nagarpalika at the urban level for the administrative purpose. At the Sub Division level Prant Officer & SDM holds the office and a Mamlatdar in each Taluka Office for the smooth administration and quick disposal of services to the people of the district. District is headed by the Collector & District Magistrate.

The Police work under the supervision of the Superintendent of Police. The District Development Officer looks after the development activities of the district supported by the Taluka Development Officers in each Taluka and Heads of the various departments. At Village level, works of the Developments are done by Panchayat Mantri (formally known as Talati cum Mantri) under the Gram Panchayat and works of the Revenue are done by Revenue Talati under the Revenue Department.

3. Climate: - Coastal Villages

The Climate of Devbhumi Dwarka District can be regarded as one of extreme kind with hot summers & cold winters except in the coastal region, where it is generally pleasant all throughout the year. The air is humid due to coastal location. The Details of **coastal villages** are as under:

Sr. No.	**Taluka**	**No. of Coastal Villages**		**Population**
1	Dwarka	20	Kuranga, Okhamadhi, Navi Dhrevad, Gorinja, Braradiya, Dwarka Town, Varvala, Shivrajpur, Mojap, Bhimrana, Mithapur, Surajkaradi, Aarambhada, Okha, Padli, Hamusar, Shamlasar, Positra, Khatumba, Beyt	81,848
2	Kalyanpur	9	Gandhvi, Lamba, Navdra, Bhogat, Goji nes, Gurgadh, Pindara, Virpur, Asota mota	47,841
3	Khambhaliya	15	Nana Asota, Beh, Vachalabara, Kalavad Simani, Chudeshwar, Goinj, Salaya,Parodiya, Nana Ambala, Mota Ambala, Bharana, Vadinar, Kalubhar Tapu, Azad Tapu	20,844
	TOTAL	**44**		**1,50,533**

4. River & Dams: -

The district has no major river. There are seasonal rivers streams. Amongst these are the river Sani, Sinhan, Vartu, Shimabara and Ghee. Flow of the river is towards the Gulf of Kutch in the north and in north-west.

There are no major dams in Devbhumi Dwarka District. There are 15 medium and minor dams are in the district. Details of Dam are attached in separateAnnexure-3sheet.

5. Ports & Fisheries: -

Out of 1600 Kms Length of Coastal line of Gujarat the coastal belt of Devbhumi Dwarka District is having 235Kms of coastal line extending from Vadinar village in the northwest to Harshad village in south west. There are 2 ports okha and Salaya operates under Gujarat maritime Board and Vadinar Port operates under Dindayal port Authority. Okha, Rupen, Salaya, vadinar, Nana Ambala, Bharana, Harshad, Navdra and Bhogat are 10 Fishing landing Centr in the Devbhumi Dwarka District. There are 2978 motorboats in Devbhumi Dwarka District.

Fishing activities has been carried out in 7 villages in Devbhumi Dwarka District. There are 40904 (20935 Male and 19969 Female) fishermen in Jamnagar and Devbhumi Dwarka district out of which 9330 are active fishermen. Total 2822 And 385 non mechanical boats are available in the district. Total 29 fishing societies have been registered in this district, out of which 18 are active.

6. Salt works: -

Due to large seashore in the District, Salt Industries has developed very well. There are 5 Salt Works in the district and occupies 16343.03 acres of land. Annual production of Industrial and table salt is around 15 Lacks M. Tones.

7. Live Stock: -

Cattle wealth occupies pivotal place in the rural economy of the district, Livestock position is as below:

Sr.no.	Name of Animal	No. of livestock's
1	Bullock/Cows	100612
2	Buffaloes	289350
3	Sheep & Goats	137013
4	Others Horse, donkey, camel	1393
	Total	**528368**

There are 13 Dispensaries and 07 First Aid Veterinary center available in the district as follows:

Sr.No.	Taluka	Dispensaries	First Aid Center
1	Khambhaliya	Khambhaliya,movan,Vadatra, Bhadthar,Salaya,kolva,Bhanakhori, Bhinda, Aaher Sihan	Haripar,Bhandariya
2	Dwarka(Okha)	Dwarka, Soorajkaradi,Tupni,Gorinja	Beyt
3	Bhanvad	Bhanvad, Gunda, Modpar,Chokhanda	Pachhatar, bhangor
4	Kalyanpur	Kalyanpur, Lamba, Bhatiya, Jamraval,Gadhka,Tankariya,Raan, Khirasara	Rajpara, Nandana

8. Roads & Railway: -

The district has 1684 kms of Road Network, Out of which 140 kms roads maintain by NHAI, 582 KMS maintain by Road and Building Deparatment (State), 962 kms Road maintain by Road and Building Deparatment (Panchayat).
Total length of railway track is about 131 kms in the district. Total 08 Railway Stations (Khambhaliya, Bhatel, Bhopalka, Bhatiya, Dwarkha, Bhimrana, Mithapur, Okha) are located in Devbhumi Dwarka.

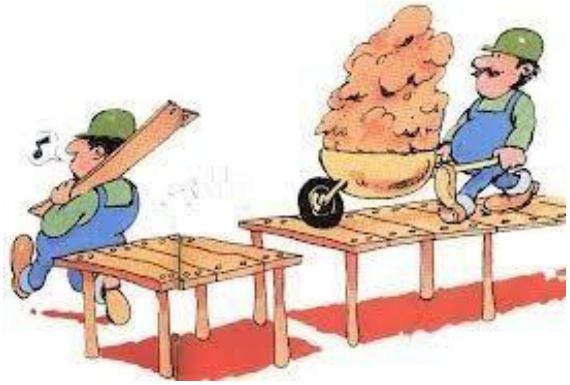
9. Health: -

The district has 1 District Hospital (Khambhaliya), 1 Sub District hospital (Dwarka) 4 CHCs, 23 PHCs and 170 SHC in the District to cater the people. Location of the CHCs and PHCs and SHCs in different talukas of the district is as follows.

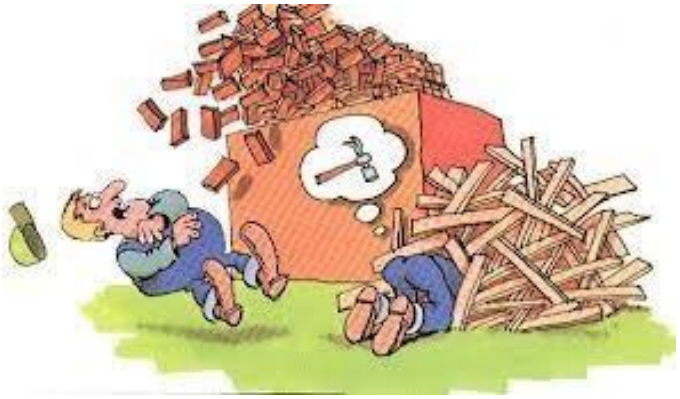
Sr. No.	Taluka	Name of CHCs	PHCs	SHC
1	Khambhalia	Salaya	6	55
2	Kalyanpur	Kalyanpur, Raval	9	55
3	Dwarka	-	3	25
4	Bhanvad	Bhanvad	5	35
Total		4	23	170

10. Temperature and Rainfall data:

The temperature at Devbhumi Dwarka district ranges from 40.0 degree centigrade higher in the summer and 11 degree centigrade lowest in the winter.
The average annual rainfall is 769 mm. (30 Years Average). The soil found in the district may broadly be classified as alluvial, black, light brown and alkaline. The last ten years rainfall data is attached in Annexure-2



Chapter 2
HAZARD, VULNERABILITY AND RISK ASSESSMENT



Chapter: 2
HAZARDS, VULNERABILITY AND RISK ASSESSMENT

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.

- Matrix of past Disaster-Flood:

Year	Magnitude	Talukas and No.Of villages affected	Life and cattle loss	Damage to Property	Economical loss
2013	4	Devbhumi Dwarka Taluka	11 Human Death and Cattle loss 74	As Per ABCD report	--
2024	4	Kalyanpur, Khambhaliya, Dwarka Taluka	07 Human Death and Cattle loss 486	As Per ABCD report	

- Matrix of past Disaster-Earthquake:

Year	Magnitude	Talukas and No.Of villages affected	Life and cattle loss	Damage to Property	Economical loss
2001	4	Zone VI Devbhumi Dwarka, Khambhalia, Dwarka, Kalyanpur Zone III Bhanvad,	--	--	--

- Matrix of past Disaster-Cyclone:

Year	Magnitude	Talukas and No.Of villages affected	Life and cattle loss	Damage to Property	Economical loss
1998	4	Very High Demage risk zone [50 m/s.] 1.717million populational 17 ports in the district likely the be affected + 10 Taluka.	--	--	--

- Matrix of past Disaster-Cyclone: Biporjoy

Year	Magnitude	Talukas and No.Of villages affected	Life and cattle loss	Damage to Property	Economical loss
2024	4	Devbhumi Dwarka Taluka Very High Demage risk zone [50 m/s] 1.717 million population 7 ports in the district likely the be affected + 3 Taluka.	0 Human Death and Cattle loss 11	-	--

- Matrix of past Disaster-Industrial Accident/Chemical disaster:

Year	Magnitude	Talukas and No. Of villages affected	Life and cattle loss	Damage to Property	Economical Loss
	5	Devbhumi Dwarka,	--	--	--

Step 1: Identify the Hazards of Concern

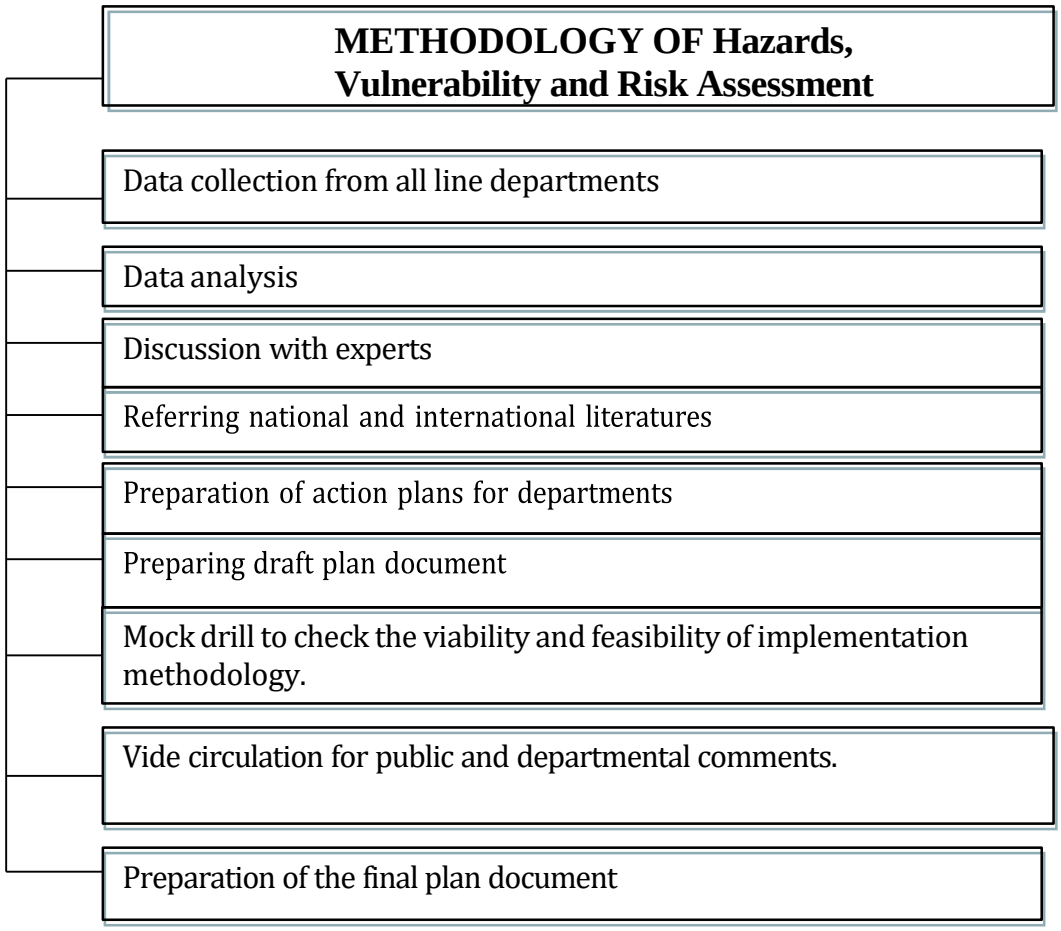
Complete the hazards column for the following table. Typical hazards have already been identified, but these should be confirmed at this step and additional hazards added as appropriate.

- Risk and Vulnerability Analysis-State Level:

Hazard	**Probability**	**Impact**	**Vulnerability Rating (Probability times Impact)**	**Specific Locations and populations of concern.**
Earthquake (resulting in damage)	4	4	16 [High]	Zone VI Devbhumi Dwarka, Khambhalia., Dwarka, Kalyanpur, Zone III Bhanvad, .
Wind (cyclone)	4	3	12 (Medium)	Very High Demage risk zone [50 m/s.] Ports and 3 Talukas (Khambhaliya, Kalyanpur and Dwarka)
Sea surge (cyclone)	3	3	9 (Medium)	0.22 million [2, 27,264] population and 41 coastal villages in 3 talukas are likely to be affected. Maximum surg record 3 meters.

Flood	5	4	20 (High)	May occur due to very heavy rainfall, sea serge
Thunderstorme&Lightining	3	3	9(Medium)	May occur due to rough weather condition
Industrial Accident	4	5	20 (High)	Mithapur, Kuranga, Bhogat, Vadinar, Khamb haliya

Drought	3	2	6 (Low)	Whole District
Heat/cold wave	4	2	8 (Medium)	
Hail storm	1	1	1 [Low]	
Landslides Mudflows	1	1	1 [Low]	
Dam Failure	1	1	1 (Low)	
Mine fires/collapse	2	1	2 [Low]	Dist. has no major dams but having 15 medium/minor dams.
Road/rail/air accident	5	4	20 (High)	Devbhumi Dwarka High way connected villages.
Oil spill & Road (marine)	3	2	6 (Low)	Sea shore, coastal belt
Boat sinking	4	2	8 (Medium)	
Building collapse	4	3	12 (Medium)	6 ULB &Dwarka City
Communal Disease (epidemics)	3	3	9 (Medium)	
Food poisoning	3	3	9 (Medium)	
Animal disease (epidemics)	2	3	6 (Low)	
Terrorism (consequences)	1	3	3 [Low]	
Critical Infrastructure Failure (e.g. extended power outage)	4	3	12 (Medium)	The Hydrocarbon Cross-country pipeline running for Devbhumi Dwarka may be affected.
Civil Unrest	3	2	6 (Low)	
WAR	2	4	8 (Medium)	Whole District (19.05 Lacs)
TSUNAMI	2	4	8 (Medium)	Coastal Talukas: Kalyanpur Khambhaliya Dwarka (Okhamandal) Total 41 Coastal Villages



Step 2: Assign the Probability Ratings

Assess the probability-or "livelihood" 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 Step 1.

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 100 year period

Step 3: Assign the Impact Ratings

Assess the potential magnitude or impact of each hazard and assign each an "Impact Level" as in the following table. Enter the impact score for each hazard in the table in

Step 1.

Impact	Scope	Description
Catastrophic	5	Massive insecurity, substantial loss of life likely. Large and generalized assistance urgently needed for large segments of population. Additional management, administrative, and technical expertise urgently needed. Large volumes of materials inputs needed.
Major	4	Security threatened for large segments of population; substantial impacts on vulnerable groups likely. Some loss of life likely. Life-saving programs likely needed to handle impact of emergency situation. Large volumes of material inputs and additional administrative staff and technical expertise likely to be needed.
Moderate	3	Security is threatened for potential target groups, some interventions may be needed, particularly for groups who likely face increase in vulnerability. 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 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.

Step 3: Assign the "Vulnerability" Ranking

Multiply the probability and the impact scores in the table in Step 1. The resulting score indicates crude vulnerability. Scores above 15 indicate high vulnerability; sores between 7 and 15 indicate medium vulnerability and scores below 7 indicate low vulnerability.

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

These three classes related to the immediate vulnerability to disaster and provide guidance on disaster response planning. Assessing risk and vulnerability to low likelihood but high impact hazards (e.g., earthquakes) requires a different, more long-term focused, assessment process.

Note that the rating process presumes that:

- Populations are better able to respond to disaster which more likely and do not have severe (major) impacts and,
- Steps taken to prepare for moderate or high vulnerability events will also improve the ability to respond to low vulnerability events.

The divisions between low, moderate and high crude vulnerability can be changed but should be used consistently for all similar assessments in the state.

Step 4: 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.

- **Outcome**

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 occurring in our environment." A disaster is the product of a hazard coinciding with a vulnerable situation, which might include communities, cities or villages. 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.

- Hazard analysis:

A detailed analysis of the hazards likely to impact the state will be carried out by the Department of Disaster Management, in consultation with the DMC of the state H.C.M. RIPA and experts from the field. Hazard assessment is concerned with the properties of the hazard itself. The Vulnerability Atlas of Gujarat, developed by BMTPC, Govt of India, will be used as the baseline for all analyses. The State Disaster Management Authority shall take all appropriate steps to complete a comprehensive hazard assessment of the State.

1. Earthquake

The district is located in Zone-IV of seismic vulnerability as captured in the Vulnerability Atlas. While earthquakes cannot be predicted, a detailed mapping of seismic fault systems and seismic source regions, quantification of probability of experiencing various strengths of ground motion at a site in terms of return period for an intensity will be carried out and appropriate regulations put in place to decrease the vulnerability of built environment.

Different types of ground do shake with different severity in an earthquake. Softer soils and those with high water content generally shake more than rocky sites. Wherever possible site structures on 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. Devbhumi Dwarka District's situation indicates that some parts of the District like Jodiya, Dhrol and Devbhumi Dwarka 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 up gradation of micro zonation activities.

2. Flood

River flooding is a regular hazard faced by the district. All the major river systems in the district are vulnerable to flooding, as captured in the Vulnerability Atlas. The urban areas like Devbhumi Dwarka, Jodiya, Khambhalia and Kalyanpur are facing flooding primarily due to drainage and increased run-off loads in hard surfaces.

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 safe guards 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 plan Management 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 a potential 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 flood waters
- Find out about the severity of past floods; how much damage they have caused, how fast they flowed and how much debris they left behind and
- Find out how often flooding has happened, over at least the past 20 years.

3. Thunderstorme&Lightining

Lightning is also one of the Weather-related Natural Disasters which normally is associated with Thunderstorms. During Lightning, due to the friction between the ice particles in the cloud, a sudden electrostatic discharge occurs between electrically charged regions of a cloud called intracloud lightning (IC), between Cloud to Cloud (CC lightning), or between a cloud and the ground (CG lightning). The charged regions in the atmosphere temporarily equalize themselves through this discharge referred to as a flash. A lightning flash can also be a strike if it involves an object on the ground. Lightning creates light in the form of black body radiation from the very hot plasma created by the electron flow, and sound in the form of thunder. The lightning causes several deaths and loss of property across India.

Thunderstorms occur round the year in different parts of the country. However, its frequency and intensity are maximum in summer months (March to June). As the most important factor for occurrence of thunderstorm is the intense heating of the atmosphere at surface level and maximum heating takes place in summer months, the frequency of occurrence is maximum in summer months. A thunderstorm is said to have occurred, if the thunder is heard. Usually, the thunder can be heard up to a distance of 40 km from the source of origin. Thunderstorms fall in the category of Meso-gamma weather systems with spatial extent of around 2∼20 km and temporal scale of a few hours. Considering the intensity, the thunderstorms in India are categorized as moderate and severe thunderstorms as follows.

- Moderate thunderstorm: It is called as moderate thunderstorm, if there are loud peals of thunder with frequent lightning flashes, moderate to Strong rains and maximum wind speed 29 to 74 kmph
- Severe thunderstorm: It is called as severe thunderstorm, if there is continuous thunder and lightning, Strong rains and maximum wind speed ≥ 75 kmph

Lightning is a high-energy luminous electrical discharge from a thundercloud to the ground accompanied by thunder. In the atmosphere, three types of discharges take place:

1) Thundercloud (intra-cloud),
2) One cloud to another (inter-cloud)
3) Cloud to ground (CG).

The third type of lightning takes a toll on life and property and so is of more concern to us. Aircrafts can be hit by inter cloud and intra-cloud lightning. Lightning is a high-current electric discharge that occurs in the earth atmosphere and that has total path length on the order of few kilometers. The peak power and total energy in lightning are very high, the peak power that is dissipated by a lightning discharge is on the order of 100 million watts per meter of channel and the peak channel temperature approach 30,000 °C. Peak currents in a lightning discharge range from several to hundreds of kiloamperes (kA), with typical value being 40 kA. Prediction of lightning as to the precise time and location is very difficult or impossible. However, somewhat a season or period of lightning occurrence at many regions is known

4. 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 extra tropical cyclones which lie on the synoptic scale.

Coastal areas of District like Devbhumi Dwarka, Khambhalia, Kalyanpur and Dwarka -Okha 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 cyclone shelter. There are 31 identified sites to construct Cyclone Shelter on Costal Belt of Devbhumi Dwarka District. 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.

- **Nilofar:**

The cyclone storm NILOFAR was originated in Arabian sea on 26/10/2014. The Cyclone storm, NILOFAR over west central and adjoining southwest Arabian sea move northwards, intensified into a severe cyclonic storm and lay centred at 05:30 hours of 27/10/2014 near latitude 14.8° N and longitude 62.0°E, about 1180km southwest of Naliya. Under the influence of this system, Rainfall at most places with isolated heavy to very heavy falls would commence along coastal districts of Sarastro and kutch intensity would increase gradually with heavy to very heavy falls at a few places from night 30th October. Squally winds speed reaching 45-55 kmph gusting to 65 kmph would commence along and off Gujarat coast from 30th October morning and would become 100-110 kmph gusting to 125 kmph at the time of landfall. Sea condition along and off Gujarat coast will be rough to very rough from 30th October morning and would become very high to phenomenal from afternoon 30th October. However, on 30/10/2014 as it come closer to Gujarat coast, it was weakenand dispersed in Arabian sea.

- Action Taken: -
    - Collector, Resident additional collector, Liaison officer, Dy. Mamlatdar visited Gandhvi, Bhogat, Navadra, Harshad villages. They had held a meeting with villagers and aware them to be prepared for migration from
    - village to safe shelters when they got a message from Control room.
    - Petrol pumps, FPS were instructed to keep stocks for emergency.
    - Talatis were instructed to be alert and in communication with collector office.
    - NGOs were instructed to be prepared for food packets needed during cyclone.
    - At district Level, Meeting had been organized with District officials.
    - The boat service had been canceled between Dwarka to Bet.
    - Boats were called back which was gone in sea for fishery.
    - NDRF, Special rescue teams were standing by at Dwarka.
    - Do's and don'ts were published in local newspaper.

      Vayu Cyclone: 12/062019 to 15/06.2019
      Maha Cyclone: 04/11/2019 to 05/11/2019
      Nisarga Cyclone:03/06/2020 to 05/06/2020
      Tauktae Cyclone: 14/05/2021 to 18/05/2021
      Biporjoy: 2023

5. Chemical Disasters:

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.

Devbhumi Dwarka district has 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 7 MAH unit is in this district. most probability of chemical disaster in this district. 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 district collector. Simulation exercises are also undertaken in the adjoining communities.

• Poison centers established in Civil Hospital-Devbhumi Dwarka which lays near the industrial estates with facilities for detoxication and also in industries hospital.

• 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.

6. 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 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 Devbhumi Dwarka District is concern there are 5 costal talukas and as per Analysis of Mean Sea level of Devbhumi Dwarka District there are 52 villages of 6 costal taluka are less then 2 km far from sea and on less then 10 meter 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.

7. 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, 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 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.

Novel Corona Virus 2019-

8. Nuclear Disaster: -

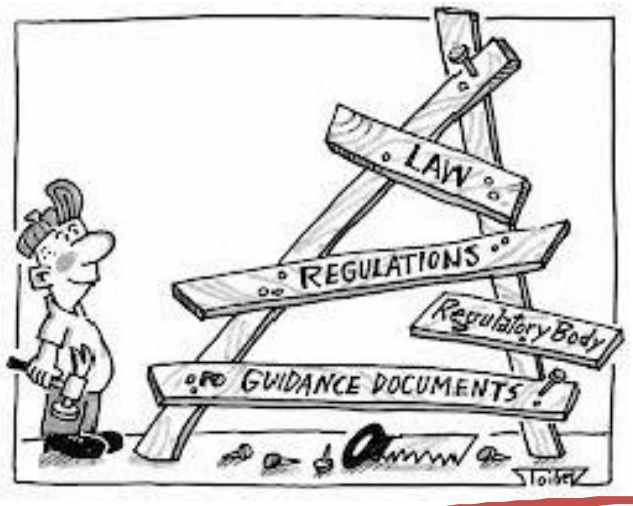
In the Past no nuclear disaster was occurred.

9. Drought:

Low rainfall coupled with erratic behavior of the monsoon in the state make Jamnagar/Devbhumi 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.

10. Fire:

Fires may be caused due to earthquakes, explosions, electrical malfunctioning and various other causes. The State shall take up 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. \



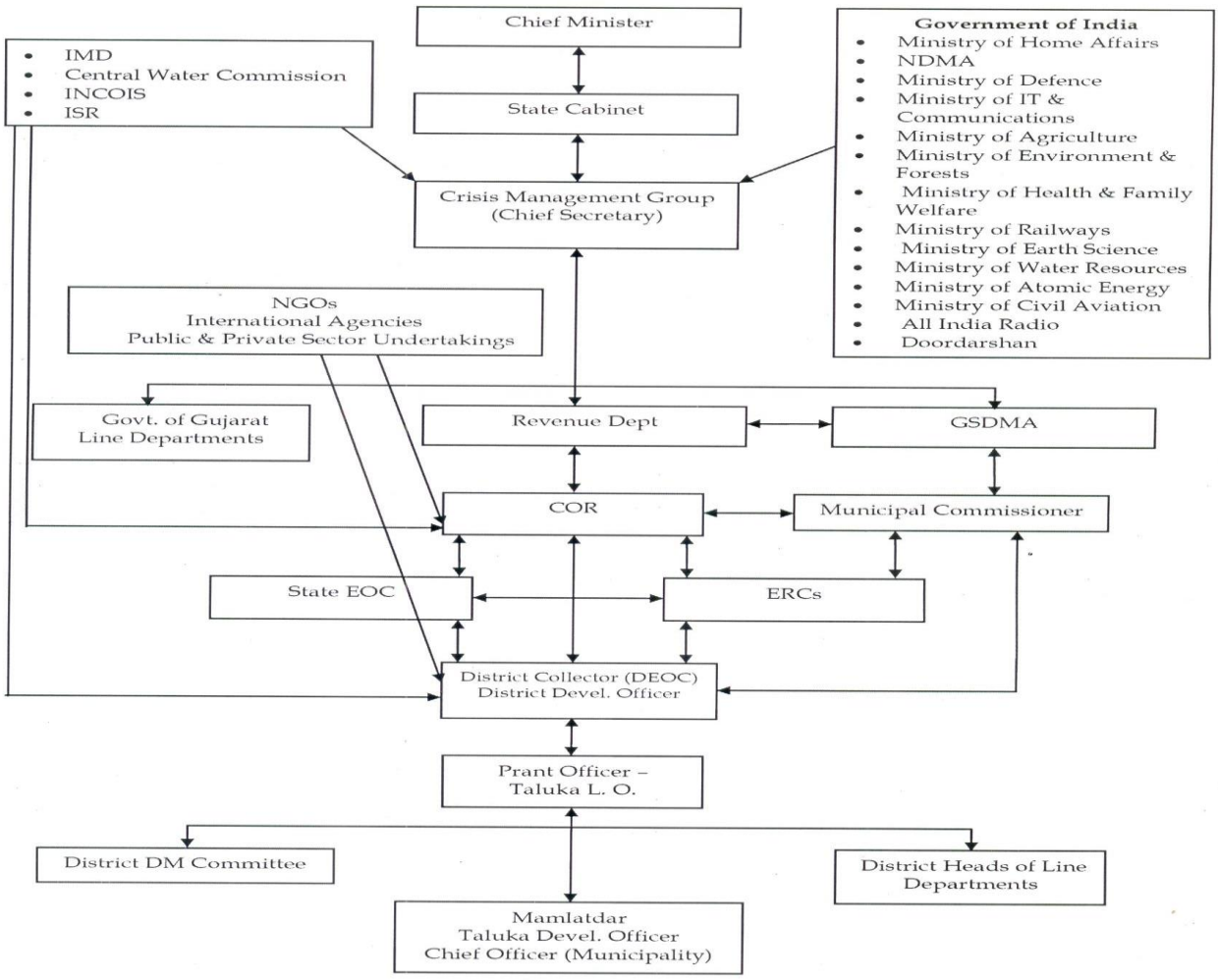
Chapter 3
Institutionalisation and Multihazard Response Measures

CHAPTER - 3

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, constitution of a State Executive Committee, establishment of a District Disaster Management Authority in each District and creation of a District Disaster Response & 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 afresh.

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 disaster-affected area under GSDMA Act (Section 32 (2) (a)).

DM Structure in the State

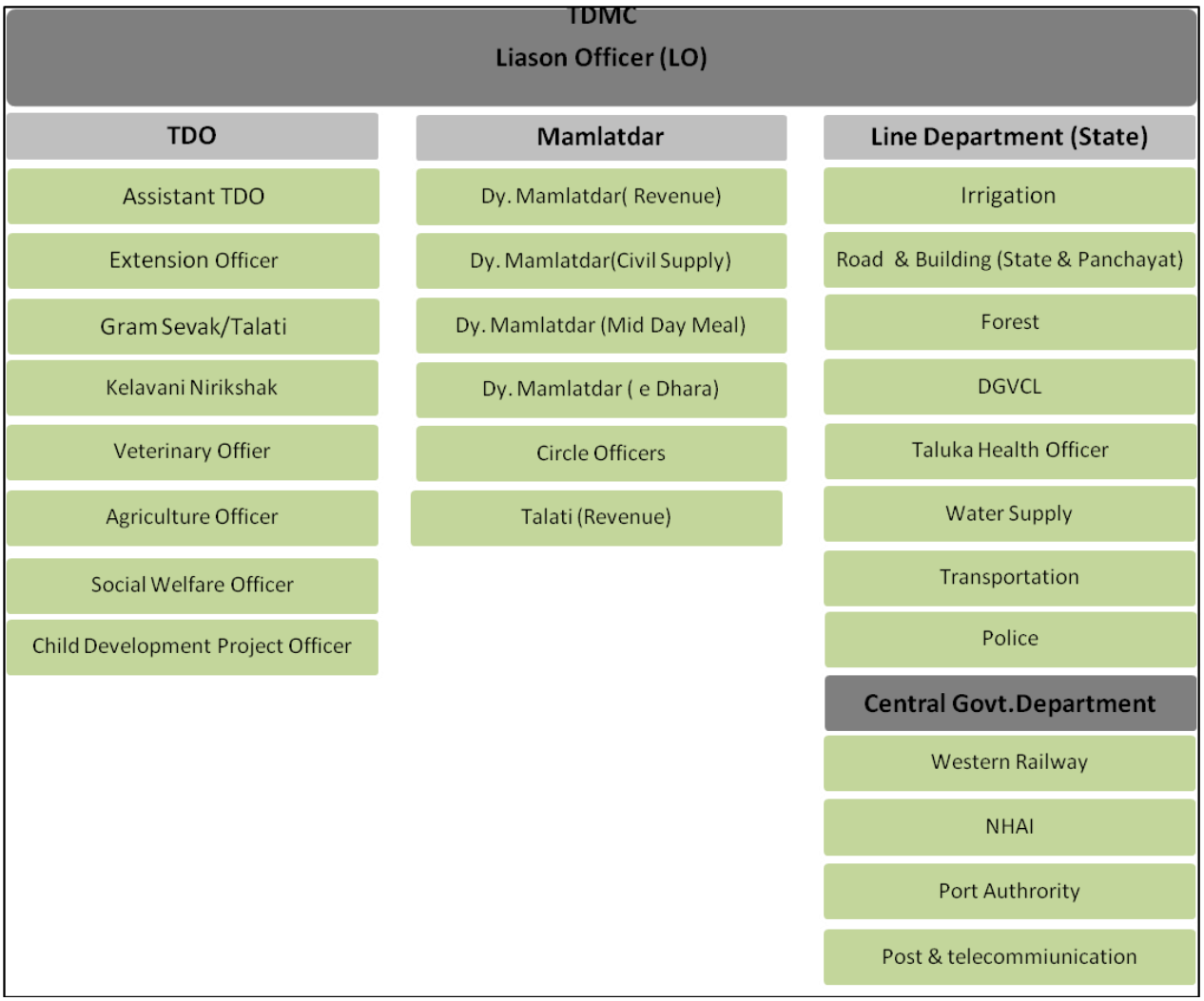


District Disaster Management Committee

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. Following member should ne club at district level committee.
DDMC: -District Disaster Management Committee:

Sr. No.	Designation	Position in DDMC
1	Collector/ District Magistrate	Chairmen
2	District Development officer	Member
3	District Superintend Police	Member
4	Resident 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	Member
13	District forest Officer	Member
14	District Program Officer (GSDMA)	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	District Education Officer	Member
23	District Primary Education officer	Member
24	NGO Member	Member
25	Media Person	Member
26	Suggested by DDMC	Member

TDMC: - Taluka Disaster Management Committee:



Block/Taluka level Disaster Management Committees will be constituted and will be headed by Mamlatdar as the case may be Officers from different departments and representatives of local panchayat body will be members of this Committee. The Committee will look into all the aspects of disaster management including mitigation preparedness, response and relief. Following member is club in TDMC.

Sr. No.	Detail
1	Dy. Collector/ Dy.DDO. (Liaison Officer of Taluka)
2	Mamlatdar
3	Taluka Development Officer
4	Dy. Executive Engineer- R & B (State)
5	Dy. Executive Engineer- R & B (Panchayat)
6	Dy. Executive Engineer – Irrigation
7	Dy. Executive Engineer –GEB
8	Dy executive Engineer – Water Supply
9	Junior Engineer-Telecom

10	Medical Officer (Mother PHC)
11	Police Inspector/ Police Sub Inspector
12	Taluka Home Guard Commandant
13	Taluka Kelvani Nirikshak
14	Godown Manager- Civil Supply Corporation
15	Depot Manager – S.T.
16	Port Officer
17	Range Forest Officer (Head Quarter)
• Non- Government Members	
18	President-Taluka Panchayat
19	M.P.
20	M.L.A.
21	Chairman- Social Justice Committee (Taluka Panchayat)
22	Woman Member - Taluka Panchayat
23	NGO Representative

CDMC: -City Disaster Management Committee:

In each City / Nagarpalika, there shall be a Disaster Management Committee which will oversee all activities in disaster management. The ULB will also constitute a City Disaster Management Team consisting of officials and non-officials and organize training for them to be able to discharge their duties properly.

Sr. No.	Department
1	Dy.Collector/SDM/Dy.DDO
2	Chief Officer
3	Chief fire officer
4	Mamlatdar
5	Town planning Head
6	Dy.Exe.Engineer-R&B state
7	Dy.Exe.Engineer-state-Irrigation
8	Dy.Exe.Engineer- PGVCL
9	Dy.Exe.Engineer-GWSSB
10	Junior Engineer Telecom
11	Medical Officer-C.H.C.
12	Medical Officer Municipality Health Centre
13	Head Transport committee
14	PI/PSI
15	Taluka Homeguard Commandent
16	Education Officer Municipality Education committee
17	Project Coordinator-UCD
18	Port officer
19	Range forest officer-Extension
• **Non Governmental Member**	
20	President Municipality

21	Member of Parliament
22	Member of Legislative assembly
23	Chairman- Standing Committee committee
24	Chairman-Water Supply committee
25	Chairman City planning committee
26	Chairman Construction Committee
27	Women Member of Municipality
28	Scheduled caste Member of municipality
29	Local N.G.O.
30	Other-Decide By CDMC

VDMC: - Village Disaster Management committee

Each village shall have a Disaster Management Committee consisting of officials and nonofficials. The Committee will be constituted to oversee by the gram sabha. The Committee will be responsible for awareness generation, warning dissemination, community preparedness plan, adoption of safe housing practices and organizing and cooperating relief in post disastersituations. The members are...

Sr. No.	**Detail**
1	Sarpanch-Chair Person
2	Talati cum Mantri
3	Primary Principal
4	Health Worker
5	Anganwadi Worker
6	President Seva Co operative
7	President Milk cooperative
8	Community Representative
9	Community Representative
10	Community Representative
11	Fair price shop holder

Incident Response System in the Devbhumi Dwarka District

1. Disaster Response and District Incident Command System

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 Devbhumi Dwarka 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.

2. ICS-Basic Functions

The basic functional descriptions for key elements in the district Incident command System is describe 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 accomplishes in a well-planned manner and execute in 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 assist 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:

Responsible for ensuring the safe accomplishment of all activities undertaken in response to the incident . This task is accomplishes through developing incident specific safety guidance documents, reviewing and advising on the safety of plans and monitoring actual operations to ensure 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 non media requests for information
- **Outgoing public information**: To handle public information dissemination
- **Public opinion feedback**: To collect information from the public.
- **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 create 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 depends on the nature of the incident.

The District administration of Gir Somnath has identified 16 expected task forces for key response operation functions that are describe 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 supporter by other organizations.

The specific response roles and responsibilities of the taskforces indicated above is that these roles and responsibilities will be execute and coordinated through the ICS/GS system. For example, in flood, search & 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 provision of material and other resources needed for operations and the physical and material support and operation of the incent management team. This section include transportation taskforce established to support disaster operations. Logistics tasks are through the following units:

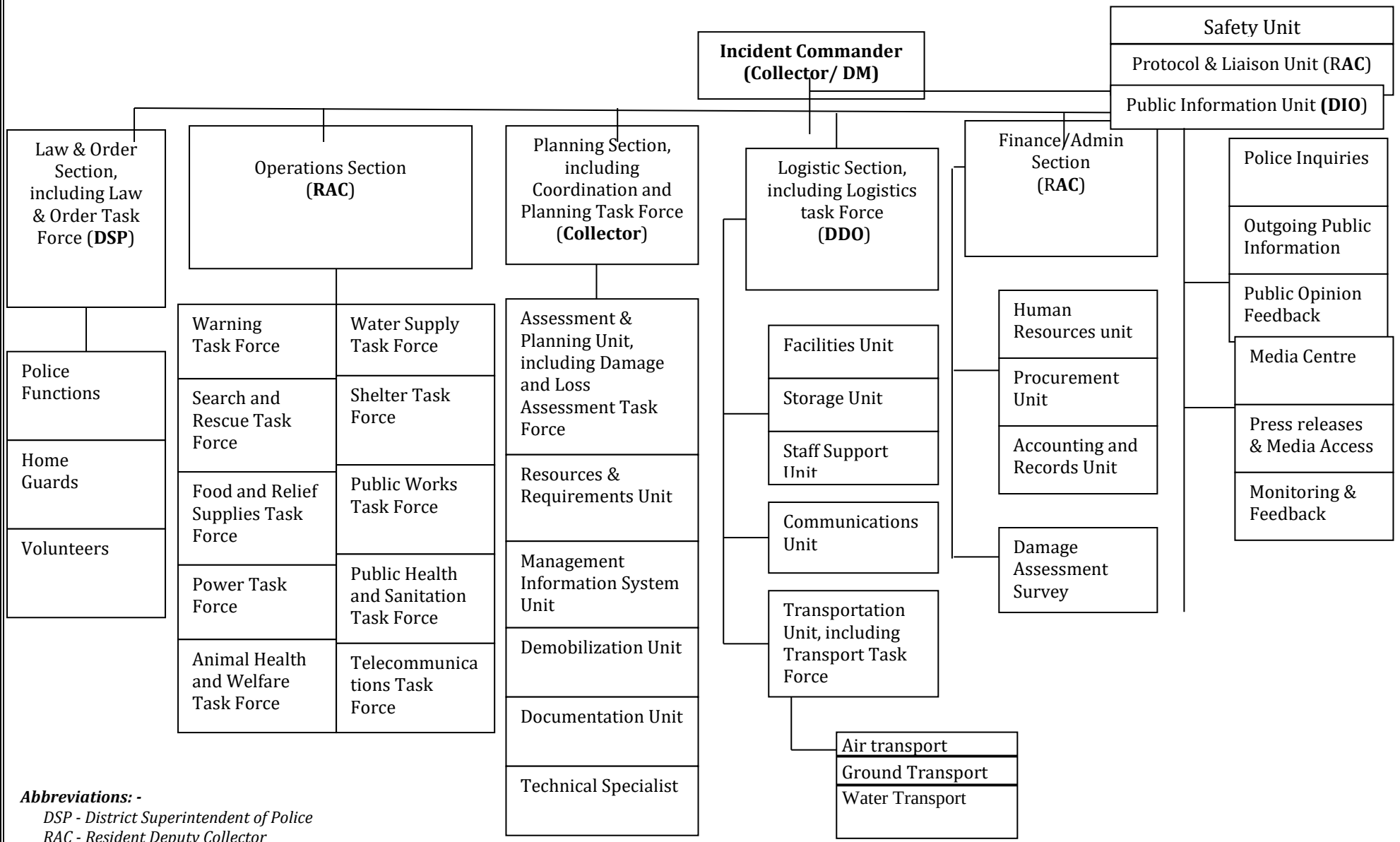
1. Storage and supply
2. Facilities
3. Staff support
4. Communications
5. Transportation (include ground, air water)

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

Incident Command Structure – Devbhumi Dwarka- District



Abbreviations: -

DSP - District Superintendent of Police
RAC - Resident Deputy Collector
RAC - Additional District Collector
DDO - District Development Officer
DIO - District Information Officer

Task force, supporting organizations ICS section matrix

Sr.	Task Force	Taskforce Leader	Supporting members / Organizations	ICS 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, Port 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. En. 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

EOC setup and facilities available with the location

District Emergency Operation Centers/Control Rooms (DEOC)

The District Control Room is located at Office of The Collector, Jilla Seva Sadan, Dharmpur, Khambhaliya. 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 position in the District Control Room along with Incident Commander to enable one point co-ordination for decision-making process.

• Facilities at District Emergency Operation Centers

The District Control Room equipped with to the following items in Table:

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

• 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 & 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 Taluka Level Control Rooms (TLCR)

The following facilities are maintained inside TFCR:

- Telephones
- Marker board (1)
- A copy each of Disaster Management Plan and Taluka Level Plan
- Other relevant documents, if any

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.

Early Warning System (EWS) and Post Disaster Advisories:

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 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.

Information Dissemination:

The dissemination of information is the most critical function in order to give early warning to the community. It has to be fast in order to give reasonable amount of time for communities to prepare for any eventuality. Due consideration has to be given to the points mentioned below before sending across the information.

- Information dissemination will be done to all the important stakeholders (as given below in the information dissemination format) at the Panchayat level in rural areas and Nagarpalika level in urban areas for early warning communication.
- Making use of the fastest means to communicate the message in the most lucid manner so as to prevent spread of rumor and panic among the masses.

Bulk Voice SMS Service is the best means of communication to large masses without any effort and within no time. A voice recorded message from the District Magistrate from official number shall be sent to the database of numbers identified for information dissemination with the help of Mobile service providers & Telephone department.

Early Warning Action Plan:

The availability of early warning system is a must before early warning message could be disseminate to the people till the last mile. Thus, for every type of disaster there is an agency designated with the responsibility of keeping track of developments in respect of specific hazards and inform the designated authorities/agencies at the district level about the impending disaster. Nodal agencies for early warning of different natural hazards are:

Type of Action	Flood	Cyclone	Chemical and industrial accident	Tsunami
Existing EWS	Irrigation department /Dam authority/ IMD V Collector V Mamlatdar/TDO V Villages	IMD V Collector V Mamlatdar/TDO V Villages	Industrial Association/industry s V DCG V LCG V Mamlatdar	IMD V Collector V Mamlatdar/TD OV Villages
Responsible Agency for warning dissemination	Mamlatdar office/TDO	Mamlatdar office/TDO	Mamlatdar office/TDO	Mamlatdar office/TDO
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/habitat not covered or difficult to access	Communities in remote locations (fisher folk, salt pan workers, maldharis etc)			
Measures required to improve timeliness and outreach (For example, voice enabled SMS)	Contact of communities in remote locations (fisherfolk, saltpan workers, Madhuri's etc)			

During and Post Disaster Advisory Action Plan:

Type of Hazard	Flood	Cyclone	Earth quake	Drought	Chemical and industrial accidents	Tsunami
Responsible Agency	Revenue & Panchyat offices					
Villages covered	All risk prone villages					
Villages/habitation not covered or difficult to access	communities in remote locations (fisher folk, salt pan workers, Madhuri's etc)					
Measures required for outreach	Contact of communities in remote locations (fisher folk, salt pan workers, Madhuri's etc)					

VIP involvement and protocol

It is important to 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 lifesaving work. Security of VIPs will be additional responsibility of local police and Special Forces. It would be desirable to restrict media coverage of such visits, in which case the police & taluka liaison officer will liaise with the government press officer to keep their number to minimum.

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.

Devbhumi Dwarka Collectorate office has established an effective system of collaborating with the media 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 ground. A similar set up is also active at the Taluka Control room (i.e., Mamlatdar office)

Role of Emergency Organization:

The District Collector shall be the Overall Incident Command Officer of emergency operations as the District Devbhumi Dwarka Emergency Authority and S/he shall provide suitable instruction to the District Crisis Group.

•The Collector shall seek help from Chief Secretary, Chairman, State Crisis Management Group, Gujarat State depending upon the state of emergency.

For this he shall be in touch with State Control Room, Gandhinagar or Chief Secretary, Gujarat State for progress of emergency.

- **Emergency Rescue Kit-EOC Set up and Facilities available.**

As a part of preparedness following equipment were allocated in this district

EMMERGENCY RESCUE KIT AT TALUKA PLACES OF DEVBHUMI DWARKA DISTRICT:

No.	Name of Taluka Mamlatdar Office	Article included in each ECRs		
		Life Saving Jacket	200 ft. Ropes	100 ft. Ropes
1	Mamlatdar Office – Khambhalia	14	1	0
2	Mamlatdar Office – Dwarka	11	0	0
3	Mamlatdar Office – Kalyanpur	21	2	2
4	Mamlatdar Office – Bhanvad	14	4	1
	Total	60	7	3

- **Fire and Emergency service available in the district**

Sr. No.	Municipality	Water Bouser	Fire Tender	Inflatable Light	Fire Bullet	Remarks
1	**Bhanvad**	**1**	**1**	**2**	**-**	**-**
2	**Khambhalia**	**1**	**1**	**2**	**1**	**1 Boat**
3	**Rawal**	**0**	**1**	**2**	**-**	**-**
4	**Dwarka**	**3**	**2**	**2**	**1**	**1 Boat**
5	**Okha**	**2**	**2**	**2**		**2 Boat**
6	**Salaya**	**0**	**0**	**2**		**-**
	Total	**7**	**7**	**12**	**2**	**4 Boat**

- **And Health Sector as following**

Sr. No.	Taluka	Name of CHCs	PHCs	SHC
1	Bhanvad	Bhanvad	5	35
2	Khambhalia	Salaya,	3	54
3	Kalyanpur	Kalyanpur, Raval	9	56
4	Dwarka	Dwarka	6	24
Total		5	23	169

- **Flood Survey Team**

Sr. No.	Taluka	Survey Team
1	Bhanvad	**2**
2	Khambhalia	**4**
3	Kalyanpur	**7**
4	Dwarka	**2**
Total		**15**

- **Forecasting and warning agencies:**

Warning or Occurrence of Disaster

On the receipt of warning of alert from any such agency which is competent to issue such a warning, or on the basis of reports from Divisional Commissioner/ District Collector of the occurrence of a disaster, all community preparedness measures including counter-disaster measures will be put into operation. The Chief Secretary/ Relief Commissioner will assume the role of the Chief of Operations for Disaster Management.

It is assumed that the district administration would be one of the key organizations for issuing warnings and alert. Additionally, the following agencies competent for issuing warning or alert are given below.

Sr. No	Hazard/Disaster	Agency
1	Earthquake	Indian Materiological Department
2	Flood	Indian Materiological Department, Irrigation Department
3	Cyclone	Indian Mariological Department
4	Epidemics	Public Health Department
5	Road Accidents	Police
6	Industrial/Chemical Accidents	Industries, DISH, Police, Mutual aid Control Room
7	Fire	Fire Brigade, Police
8	Rail Accidents	Railways, Police
9	Air Accidents	Airlines, Police
10	Ammunition Depot-Fire	Army, Police

- **The occurrence of the disaster will be communicated to :**

The Governor, Chief Minister, Home Minister, Relief Minister and non-officials namely MPs and MLAs from the affected district. Chief Secretary, Principal Secretary, Disaster Management & Relief Department, Secretary, Disaster Management & Relief Department, Cabinet Secretary, Secretary, Home and Defense, Government of India. Secretary, Agriculture, and Joint Secretary, NDMA, Ministry of Agriculture, GOI Local Area Commander of the Army.

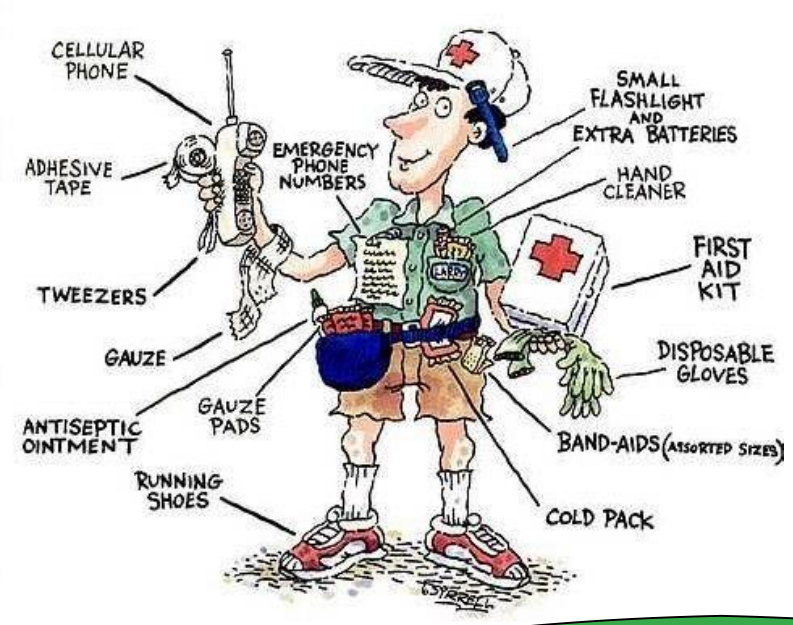
- **The Occurrence of the Disaster would essentially bring into force the following:**

  - The Emergency Operations Centre will be put on full alert and expanded to include Branch arrangements, with responsibilities for specific tasks, depending on the nature of disaster and extent of its impact. The number of branches to be activated will be decided by the Chief of Operations.
  - All Branch Officers and Nodal Officers will work under the overall supervision and administrative control of the Chief of Operations. All the decision taken in the EOC has to be approved by the Chief of Operations.
  - Immediate access to the disaster site.
  - Telephonic and VSAT, wireless communication and hotline contact with the Divisional Commissioner, and Collector/s of the affected district/s will be activated.

The EOC in its expanded from will continue to operate as long as the need for emergency relief and operations continue and the long-terms plans for rehabilitation are finalized for managing long-term rehabilitation programmers, such as construction of houses, restoration of infrastructure etc. the responsibilities will be that of respective line departments. This will enable EOC to attend to other disaster situation, if the need be.

Other line department EOC/Control Room should be activated for response against disaster.

- √ **TEOC**
- √ **Nagar palinka**
- √ **Irrigation department**
- √ **PGVCL**
- √ **Water Supply**
- √ **Fisheries**
- √ **Port**
- √ **GWSSB**
- √ **District Panchayat**
- √ **Police**
- √ **Home Guard**
- √ **Information Department**
- √ **Salinity Control**
- √ **Forest**
- √ **S.T**



Chapter 4
Preparedness, Prevention & Mitigation Measures

Personal preparedness focuses on preparing equipment and procedures to use when a disaster occurs, i.e., planning. Preparedness measures can take many forms including the construction of shelters, implementation of an emergency communication system, installation of warning devices, creation of back-up life-line services (e.g., power, water, sewage), and rehearsing evacuation plans. Proper Preparation can save time, money and lives. Planning for all different types of events to magnitudes in at utmost importance for disaster. Proper planning is instrumental during times of chaos to make situations less stressful. With proper planning duties will be pre-assigned to different agencies, so that when disaster does occur responders can jump right into action.

Two simple measures can help to prepare the individuals for either sitting out the event or evacuating, as necessary.

For evacuation, disaster supplies kit may be prepared and for sheltering purposes a stockpile of supplies may be created.

➢ Prevention and Mitigation Plan:

For disaster prevention and mitigation, both structural and non-structural interventions can be planned. Structural interventions include construction of physical engineering and non-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 for safety.

Mitigation measures can be divided in 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 nonstructural mitigation plans in consultation and convergence with various Departments. For example, the MGNREGA work can take up activities on 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 Measures

Structural Mitigation Measures for Flood (Identified works of concerned Departments):

Probable Mitigation Measures	**Implementing Departments**	**Convergence with Scheme/ Program**	**Time Frame**
Desilting and deepening of water channel (kaans)	Irrigation and Rural Development, GLDC	Departmental program & MGNREGS,	Regularly
Construction of embankments/ protection wall	Rural Development, Forest	Departmental program & MGNREGS, watershed,	Regularly
Repair of embankments/ protection wall	Rural Development, R & B	Departmental program & MGNREGS	Regularly
Repair and maintenance of Flood Channels, canals, natural drainage, storm water lines	Irrigation department	Departmental or special plan	Regularly
Construction of Safe Shelters (new construction through	Collectorate and R&B	NCRMP	Regularly

Probable Mitigation Measures	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Indira Awas, Sardar Awas and Ambedkar Awas)			
Protection wall and mangroves and vegetative cover against sea level intrusion and land erosion	Forest and Rural development department	Department schemes, MGNREGS, IWMP	Regularly
Desilting of water bodies like river and ponds	Irrigation DDO Rural Development	MGNREGA and Land Development	Regularly

- **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	IAY, Sardar Awaas and other rural housing schemes	Regularly
Promotion of Traditional, local and innovative practices like bamboo/plastic bottle rafts etc.	DDMC, SHGs and youth groups, NGOs	Training and capacity building plan for disaster management	Regularly
Capacity building of volunteers and technicians	DDMC	Training and capacity building plan for disaster management	Regularly
Awareness generation on health and safety of livestock	veterinary officer, rural development	Departmental Scheme	Regularly

- **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 41 villages	Forest department, Port Authority, DIC, TDO, Rural development department	Departmental schemes, MGNREGS	Regularly
Identification and repair/ retrofitting of houses and buildings unsafe for cyclone		R & B (Zila Panchayat)	Departmental Scheme	Regularly

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

Non-Structural measures	Location/ coverage area	Implementing Departments	Convergence with agency/ program	Time Frame
Strengthening of Early warning mechanisms	Cyclone prone 41 villages	DDMC		Regularly
Training and awareness generation for use of safety jackets/rings/buoys/rope etc for fisher folks		DDMC, TDMC, VDMC	TDMP	Regularly
Enforcing strict compliance to coastal regulation zone		Department of Environment & Forest		Regularly
Registration of fishing boats		Fisheries Department		Regularly
Regulate and issue orders for poor quality hoardings/buildings or any other objects		R & B Department		Regular Intervation

- **Structural Mitigation Measures for Earthquake:**

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Retrofitting (if required) of public utility buildings like offices, schools/ banks/ markets etc	EQ prone 3 Taluka under zone 4	R & B (State and Panchayat), DDO, Rural department		-
Retrofitting of unsafe rural houses		DDMC	Rural housing schemes and departmental programs	-
Identifying and safely dismantling unsafe structures		R & B department		-

- **Non-Structural Mitigation Measures for Earthquake**

Non-Structural measures	Location/ coverage area	Implementing Departments	Convergence with agency/ program	Time Frame
Capacity building of architects, engineers and masons on earthquake resistant features	EQ prone 3 Taluka under zone 4	R & B (State and Panchayat), DDMC		Regular Interval
Registration of trained and certified mason		R & B (State and Panchayat), DDMC		Regular Interval
Strict enforcement of guideline pertaining to seismic safety for government rural housing		DDO	Rural housing schemes	Regular Interval
Mock-drills for Schools, Hospitals and, Public Buildings and trainings for mason, engineers and architects		DDMC, Schools	DDMC	Regular Interval

- **Structural Mitigation Measures for Drought**

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Development of Pasture land in common property, seed farms and trust land	Drought prone villages	Forest, Rural Development, Panchayat	Departmental Scheme	2019-20

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/ Program	Time Frame
Rain Water Harvesting storage tanks at household level and public buildings		GWSSB, (WASMO), Rural Development,	MGNREGS, Swajaldhara	2019-20
Structures for water harvesting and recharging like wells, ponds, check dams, farm ponds, etc		DDO, Rural development, irrigation department	MGNREGS , Watershed program, departmental schemes	2019-20

- **Non-Structural Mitigation Measures for Drought**

Non-Structural measures	Locations/ coverage area	Implementng 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 villages	Rural Development	MGNREGS	2013-14
Farmer education to practice drought resistant crops and efficient water use		Agriculture & horticulture department	Departmental schemes	2013-14
Set up control mechanism for regulated water use (ponds, small dams, check dams) on the early unset.		Panchayats		Regularly

- **Industrial (Chemical) Structural Measures (in coordination with LCG, 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 (ground water monitoring wells, air quality test, etc)	DDMC, DCG GPCB	--	Regular interval

Safety assessment	Carry out structural safety inspection/audit	DISH, DCG (	--	regular interval
		Asst.Director. Industrial safety and health)		
	Any Other	--	--	--

- **Industrial (Chemical) Non-Structural Measures** (in coordination with LCG, DCG, district and state level authorities):

Non tructural Measures	**Activities**	**Implementing Departments**	**Convergence Agencies**	**Time Frame**
Planning	Prepare an onsite and offsite emergency plan	Occupier, DISH	--	regular interval
	Conduct mock drills as per the regulations	DISH and LCG	--	regular interval
	Update the plan as per the requirement	Occupier, DISH	--	regular interval
	Monitor similar activities in all the factories/ industries	DISH and LCG	--	regular interval
Capacity Building	Develop IEC material for Publication & Distribution	TDMC	--	Periodically
	Awareness generation to general public and medical professional residing near MAH factories for immediate steps	TDMC, LCG	--	Periodically
	Organize training programmes, seminars and workshops (e.g. for drivers of HAZMAT transport, line departments officers, Mamlatdar etc)	TDMC, LCG	--	Periodically
	List of experts/ resource person/ subject specialist (District emergency Off site plan)	TDMC, LCG	--	Periodically
	Encourage disaster insurance	Labor& employment department	--	Periodically
Medical	Listing of hazardous chemicals and gases.	Occupier, LCG, DISH, THO	--	--

	Keep check on availability and validity of relevant antidotes for chemical hazards prevalent in Taluka	Occupier, LCG, DISH, THO	--	--
	Workshops and trainings for medical professionals to handle potential chemical and	THO, Occupier, LCG, DISH	--	Regularly

Non tructural Measures	Activities	Implementing Departments	Convergence Agencies	Time Frame
	industrial hazard			
Compliance	Environmental Protection Act, Factory Act, Mutual Aid SOPs	DISH, GPCB	--	Regular interval
	Any other			

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 (LCG) is formed for coordination of activities and executing the operations.

- **Structural Mitigation Measures for Tsunami:**

Structural measures	Identified Locations and Villages	Implementing Departments	Convergence with Scheme/ Program
Constructing shelter belts in coastal areas	31 villages	Rural Development, GSDMA	Departmental programs, MGNREGS, NCRMP

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

Non-Structural measures	Locations/ coverage area	Implementing Departments	Convergence with agency/program
Provisions of Coastal Regulation Zone to be effectively implemented	--	Department of Environment &	as per norms
Capacity building of task forces in coastal villages		TDMC	Periodically

Special projects programs for preventing the disasters

- **DRM:**

Disaster Risk Management Programme (DRM) has taken strong roots at various levels of administration in Gujarat. The Department of Revenue & 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 programmed. Representation for these committees is 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 Trainings & Resource Mobilization, Disaster Awareness through Orientations, Campaigning, Media Management and IEC distribution. Coordinate District Administration for all Disaster Management Activities with expertise knowledge, logistics and fund allocation.

- **NCRMP:**

Gujarat being prone to cyclones, it is the topmost priority of the State Government to reduce the effect of cyclone and minimize the loss to property and lives in the coastal regions of the State through creation of suitable infrastructure. Gujarat has therefore been included in the National Cyclone Risk Mitigation (NCRMP) initiated by the National Disaster Management Authority and funded by the World Bank.

Under NCRMP Project 31 Multipurpose Cyclone shelters will be constructed in the villages of three blocks namely Kalyanpur, Dwarka and Khambhaliya.

- **National School Safety Programme:**

Gujarat School Safety Initiative (GSSI) – I & II. The pilot programs were designed for promoting a culture of disaster safety in schools and reduce risk through structural and non-structural measures in the schools.

Gujarat School Safety Initiative – I

One hundred and fifty schools were selected from the cities of Ahmadabad (100), Jamnagar (15) and Vadodara (35) cities on basis of the school's disaster vulnerability, number of students and willingness to implement the suggested measures. The following activities were conducted in each of the project schools:

School management was first approached and a presentation was made about why and how the concerned school can work on school safety

A School Safety Committee was formed with the help of school administration

A three deprogrammer on orientation of the school disaster management committee on school disaster management planning

Orientation about basic disaster awareness to coordinators and members of the school task forces

Detail training of the task force members on task force skills such as activities to be done for search and rescue, first aid, etc

Imparting lessons on emergency response in each classroom

Conducting mock drill and holding a debriefing meeting to evaluate the mock drill

Gujarat School Safety Initiative – I is completed in all the 152 schools, covering training of 1,00,000 students (primary and secondary standards) and 1,500 teachers in the basics of disaster management. School based DM plans were prepared for all the 152 schools. Earthquake drills were conducted in 80 schools attended by around 40,000 students and 640 teachers. As part of the long-term sustainability of the program, an assessment of non-structural mitigation measures was completed and school safety clubs have been opened in all the project schools. A short play on disaster awareness was also organized in 68 schools.

Gujarat School Safety Initiative – II

This initiative was designed for creation of cadre of master trainers and a pool of trained teachers at district level in disaster risk reduction across all the 25 districts of the State. It was designed for creating a pool of 100 Master Trainers (4 from each district). These master trainers would provide training to 625 teachers (25 from each district). Twenty five model schools were selected & School DM Plans were prepared involving the trained teachers. It was planned that trainings will be conducted for 1,000 teachers and 7,500 students in model schools.

Gujarat School Safety Week Programme-2024

For the year 2017 the programmed is expanded to all government primary, secondary and higher secondary schools are covered. The training to celebrate the school safety week in school was given to more than 1000 teachers from all schools of the district. School disaster management plan in all schools of the district has been prepared in April-2017.

- **Aapda Mitra**

Community service has always been a part and parcel of culture of Gujarat and community is always the first responder during any disaster. Training the community to effectively respond during a disaster, professionalize the response and reduce the impact of a disaster.GSDMA undertakes various capacity building activities to mitigate the impact of disaster. As part of such capacity building measures, GSDMA is implementing the project Apadamitra on training community volunteers in conducting basic search and rescue operations and to assist the district administration for effective disaster response.

Apadamitra is a key initiative which involves training of community volunteers in search and rescue operation, first aid, flood rescue. These volunteers will also support the district administration in responding to the disaster in first phase of the program, GSDMA trained 1671 Apadamitra from all the district of Gujarat. In District Devbhumi Dwarka we have 24 aapda mitra volunteers (6 Volunteer per block.)

Structural: Structural Mitigation Measures

a. Retrofitting of Buildings: In Jamnagar region maximum buildings are non-engineered or kuccha, having lower 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 & Conventional Construction

The buildings of Category A are very weak and may get 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 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, hostels, 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 in 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 & seismic strengthening of buildings

In Hoshangabad, building by-laws and the Seismic Code must be enforced by the municipal and panchayat bodies.

NON-STRUCTURAL:

Land use planning: Damage to a building depends primarily upon the soil conditions and topology of the area. Jamnagar district comes under moderate risk zone in terms of earthquake (Zone 3) and flood disaster. But a part of it is also recommended by DMI to be included under zone 4 of earthquake as it lies on a cross fault Junagadh region.

Training and awareness programmes: 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 'dos and don'ts' for general public.

Mitigation strategies

The mitigation strategy for Jamnagar district involves the following elements:

- Further growth of human settlements in the low-lying areas should be checked 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 & non engineered constructions, and should be strictly enforced by 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 raised 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 MPHB in these efforts;
- Community awareness will be raised regarding 'dos 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.
- **Development schemes**:

  NREGS: 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 employers 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. Building of Roads for places which are not connected to other parts of the district.
3. Leveling of low-lying areas during 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.

IAY:

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:
This scheme can be used to facilitate for voluntary first aid during 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.

Mahamari 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- Abhishek 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.

SamagraSwachta 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 lot of diseases and epidemics may break out, proper defecation and sanitation should be ensured by this scheme.

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

JNNURM
Localization and Project Uday Institutionalization with replication

- ***Risk Management Funding***

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

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

In order to achieve the objectives, rollout workshop was held for sensitization of education department officials, district level administrators (District Education Officers & District Primary Education Officers), teachers and students. Eighty-six master trainers were trained in 4 regional workshops, 593 teachers were trained throughout the State in 3 day workshops. Twenty-five model schools were selected where 25,543 students and 861 teachers have been

trained. One model school developed for each district. Methodology for School Safety program has been developed and tested, including templates for developing a School Disaster Management Plan. Training and awareness material has been developed. Also, draft text books for class VII, VIII, IX were prepared incorporating the basics of Disaster Management. 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 31336 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.

Chapter: 5
Preparedness measure

- ***Identification of Stake holder involve in disaster management***

1. *Search & rescue*

It is the duty of the DDMA to provide specialized lifesaving 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 & rescue mission.

The tactics used in the search & rescue process vary accordingly with the type of disaster that we are dealing with. In case of flood, a boat and trained swimmers are a must while in 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 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.

- **Search & rescue Team**

S.No. designation of trained S&R Team member

The Search & Rescue team is formed as and when required and the members &equipment's are taken according to the nature of the disaster (and also on their availability).

- Police Officers (2 or more)
- Home guards (2 or more)
- Swimmers (In case of flood)
- A construction engineer (From P.W.D.)
- Driver (For Every vehicle)
- Any person with the prior experience of the disaster (From Home Guard/Police Dept.)
- A doctor or nurse or at least a person having first aid training
- A Class IV Officer (Health Dept.)

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 lock 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.

- **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.
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 the purpose of 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 rules 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 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 learnt
- 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. 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 area to be evacuated as also the probable duration of evacuation on the basis of meteorological observations and intimations by the concerned forecasting agencies. It should also identify number of people for evacuation, 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's, communications and security of the evacuated area.

The evacuating 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 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:

- 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 undated or affected due to earthquake
- Need to activate evacuation plan
- Dos and Don'ts to ensure appropriate response

- Advise to the pout further warnings to be issued, if any

➢ **Damage & 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 assessed 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 colour 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 to be 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 25 districts independently embark on education and capacity building it will be hard to coordinate and standardize the results across districts. A significant consequence would an inequality in capacities across districts, and thus uneven mitigation and prevention results.[5] 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.

➢ **Training, capacity building and other proactive measures Training:**

Task	Activity	Responsibility
Training	1. Training to civil defense personal in various aspect of disaster management 2. Training to home Guards personal in various aspect of disaster management including search and rescue	Home Dept. District Home Guards Commandant Dy. Controller Civil Defense
3. Training to NCC and NSS personal in various aspect of disaster management	Education Dep. 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 personal in various aspect of disaster management	Fire Dept DDMC
7. Training to police and traffic personal 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

- ***Awareness***

Task	Activity	Responsibility
Information education and communication	1. Advertisement, hording, booklets, leaflets, banners, shake-table, demonstration, folk dancing and music, jokes, street play, exhibition, TV Spot, radio spot, audio-visual and documentary, school campaign, - Planning and Design - Execution and Dissemination	Information Dept. Education Dept. All line dept. Dist. Collectors Municipal Commissioners Other Dist. Authorities

- **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 operational period in an area. If the incident grows in size and extends throughout many jurisdictions, multiple incident commanders can be useful with an area command authority may be established to coordinate among the incidents. Incident Commander requires the following Command Staffs to support him, which are 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 agency-to-agency issues.

1. Operations: this section carries out the response activities described in the 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's, 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 local level to support the DEOC's requirements for field information and coordination. The DEOC will therefore need 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

Awareness Generation: -

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

- **NGO and Other stake Holder coordination -**

For arrangement of water supply, temporary sanitation facilities, search and Rescue activity, Relief distribution can be sought with help of special agencies, NGOs and CBOs.

- **Seasonal preparedness: -**

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 in Collection Management is 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.

- **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 Con vulnerabilities?

Are yet? 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 are 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.

- **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 a 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.

- **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 adjustors, 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.

- **Community Warning System**

SDRN/IDRN data updating: -

State disaster Resource network mad India Disaster Resource Network is a cruasil database for 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 Bhaskar Acharya 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 Visualizer does not require any GIS software. The GIS visualizer contains multi layered options depicting roads-highways, taluka, district boundaries, rivers, ports, airways, etc.

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 availability of equipment and human resources required to combat any emergency situation. 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 updating on IDRN for resources available in their district. The IDRN network has functionality of generating multiple query options based on the specific equipment, skilled human resources and critical supplies with their location and c o n t a c t details.

DRM Programme: -

i) GSDMA DRM activities:

Disaster Risk Management Programme (DRM) has taken strong roots at various levels of administration in Gujarat. The Department of Revenue & 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 programmed. Representation for these committees is 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 Trainings & Resource Mobilization, Disaster Awareness through Orientations, Campaigning, Media Management and IEC distribution. Coordinate District Administration for all Disaster Management Activities with expertise 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-governments, the district administration and the State in Gujarat. Under the DRM Programme

- **For the Prepared level specific plan following process will followed.**

District Level Process

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

- **Taluka level process**

- Orientation cum sensitize Taluka level officers and PRI members.
- Formation of Taluka Disaster Management Committee.

- Capacity building of government officials
- Development of the TDMP
- Use of IEC material and media sources for create awareness at taluka level
- TDMP update on SDRN

City-ULB level process

1) Orientation of City level officers, elected members & leaders.
2) Formation of CDMP
3) Capacity building of municipal official and concerned organizations at city level
4) Development of the CDMP.
5) Use of IEC material for create awareness at city level
6) CDMP updating on SDRN

Village Level Process

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

Devbhumi Dwarka district had taken the preparedness measures from village level to District level. at the villages village Task forces was formed and trained about 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 stake holders were asked to get prepared departmental plan. Sops were also discussed with them so that quick response can be assured and any kind of risk due to water lodging, 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 Devbhumi Dwarka District. These are 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 concerted effort.

Complementary 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 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[3].

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.

- **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. Base on the interim assessment of risk and vulnerabilities, the Devbhumi Dwarka District will focus on the following areas for mitigation, preparedness and prevention;

- Resilience of lifeline systems (water, power and communications)
- Reduction in disastmpact 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.

- **Mitigation measure (for all disasters)**

1) 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 & Country Planning Board and constitute a committee of experts to evaluate the provisions of the State Town & 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 programmes and schemes:**
The State Planning Department will prepare a report on the government sponsored programmes and 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 & Technology, Transport, and Agriculture to evaluate and suggest disaster mitigation measures to be incorporated.

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 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.

- **During and Post Disaster Advisory Action Plan:**

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

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 ground. A similar set up is also active at the District Emergency Operation Centre (DEOC).

Chapter: 6
Response Measures-Multi Hazard

Chapter: 6
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 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 response is conducted during periods of high stress in a highly time-constrained environment and with limited information and recourses (in majority of the cases), it is by far, the most complex of four functions of disaster management. 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 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.

- **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 situation. The details of agencies competent enough for issuing warning or alert pertaining to various types of disasters are given below;

Disaster	Agencies
Earthquakes	IMD/ISR
Floods	Meteorological Department, Irrigation
Tsunami's	IMD/ISR/INCOIS
Cyclones	IMD
Epidemics	Public Health Department
Road Accidents	Police
Industrial and Chemical Accidents	DISH, Police, Collector
Drought	Agriculture
Fire	Fire Brigade, Police, Collector
Rail Accident	Railways, Police, Collector
Air Accident	Police, Collector, Airlines
Ammunition Depot-Fire	Army, Police, Collector.

- **District CMG meeting**

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 (LCG) is formed for coordination of activities and executing the operations' as well as LCG. Meeting will meet periodically twice in a year.

- **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 case of an L1 Disaster the The Local Control room will be activated, in case of an L2 disaster DEOC will be activated along inform with the SEOC.

- **Role & Responsibilities of each department.**
  - **Each Department and Govt. agency involved in Disaster Mgmt. and Mitigation will:**

1. Designate a Nodal officer for emergency response and will act as the contact person for that department/agency.
2. Ensure establishment of fail-safe two-way communication with the state, district and other emergency control rooms and within the organization.
3. Emphasis on communication systems used regularly during LO with more focus on the use of VHFs 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.
4. Work under the overall supervision of the IC / the District Collectors during emergencies.

Another Departmental plan incorporated in DMRP

1. Agriculture

0.1 **Prevention Activities:**

1. Awareness generation regarding various plant diseases, alternate cropping practices in Disaster-prone areas, Crop Insurance, provision of credit facilities, proper storage of seeds, etc.
2. Hazard area mapping (identification of areas endemic to pest infections, drought, flood, and other hazards).
3. Develop database village-wise, crop-wise, irrigation source wise, insurance details, credit etc.
4. 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.

5. Detail response manuals to be drawn up for advising the farmers for different types of disasters, e.g., rain failure in July or September & development of a dynamic response plan taking into account weekly rainfall patterns.

6. Develop IEC materials to advise the farming communities on cropping practices and precautionary measures to be undertaken during various disasters.

7 Improving irrigation facilities, watershed management, soil conservation and other soil, water and fertility management

8. Measures keeping in mind the local agro climatic conditions and the proneness of the area to specific hazards.

9. Promotion of alternative crop species and cropping patterns keeping in mind the vulnerability of areas to specific hazards.

10. Surveillance for pests and crop diseases and encourage early reporting.

11. Encourage promotion of agro service outlets/enterprise for common facilities, seed and agro input store and crop insurance.

0.2 **Preparedness Activities before disaster seasons**

1. 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.

2. 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.

0.3 **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 re-equipment's and restarting of agricultural activities at the earliest.

0.4 **Recovery Activities**

1. Arrange for early payment of compensation and crop insurance dues.
2. Facilitate provision of seeds and other agro inputs.
3. Promotion of drought and flood tolerant seed varieties.

4. 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.

5. Facilitate sanctioning of soft loans for farm implements.

6. Establishment of a larger network of soil and water testing laboratories.

7. Establishment of pests and disease monitoring system.

8. Training in alternative cropping techniques, mixed cropping and other agricultural practices which will minimize crop losses during future disasters.

1. Health Department

1.1. Disaster Events

- **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.

- **Preparedness Activities before Disaster Seasons**

- **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 at vulnerable and strategic points.

- **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 Level-0.
- Situational assessment and reviewing the response mechanisms in known vulnerable pockets.
- Ensure adequate availability of personnel in disaster sites.
- Review and update precautionary measures and procedures.
- **Sanitation**
- Dispensing with post-mortem activities during L1, L2 and L3 when the relatives and/or the competent authority are satisfied about cause of death.
- Disinfections of water bodies and drinking water sources.
- Immunization against infectious diseases.
- Ensure continuous flow of information.
- **Recovery Activities**
- Continuation of disease surveillance and monitoring.
- Continuation of treatment, monitoring and other epidemic control activities till the situation is brought under control and the epidemic eradicated.
- Trauma counseling.
- Treatment and socio-medical rehabilitation of injured or disabled persons.
- Immunization and nutritional surveillance.
- Long term plans to progressively reduce various factors that contribute to high level of vulnerability to diseases of population affected by disasters.

2.2 Epidemics

- **Preventive Activities:**
- Supply of safe drinking water, water quality monitoring and improved sanitation.
- Vector Control programmed 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.
- **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 & creation of local units for carcass disposal.
- Municipalities / Gram Panchayats to be given responsibility for removing animals likely to become health hazards.
- **Response Activities:**
- Control of animal diseases, treatment of injured animals, Protection of lost cattle.
- Supply of medicines and fodder to affected areas.
- Ensure adequate availability of personnel and mobile team.
- Disposal of carcasses ensuring proper sanitation to avoid outbreak of epidemics.
- Establishment of public information Centre with a means of communication, to assist in providing an organized source of information.
- Mobilizing community participation for carcass disposal.
- **Recovery Activities:**
- Assess losses of animal's assets and needs of persons and communities.
- 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.
- Establishment of animal disease surveillance system.

2. 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 & 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.
- **Preparedness Activities for disaster seasons**
- Prior arrangement of water tankers and other means of distribution and storage of water.
- Prior arrangement of stand-by generators.
- Adequate prior arrangements to provide water and halogen tablets at identified sites to use as relief camps or in areas with high probability to be affected by natural calamities.
- Raising of tube-well platforms, improvement in sanitation structures and other infrastructural measures to ensure least damages during future disasters.
- Riser pipes to be given to villagers.
- **Response Activities:**
- Disinfections and continuous monitoring of water bodies.
- Ensuring provision of water to hospitals and other vital installations.
- Provision to acquire tankers and establish other temporary means of distributing water on an emergency basis.
- Arrangement and distribution of emergency tool kits for equipment's required for dismantling and assembling tube wells, etc.
- Carrying out emergency repairs of damaged water supply systems.
- Disinfection of hand pumps to be done by the communities through prior awareness activities & supply of inputs.
- Monitoring flood situation.
- Dissemination of flood warning.
- Ensure accurate dissemination of warning messages to GPs & Taluka with details of flow.
- Monitoring and protection of irrigation infrastructures.
- Inspection of bunds of dams, irrigation channels, bridges, culverts, control gates and overflow channels.
- Inspection and repair of pumps, generator, motor equipment's, station buildings.
- Community mobilization in breach closure
- **Recovery Activities:**
- Strengthening of infrastructure.
- Sharing of experiences and lessons learnt.
- Training to staff, Review and documentation.
- Development of checklists and contingency plans.
- Strengthening of infrastructure and human resources.
- Review and documentation.
- Sharing of experiences and lessons learnt.
- Training of staff.
- Development of checklists and contingency plans.

3. **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 of GSDRAF 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 inter changeability of VHF communication sets of police and GSDMA supplied units, if required.
   - Keeping close contact with the District Administration & Emergency Officer.
   - Superintendent of Police be 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 & other support to armed forces during emergencies.
   - **Response Plan:**
   - Security arrangements for relief materials in transit and in camps etc.
   - Senior police officers to be deployed in control rooms at State & district levels during L 1level deployment onwards.
   - Deploy personnel to guard vulnerable embankments and at other risk points.
   - Arrangement for the safety.
   - Coordinate search, rescue and evacuation operations in coordination with the administration
   - Emergency traffic management.
   - Maintenance of law and order in the affected areas.
   - Assist administration in taking necessary action against hoarders, black marketers etc.
4. **Civil Defence:**
   - **Prevention Activities**
   - Organize training programmes 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.
   - **Response Activities**
   - Act as Support agency for provision of first aid, search and rescue services to other emergency service agencies and the public.
   - Act as support agency for movement of relief.
   - Triage of casualties and provision of first aid and treatment.
   - Work in co-ordination with medical assistance team.
   - Help the Police for traffic management and law and order.

5. **Fire Services:**
    - **Prevention Activities:**
    - Develop relevant legislations and regulations to enhance adoption of fire safety measures.
    - Modernization of fire-fighting equipment's 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 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 & police networks.
    - Training of masons & engineers in fireproof techniques.
    - Making clearance of building plans by fire services mandatory.
    - **Response Activities:**
    - Rescue of persons trapped in burning, collapsed or damaged buildings, damaged vehicles, including motor vehicles, trains and aircrafts, industries, boilers, trenches & tunnels.
    - Control of fires and minimizing damages due to explosions.
    - Control of dangerous or hazardous situations such as oil, gas and hazardous materials spill.
    - Protection of property and the environment from fire damage.
    - Support to other agencies in the response to emergencies.
    - Investigation into the causes of fire and assist in damage assessment.

6. **Civil Supplies:**
    - **Preventive Activities**
    - Construction and maintenance of storage god owns 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.
    - **Response Activities**
    - Management of procurement
    - Management of material movement
    - Inventory management
    - **Recovery Activities**
    - Conversion of stored, unutilized relief stocks automatically into other schemes like Food for Work. Wherever, it is not done leading to damage of stock, it should be viewed seriously.

7. **Public Works/ Rural Development Departments**
    - **Prevention Activities:**
    - Keep a list of earth moving and clearing vehicles / equipment's (available with Govt.Departments, PSUs, 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.
    - **Response Activities**

- Clearing of roads and establish connectivity. Restore roads, bridges and were
- necessarily make alternate arrangements to open the roads to traffic at the earliest.
- Mobilization of community assistance for clearing blocked roads.
- Facilitate movement of heavy vehicles carrying equipment and materials.
- Identification and notification of alternative routes to strategic locations.
- Filling of ditches, disposal of debris, and cutting of uprooted trees along the road.
- Arrangement of emergency tool kit 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.
- **Recovery Activities:**
- Strengthening and restoration of infrastructure with an objective to eliminate the factor(s)which caused the damage.
- Sharing of experiences and lessons learnt.
- Training to staff, Review and documentation.
- Development of checklists and contingency plans.

8. Energy: PGVCL/GETCO

- **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 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 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.
- **Response Activities:**
- Disconnect electricity after receipt of warning.
- Attend sites of electrical accidents and assist in undertaking damage assessment.
- Stand-by arrangements to ensure temporary electricity supply.
- Prior planning & 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, Collectorate Control Rooms and other vital emergency response agencies. v Inspection and repair of high- t e n s i o n lines
  /substations/transformers/poles etc.
- Ensure the public and other agencies are safeguarded from any hazards, which may have occurred because of damage to electricity distribution systems.
- Restore electricity to the affected area as quickly as possible.

- Replace / restore of damaged poles/ salvaging of conductors and insulators.

9. Fisheries:

- **Prevention Activities**
- Registration of boats and fishermen.
- Building community awareness on weather phenomena and warning system especially onDo's and Don'ts on receipt of weather-related warnings.
- Assist in providing lifesaving 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 & rescue operation and hire their services during emergency.
- **Response Activities**
- Ensure warning dissemination to fishing communities living in vulnerable pockets.
- Responsible for mobilizing boats during emergencies and for payment of wages to boatmen hired during emergencies.
- Support in mobilization and additional deployment of boats during emergencies.
- Assess the losses of fisheries and aquaculture assets and the needs of persons and communities affected by emergency.
- **Recovery Activities**
- Provide compensations and advice to affected individuals, community.

10. 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.

11. Transport Department:

Prevention Activities

- Listing of vehicles which can be used for emergency operation.
- Safety accreditation, enforcement and compliance.
- Ensuring vehicles follow accepted safety standards.
- Build awareness on road safety and traffic rules through 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.
- **Recovery Activities**
- Provision of personal support services e.g., Counselling.
- Repair/restoration of infrastructure e.g., roads, bridges, public amenities.
- Supporting the GPs in development of storage and in playing a key role and in the coordination of management and distribution of relief and rehabilitation materials.
- The G.P. members to be trained to act as an effective interface between the community, NGOs, and other developmental organizations.
- Provide training so that the elected representatives can act as effectives supportive agencies for reconstruction and recovery activities.

13. Panchayati Raj:

- **Preventive Activities**
- Develop prevention/mitigation strategies for risk reduction at 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 & 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 priorities prevention and preparedness activities while ensuring active community participation.

- **Response Activities**
- Train ups the G.P. Members and Support for timely and appropriate delivery of warning to the community.
- Clearance of blocked drains and roads, including tree removal in the villages.
- Construct alternative temporary roads to restore communication to the villages.
- PRls to be a part of the damage survey and relief distribution teams to ensure popular participation.
- Operationalize emergency relief centers and emergency shelter.
- Sanitation, drinking water and medical aid arrangements.
- IEC activities for greater awareness regarding the role of trees and forests for protection during emergencies and also to minimize environmental impact which results owing to deforestation like climate change, soil erosion, etc.
- Increasing involvement of the community, NGOs and CBOs in plantation, protection another forest protection, rejuvenation and restoration activities.
- Plan for reducing the incidence, and minimize the impact of forest fire.
- **Response Activities:**
- Assist in road clearance.
- Provision of tree cutting equipment's.

- Units for tree cutting and disposal to be put under the control of GSDMA, SRC, Collector during L1

- Provision of building materials such as bamboos etc for construction of shelters.
- **Recovery Activities:**
- Take up plantation to make good the damage caused to tree cover.

14. Information & 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 dos and don'ts of various disasters
- Regular liaisoning with the media.
- **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 & feedback to field officials on a daily basis from L1 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 programmes.

15. Revenue Department

- Co-ordination with Govt. of Gujarat Secretariat and Officers of Govt. of India
- Overall control & supervision
- Damage assessment, finalization of reports and declaration of L1/L2 disasters
- Mobilization of finance

16. Home Department

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

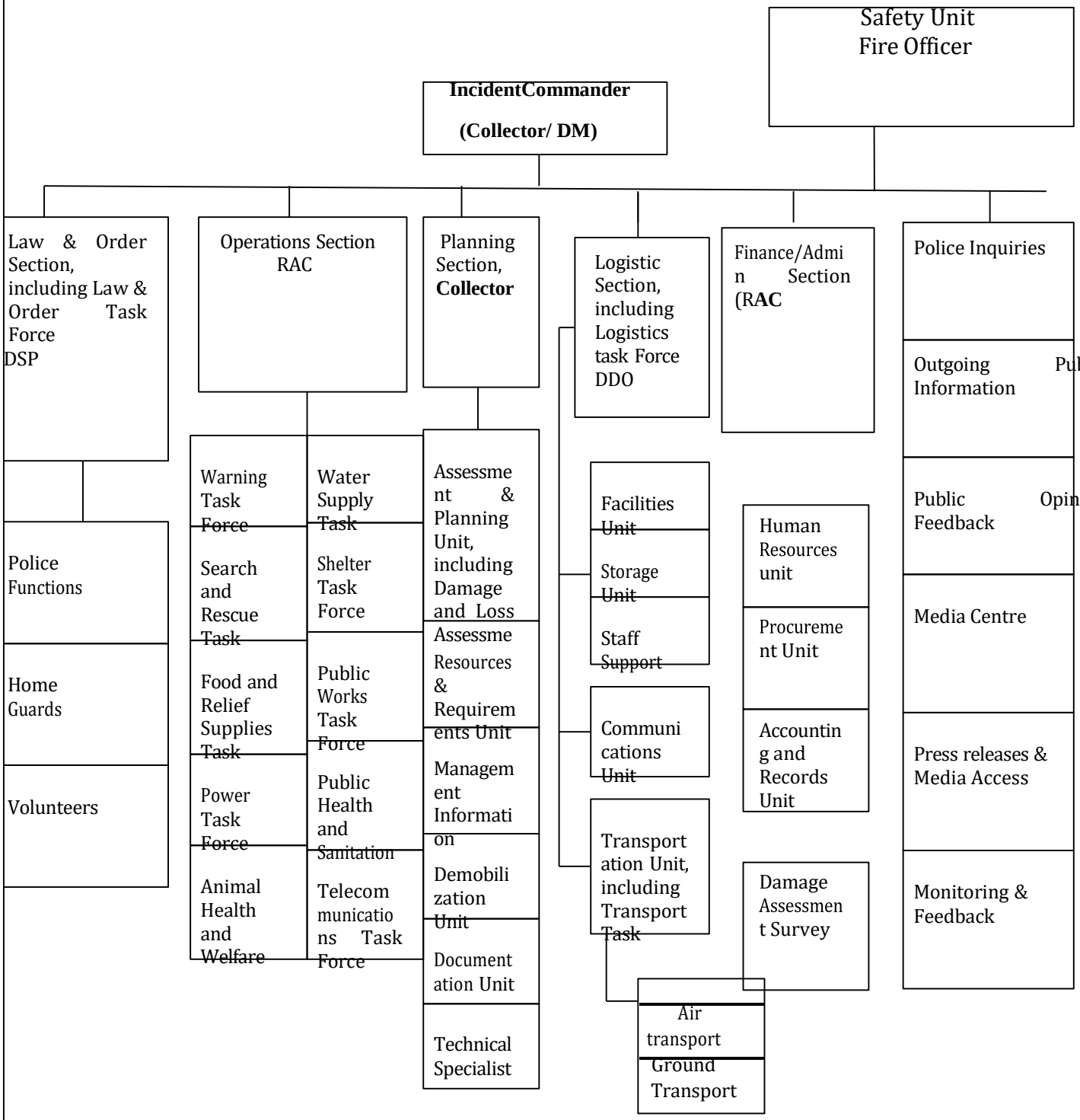
17. Gujarat Disaster Rapid Action Force

- **Response**
- To be trained and equipped as an elite force within the Police Department and have thecapacity to immediately respond to any emergency.
- Unit to be equipped with life saving, search & rescue equipments, medical supplies, securityarrangements, communication facilities and emergency rations and be self-sufficient.
- Trained in latest techniques of search, rescue and communication in collaboration withInternational agencies.
- Co-opt doctors into the team.

Disaster Response and District Incident Command System

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 Devbhumi Dwarka 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 **DistrictEmergencyOperationCenter**(DEOC) under the command and control of the District Collector.



Abbreviations: -

DSP - District Superintendent of Police
RAC - Resident Deputy Collector
RAC - Additional District Collector
DDO - District Development OfficerDIO - District Information Officer

ICS-Basic Functions

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

I. Incident Command: 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. The Incident command is led by an Incident Commander, who can be assisted by a Dy. Incident Commander. 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

Safety unit:

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 safety of personnel and survivors

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).

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 non 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 taskforce which 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 depends on the nature of the incident.

The district administration of Devbhumi Dwarka 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.

Emergency Operation Taskforce	**Functions**
1. Coordination and Planning	Coordinate early warning, Response & 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 reestablish 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 analyse data on the impact of 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, and Wireless) required to support 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 & 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 provision of material and other resources needed for operations and the physical and material support and operation of the incent management team. This section includes transportation taskforce established to support disaster operations. Logistics tasks are through 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; and 3. accounting and records

Chapter 7
Recovery Measures

Chapter: 7
Recovery Measures

Recovery is defined as decisions and actions 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 cycle of disaster management. In addition, this is the phase of new cycle, where the opportunity to 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 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 of 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. Alternate arrangement of water supply, temporary sanitation facilities can be sought with help of special agencies.

Special arrangements for 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

- **Damage Loss Assessment**
- **Restoration of Essential Services and Infrastructure**
- **Following tables are to be filled after an event of disaster**

- **Power**

Item/Services	No. of unit damaged	No of villages affected	Population affected	Recovery measures	Implement nting agency	Tentative Duration (Months)	Budget
Feeder							
Transformers							
HT Lines							
LT Lines							
Electric Poles							

To be planned after initial damage assessment by departments

- **Health**

	PHC (Village name)	CHC	Sub Centre	Drug Store	Recovery Measures	Implement ting agency	Tentative Duration (Months)	Budget
No of buildings damaged								
No of health centres inaccessible								
Refrigeration and other vital equipment for storage								
Drugs and medicines perished	(Location and qty)							
No of Ambulance damaged								

To be planned after initial damage assessment by departments

- **Social**

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

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

- **Water Supply**

Type	Village	No. of unit affected	Aliya/ Population affected	Recovery Measures	Implement ng agency	Tentative Duration (Months)	Budget
Well							
Borewells							
Pond							
Water Supply Disrupted							
Contadination							
ESR damaged							
GLR Damaged							
Sump damaged							
Pipe lines damaged							
Standpost damaged							
Cattle trough damaged							
Handpump							

- **Road and Transport**

Road damage	Location	Severity	Km	Recovery Measures	Implementin g g agency	Tentative Duration (Months)	Budget
Panchayat							
State Roads							
National Highway							
Nagar Palink a							

	Village/ Ward	Population	Alternate road/route	Recovery Measures	Implementin g Agency	Tentative Duration (Months)	Budget
Road Cut off							
Rail Conne ctivity							

- **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						

- **Food Supply**

List of village affected by disruption in food supply

Type	No. of godowndamage	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								

Housing

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

Public Utilities

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

Restoration of Livelihood

Provisioning of Employment

Occupational category	No. of workers	Implementing Agency	Tentative Duration (Months)	Budget
Skilled labourers				
Unskilled and , Agricultural labourers				
Small and marginal farmers				
Construction workers				
Salt pan workers				
Fisher folk				
Weavers				
Other artisans				

Land Improvement

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

Agricultural

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

Non farm 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						

Shops and establishment

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

- **Long term recovery programmed**

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 collaboration are 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 collaborations focus on the community level and rely 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) #14 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 imbedded 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 #14 efforts are driven by State/local priorities, focusing on permanent restoration of infrastructure, housing, and the local economy. When activated, ESF #14 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;
- Advise 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 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.

Grievances Redressal System

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

Grievance Redressal System

No.	Key Person/ Establishment	Contact No	Address
1	DEOC/ RAC	02833-232620	Collector Office-District Emergency Operation Centre
2	DDO	0288-2553901	District Panchayat
3	Police	02833-232002	S.P. Office, Devbhumi Dwarka

Chapter 8
Financial Arrangement

Chapter: 8
Financial Arrangement

6.1 Sources of Funds

Funds available at the National and State Level

1. **The Ministry of Finance** has allocated funds for strengthening Disaster Management Institutions, capacity building and response mechanisms, as per the recommendation of 13th Finance Commission.

2. **Prime Minister's Relief Fund:**

At the National level, Prime Minister's Relief Fund was created shortly after Independence with public contribution to provide immediate relief to people in distress for:

a. Immediate financial assistance to victims and next of kin.
b. Assist search and rescue.
c. Provide Health care to the victims.
d. Provide Shelter, food, drinking water and sanitation.
e. Temporary restoration of roads, bridges, communication facility and transportation.
f. Immediate restoration of education and health facilities.

3. **Chief Minister Relief Fund:**

At the state level, provisions have been made to provide immediate support to the distressed people affected by natural calamities and road, air and railways accidents under the Chief Minister's Relief Fund.

4. Calamity Relief Fund

To provide for relief for famine, drought, floods and other natural calamities, funds are provided in the state budget under the head "**2245-Relief on account of Natural Calamities".** Besides establishment charges, funds are provided for the grant of gratuitous relief in the shape of concessional supply of food, cash payment to indigent persons, cash doles to disabled supply of seed, fodder, medicines, prevention of epidemics, provision for drinking water, transport facilities for goods and test relief works. Funds are also provided to meet unforeseen expenditure in connection with the natural calamities and other allied purposes.

6. Finance and Budgeting

Budget planning is a comprehensive exercise for annual financial planning. For Disaster Management, there can be two categories of budget heads—

a) Line Department's own fund through various schemes and programmes;
b) Additional budget required particularly for DM activities.

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

State Disaster Response Fund

To carry out Emergency Response & Relief activities after any disaster the State Disaster Response Fund is made 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.

State Budget

The State Disaster Management Authority submit to the State Government for approval of 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.

District Planning Fund

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

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 model State Government along with Private organizations or with Central Government share their part.

Centrally Sponsored scheme

Name	**Purpose**	**Finance Arrangements**	**Activities that can be take under scheme**	**Nodal Agency**
NDRF (NCCF)	Relief Assistance	100% Central Govt	Cash and kind relief	Revenue Department
SDRF (CRF)	Relief Assistance	50% Centre, 50% State	Cash and kind relief	Revenue Department

Chapter 9
Maintenance of the Plan

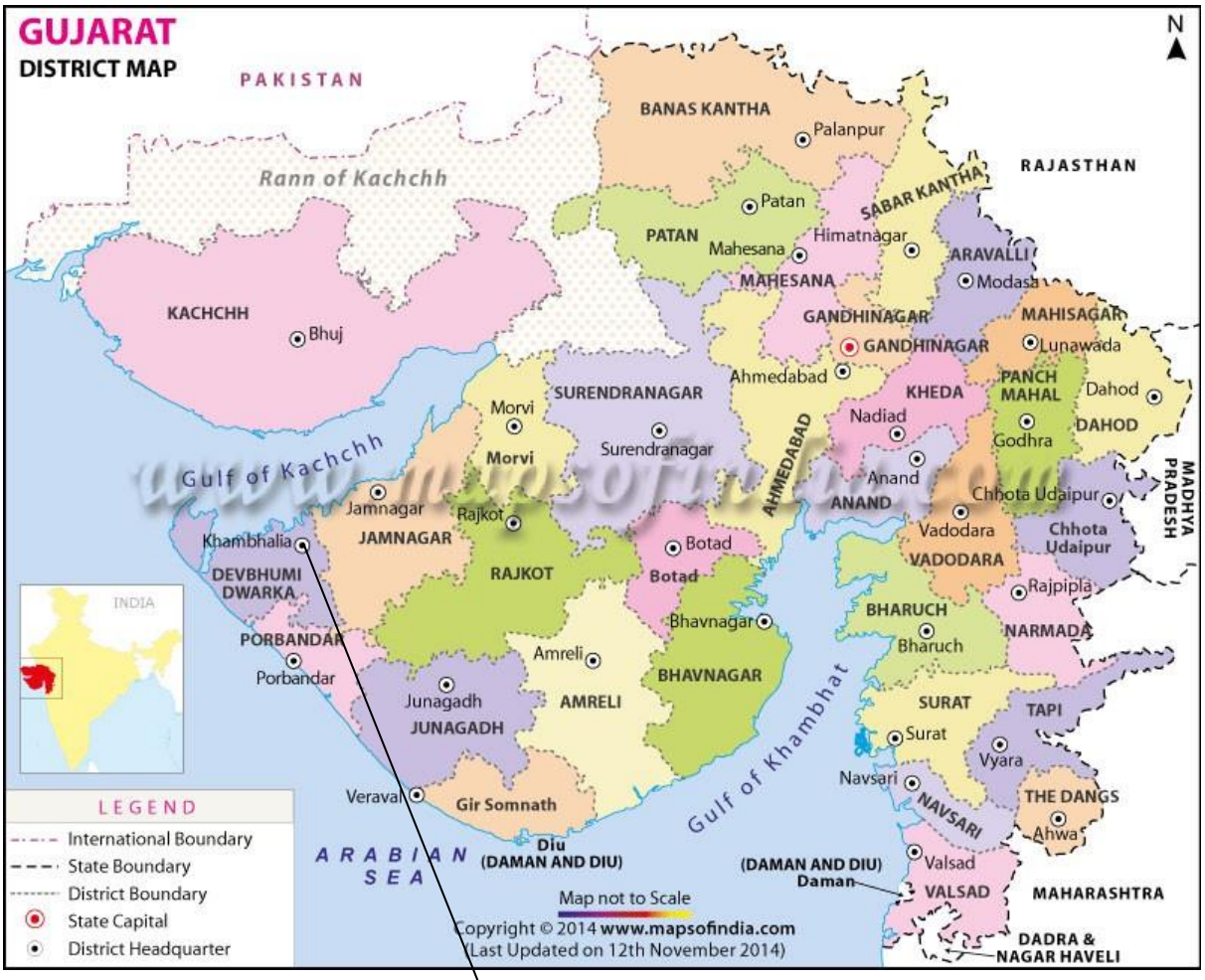
Chapter: 9
Maintenance plan

District Disaster Management Committee (DDMC) shall compile its learning and propose new mechanisms for improvement of the capacity to deal with disasters. As a part of Pre-Monsoon DDMC will update District Disaster Management Plan in the month of May-June and also revise in the month of October-November every year.

Major Learning based on experience of last disasters and mock drills (on planning/implementation/compliance)	**Revisions adopted/proposed**	**Remarks**
Flood	May-June	Due to highly flash flood affected area
Chemical disaster	Jan, Feb	Due to MAH unit
Tsunami	June, Oct	Due to coastal belt
Cyclone	May-June and Oct.Nov.	Due to Coastline

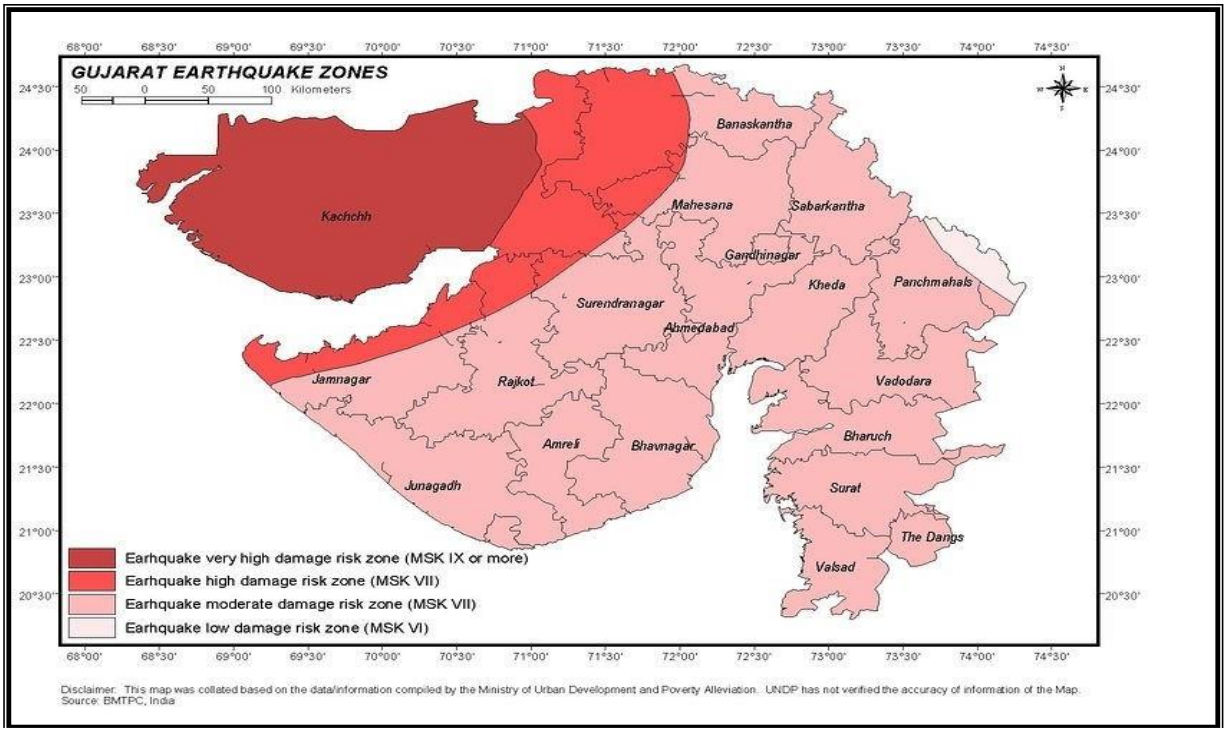
Annexure

Annexure-1
Gujarat Map

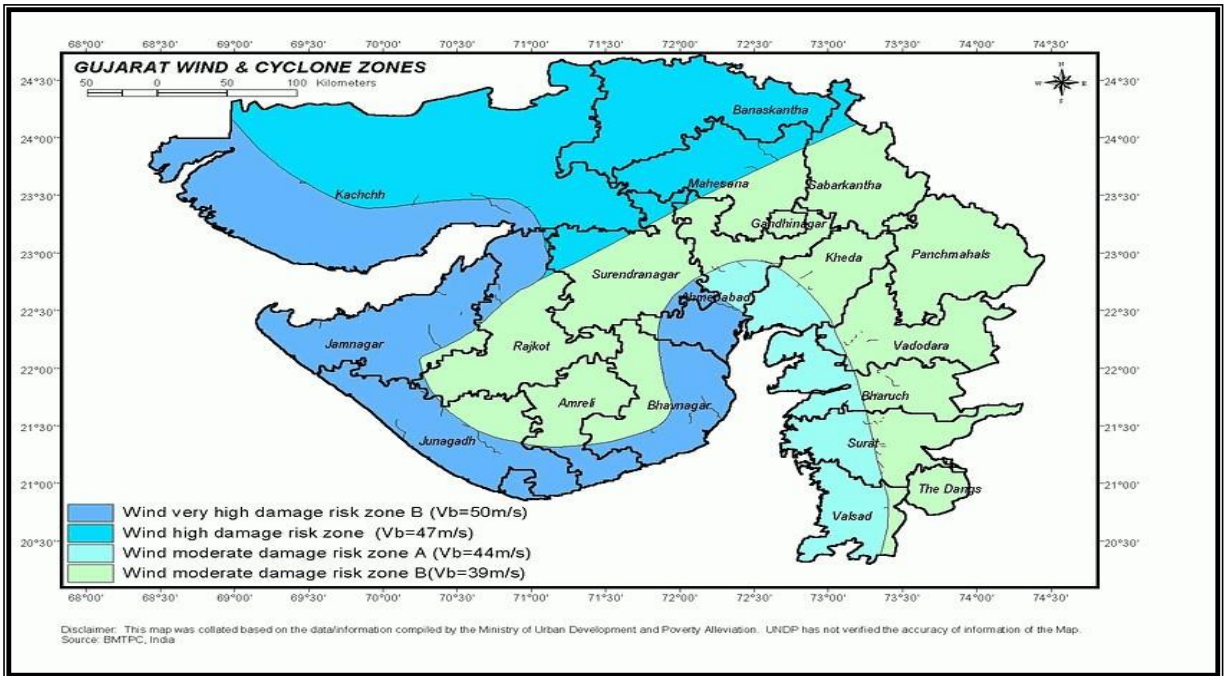


Annexure: 1
Hazard Prone Map

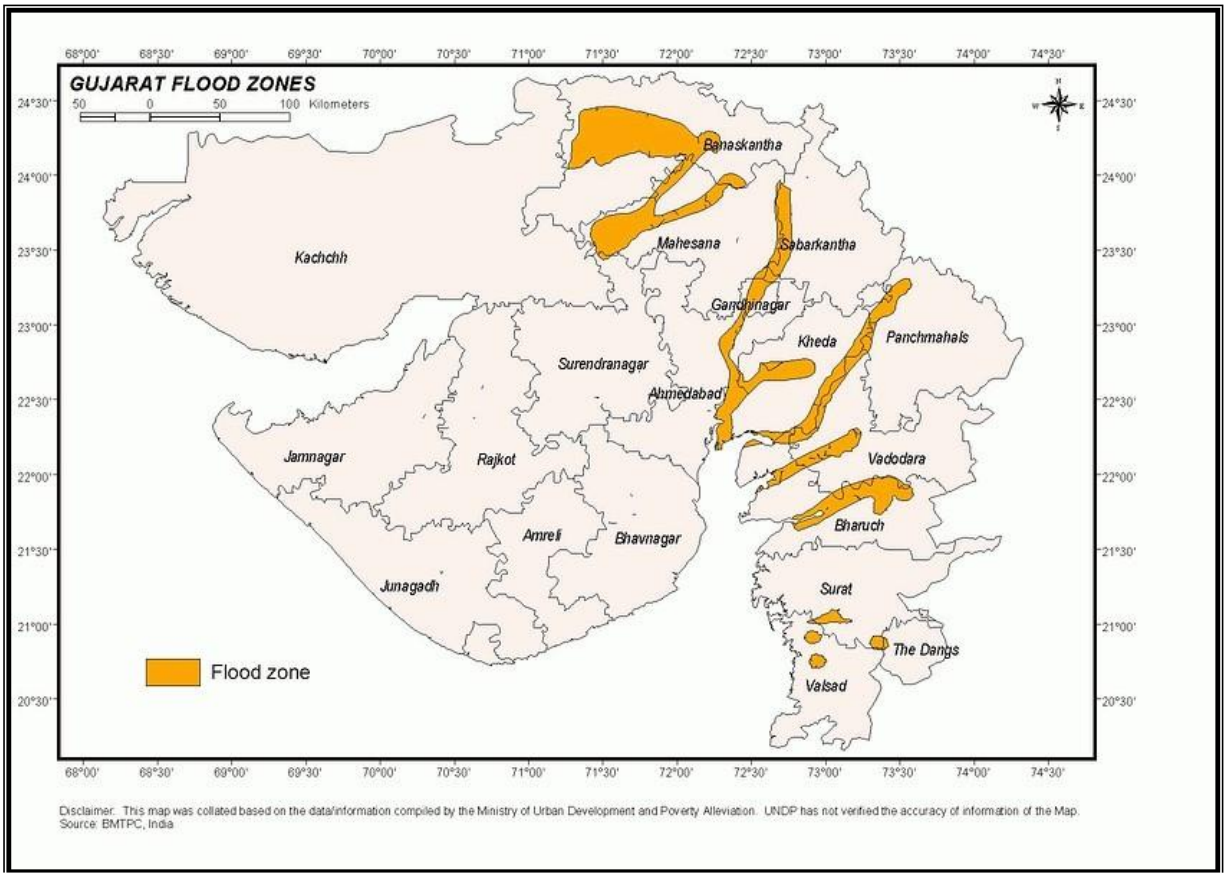
♦ Earthquake Prone Map:



♦ Cyclone Prone Map:



♦ Flood Prone Map:



♦ Rainfall Detail for Devbhumi Dwarka District from 2015 to 2025 in mm.

Sr. No	Taluka	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Khambhalia	423	993	853	579	1354	2643	1125	1319	1465	2390	720
2	Kalaynpur	308	436	788	166	1152	2553	1221	1017	767	2069	1290
3	Dwarka	462	335	400	144	634	1401	825	860	773	2263	1032
4	Bhanvad	459	706	714	282	1035	2389	915	695	569	1666	903
Total		**1654**	**2470**	**2755**	**1171**	**4175**	**8986**	**4086**	**3891**	**3574**	**8388**	**3945**
Average Rain (2014-2024)		**596**	**608**	**689**	**293**	**1044**	**2246**	**1021**	**973**	**8 93**	**2097**	**987.75**

♦ **Details of Dam site and affected low laying villages:**

Sr. No.	Name Of Dam	No.	Flood Prone Villages		Population	Distance From Dam KM.	Contact Number of Section officer
			Village	Taluka			
1	Sani 02891-228257	1	Dangarvad	Kalyanpur	1067	4	Shri V.R. Nakum 9687630427 Shri M.D. Nakum 9687630426
		2	Jepur		183	0.50	
		3	Ranparda		629	3.80	
		4	Rawal		15366	6.30	
		5	Suryavadar		2124	1	
		6	Chandravada		1989	8	
		7	Harshad		325	22	
		8	Gandhavi		1863	20	
		9	Ashiyavadar		706	0.60	
2	Sindhani 02891-276504	1	Chachlana	Kalyanpur	2030	0.50	Shri D.D. Kambhariya 9904646851
		2	Gangani		1780	12	
		3	Devaliya		6600	3	
		4	Harshad		454	14	
		5	Gandhvi		3200	13	
3	Shedha Bhadathari 02833-273204	1	KanparSherdi	Kalyanpur	653	0.50	Shri H.M. Kagathara 7486899201
		2	Chapar		1603	5	
		3	Chur		1375	6	
		4	Mangariya		320	8	
		5	Haripar		2422	12	
4	Vartu-1 02896-277821	1	Morzar	Bhanvad	2352	0.50	Shri L.R Khuti-9429321095
		2	Navagam		1888	3	
		3	Shedhakhai		1404	0.50	
		4	Rupamora		2252	8	
		5	Ranparda		456	10	
		6	Ambaliyara		710	12	
		7	Bhenakvad		2075	15	
		8	SevakDevaliya		1128	2.50	
5	Sonmati 02896-247868	1	Jampar	Bhanvad	1730	1	Shri L.R Khuti-9429321095
		2	SevakDevaliya		1128	3	
		3	Navagam		1888	4.50	
		4	Rupamora		2252	9	
		5	Ranparda		456	11	
		6	Ambaliyara		710	13	
		7	Bhenakvad		2075	15	
6	Ghee 02833-232697(O) 02833-232645	1	Khambhalia	Khambhalia	63354	2.00	Shri R. K Nandaniya 7874404021
		2	Ramnagar		4418	0.30	
		3	Harshadpur		9213	5.00	
		4	Kothavishotri		1732	11.00	
		5	Kabarvishotri		822	10.00	
		6	Sodasala		1116	12.00	
		7	Salaya		26875	13.00	
7	Sorathi (Porbandar District) 0286-2276400	1	Gorana	Kalyanpur	2788	5.50	Shri M.R. Odedara-9426772449
		2	Gandhvi		1863	15	
		3	Harshad		325	16	

		4	Rawal		15366	10	
		5	Adwana	Porbandar	2500	26	
		6	Bhetkadi		2800	19.50	
		7	Sodhana		4000	3.50	
		8	Miyani		5000	3.50	
8	Kabarka 02896-277578	1	Kabarka	Bhanvad	2000	2	Shri L.R Khuti-9429321095
		2	Bhoriya		1500	03	
		3	Fotdi		2000	5	
9	Gadhki 02833-273269	1	Sidhdhapur	Khambhaliya	1500	0.50	Shri M.D.Nakum 9687630426
		2	Jampar	Kalyanpur	1200	3	
		3	Dhumthal		300	2.50	
10	Veradi-1 02896-274424	1	Verad	Bhanvad	4300	0.50	Shri A.L.Mori 9824620982
		2	Sai Devaliya		1840	10	
11	Veradi-2 02896-291583	1	Sai Devaliya	Bhanvad	1840	0.30	Shri M.V. Solanki 9714501668
		2	Bhanvad		22142	10	
12	Vartu-2 02896-232968	1	Zarara	Bhanvad	4000	3.50	Shri M Ravaliya 909024797 Shri M.V. Solanki 9714501668
		2	Gandhvi	Kalyanpur	1863	40.00	
		3	Gorana		2788	21.00	
		4	Harshad		325	41.00	
		5	Raval		15366	27.00	
		6	Ranpara		629	26.00	
13	Minsar- Vanavad-02896-241286	1	Vanavad	Bhanvad	1747	0.50	Shri A.L.Mori 9824620982
		2	Shiva		2313	2.00	
		3	Katkola		3216	3.50	
		4	Jasapar		1799	5.00	
		5	Vansjaliya (Jam Jodhpur Jamnagar)		3450	7.50	
14	Mahadeviya	1	Mahadeviya	Khambhalia	900	1	Shri P.S.Bhochiya 8140712500
		2	Charantungi	Lalpur	1200	2	
15	Kandorna	1	Kandorana	Khambhalia	1000	0.5	
		2	Kota		800	2.00	

Total flood affected Villages are- 73
Total Gated Dam: - 2 : (Sani) and (Vartu-2) Total
Non Gated Dam: - 13
Dam InPorbandar District – Sorathi
Total No. Of Dam: - 15

Important Contact Numbers in flood situation

Sr. No.	Officers' details	Phone/Address
1	Shri P.R. Gauswami Focal Officer flood Saurashtra and Superintendent Enigineer Rajkot Irrigation Department, Rajkot	0281-2440485(O) 0281-2472604(Fax) 0281-2476093(P) 9925016735(M)
2	Rajkot flood Control room	0281-2443205 0281-2453501(F)
3	Shri S.D. Kasahara Sub-focal officer, Flood, Jamnagar Executive Engineer Jamnagar Irrigation Department, Jamnagar	0288-2670688(O) 0288-2678106(Fax) 0288-2559322(P) 9979743174(M)
4	Shri J.J. Patel Executive Engineer, Salinity department, Khambhaliya	0288-2570423(O) 9998909691M)
5	Shri D.R. Jadeja Executive Engineer, Irrigation Panchayat, Devbhumi Dwarka	02833-236232(F) 0288-2671404(O) 9998909691(M)

- **List of Coastal Villages:**

  There are 44 coastal villages located in the district. Following is the block wise list of Coastal Villages.

Sr. No.	Sr. No	Name of Taluka	Name of village
1	**1**	**Kalyanpur**	**Mota Asota**
2	**2**		**Pindhara**
3	**3**		**Gandhvi**
4	**4**		**Gojinesh**
5	**5**		**Sanosari**
6	**6**		**Gangadi**
7	**7**		**Lamba**
8	**8**		**Navadra**
9	**9**		**Bhogat**
10	**1**	**Khambhalia**	**Beh**
11	**2**		**KalavadSimani**
12	**3**		**Chudeshwar**
13	**4**		**Goinj**
14	**5**		**Parodiya**
15	**6**		**Mota ambala**
16	**7**		**Nana Ambala**
17	**8**		**Bharana**
18	**9**		**Nana Mandha**
19	**10**		**Vachhlabara**
20	**11**		**Sodasala**
21	**12**		**Vadinar**

22	**13**		**Ajad Tapu**
23	**14**		**Nana Asota**
24	**15**		**Mota Mandha**
25	**1**	**Dwarka**	**Bet**
26	**2**		**Bhimrana**
27	**3**		**Padli**
28	**4**		**Mojap**
29	**5**		**Shivrajpur**
30	**6**		**Hamusar**
31	**7**		**Shamlasar**
32	**8**		**Poshitra**
33	**9**		**Rajpara**
34	**10**		**Varvala**
35	**11**		**Baradiya**
36	**12**		**Okhamadhi**
37	**13**		**Kuranga**
38	**14**		**Meripur**
39	**15**		**Tupni**
40	**16**		**Makanpura**
41	**17**		**Okha Port**
42	**18**		**Mithapur**
43	**19**		**Arambhada**
44	**20**		**Surajkaradi**

Contact Detail Control room

Control Rooms- Contact Numbers

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 Mamlatdars in their respective Taluka control rooms.

Sr. No	EOCs/ Control rooms	Contact Numbers
1	State EOC – Gandhinagar	079-23251900
2	Relief Commissioner	(079) 23251509 ® 23251591
3	Director of Relief	(079) 23251611 ® 23234364
4	Additional CEO, GSDMA	(079) 23259220 ®23259275 (M) 9408978788
5	**TASKFORCE Operation Room**	
	1. Warning and Communications (RAC)	02833-232620
	2. Law & Order (Police Control room)	02833-232002
	3. Public Works R&B-S (M)9426464610	0288-2550362
	4. Shelter	0288-2550362
	5. Water Supply GWSSB M 9978406618	02833-234781, 235765
	6. Food & Relief supplies DSO 9687888998	02833-235990
	7. Public Health & Sanitation M 9099900607	02833-234001
	8. Power (PGVCL Eng.) 9879200762(KMBL), 7567109172(DWK)	02833-234791/94 O.236963(KMBL) ,02892-234610(DWK)
	9. Logistics DDO (M) 9978406492	02833-235947
	10. Animal Health & Welfare M 9426818294	02833-234251
	11. Damage assessment/Survey (R&B-P)9825873849	02833-234211
	12. Media/public Information, Dy. Dire. Information	02833-235932/9067393800
	13. Planning and coordination (Collector)	02833-233803
	14. Finance/ Administration/ protocol	02833-232620
	15. District Emergency operation center	02833-232125
7	**Taluka EOCs**	
	1. Bhanvad	02896-232113
	2. Khambhalia	02833-234788
	3. Kalyanpur	02891-286227
	4. Dwarika	02892-234541

Contact Details of Government officers of the district

District: Devbumi Dwarka (STD Code: 02833)

S. No.	Designation	Name	Office	Mobile	Fax	Email Id
1	Collector	Shri R.M. Tanna	232803	9978405933	232102	collector-devbdwarka@gujarat.gov.in
2	D D O	Shri A.B. Pandor	235947	9978406492	235947	ddo-dev@gujarat.gov.in
3	SP	Shri Jayrajsinh Vala	233223	9978405976	232002	sp-jam-dbdwarka@gujarat.gov.in, spdevbhumi@gmail.com
4	Deputy Conservator of Forest, Vistaran	Shri Arun Kumar	232574	9620347322	-	dcfsfdbd82@gmail.com acf.khmb@gmail.com
5	Deputy Conservator of Forest, Marine National Prak	Shri Arun Kumar	2552077, 2679357	9620347322	2770161	mnpforest@yahoo.com mnpforest@gmail.com
6	Resident Additional Collector	Shri B.M. Jotania	232620	9727763794	232102	addl-collector-dev@gujarat.gov.in
7	DFO, (Normal)	Shri Radhika Parsana	232574	9428274845	-	dcfjmr@gmail.com
8	DFO, (Normal) Porbandar (Barada)	Shri Arun Kumar	0286-2242551	8999612382	2210373	dcfpbr@gmail.com
9	Director-DRDA	miss H. P Joshi	235947	7567035875	-	drda.dwarka@gmail.com
10	Executive Engineer, R & B (State)	Shri K.N Patel	0288-2550362	9998747323	2678106	eernbdwarka@gmail.com
11	Executive Engineer, R & B (Panchayat)	Shri Prajapati	02833 – 234211	7016787352	-	eedwarka@yahoo.com
12	Executive Engineer, Salinity department	Shri J.J.Patel	0288-2570423/4 FAX 2551917	9998909691	-	scdnjam@yahoo.co.in
13	Executive Engineer,GWSSB	Shri Gaurang Meriya	234781, 235765	9978406847	-	eec-gwssb-kha@gujarat.gov.in
14	DSO	Shri Miss K.B.Solnki	235990	9687888998 9879671561	232102	supp-devbdwarka@gujarat.gov.in
15	Dy. DDO (Revenue)	Shri P.A. Gohil	235947	9925170479		dy.ddo.gen@gmail.com

16	Dy. Director Animal Husbandry	Dr. A.N.Patel	02833-234251	6351112690	9426852736	-
17	CDHO	Shri Dr.C.B Chobisa	234001	9375101163	2671097	cdho.health.dwarka@gmail.com , dpmcc.health.dwarka@gmail.com
18	Superitendent of Civil Hospital, Khambhaliya	Shri Laxman Kanara	02833-235170	9904041714	-	cdmo-health-jad@gujarat.gov.in
19	DEO	Shri H.R. Jadeja	235976	9909069701	-	deodevbhumidwarka @gmail.com
20	DPEO	Shri M.K. Bhatt	236376	7567806316	-	dpeodevbhoomidwarka @gmail.com
21	RO-GPCB	Shri Kalpnaben Parmar	0288-2752366	9879205066	-	ro-gpcb-jamn@gujarat.gov.in
22	District Agriculture Officer	Shri .S.N.Dhandhiya	235868	9909500600	-	dao-agri-devbhumi@gujarat.gov.in
23	ARTO,	Shri G.V.Talsaniya	233300	7600522512	-	arto-trans-dbd@gujarat.gov.in
24	PO-GMB, Okha	Arvind Mishra	02892-262001, 262049, 262039	9099694747	262002	portofficerokp@gmail.com
25	Superintendent of Fisheries	Shri Ramani	02892-262076	8141789262	-	fisheries-okha-dev@gujarat.gov.in
26	Deputy Director, Industrial Safety & Health	Shri Y.I.Pendal	0288-2678206	9879102225	-	ad4-dish-brd@gujarat.gov.in astdish-jam@gujarat.gov.in
27	General Manager DIC	Shri P.B.Patel	234145	9825323808	2660392	gm-dic-dbd@gujarat.gov.in
28	Dy. Director Information	Shri Naresh Maheta	235932	9825263775	232073	informationdev dwarka@gmail.com
29	Executive Engineer-PGVCL, Khambhaliya Division	Shri D.V.Gojiya	234791/94	9879200762	235088	de1khdo.pgvcl@gebmail.com hrjmnkhdo.pgvcl@gebmail.com
30	Executive Engineer-PGVCL, Dwarka Division	Shri N.J.Goraniya	02892-234610	7567109172	-	ee.dwarkado.pgvcl@gebma il.com
31	District Project Officer-GSDMA	Shri Vaseem Langha	232183, 232125, 232084	9558009554	232102	disa-devbdwarka@gujarat.gov.in
32	Deputy Mamlatdar, Disaster Management	Shree Rambhai Chavda	232183, 232125, 232084	9904084101	232102	disa-devbdwarka@gujarat.gov.in

Details of Taluka

S. No.	Taluka Name	Designation	Officer Name	Office No.	Mobile	Email Id
1	Khambhalia	Prant Officer	Shri K.K. Karamta	02833-234577	9978405354	sdm-kham-jam@gujarat.gov.in
		Mamlatdar	Shri Y.P.Gadhvi	02833-234788	8401011211	mam-khambhalia@gujarat.gov.in
		TDO	Shri N.L. Bediyavadar	02833-234792/99	997394409	khambhalia@gujarat.gov.in
		Chief Officer Khambhalia	Shri R.B.Karmur	02833-234712	7046465432	np_khambhaliya@yahoo.co.in
		Chief Officer salaya	Shri Chetan Dodiya (IC)	02833-285448	7046465432	np_salaya@yahoo.co.in
2	Bhanvad	Prant Officer	Shri K.K. Karamta	02833-234577	9978405354	sdm-kham-jam@gujarat.gov.in
		Mamlatdar	Shri V.R. Varu	02896-232113, 232116	7567002729	mam-bhanvad@gujarat.gov.in
		TDO	Shri miss Pravina Pithiya	02896-232024	7567013217	tdo-bhanvad@gujarat.gov.in
		Chief Officer Bhanvad	Shri Bhavesh Batva	02896-232159	7602061643	np_bhanvad@yahoo.co.in
3	Kalyanpur	Prant Officer	Shri Amol Avate	02892-235733/53	7567001052	dwarkaprant@gmail.com
		Mamlatdar	Shri R.H. Suva	02891-286227	7567099970	mam-kalyanpur@gujarat.gov.in
		TDO	Shri Gaurav A. Parmar	02891-286223	7567018989	tdo-kalyanpur@gujarat.gov.in
		Chief Officer Raval	Shri Bhavesh Batva	02891-228249	7602061643	np_jamraval@yahoo.co.in
4	Okha Mandal/Dwarka	Prant Officer	Shri Amol Avate	02833-234577	7567001052	po-dwarka-jam@gujarat.gov.in dwarkaprant@gmail.com
		Mamlatdar	Shri A.D.Bheda	02892-234541	7990643815	mam-okhamandal@gujarat.gov.in
		TDO	Shri R.V. Odedra	02892-234052	7567019789	tdo-okhamandal@gujarat.gov.in
		Chief Officer Dwarka	Shri Ashvin Gadhvi	02892-234919	9979887921	np_dwarka@yahoo.co.in
		Chief Officer	Shri Ashvin Gadhvi.	02892-	9979887921	np_okha@yahoo.co.in

		Okha	(IC)	262035		

MUTUAL AID Industries JMR & DBD District

Mutual Aid Team Jamnagar & Devbhumi Dwarka				
Company name	**Name of Employee**	**Designation**	**Mobile number**	**E mail ID**
BORL	Sunil Prasad	VP-BORL	9617410569	sunil.prasad@borl.co.in
	Vivek Jaiswal	Manager (F&S)	7069073724	vivek.jaiswal@borl.co.in
RIL	Umesh Khandalkar	VP-Fire & Safety	9998215963	umesh.khandalkar@ril.com
	Subhash Chander	DGM-Fire	9998217931	Subhash.k.chander@ril.com
	Abhidhan kushvaha	GM-Fire	770900768	abhidhan.kushvaha@ril.com
NAYARA Energy	Prabhanjan R Dixt	VP-HSCF	9909908685	Prabhanjan.Dixit@nayaraenergy.com
	Likhit Devikar	GM-Fire	7486039525	likhit.devikar@nayaraenergy.com
	Himanshu S Mishra	JGM-HSCF	9099067847	himanshu.mishra2@nayaraenergy.com
IOCL - Vadinar	Sanjiv jaiswal	GM	9873034211	Khanuja_r@indianoil.in
	Shri Satendra Sinha	DGM(O)	9570906011	SKSINHA@indianoil.in
	Shri Arvind nagariya	HS&E	8768317775	Sharmash@indianoil.in
IOCL - Theba	SK Sinha	Chief Manger	9610727666	SKSINHA@indianoil.in
	Surya kumar Yadav	HSE	9570906011	skyadav@indianoil.in
GSFC	Pragnesh R Patel	Chief (Safety & Fire)	8238021992	pragneshrpatel@gsfcltd.com
	Gunjan Khatra	Fire Dept	987965728	rgsanaria@gsfcltd.com
SDCC	Thiyaku N	Plant Head	7574866236	thiyaku.narayansamy@digvijaycement.com
	Gaurang Patel	safty	9978920662	gaurang.patel@digvijaycement.com
TCL	Satyjit Roy	AVP Safety& Health	922767023	ssroy@tatachemicals.com
	Paresh Patel	S Manager - Safety	9227194092	ppatel@tatachemicals.com
Essar Power	Debasis Pal	HEAD HSE	9312758317	debasish.pal@essarpower.co.in

	Naval Makvana	Fire officer	9926905305	navalmakvana@essar.co.in
GSECL TPS - SIKKA	Mr.Mundhva	Chief Engineer (Gen) & Factory Manager	9925212948	cegstps.gsecl@gebmail.com
	A J Dharaiya	Safety officer	9909939936	dysosikka.gsecl@gebmail.com
RSPL	Jayprakashsinh	Fire Dipartment	9835557951	jayprakash.singh@rsplgroup.com
	Dipak Chavda	AM Safety	7573000892	dipak.chavda@rsplgroup.com
GAIL	Raghubir Singh	GM	9327364845	raghubirs@gail.co.in
	Ankur Vishnoi	Manager	6351975179	Ankur.vishnoi@gail.co.in
Cairn India	Goswami	Dy. GM / In charge Terminal Operations	9662539535	Basavraj.Girimath@cairnindia.com
	Mahesh Kumar Ubhadiya	Manager EHS	8980801919	Maheshkumar.ubhadiya@cairnindia.com
Gujarat Gas Ltd.	Rahul Dutt	Geographical area head	7573018727	rahul.dutt@gujaratgas.com
	Vinay Chotai	Sr. Officer (HSE)	9099950958	vinay.chotai@gujaratgas.com

Annexure: 7 S

S.No.	DISTRICT NAME	IMEI No.	Phone Number
1.	AHMEDABAD CITY(MC)	353032044157861	8991115047
2.	AHMEDABAD	353032044156657	8991115048
3.	AMRELI	353032044158232	8991115046
4.	ANAND	353032044161202	8991115043
5.	BANASKATHA	353032044160212	8991115042
6.	BHARUCH	353032044160295	8991115041
7.	BHAVNAGAR	353032044160618	8991115044
8.	DAHOD	353032044160709	8991115045
9.	DANG	353032044160774	8991115036
10.	**DEVBHOOMI DWARKA**	**353032044160451**	**8991115037**
11.	GANDHINAGAR	353032044161319	8991115038
12.	JAMNAGAR	353032044158612	8991115040
13.	JUNAGADH	353032044161442	89911 15039
14.	KHEDA	353032044160196	8991115034
15.	KACHCHH	353032044159958	8991115035
16.	MEHSANA	353032044158828	8991115033
17.	NARMADA	353032044161350	8991115032
18.	NAVSARI	353032044158802	8991115031
19.	PANCHMAHAL	353032044157234	8991115030
20.	PORBANDAR	353032044157465	8991115029
21.	RAJKOT	353032044157556	8991115026
22.	SABARKANTHA	353032044157457	8991115027
23.	SURENDRANAGAR	353032044157564	8991115026
24.	SURAT	353032044145353	8991115024
25.	SURAT CITY	353032044146609	8991115025
26.	TAPI	353032044146823	8991115023
27.	VADODARA CITY	353032044144729	8991115022
28.	VALSAD	353032044146617	8991115021
29.	**SEOC**	**353032044044648**	**8991115020**
30.	**CEO-GSDMA**	**353032044043954**	**8991115019**
31.	JAMNAGAR MC	353032044044655	8991115018
32.	JUNAGARH MC	353032044043889	89911 15017
33.	RAJKOT MC	353032044043608	8991115016
34.	BOTAD	353032041746302	8991115049
35.	ARVALLI	353032040819159	8991115050
36.	PATAN	353032041844156	8991115051
37.	VADODARA	353032041433604	8991115052
38.	GIR SOMNATH	353032041424710	8991115053
39.	CHOTTAUDEPUR	353032041844461	8991115054
40.	MORBI	353032040543395	8991115055

SATELLITE TELEPHONE NUMB Annexure: 7

Annexure: 8
Fire Facility at MAH unit

- **Fire Fighting Facilities At Major Accident Hazard Units:**

Sr. No.	Name	Phone1	Phone2	Fire Tenders	Water (m3)	Fire E Suits	Fire P Suits	Water Hoses
1	TCL - Mithapur	02892-665555	02892-223439	2	*404 m3 u/g storage connected with open sea water pond (370000 m3)*	04	04	200
2	Essar Oils Ltd. Vadinar	02833-661890	02833-661444	9	589000	2	14	1004
3	Bharat Oman Refinery Ltd-Singhach	02833-296675	02833-256452	2	21000m^3	--	03	100
4	Indian Oil Corporation Ltd.-Vadinar	02833-296675	02833-256452	3	42000m^3	--	10	300

- **Resources Available at Fire Stations:**

Sr. No.	Name	Phone	Manpower	Nos. of Fire Tenders	Ambulance	Fire Suits	SCBA
1	TCL - Mithapur	02892665555	45	2	2	8	55
2	Essar Oils Ltd. Vadinar	02833-661890	85 fireman (outsourced) 12 fire officer	9	7	14	86
3	Bharat Oman Refinery Ltd-Singhach	02833-256456	40	2	1	3	16
4	Indian Oil Corporation Ltd.-Vadinar	02833-296675	35	3	NIL	10	07

- **Medical facilities at MAH units**

Sr No	Name	Phone1	Amb. Van	OHC 5bed	First aid boxes	Stret-chers	Availability of		Details of other facilities/equipment
							Doctor	Nurses	
1	Tata Chem. Ltd. Mithapur	02892-665409/ 9271941 00	2	Y	136	2	Y(1)	Y(1)	Oxy. Cyl Set - 1, SBS Sets - 3, Stethoscope - 1, Baloon type respirator - 1, Peak flow meter - 1, Self-care kit -

									1, Blood pres. measuring equipment – 1 Comp.Blood Test Lab.
2	Essar Oils Ltd.	02833 241444 F.241414 9979891 389	2	Y	140	3	Y	Y	Oxy. Cyl Set - 1 Stethoscope - 1, Baloon type respirator - 1, Self care kit - 1, Blood pres. measuring equipment – 1
3	Bharat Oman Refinery Ltd-Singhach	02833-256456	1	N	7	2	N	N	--
4	Indian Oil Corporation Ltd.-Vadinar	02833-296675	0	N	5	4	1	--	Retainer doctor available at OHC center – three day in a week.

Personal Protective Equipment Available at Major Accident Hazard Units:

Sr No	Name	Phone1	SCBA	Canister Masks	Full Body PVC Suit	Air line BA	Chem. Splash suit	Emergency Kit	Watar Gel
1	TCL Mithapur	02892665 555 233439	55	41	18	5	9	3	-
2	Essar Oils Ltd. Vadinar	02833-661890 F241414	86	20	12	22	12	12 cl2	20
3	Bharat Oman Refinery Ltd-Singach	02833-256456	16	--	--	--	--	1	2
4	Indian Oil Corporation Ltd.-Vadinar	02833-296675	7	N	2	N	2	1	8

Annexure: 9
Other Facility at MAH unit

Special Resources available at MAH Unit

Name of Facilities	Name Of Organisations									
	BPCL		VEDANTA		NAYARA		IOCL(V)		TCL	
	Avl	Spr	Avl	Spr	Avl	Spr	Avl	Spr	Avl	Spr
Water tankers	-	-	-	-	1	1	-	-	-	-
Fire water bowser	-	-	-	-	-	-	-	-	1	-
Rescue tenders	-	-	-	-	-	-	-	-	-	-
Foam tenders	3	1	2	-	6	1	2	-	1	-
Earth moving equipments	-	-	-	-	-	-	-	-	-	-
Dozer	-	-	-	-	-	-	-	-	-	-
Payloder	-	-	-	-	-	-	-	-	-	-
Mobile crane with capacity 1-05 MT	-	-	-	-	-	-	-	-	-	-
Jeep	-	-		-	4	1	-	-	-	-
Bus	-	-	-	-	-	-	-	-	1	-
Car	-	-		-	-	-	-	-	-	-
Truck	-	-	-	-	-	-	-	-	-	-
Ambulance	1	-	1	-	3	1	-	-	2	-
Portable generator with Capacity 1 KVA	-	-	-	-	-	-	-	-	-	-
Trailer pump	1	-	-	-	2	1	-	-	1	-
Portable pump	1	-	-	-	4	2	-	-	1	-
SCBA sets	16	6	4	-	72	6	3	-	30	-
Life saving jackets	-	-	-	-	4	4	3	-	10	-
Public Address System	-	-	-	-	4	2	1	-	-	-
Other Equipments Safety Harness	10	2	10	-	4	2	3	-	6	-
	APR = As Per Requirement, AVL = Available, SPR= Spare									

Annexure: 10
Chemical and their Antidotes

- Details Of Chemicals Properties, Fire Fighting Agents, Antidotes, First Aid & Medical Treatment:

Sr No	Name Of Chemical	Hazard Chara-cteristics	Fire Fighting Agent	Antidote / First Aid / Medical Treatment
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 containers. Exposed fire fighter must wear positive pressure self-contained breathing-apparatus and full protective clothing.	Remove the victim to fresh air. If there is a difficulty in breathing, give Oxygen. Inhalation of steam or vinegar vapour is recommended. If substance has gone in eyes, wash with plenty of water for 15 minutes To relieve restlessness, ingestion morphine 15mg to relieve Dypspnoea, 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	Flamm-able, 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	Flamm-able	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	Flamm-able, Corrosive	Carbon dioxide, dry chemical powder, water spray and alcohol resistant, foam all-purpose foam.	Remove the victim to fresh air. If there 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	Flamm-able	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	Flamm-able	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% Tritanol 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	Flamm-able, Explosive	Dry chemical powder, halon. Let fire burn under control. Stop flow of gas.	It is simple asphyxiant 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 Sulphon e	Flamm-able, 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 nikethamide. 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 firefighting.	Remove the victim to fresh air. If there is a difficulty in breathing, give oxygen. If hearts bisabolene, 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 hormon or 30 mg/kg of methyl prednisolone IV.
17.	LPG	Flamm-able, 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	Flamm-able, 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	Flamma-ble, 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	Flamma-ble, 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 Format	Flamma-ble, 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 urgently.
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 sureillance for 48 hours. Consider administration of multiple metered doses of topical stercoid by inhalation and or upto 30 mg / kg of methyl prednisolone. Incase of eye, contact immediately, refer to opthalmologist.
23	Mono Ethylene Glycol	Flamm-able, 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	Flamm-able	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	Flamm-able	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 cardia 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	Asphy-xiant	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 atleast 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	Pottasium 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 opthomological opinion. Treat skin burns conventionally.
32	Potta-ssium Methoxide	Flamm-able, 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. Backing soda in glass of water should be given.
33	Propionic Acide	Flamm-able, Toxic, Corrosive	Foam, dry chemical powder, carbon dioxide. Apply waster 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. Incase of eye contact flush with plenty of water for about 15 minutes. Remove wet clothese and wash affected area with water & soap.
34	Rhodium Triodide	-	Non flammable	Remove the victim to fresh air. Material cause irritation of nose, throat and respiratory tract. Repeated exposure to skin can cause allergic sensitilization. Incase 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. Incase of eye contact flush with plenty of water for about 15 minutes. Remove wet clothese and wash affected area with water & soap.
36	Sulphur Dioxide	Corrosive, 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 cardia compression. Atropicrhnitis and phayngitis 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. Incase of 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. Incase eye contact flush with plenty of water for 15 minutes. Remove wet clothes and wash affected area with plenty of water.
38	Trichloro Ethylene	Flamm-able, 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 Dichloro Benzene	Flame-able, 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 atleast 15 minutes. Do not induce

				vomiting.
41	Acrylo-nitrile	Flamm-able, 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 amylnitrile ampule 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 cardia 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	Flamm-able, 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 is methlyene blue. Incase of eye contact flush with plenty of water for 15 minutes. Remove wet clothes
				and wash affected area with plenty of water.
44	*Benzene*	Flamm-able, 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. Cronic exposure may lead to leukemia. Incase 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	Flamm-able, 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

				methamoglobinemia. Antidote is methylene blue. Incase 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. Phosgenen is very toxic incase of inhalation. It has very low TLV – 0.1 ppm. Keep the person under observation for 72 hours for possibility of delayed effect. Incase 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	Flamm-able, 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. Incase 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 Toluenen	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. Incase 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	Flamm-able, 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. Toluenen Di Isocynate is very toxic if inhaled.. In cause pulmonary edema. TLV of TDI vapour is ver low i.e. 0.0005 ppm. If splashed on skin, in causes sensitization of skin tissue. 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.
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 poision 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 m e d i c a l . treatment urgently.

53	Carbon Di Sulphide	Flamm-able, 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	Etyhlene Oxide	Flamm-able, Carci-nogen	Use DCP	Remove victim to fresh air. If there is a difficulty breathing, give oxygen. Do not induce vomiting. Obtain m e d i c a l treatment urgently.
55	Acephate Anilo-phose Ethion PhorateQuin al-phos	Non flamm-able	Use DCP, foam if exposed to fire.	Atropine sulphate in dose 2 – 4 mg for adult, 2 pam 1000 – 2000 mg / im.
56	AlachorCarb enda-zim Thiophanate – M	Non flamm-able	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 Thiram	Non flamm-able	Use DCP, foam is exposed to fire	Low toxicity, no specific treatment.
58	Allethrin Cyperm-ethrinFevalrate	*Toxic*	Use DCP, foam is exposed to fire	The treatment is symptomic.
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-conazoleProp i-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	-

66	Phosphoric Acid	Corrosive	-	Skin Contact: - Wash with clean water. Apply dry sterile dressing. Eye Contact: Through wash with clean water, apply denominate (novelize) drop (0.4%). Inhalation: Administer O2, Give him fresh drink water. Ingestion: Milk of magnesia, fresh egg, administer him oxygen.

Annexure: 11
HAM Radio Exam Passed

- **List Of government official who had passed HAM radio exam:**

Sr No	Regi.No	Class	Name	Office	Resi. Address	DoB	Other qualification	Remarks
1	61	3	Sunil K. Thakar Steno English and PA to colletor jamnagar	Collector office jamnagar	4/5 Patel Colony, Road No.2, Jamnagar Ph.02882753835	15/03/61	B.Com	

- **List of Civilian who had passed HAM radio exam:**

Sr. No.	Regi .No	Name	Resi. Address	DoB	Other qualification
1	4	Chandresh M. Mamtora	Abil-Gulal, Solarium Road, Jamngar Ph.02882540085	08/08/71	D.Pharm B.Pharm
2	32	Dr. Urvish K. Joshi	Medical Campus, G.G. Hospital, Jamnagar	22/08/81	M.B.B.S. M.D.
3	57	Chandani P. Patel	"Ushadip" Panchavati Gaushala, Opp. Happy Home Pro. Store, Jamnagar	16/01/86	B.Sc.
4	Licen No. 32395	N.P.Mehta	"MATRUCHHAYA" ,Rajgor street- Jamnagar	6/11/75	S.Y.B.com

Annexure: 12
NGO

Sr. No	NGO Name	Address	Contact person	Contact Number
1	Lions Club,Jamkhambhaliya	Barchhapado,gaytrinagar, khambhaliya	Sudhirpopatbhai vijaybhaiktariya	02833234070, 9426233660 9913699999 9825488890
2	Ladies chamber of Commerce	Ramnath society near vidhya Shankar temple, Khambhalia	Nishaben Nakum	9712047956
3	Shri Mahila Mandal, Khambhalia	Navapara, Khambhalia	Nishaben	02833-234323,-2833-234322, 9825150636
4	Medical Store Association	Aashish medical store nagar gate, Khambhalia	Hitesh D Gokani	9824327100
5	Loiness Club, Khambhalia	Shiv Dental near paleshawar temple, Khambhalia	Rekhaben Nakum	9904337420
6	Satavara Samaj navivadi	Harshadpur, Khambhalia	Nakum haribhaivaljibhai	9904294584
7	Yungester Group	Near bus station, Khambhalia	Rameshbhai mandani	9727859600
8	Doctor's Association	Saket Hospital, Railway station road, Khambhalia	Dr. Sumat Cheteriya Dr. Shalini	9825407535
9	Jalaram Mandir satsangmandal trust	Jodhpur Naka bada gayatri nagar road, Khambhalia	Pareshbhai	8530449090
10	Raghuvanshi Mahilamandal	Mandvi Timbo, Khambhalia	JominibenMotani	9427775903
11	Mahajan Panjrapol, Bhanvad	Bhanvad	Nishitbhai Sanghvi	02896-232072, 9428126600
12	Raghuvanshi Social Group,Bhanvad	Bhanvad	Jayeshbhairaichura	9427240278
13	Jain Social Group	Bhanvad	Bharatbhai Shah	9427771953
14	Govardhan goshala Mandali	Bhanvad	Subhshbhai kanzariya	9924949691
15	Giriraj Seva trust	Raval, Kalyanpur	GokaniVinubhai	9427259108
16	Swaminarayan transport	Deliya, Kalyanpur	BhikhubhaiVadher	9825714516
17	FPS Association Kalyaanpur	Ramshibhai	DevsibhaiHardasbhaiKarangiya	9879358805
18	Peacock	Kenedi, Kalyanpur	NarayanbhaiMe	9426289192

	Conservation Centre		ramanbhaiKarangiya	
19	GodaldasJamanadasCheritable Trust	Bhatiya, Kalyanpur	Dwarkadas Raipura	02891-233155
20	Shri Mangalam Aashram and Cheritable Trust	Satapar, Kalyanpur	Gojiya Deva Sidabhai	9558187435
21	APMC Bhatiya	Bhatiya, Kalyanpur		9274394444
22	Tata Chemicla for Rural development ,Mithapur	Mithapur, Dwarka	H.N Kamani	02892-665367 9227891655
23	Gram Vikas trust	Near S.P. college Dwarka	Prof. D.S Ker	02892-236551/236552 9824069942
24	Swami Narayan Temple, Dwarka	Dwarka	Shri Prem Jivan Swami	9979132332 9624863472
25	Shri Sharda math	Near bhojan house dwarka temple	Shri Chandrakant	02892-234230
26	Sarvodaya Mahila Mandal, Okha	Navi Bazar, Okha	Pushpa ben somaiya	9624463196
27	DudheshwarYuvak Mandal	Dwarka	Shri Kailash P Hindocha	9904421768
28	Prajapati Bhramkumari Ishwariya Vishwavidhyalaya	Near State Highway, Triolk darshan art galary Dwarka/Jamnagar	Smt Bhramkumari Shushmaben	9427445956

Annexure: 13
Resources

Resources available at Government offices

1. Collector Office-Devbhumi Dwarka

Sr.no.	Details of Equipment	Quantity	Contact Person Name	Contact Numbers
1.	Inflatable light	03	1.)D.P.O DISASTER Management	9558009554
			2.DY.MAM (Disaster Management)	9904084101

2. Mamlatdar Office-Khambhaliya

Sr.no.	Details of Equipment	Quantity	Contact Person Name	Contact Numbers
1.	Life Buoy	10	Mamlatdar-Khambhaliya	02833-232804 7567014800
2	Life Jacket	14		
3	Ropes 200 Ft.	01		
4	Generator	01		

3. Mamlatdar Office-Kalyanpur

Sr.no.	Details of Equipment	Quantity	Contact Person Name	Contact Numbers
1.	Life Buoy	41	Mamlatdar-Kalyanpur	02891 286120, +91 7567002729
2	Life Jacket	21		
3	Ropes 200 Ft.	02		
4	Ropes 100 Ft.	02		
5	Ropes 50 Ft.	02		
6	Generator	01		

4. Mamlatdar Office-Dwarka

Sr.no.	Details of Equipment	Quantity	Contact Person Name	Contact Numbers
1.	Life Buoy	07	Mamlatdar-Dwarka	02892 234541, +917567012400
2	Life Jacket	11		
3	Generator	01		

5. Mamlatdar Office-Bhanvad

Sr.no.	Details of Equipment	Quantity	Contact Person Name	Contact Numbers
1.	Life Buoy	13	Mamlatdar-Bhanvad	02896 232116, +91 7567002729
2	Life Jacket	14		
3	Ropes 100 mt.	01		
4	Ropes 200 mt.	04		
5	Generator	01		

6. Police Department Devbhumi Dwarka

Sr.no.	Details of Equipment	Police Station	Quantity	Contact Person Name & Numbers
1.	Inflateble Light tower	Khambhaliya	2	02833-234735
		Dwarka	5	02892-234524
		Okha Marine	1	02892-262396
		Vadinar Marine	1	02833-256541
		Kalyanpur	2	02891-286222
2	Life Jacket	Dwarka	1	02892-234523
		Vadinar Marine	10	02833-256541
3	Life Bouy	Vadinar Marin	5	02833-256541
		Dwarka	5	02892-234523
4	Rope Ladder	Vadinar Marine	1	02833-256541
5	Rope	Vadinar Marine	1	02833-256541
6	Generator	Vadinar Marine	1	02833-256541

List of fishing Centre

Sr.no.	Name of fishing Centre	No of Registered Fishing Boats
1	Okha	1493
2	Bet	246
3	Roped	404
4	Harshad	89
5	Navdra	84
6	Bhogat	26
7	Salaya	604
8	Vadinar	23
9	Nana Ambla	33
10	Bharada	23
	Total	3025

Annexure: 14
Resources of Health department

- **Taluka wise CHC, PHC, SHC of Devbhumi Dwarka:**

Sr. No.	Taluka	Name of CHCs	PHCs	SHC	DH	SDH
1	Bhanvad	Bhanvad	5	35	0	0
2	Khambhalia	Salaya,	6	54	1	0
3	Kalyanpur	Kalyanpur, Raval	9	56	0	1
4	Dwarka (Okhamandal)	-	3	24	0	1
Total		4	23	169	1	1

Equipment Detail, Year: 2026

No	Name of Equipment	DH	SDH	CHC	PHC	ESSAR
1	Ventilator	57	2	01		0
2	O2 Cylinder	250	39	11	125	10
3	Enchotrachal tube	250	998	0	04	4
4	Laryngoscope	10	04	03	11	1
5	Defibrication	10	03	02	0	1
6	Refrigerator	20	12	07	33	1
7	Lagrange Mask Airway	3	08	10	31	2
8	Ambu Bag	12	08	10	31	4
9	PPE (Personnel Prevention Examination) Kit.	780	666	298	288	10
10	Pulse Oximeter	30	12	16	97	10
11	ECG Machine	08	05	04	16	2
12	Endotracheal tube	250	998	0	04	2
13	Statures	05	08	03	26	2
14	Wheel Chair	16	12	6	41	1
15	Pulse Monitor	30	08	02	05	0
16	Cervical Collar	0	0	0	03	1
17	Long Spring Board	0	0	0	0	1
18	N – 95 Masks	16000	3500	2035	1890	100
19	Autoanalyser	03	03	03	07	1
20	X – ray Machine	03	04	03	01	0
21	Generator	03	03	04	02	0
22	Invitro	0	01	03	18	0

Locations of EMRI 108 in Devbhumi Dwarka District

EMRI – 108 details			
Sr.No	**Taluka**	**Location**	**No. Of Ambulance**
1	Kalyanpur	Kalyanpur	1
		Kalyanpur SDH IFT	1
		Harshad	1
		Ran-	1
		Bhatia	1
		Ran-PHC	1
		JamRawal	1
2	Dwarka	Dwarka (M)	1
		Dwaka SDH IFT	1
		Mithapur Harbour	1
		Okha Harbour	1
		Nageswara	1
		Vasai	1
		Okha (Boat Ambulance)	1
3	Bhanvad	Bhanvad (M)	1
		Modpar PHC	1
		Verad PHC	1
		Bhanvad CHC IFT	1
4	Khambhaliya	Khambhaliya (M)	1
		Khambhaliya Civil IFT3	1
		Ramnagar	1
		Khambhaliya Civil IFT2	1
		Jakhar Patiya Vadinar	1
		Khambhaliya ICU	1
		Vadinar	1
		Khambhaliya Civil IFT	1
		Salaya CHC	1
		Bajana PHC	1
		Bhinda PHC	1
		Vdatra PHC	1

Human Resource			
Human Resource	**DEVBHUMI DWARKA**		
	Sanction	**Filled**	Filled Per (%)
MO - MBBS	24	23	96%
MO - AYUSH	20	18	90%
MPS	30	18	80%
FHS	33	25	76%
FHW	194	193	99%
MPW	168	165	98%
Lab. Tech	30	26	87%
Pharmacist	29	25	86%
ASHA	614	576	94%

Annexure: 15
Health Department Team Formation

District Repid Response team

Sr. No	Designation	Name	Address	Phone	
				Office	Mobile
1	CDHO	Dr.C.B. Chobisa	D.P. Devbhumi Dwarka	02833-232914	9375101163
2	District Surveillance Officer (EMO)	Dr.L.N Kanara	District Hospital Khambhaliya	-	7984214369
3	Entomologist/DMO	Dr.M.D. Jethava	D.P. Devbhumi Dwarka	02833-232914	7567879695
4	Medicine Department	Dr.Yash Vachani	D.P. Devbhumi Dwarka	-	7567879695
5	Public Health Specialist (PSM) Department	Vacant			
6	Pediatric Department	Dr.Harshit Gohil	District Hospital Khambhaliya	-	8758600800

Taluka Rapid Response Team

Block: Khambhalia

No	Name of Officer / Employee	Designation	Head Quatar	Phone No	
				Office	Mob / Resi
1	Dr. Darshan Desai	Medical Officer	Khambhalia	-	9737584428
2	Pravin Pindariya	Pharmacist	Khambhalia	-	9662720493
3	Indrajitsinh Jadeja	Staff Brother	Khambhalia	-	9924981112
4	Jigneh Dhandhaliya	S.I	Khambhalia	-	7359550920
5	Pravin Chopda	Driver	Khambhalia	-	9601391652
Vehicle No. GJ 37 G 0763					

Block: Bhanvad

No	Name of Officer / Employee	Designation	Head Quatar	Phone No	
				Office	Mob / Resi
1	Dr. Bharat Baghora	MO	Gunda	02896-275217	9408066636
2	Arvind Solanki	Pharmacist	Verad	02896-232040	9428865770
3	Priyesh Methaniya	Staff Brother	Verad	02896-232040	8401377031

4	Ramshi Bharvadiya	MPW	U Bhanvad	02896-234557	9825519331
5	Ajaybhai	Driver	Modpar		9998709326

Vehicle No.:GJ 37 G 0681

146

Block: Kalyanpur

No	Name of Officer / Employee	Designation	Head Quatar	Phone No	
				Office	Mob / Resi
1	Dr. Himashu Joshi	MO	Rajpara	-	9512556510
2	Dr. Jayesh Karmur	MO	Kalyanpur	02891-285270	7990512513
3	Dr.Piyush Shingala	MO	Kalyanpur	02891-286005	9275751096
4	N H khandhar	TMPS	Kalyanpur	02891-275430	9227718020
5	L.R. Vaghela	THV	Kalyanpur	02891-286005	7567879305
6	Dhaval Dabhi	Pharmacist	Kalyanpur	-	7046102149
7	Samirbhai	Driver	Kalyanpur		9714715044
VehicleNo. GJ 37 V 0471					

Block: Dwarka

No	Name of Officer / Employee	Designation	Head Quater	Phone No	
				Office	Mob / Resi
1	Dr. A.A. Jaiswal	THO Dwarka	Dwarka	02892-234048	6357958438
2	Kasyap Chandarana	MPHW	Dwarka-1	-	9909045508
3	Hiralben Nakum	FHW	Dwarka-3	02892-226352	6358199416
4	Virendra Nakum	MPHW	Varvala-4	02892-234075	6357093154
5	Amit Rathod	Driver	Varvala	-	9978127835
Vehicle No. GJ 18 GB 0920					

Annexure: 17
Shelter management

As per instruction of a District collector or message for SEOC, DDO will do operation of relief and shelter with their staff, group members & their staff and maintain the records of areawise population, shelter centers in your area for effective emergency evacuation. Based on the warning issued by IMD, pin point the districts and villages likely to beaffected by Disasters and start the procedure for identifying safe places/shelters for evacuation in those villages. Generally, Schools and public buildings are given first priority for shelter because they are always available with facilities and at the time of disaster people can take shelter in these public buildings.

Shelter Management Team takes care of the identified shelter buildings in pre, during and post disaster scenario. Care needs to be taken to stock necessary material such as food, drinking water, medicines, bleaching powder, firewood, lantern, etc. Special care needs to be taken for the animal stock during any disaster. The team needs to ensure hygiene in and around the shelter place. Women are generally active members of the shelter team as they are well acquainted with house management, and are able to manage shelters during emergency. The team leader or any other team member should have the keys of the safe shelters so that prior to the disaster they will clean up the place and make available the necessary materials like food, water, medicines, bleaching powder, firewood, lantern, etc. required for the evacuees during disaster period. The most important action by the police is to cordon off the site of the accident, divert and regulate traffic, and evacuate/shelter in place citizens in close proximity on a priority basis.

Village wise data of safe sheltering for evacuation available on SDRN should be referred and the dist. Lision officers/Taluka level officers/Village level officers should be contacted to know the status of the shelters with the capacity of the shelter and other available facilities at the site. Arrange to shift evacuated persons to temporary shelters and ensure provision of food, water facilities, blankets and storage of relief materials.

Arrange for complaints regarding missing persons and initiate search in shelters, hospitals and police records. The villagers identify safe areas such as strong houses /buildings, raised platforms etc. These act as a shelter place for the people in the event of an evacuation. It would beuseful to identify the alternate approach routes which could be used during the time of an emergency.

Field visit to the affected areas and shelter/ relief camp sites and report preparation and forward to Collector for approval, sanction and onward action. Check the condition of safe shelter during his visits in the district places and if necessary gets it repaired by co-coordinating with the local authorities, available financial resources and voluntary organizations. Setting up relief camps and tents using innovative methods that can save time. Instruct local authorities to set up important telecom and other service related facilities. Initiate, direct and market procurement of food available from different inventories and ensuring food supplies to the affected population. Prepare take-home food packets for the families. Ensure distribution of relief material to the all the people including vulnerable groups of the target area such as women with infants, pregnant women, children, aged people and handicapped. Ensuring supports from all corners to Local Administration.

Identified Temporary Shelter in Devbhumi Dwarka district

S No	Taluka	Number of Shelter
1	Khambhalia	127
2	Bhanvad	113
3	Kalyanpur	168
4	Dwarka	56
Total		**464**

Annexure: 18
Do's and Don'ts

Dos and don'ts of various disasters

Cyclone Safety:

Acyclone 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 bend and pluck 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 & 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, then stay indoors! Get under a heavy desk or table and hold 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:

Do's

- 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, in case 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 equipment’s 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 equipment’s.
- 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 needs 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

Annexure: 19
General terminology used in weather or disaster bulletins

Specification for description of rainfall:

INTENSITY OF RAINFALL		हिन्दी / ગુજરાતી
VERY LIGHT	0.1 TO 2.4 MM	बहुत हल्की वर्षा / બહુજ ઓછુ વરસાદ
LIGHT	2.5 - 15.5 MM	हल्की वर्षा / ઓછો વરસાદ
MODERATE	15.6 - 64.4 MM	मध्यम वर्षा / મધ્યમ વરસાદ
HEAVY	64.5 - 115.5 MM	भारी वर्षा / ભારે વરસાદ
VERY HEAVY	115.6 - 204.4 MM	बहुत भारी वर्षा / ખૂબ ભારે વરસાદ
EXTREMELY HEAVY	≥ 204.5 MM	अत्यधिक भारी वर्षा / અત્યંત ભારે વરસાદ
EXCEPTIONALLY HEAVY	WHEN THE AMOUNT IS A VALUE NEAR ABOUT THE HIGHEST RECORDED RAINFALL AT OR NEAR THE STATION FOR THE MONTH OR SEASON. HOWEVER, THIS TERM WILL BE USED ONLY WHEN THE ACTUAL RAINFALL AMOUNT EXCEEDS 12 CM	असाधारण भारी वर्षा / असામાન્ય ભારે વરસાદ

PROBABILITY OF OCCURENCE (%)	हिन्दी	ગુજરાતી
UNLIKELY	संभावना नहीं	શક્યતા નથી.
LIKELY	संभावित	શક્યતા છે.
VERY LIKELY	अधिक संभावना	વધારે શક્યતા છે.
MOST LIKELY	अत्याधिक संभावना	અત્યાધિક શક્યતા છે.

WARNING COLOUR CODES	हिन्दी	ગુજરાતી
WARNING (TAKE ACTION)	चेतावनी	ચેતાવણી
ALERT (BE PREPARED)	सतर्क रहें	સતર્ક રહો
WATCH (BE UPDATED)	निगरानी रखें	ધ્યાન આપો
NO WARNING (NO ACTION)	कोई चेतावनी नहीं	કોઇ ચેતાવણી નથી

Terminology for rainfall distribution:

OLD TERMINOLOGY	NEW TERMINOLOGY WITH EFFETE FROM APRIL-1998	SPATIAL DISTRIBUTION
ALMOST ALL PLACES	ALMOST ALL PLACES	ABOVE 75%
AT MANY PLACES	AT MANY PLACES	51% TO 75%
AT A FEW PLACES	AT A FEW PLACES	26% to 50%
AT ONE OR TWO PLACES	ISOLATED	01% TO 25%

Important weather forcast website:

1. www.imd.gov.in
2. www.imdahm.gov.in
3. www.accuweather.com
4. www.skymetweather.com
5. www.weather.gov
6. www.noaa.gov
7. worldweather.wmo.int
8. www.usno.navy.mil
9. www.windy.com
10. www.earth.nullschool.net
11. www.rsmcnewdelhi.imd.gov.in

Criteria for classification of Cyclonic disturbances over the North Indian Ocean

Sr.	Type of disturbance	Associated maximum sustained wind (MSW)
1	Low Pressure Area	Not exceeding 17 knots **(<31 kmph)**
2	Depression	17 to 27 knots **(31-49 kmph)**
3	Deep Deepression	28 to 33 knots **(50-61 kmph)**
4	Cyclonic Storm	34 to 47 knots **(62-88 kmph)**
5	Severe Cyclonic Storm	48 to 63 knots (**89-117 kmph)**
6	Very Severe Cyclonic Storm	64 to 119 knots **(118-221 kmph)**
7	Super Cyclonic Storm	120 knots and above **(≥222 kmph)**

Note: 1 Knot is equal to 1.852 km.

Annexure: 20
Aapda Mitra list

S No.	Name of Volunteer	Sex	Taluka	Village	Contact Number
Volunteers trained in Apadamitra Phase 2 training Batch-2019					
1	Nilesh Kumar Pindariya	Male	Khambhaliya	Navi Fort	7016904607
2	HinabenValjibhai Nakum	Female	Khambhaliya	Khambhaliya	6352252244
3	Dhrangu Ajay Merubhai	Male	Bhanvad	Sanakhala	9662516538
4	Mahesh Baidiyavadara	Male	Bhanvad	Mota Kalavad	7284876421
5	KarangiyaAshwinbhaiRanmalbhai	Male	Bhanvad	Bhanvad	9724865165
6	ChetriyaBhaveshbhaiBhikabhai	Male	Bhanvad	Bhanvad	8200235766
7	Karmur Bhavesh Khimabhai	Male	Bhanvad	Bhanvad	9773474525
8	Karmur Bhavin Dosabhai	Male	Bhanvad	Bhanvad	9328245511
9	Himat M Ghoyal	Male	Bhanvad	Kalyanpur	9081689566
10	SavabhaBudhabha Manek	Male	Dwarka	Varchu	9998212205
11	TharcabhaBudhabhaSumaniya	Male	Dwarka	Khatumba	9925237620
12	RajubhaDhanabhaSumaniya	Male	Dwarka	Khatumba	9512558300
13	Shekh Sadam Hasambhai	Male	Dwarka	Dhinki	6353797695
14	Hasan Jusab Shekh	Male	Dwarka	Dhinki	9978137784
15	Kishan Manek Samyabha	Male	Dwarka	Dhanki	7990884971
16	Ravi SomabhaiSingarkhiya	Male	Kalyanpur	Raval	9909306975
17	Jitesh Mohan Makwana	Male	Kalyanpur	Raval	6352965703
18	JagdhishAalabhaiChawada	Male	Kalyanpur	Bhatiya	7874684142
19	RamabhaiNagabhai Vaghela	Male	Kalyanpur	Raval	8530855919
20	Bhavesh Ramsibhaisolanki	Male	Kalyanpur	Raval	9712270816
21	Amit ChhaganbhaiSingarkhiya	Male	Kalyanpur	Raval	6351022162
22	Pratap Dhirubhai Gami	Male	Kalyanpur	Raval	9913984327
23	DharmeshbhaiSukabhai Gami	Male	Kalyanpur	Raval	6355424818
24	Paresh Panchabhai Vaghela	Male	Kalyanpur	Raval	9687944004
25	Vinod VachibhaiSingarkhiya	Male	Kalyanpur	Raval	8999013118

26	Rajesh Jenti bhai Makawana	Male	Kalyanpur	Raval	9974771006
27	Aartiben Bhagat bhai Gadhvi	Female	Kalyanpur	Bhogat	9099061604
28	Lilavatiben Soma bhai Katara	Female	Kalyanpur	Lamba	9586456460
29	BhanubenRukhdpari Goswami	Female	Kalyanpur	Gandhvi	9725859915
Volunteers trained in Aapdamitra Phase 1 training Batch-2018					
30	Parmar Chandu Somabhai	Male	Bhanvad	Bhanvad	9879781745
31	Piparotar Suryakiran Khimabhai	Male	Bhanvad	Bhanvad	9998496174
32	Jogal Dilip Kanabhai	Male	Bhanvad	Bhanvad	8980642842
33	Mori Raju Punabhai	Male	Bhanvad	Bhanvad	9726929636
34	Sumaniya Subhash Nandabha	Male	Dwarka	Dwarka	9998825989
35	Rathod Mithun Rajpal	Male	Dwarka	Dwarka	9974136494
36	Nirmal Singh D Rayjada	Male	Dwarka/Okha	Okha	9739983034
37	GagubhaGajubha Manek	Male	Dwarka/Okha	Okha	9737656101
38	Sagar K Manek	Male	Dwarka/Okha	Okha	9537779254
39	Hitesh MaladeKagadiya	Male	Kalyanpur	Raval	8264338030
40	Sanjay HardasbhaiKagadiya	Male	Kalyanpur	Raval	9898834396
41	Satish K Kagadiya	Male	Kalyanpur	Raval	8264254399
42	Chavda Geetaben Arajanbhai	Female	Kalyanpur	Kalyanpur	9601437934
43	PuribenRanmalbhaiChavada	Female	Kalyanpur	Kalyanpur	9725036172
44	Khira Basir Salim Bhai	Male	Kalyanpur	Raval	9664870354
45	Kagadiya Ravi Arajan bhai	Male	Kalyanpur	Raval	9687314625
46	Kagadiya Dinesh Jetha bhai	Male	Kalyanpur	Raval	9904650335
47	Kagadiya Keshu Ramsibhai	Male	Kalyanpur	Raval	9106043693
48	Chaki Imran	Male	Kalyanpur	Raval	9909445420
49	Piyushbhai P Nakum (H)	Male	Khambhaliya	Khambhaliya	9904966127
50	HarjugVikrambhai	Male	Khambhaliya	Khambhaliya	9879870406
51	Bharatbhai S Kanjariya (H)	Male	Khambhaliya	Khambhaliya	9712215225
52	Nakum Arvind Muljibhai	Male	Khambhaliya	Khambhaliya	9601460803
53	Jod Rana Ashwinbhai	Male	Khambhaliya/ Salaya	Salaya	9067431810

Annexure: 21

Siren Tower list installed by Civil Defense

Dwarka(Okha) Block

Sr. No.	Location	Address
1	Dwarka Fire Station	Dwarka City
2	Dwarkadhish Mandir	Darka City
3	Fire station Dwarka	Dwarka City
4	Varvala Grampanchayat Office	Varvala
5	Beyt Nagar Palika Office	Okha
6	Okha Mandir	Okha
7	Kuranga Gram Panchayat Office	Kuranga
8	Okhamadhi Gram Panchayat Office	Okhamadhi
9	Gorinza Gram Panchayt Office	Gorinza
10	Shivrajpur Gram Panchayat Office	Shivrajpur
11	Varvada Cyclone CenterS	Varvada
12	Mojap Gram Panchayat Office	Mojap
13	Makanpur Gram Panchayat Office	Makanpur
14	Posidra Gram Panchayt Office	Posidra
15	Baradiya Gram Panchayat Office	Baradiya

Khambhaliya Block

Sr. No.	Location	Address
16	Cosgard Station	Vadinar
17	NagarPalika Fire Station	Khambhaliya City
18	Bharna Gram Panchayat Office	Bharana
19	Nana Ambla Gram Panchayat Office	Nana Aambla
20	Nana Mandha Gram Panchayat Office	Nana Mandha
21	Kajurda Primary School	Kajudra
22	Parodiya Gram Panchayat Office	Parodiya
23	Indian Oil co.l	Vadinar
24	Vadinar Gram Panchayt Office	Vadinar
25	Essar Enrgy l.	KathiDevaliya
26	Nayara Enrgy l.	Vadinaar
27	Chudeshvar Gram Panchayat Office	Chudeshvar
28	Goinj Gram Pachyat Office	Goinj
29	Kalavad Simani Gram Panchayat Office	Kalavad Simani
30	Ugamna Bara Gram Panchayat Office	Ugamna Bara
31	Beh Gram Panchayat Office	Beh
32	Salaya Nagarpalika Office	Salaya

Bhanvad Block

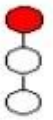
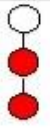
Sr. No.	Location	Address
33	Mamlatdar Office	Bhanvad
34	Nagarpalika Office	Bhanvad
35	P.G.V.C.l Office	Bhanvad
36	Deputy ER.Office	Bhanvad
37	Taluka School-1	Bhanvad

Kalyanpur Block

Sr. No.	Location	Address
37	Gandhavi Gram Panchayt Office	Gandhavi
39	Lamba Gram Panchayt Office	Lmba
40	Navdra	Navdra

41	Bhogat Gram Panchayat Office	Bhogat
42	Mota Aasota Gram Panchayat Office	Mota Aasota
43	Virpur – Lusara Gram Panchayat Office	Virpur – Lusara
44	Gurgadh Gram Panchayat Office	Gurgadh
45	Pindara Gram Panchayat Office	Pindara
46	Kalyanpur Mamlatdar Office	Kalyanpur
47	Gokalpar Gram Panchayat Office	Gokalpar
48	Bhatvadiya Gram Panchayat Office	Bhatvadiya
49	Rawal Gram Panchayat Office	Rawal
50	Suryavadar Gram Panchayat Office	Suryavadar
51	Tankariya Gram Panchayat Office	Tankariya
52	Chandravada Gram Panchayat Office	Chandravada
53	Gorana Gram Panchayat Office	Gorana

Annexure: 23
Port Signal

PORT WARNING SIGNALS					
Signal/ Flag No.		NAME	Symbols		Description
			Day	Night	
1.	Distant bad weather	DC1			Depression far at sea. Port NOT affected.
2.		DW2			Cyclone for at sea. Warning for vessels leaving port.
3.	Local bad weather	LC3			Port Threatened by local bad weather like squally winds.
4.		LW4			Cyclone at sea. Likely to affect the port later.
5.	Danger	D5			Cyclone likely to cross coast keeping port to its left
6.		D6			Cyclone likely to cross coast keeping port to its right.
7.		D7			Cyclone likely to cross coast over/near to the port.
8.	Great danger	GD8			Severe cyclone to cross coast keeping port to its left
9.		GD9			Severe cyclone to cross coast keeping port to its right
10.		GD10			Severe cyclone to cross over /near to the port.
11.		XI			Communication failed with cyclone warning office.

List of Abbreviations

APMC	Agricultural Produce Market Committee
AE	Assistant Engineer
AH	Animal Husbandry
ATI	Administrative Training Institute
ATS	Anti Terrorist Squad
ATVT	ApnoTaluko Vibrant Taluko
BPL	Below Poverty Line
BRC	Block Resource Centre
CBO	Community Based Organization
CDHO	Chief District Health Officer
CDPO	Child Development Project Officer
CHC	Community Health Center
CRC	Community Resource Centre
CRF	Calamity Relief Fund
CSO	Civil Society Organization
DCMG	District Crisis Management Group
DDMA	District Disaster Management Authority
DDMP	District Disaster Management Plan
DDO	District Development Officer
DEOC	District Emergency Operation Centre
DGVCL	Dakshin Gujarat Vij Company Limited
DISH	Directorate of Industrial Safety and Health
DM	Disaster Management
DPO	District Project Officer
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSO	District Sports Officer
DSP	Deputy Superintendent of Police
Dy. Eng.	Deputy Engineer
Dy SP	Deputy Superintendent of Police
EMRI	Emergency Management & Research Institute
ESR	Elevated Surface Reservoir
EWS	Early Warning System
Ex. Eng.	Executive Engineers
FCI	Food Corporation of India
FPS	Fair Price Shop
FWP	Food for Work Program
GDCR	General Development Control Regulation
GEB	Gujarat Electricity Board
GIDM	Gujarat Institute of Disaster Management
GLR	Ground Level Reservoir
GMB	Gujarat Maritime Board
GoI	Government of India
GPs	Gram Pranchayats
GSDMA	Gujarat State Disaster Management Authority
GWSSB	Gujarat Water Supply and Sewerage Board

HFA	Hyogo Framework for Action
HHs	Households
HPC	High Powered Committee
HQ	Head Quarter
HRVC	Hazard, Risk, Vulnerability and Capacity
IAY	Indira Aawas Yojana
IMA	Indian Medical Association
ICS	Incident Commander
ICS	Incident Command System
IDNDR	International Decade for Natural Disaster Reduction
IEC	Information Education Communication
IMD	Indian Meteorological Department
ISDR	International Strategy for Disaster Reduction
ISR	Institute for Seismic Research
ITI	Industrial Training Institute
IWMP	Integrated Watershed Management Program
LCMG	Local Crisis Management Group
LO	Liaison Officer
MAH	Major Accident Hazard
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MHA	Ministry of Home Affairs
MLA	Member of Legislative Assembly
Mm	Mili Meter
MP	Member of Parliament
NAPCC	National Action Plan on Climate Change
NCC	National Cadets Corps
NCCF	National Calamity Contingency Fund
NDM	National Disaster Management
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NDRF	National Disaster Response Force
NEC	National Executive Committee
NFSM	National Food Security Mission
NGO	Non Government Organization
NIDM	National Institute of Disaster Management
NRDWP	National Rural Drinking Water Program
NRHM	National Rural Health Mission
NSS	National Service Scheme
NYK	National Yuva Kendra
PCPIR	Petroleum Chemical and Petrochemical Special Investment Region
PDS	Public Distribution System
PHC	Primary Health Center
PI	Police Inspector
PMGY	Pradhan Mantri Gramodyan Yojna
PRIs	Panchayati Raj Institutions
R & R	Recovery & Reconstruction
R&B	Roads & Buildings
RTO	Regional Transport Office
SC	Scheduled Caste

SDM	Sub District Magistrate
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Fund
SDRN	State Disaster Response Network
SE	Superintending Engineer
SEOC	State Emergency Operation Centre
SFO	Sub Focal Officer
SEZ	Special Economic Zone
SHGs	Self Help Groups
SMC	School Management Committee
SMS	Short Message Service
SOP	Standard Operating Procedure
SRPF	State Reserve Police Force
SRT	Special Response Team
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
S& R	Search and Rescue
Supt. Eng.	Superintendent Engineer
SWO	Social Welfare Officer
TDMA	Taluka Disaster Management Authority
TDMC	Taluka Disaster Management Committee
TDMP	Taluka Disaster Management Plan
TDO	Taluka Development Officer
TEOC	Taluka Emergency Operation Centre
THO	Taluka Health Officer
TNA	Training Needs Assessment
TSC	Total Sanitation Campaign
TSO	Taluka Supply Officer
ULB	Urban Local Body
UNDP	United Nations Development Programme
UNFCC	United Nations Framework Convention on Climate Change
VDMP	Village Disaster Management Plan
VIPs	Very Important Persons
VVIPs	Very Very Important Persons
WASMO	Water and Sanitation Management Organization