

## FOREWORD

Different parts of Daman and Diu are vulnerable to the natural calamities like Flood, Cyclonic Storms, Earthquake, Tsunami etc. Apart from these natural hazards there are chances of man-made disasters like major fire, industrial accidents, terrorist attacks etc.

Daman and Diu is a small Union Territory having only 02 Districts. The total area of the Union Territory is 112 sq Km having a population of about 2.42 lacs of which about 75.16% live in the urban areas and the population density is 2169 per square kilometer.

This UT DM Plan, Daman and Diu, has been prepared in the context of natural Disasters. This Plan should be useful to tackle the multi-hazard vulnerabilities and should be based on the factors like ever-growing population, increasing industrialization, development within high risk zones, environmental degradation, climate change, UT and national security, economy and sustainable development.

The objective of the Union Territory Disaster Management Plan, Daman and Diu is to facilitate execution of activities for prevention and preparedness, operations, coordination, and community awareness and involvement.

The framework of the plan is based on the paradigm shift in DM from a relief centric approach to a regime that anticipates the importance of preparedness, prevention and mitigation. The team has followed the guidelines for preparing State Disaster Management Plans issued by the National Disaster Management Authority for preparing the plan.

This Plan document consists of **two volumes**. Book I contains the detail of Disaster Management and a Chapter on Vulnerability Assessment and Risk Analysis. Book II contains all the annexures.

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## ABBREVIATION

AAI	Airport Authority of India
ACWCs	Area Cyclone Warning Centers
BIS	Bureau of Indian Standard
BOOT	Build Own Operate and Transfer
BPL	Below Poverty Line
CBOs	Community Based Organizations
CEO	Chief Executive Officer
CFO	Chief Fire Officer
CMG	Crisis Management Group
COR	Commissioner of Relief
CRPF	Central Reserve Police Force
CWC	Central Water Commission
CWCs	Cyclone Warning Centers
CWDS	Cyclone Warning Dissemination System
DCMG	District Crisis Management Group
DCR	District Control Room
DEOCs	District Emergency Operation Centers
DGHS	Directorate General of the Health Services
DM	Disaster Management
EMS	Emergency Medical Services
EOC	Emergency Operation Centre
ERTs	Emergency Response Teams
F&ES	Fire And Emergency Services
GAD	General Administration Department
DIS	Geographic Information System
GoI	Government of India
GSI	Geological Survey of India

HAZCHEM	Hazardous Chemicals
HF/VHF	High Frequency/Very High Frequency
HoD	Head of Department
HRVA	Hazard, Risk and Vulnerability Assessment
IDRN	India Disaster Resource Network
IEC	Information Education Communication
IMD	Indian Meteorology Department
INCOIS	Indian National Centre for Ocean Information Services
INSAT	Indian National Satellite System
ISRO	Indian Space Research Organization
ITC	Information and Communication Technology
ITCS	Information Communications Technology System
LCG	Local Crisis Management Group
MAH	Major Accident Hazard
MFRs	Medical First Responders
MHA	Ministry of Home Affairs
MoA	Ministry of Agriculture
MoC & F	Ministry of Chemicals and Fertilizers
MoC & I	Ministry of Commerce and Industry
MoD	Ministry of Defense
MoEF	Ministry of Environment & Forests
MoF	Ministry of Finance
MoLE	Ministry of Labour and Employment
MoP & NG	Ministry of Petroleum and Natural Gas
MoSRT & H	Ministry of Shipping, Road Transport and Highways
MSZ	Makaran Subduction Zone
NCCMC	National Crisis Management Committee
NDRF	National Disaster Response Force

NEC	National Executive Committee
NEIC	National Earthquake Information Centre
NGO	Non Government Organization
NGRI	National Geophysical Research Institute
NIDM	National institute of Disaster Management
NIOT	National Institute of Ocean Technology
NSRA	Nevada Seismic Research Affiliates
NWRWS	Narmada Water Resources Water Supply
PMO	Prime Minister's Office
PPP	Public private Partnership
SAR	Search and Rescue
UTCG	UT Crisis Management Group
UTCMC	UT Crisis Management Committee
UTDMA	UT Disaster Management Authority
UTDMP	UT Disaster Management Plan
UTDRN	UT Disaster response Network
UTEOC	UT Emergency Operation Centre
SMS	Short Messaging Service
SOP	Standard Operating Procedure
UNDP	United Nations Development Programme.
UT	Union Territory.

## **CHAPTER: 1:- INTRODUCTION**

This plan will be known as **Daman & Diu Disaster Management Plan” (UTDMP)** and will be applicable in UT Administration of Daman & Diu.

### **1.1 Vision**

The vision is to build a safer & disaster resilient Daman & Diu by developing holistic, proactive, multi disaster and technology driven strategy for DM. This will be achieved through a culture of prevention, mitigation and preparedness to reduce the impact of disaster on people. Making UT Administration of Daman & Diu where communities react to disasters with sense of urgency but in a planned way to minimize human, property and environmental loss.

### **1.2 Policy**

Saving of human lives will be at the highest priority however, plan will also address minimum loss of property and environment.

### **1.3 Theme**

It comprises risk and vulnerability assessment of disasters in the UT. It provides planning for prevention and mitigation, mainstreaming disaster in development plans/ programmes/ projects, Capacity building and preparedness measures, the role and responsibilities of each government departments and other stakeholders, risk transfer mechanism and effective programme management for future disasters. It also provides for reviewing and updating plan annually.

### **1.4 Objectives of the plan**

The basic objectives of UT Administration of Daman & Diu Disaster Management Plan is to minimize the impact of disaster on human lives and property, relief to those" affected and restoration of normalcy at the earliest.

This objective can be achieved by undertaking the following course of action:-

- To protect and minimize the loss of lives and property/infrastructure from disasters.

- Ascertaining the status of existing resources and facilities available with various Government departments, Police, Fire, Coast Guard, Municipal Council, Panchayat, private Sectors, NGOs and Community for management of disaster in the district -administration, for deployment of resources in disaster situation and to face disaster in most effective way..
- To minimize the disaster risk and vulnerability of people and infrastructure in the UT.
- Promote a culture of prevention and mitigation through curriculum revision, Information Education Communication (IEC) awareness campaign; DM plans at all level, mock drills, communicating hazards, risk and vulnerability at community level and streamlined and institutional techno-legal framework.
- To build the capacity of all stakeholders in the UT to cope with the disasters and promote community based disaster management.
- Mainstreaming disaster management concerns into the developmental planning process.
- Develop efficient disaster response/relief mechanism in the UT.
- To provide clarity on roles and responsibilities for all stakeholders concerned with disaster management.
- To ensure co-ordination and promoting productive partnership with all other agencies like as Government & NGO institutions related to disaster management.
- To protect life and property and to ensure mitigation of disaster to the maximum extent possible with relief to those affected and restoration of normalcy to the earliest.
- Commence recovery programme as an opportunity to build better in case of a future disaster by incorporating community in the programme.

## **1.5 Trigger Mechanism& Plan Activation**

The disaster response structure will be activated on the receipt of disaster warning/on the occurrence of the disaster. The occurrence of disaster may be reported by the concern monitoring authority to the Commissioner of Relief/UTDMA (SDMA) by the fastest means. The Commissioner of Relief (COR)/Collector will activate all departments for emergency response including the UT (Daman) EOC, and District EOC and will inform to Chairperson/Administrator of the UT level Disaster Management Authority. Also, they will issue instructions to include the following details:

- Exact quantum of resources (in terms of manpower, equipments and essential items from key departments/stakeholders) that is required.
- The type of assistance to be provided.
- The time limit within which assistance is needed.
- Details of other Task/Response Forces through which coordination should take place.



The UT (Daman) EOC and other control rooms at the UT level as well as district control rooms should be activated with full strength. Once the situation is totally controlled and normalcy is restored, the COR declares End of Emergency Response and issues instructions to withdraw the staff deployed in emergency duties.

The District level Disaster Management Authority (Collector is Chairperson of DDMA) shall be functional node of the disaster management in the UT and shall be stationed at our Control Room i.e. EOC. This EOC will have exhaustive list of telephone numbers of all concerned including adjoining districts and all information and control over the resources available to them by DRN inventory and information regarding the resource to face disaster by IRDN inventory. The Authority will work on these lines.

- Communications,
- Information discrimination to public/public awareness. We propose to have a wireless system for close coordination of various departments.

#### **-Search & Rescue (SAR):**

- **Maritime SAR** - This work will be looked after by Coast Guard.
- **Ground SAR** - This work will be done by Police, Fire and Civil Defence.
- **Personnel & Equipments** - As per our Resource Inventory, the Coordination Committee will mobilize all resources as per the need.
- **Medical Facilities** - The work will be taken by Director (Health).
- **NGOs** - Various NGOs will work as per the instructions of ADM/Dy. Collector.
- **Transportation** - This department will provide vehicles for evacuation and for Supplying relief materials.
- **Civil Supplies** - This will be directly controlled by Deputy Collector. The foremost task of this department is to provide food, water, relief material and to run emergency shelter points at various identified places.
- **PWD** - This department will ensure drinking water facility, maintenance of Govt. buildings, provision of temporary toilets and to maintain communication network of roads.
- **Electricity department** - This department will ensure electrical supply at various shelter points, hospitals and at EOC through Generator sets till. The normal electrical supply is restored...
- **Miscellaneous** - The Co-ordination Authority will make arrangements regarding following issues:
  - Relief Funds
  - Cleanliness
  - Drainage
  - Cremation of dead

- Disposal of animal carcass.

## 1.6 Level of Disasters

L concept has been developed to define different levels of disasters in order to facilitate the responses and assistances to UT 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 UT 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 UT, mobilization of its resources for management of disasters.

**L3 level** disaster situation is in case of large scale disaster where the UT and District authorities have been overwhelmed and require assistance from the Central Government for reinstating the UT 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.

## 1.7 Institutional Arrangements

The Disaster Management Act 2005 provides the legal and institutional framework for disaster management in India at the National, State/UT, and district levels. In the national policy of India the primary responsibility of disaster management vests the State Government. The Central Government lays down policies and guidelines and provides technical, financial and logistic support while the district administration carries out most of the operations in collaboration with central and UT level agencies.

### Disaster Management Act, 2005

The Act lays down institutional, legal, financial and coordination mechanisms at the national, state, district and local levels. These institutions are not parallel structures and will work in close harmony. The new institutional framework is expected to usher in a paradigm shift in DM from relief-centric approach to a proactive regime that lays greater emphasis on preparedness, prevention and mitigation.

### **National Disaster Management Authority (NDMA)**

The NDMA, as the apex body for disaster management, is headed by the Prime Minister and has the responsibility for laying down policies, plans and guidelines for DM. The guidelines will assist the Central Ministries, Departments and States to formulate their respective DM plans. The general superintendence, direction and control of National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA. The National Institute of Disaster Management (NIDM) works within the framework of broad policies and guidelines laid down by NDMA.

NDMA may, however, formulate guidelines and facilitate training and preparedness activities in respect of Chemical, Biological, Radiological and Nuclear (CBRN) emergencies. Resources available with the disaster management authorities at all level, which are capable of discharging emergency support functions, will be made available to the nodal Ministries/Agencies dealing with the emergencies at times of impending disasters/disasters.

### **The National Executive Committee**

Section 8 of DMA, 2005 mandates the constitution of National Executive Committee (NEC). It comprises the Union Home Secretary as the Chairperson, and the Secretaries to the GOI in the Ministries/Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways and Secretary, NDMA will be special invitees to the meetings of the NEC.

The NEC is the executive committee of the NDMA, and is mandated to assist the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Government.

### **UT Disaster Management Authority (UTDMA)**

Section 14 of NDM, 2005 mandates each State/UT to establish State/ UT Disaster Management Authority. At the UT level the Union Territory Disaster Management Authority (UTDMA), headed by the Administrator, lays down policies and plans for disaster management in the UT of Daman and Diu. It is also responsible to coordinate the implementation of the UTDM Plan, recommend provisions of funds for mitigation and preparedness measures and review the developmental plans of the different departments of the UT to ensure integration of preventive, preparedness and mitigation measures.

The chairperson of the UT Authority shall, in case of emergency, have power to exercise all or any of the powers of the UT Authority but the exercise of such powers shall be subject to ex post facto ratification of the UT Authority.

#### Power & Functions of UT Authority

- a. Lays down the UT Disaster Management Plan;
- b. Approve the UT Plan in accordance with the guidelines laid down by the National Authority.
- c. Approve the UT Plans prepared by the departments of the Union Territory.
- d. Lay down guidelines to be followed by the departments of the Union Territory for the purpose of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefor;
- e. Coordinate the implementation of the UT Plan;
- f. Recommend provision of funds for mitigation and preparedness measures;
- g. Review the development plans of the different departments of the UT ensure that mitigation and preparedness measures are integrated therein;
- h. Review the measures being taken for mitigation, capacity building and preparedness by the departments of the UT and issue such guidelines as may be necessary.

#### **Union Territory Executive Committee.**

Section 20 of NDM, 2005 mandates each State/UT to constitute State/ UT Executive Committee. And section 22 of NDM, 2005 deals about the functions of SEC/UTEC. These are following:

1. The UT Executive Committee shall have the responsibility for implementing the National Plan and UT Plan and act as the coordinating and monitoring body for management of disaster in the UT.
2. Without prejudice to the generality of the provisions of subsection the UT Executive Committee may-
  - (a) coordinate and monitor the implementation of the National Policy, the National Plan and the UT Plan;
  - (b) Examine the vulnerability of different parts of the UT to different forms of disasters and specify measures to be taken for their prevention or mitigation;
  - (c) Lay down guidelines for preparation of disaster management plans by the departments of the UT and the District Authorities;
  - (d) Monitor the implementation of disaster management plans prepared by the departments of the UT and District Authorities;

- (e) Monitor the implementation of the guidelines laid down by the UT Authority for integrating of measures for prevention of disasters and mitigation by the departments in their development plans and projects;
- (f) Evaluate preparedness at all governmental or non-governmental levels to respond to any threatening disaster situation or disaster and give directions, where necessary, for enhancing such preparedness;
- (g) Coordinate response in the event of any threatening disaster situation or disaster;
- (h) Give directions to any Department of the UT Administration or any other authority or body in the UT regarding actions to be taken in response to any threatening disaster situation or disaster;
- (i) Promote general education, awareness and community training in regard to the forms of disasters to which different parts of the State are vulnerable and the measures that may be taken by such community to prevent the disaster, mitigate and respond to such disaster;
- (j) Advice, assist and coordinate the activities of the Departments of the UT Administration, District Authorities, statutory bodies and other governmental and non-governmental organizations engaged in disaster management;
- (k) Provide necessary technical assistance or give advice to District Authorities and local authorities for carrying out their functions effectively;
- (l) Advise the State Government regarding all financial matters in relation to disaster management;
- (m) Examine the construction, in any local area in the UT and, if it is of the opinion that the standards laid for such construction for the prevention of disaster is not being or has not been followed, may direct the District Authority or the local authority, as the case may be, to take such action as may be necessary to secure compliance of such standards;
- (n) Provide information to the National Authority relating to different aspects of disaster management;
- (o) lay down, review and update State level response plans and guidelines and ensure that the district level plans are prepared, reviewed and updated;
- (p) Ensure that communication systems are in order and the disaster management drills are carried out periodically;
- (q) Perform such other functions as may be assigned to it by the UT Authority or as it may consider necessary.

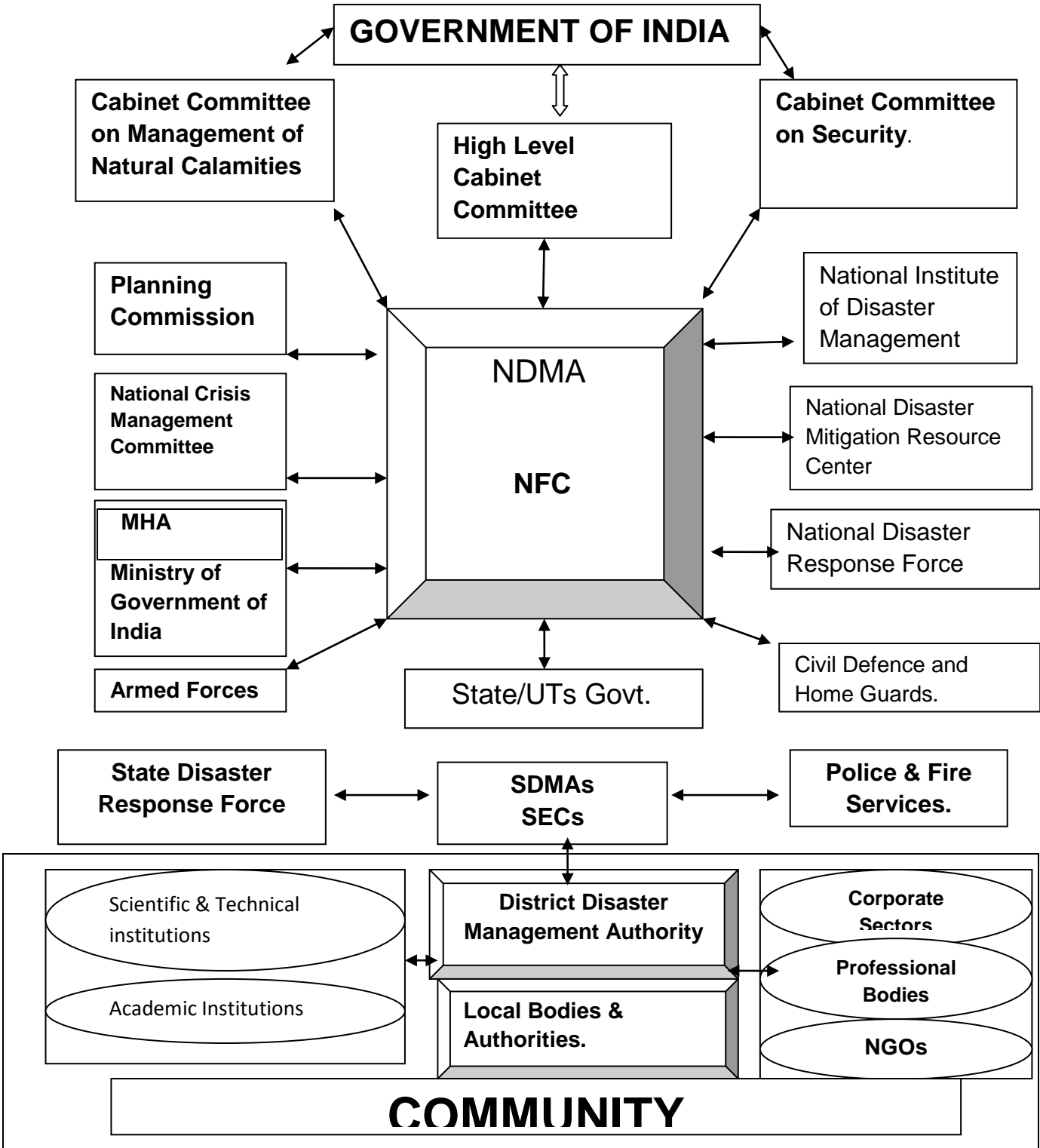
### **District Disaster Management Authority**

Section 25 91) of NDM, 2005 mandates each State/UT to constitute District Disaster Management Authority. And section 30 of NDM, 2005 deals about the functions of District Disaster Management Authority. These are following:-

- (1) The District Authority shall act as the district planning, coordinating and implementing body for disaster management and take all measures for the purposes of disaster management in the district in accordance with the guidelines laid down by the National Authority and the UT Authority.
- (2) Without prejudice to the generality of the provisions of subsection (1), the District Authority may-
- (i) Prepare a disaster management plan including district response plan for the district;
  - (ii) Coordinate and monitor the implementation of the National Policy, UT Policy, National Plan, UT Plan and District Plan;
  - (iii) Ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities;
  - (iv) Ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the UT Authority are followed by all departments of the Administration at the district level and the local authorities in the district;
  - (v) Give directions to different authorities at the district level and local authorities to take such other measures for the prevention or mitigation of disasters as may be necessary;
  - (vi) Lay down guidelines for prevention of disaster management plans by the department of the Administration at the districts level and local authorities in the district;
  - (vii) Monitor the implementation of disaster management plans prepared by the Departments of the Government at the district level;
  - (viii) Lay down guidelines to be followed by the Departments of the Administration at the district level for purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore;
  - (ix) Monitor the implementation of measures referred to in clause (viii);
  - (x) Review the state of capabilities for responding to any disaster or threatening disaster situation in the district and give directions to the relevant departments or authorities at the district level for their up gradation as may be necessary;
  - (xi) Review the preparedness measures and give directions to the concerned departments at the district level or other concerned authorities where necessary for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening disaster situation;
  - (xii) Organize and coordinate specialized training programmes for different levels of officers, employees and voluntary rescue workers in the district;
  - (xiii) Facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organizations;
  - (xiv) Set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public;
  - (xv) Prepare, review and update district level response plan and guidelines;
  - (xvi) Coordinate response to any threatening disaster situation or disaster;

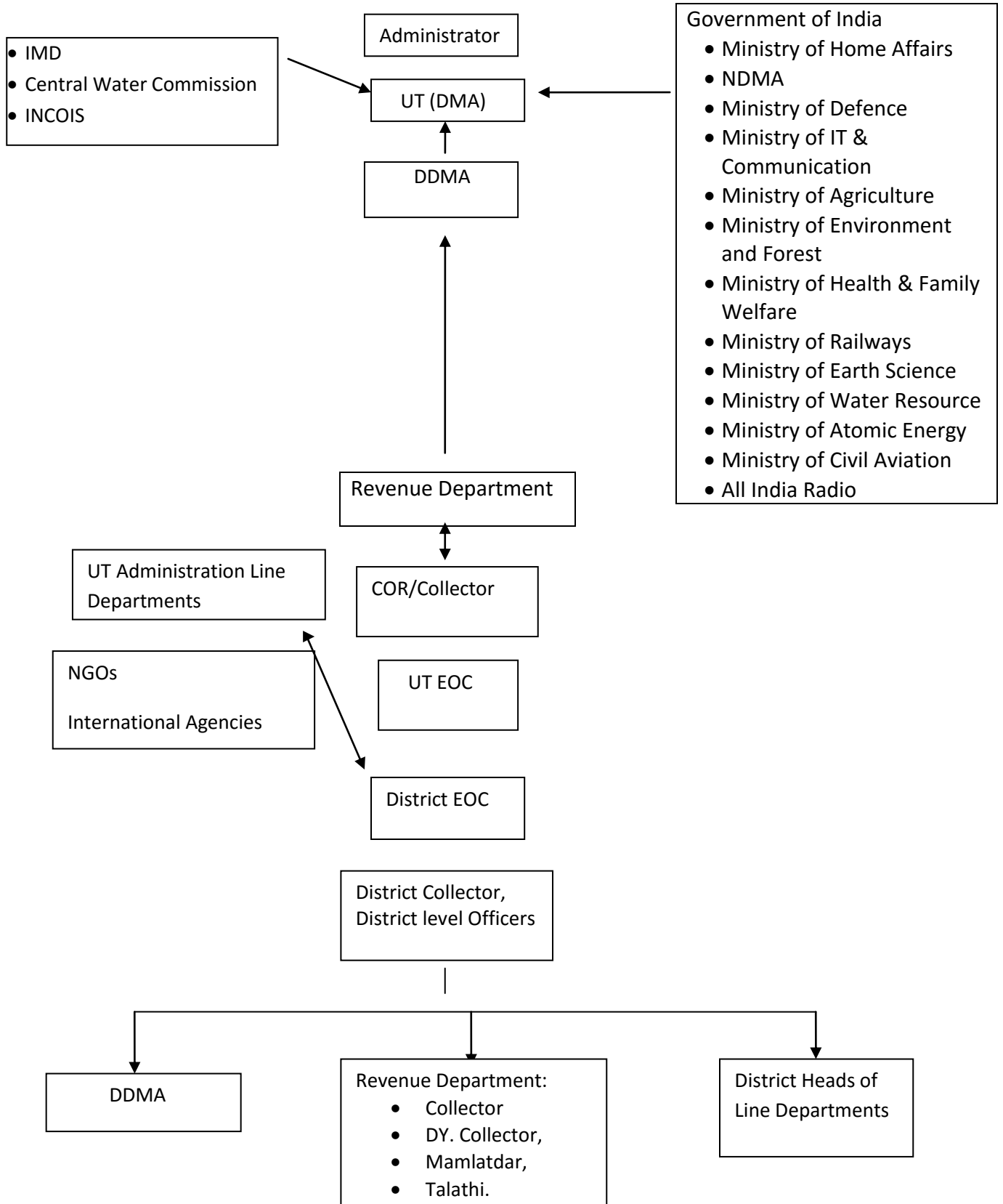
- (xvii) Ensure that the Departments of the Administration at the district level and the local authorities accordance with the district response plan;
- (xviii) Lay down guidelines for, or give direction to, the concerned Department of the Administration at the district level or any other authorities within the local limits of the district to take measures to respond effectively to any threatening disaster situation or disaster;
- (xix) Advice, assist and coordinate the activities of the Departments of the Administration at the district level, statutory bodies and other governmental and non-governmental organisations in the district engaged in the disaster management;
- (xx) Coordinate with, and give guidelines to, local authorities in the district to ensure that measures for the prevention or mitigation of threatening disaster situation or disaster in the district are carried out promptly and effectively;
- (xxi) Provide necessary technical assistance or give advice to the local authorities in the district for carrying out their functions;
- (xxii) Review development plans prepared by the Departments of the Administration at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation;
- (xxiii) Examine the construction in any area in the district and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being or has not been followed, may direct the concerned authority to take such action as may be necessary to secure compliance of such standards;
- (xxiv) Identify buildings and places which could, in the event of any threatening disaster situation or disaster, be used as relief centers or camps and make arrangements for water supply and sanitation in such buildings or places;
- (xxv) Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice;
- (xxvi) Provide information to the UT Authority relating to different aspects of disaster management;
- (xxvii) Encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management;
- (xxviii) Ensure communication systems are in order, and disaster management drills are carried out periodically;
- (xxix) Perform such other functions as the UT Administration or UT Authority may assign to it or as it deems necessary for disaster management in the District.

**1.8 NATIONAL DISASTER MANAGEMENT STRUCTURE**





### 1.9 DM Structure in the UT



## **1.10 Stakeholders of the UTDM Plan**

The UT Disaster Management Authority and the Office of the Commissioner of Relief/Collector, Revenue Department, are the major institutions in the UT that deal with all the phases of disaster management. All the major line departments of the UT Administration, the District Collectors, other technical institutions, community at large, local self-governments (District Panchayat & Municipal Council) , NGOs etc. are the stakeholders of the UT disaster management plan.

The following parts of District Administration will play an important role in mitigation of disasters in Daman & Diu.

The following parts of District Administration will play an important role in mitigation of disasters in Daman.

- **Revenue Dept.**
- **Municipal Council**
- **District Panchayat.**

### **REVENUE ADMINISTRATION**

- Collector/DM as Head of District Administration
- One ADM/Deputy Collector/Land Acquisition Collector
- Mamlatdar
- Block Development Officer
- Enquiry Officer City Survey
- Talathi.

Other than above mentioned organizations, officers of following departments will also have to play important role in disaster management :-

1. The Superintending Engineer, P.W.D.
2. The Executive Engineer, Electricity,
3. The Health Officer, Primary Health Centre
4. The CEO, District Panchayat
5. The Chief of Police,
6. The Chief Officer, Municipal Council,
7. The Range Forest Officer,
8. The Superintendent, Fisheries Department,
9. The Veterinary Officer,
10. The Port Officer,
11. The Sub-Inspector, Civil Supplies,

12. The Mamlatdar,
13. The Block Development Officer,
14. The Zonal Agricultural Officer,
15. The Department of Telecommunication,
16. The Fire Services,
17. Coast Guard.

## **1.11 Roles and Responsibilities**

### **The UT Administration**

- Ensure that all the principal authorities and role players shall take necessary steps to mitigate and manage disasters.
- Make sure that the UT administration and local authorities shall take into consideration the guidelines laid down by the Authority while planning its activities.
- Facilitating procurement related to disaster management of materials, equipment and services in connection with the disaster management and ensuring their quality.
- Issue a direction for the purpose of avoiding an imminent damage arising out of a disaster or mitigation of its effects.
- Suspend operation of any executive order if such executive order prevents, hinders or delays any necessary action in coping with disaster.

### **UT Level Disaster Management Authority [UT (DMA)]**

- Promoting an integrated and coordinated system of disaster management including prevention or mitigation of disaster by the UT, local authorities, NGOs, stakeholders and communities.

### **The Collector**

- Facilitate and, coordinate with, local Government bodies to ensure that pre and post - disaster management activities in the district are carried out.
- Assist community training, awareness programmes and the installation of emergency facilities with the support of local administration, non-governmental organizations, and the private sector.
- Take appropriate actions to smoothen the response and relief activities to minimize the effect of disaster.
- Recommend Commissioner of Relief and UT Administration for declaration of disaster.

### **Local Authority**

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

### **Private Sector**

- The private sector should ensure their active participation in the pre-disaster activities in alignment with the overall plan developed by the UTDMA or the Collector.

### **Community Groups and Voluntary agencies**

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

### **Citizen**

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

## **1.12 Financial Arrangement**

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

**UT Budget**

The Authority, submit to the Administrator for approval a budget in the prescribed form for the next financial year, showing the estimated receipts and expenditure, and the sums which would be required from the Administrator during that financial year.

**UT Disaster Response Fund [UT (DRF)]**

To carry out Emergency Response & Relief activities after any disaster the UT Disaster Response Fund is to be constituted and it is under process.

**Grant in aid**

Further UT may receive a grant in aid from Central Govt., and/or other departments/agencies to carry out specific projects/schemes related to disaster management/ mitigation/ capacity building.

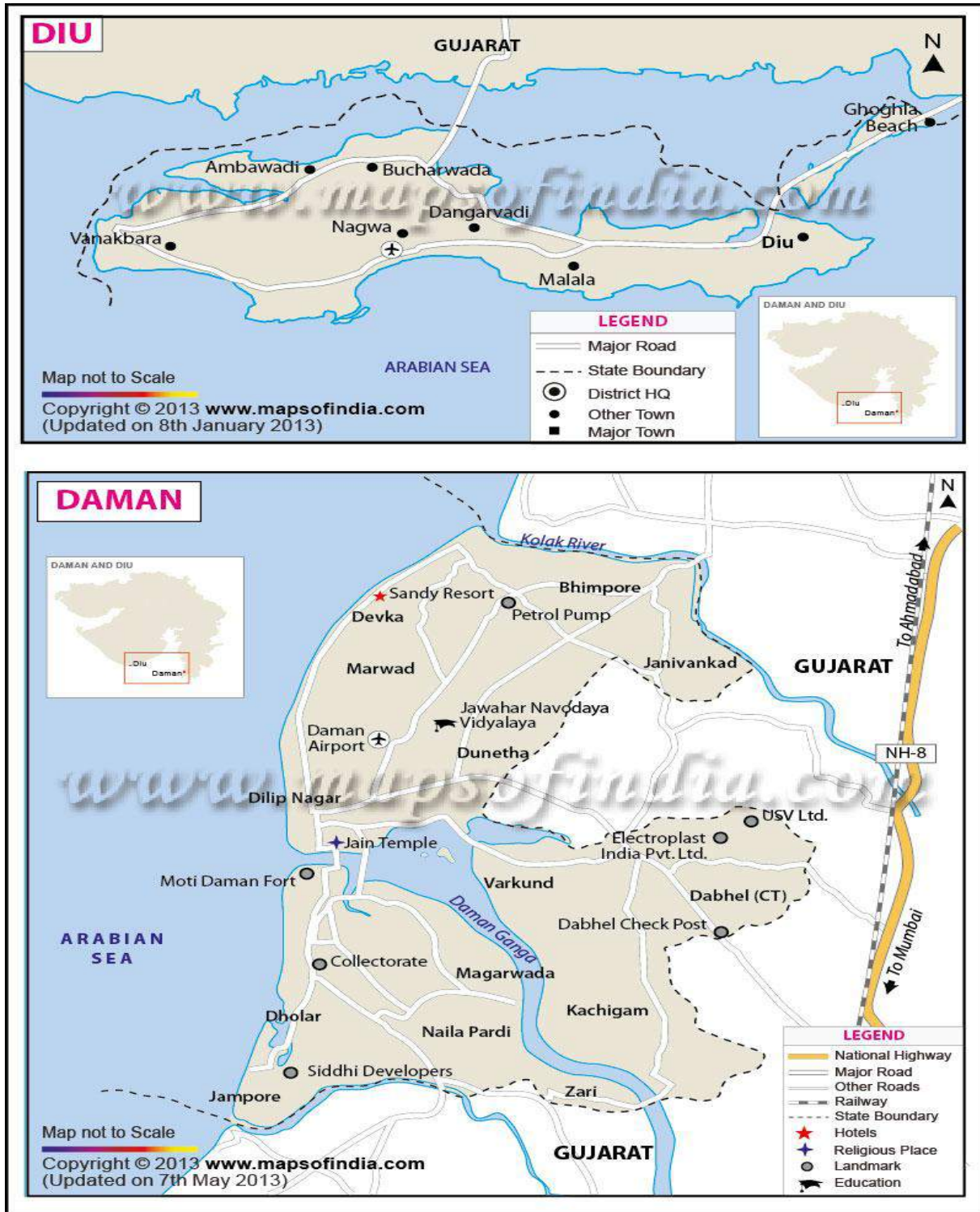
**NOTE:-** Composition of UT Disaster Management Authority, District Disaster Management Authority and UT Executive Committee is given in book – II.

## CHAPTER: 2:- PROFILE OF UT

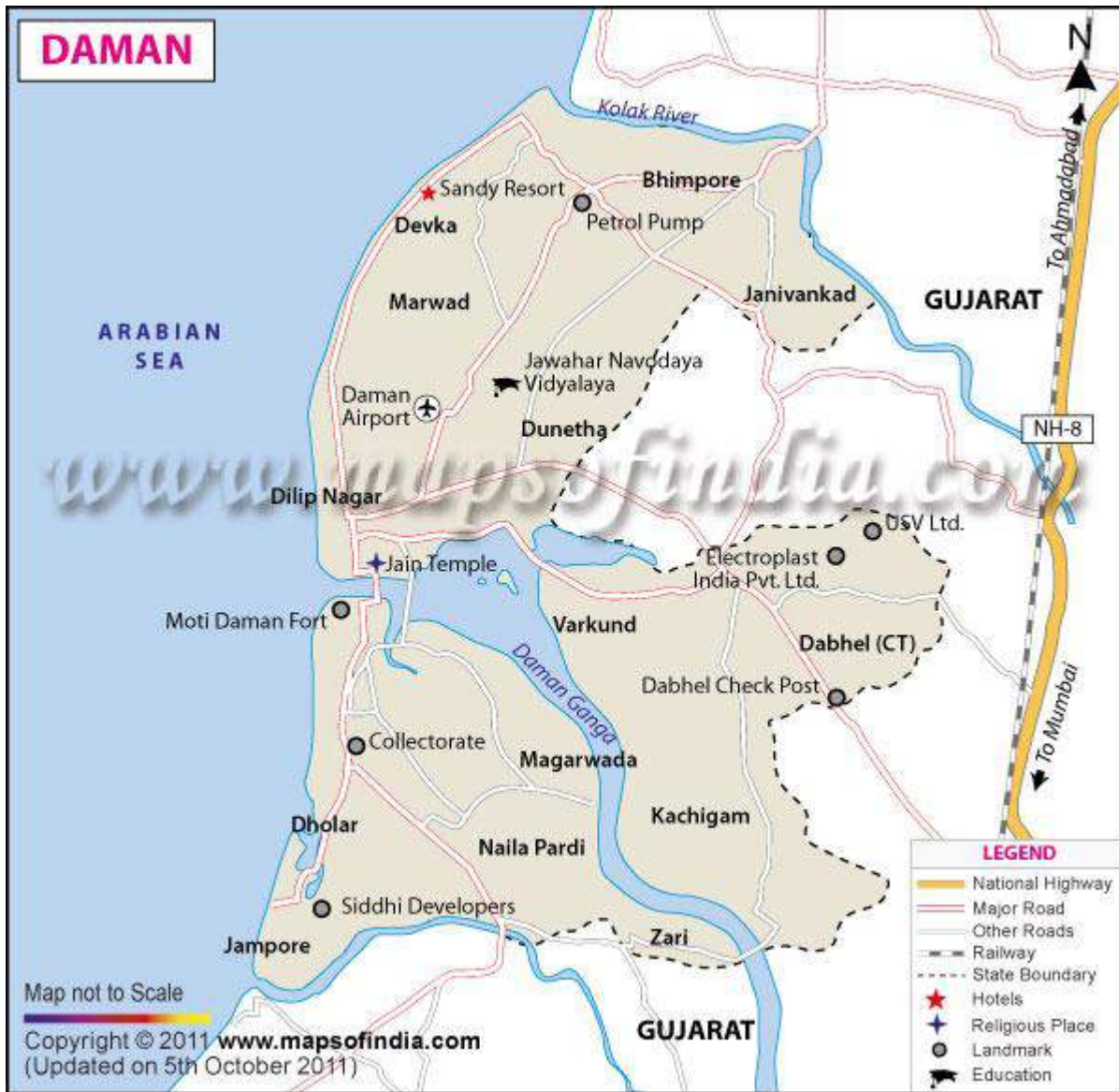
### 2.1 Location Map



## 2.2 Map of Daman & Diu.



## 2.3 Map of Daman





### 2.4 Map of Diu



## 2.5 Other Details

### LOCATION

U.T. of Daman and Diu comprises two districts namely Daman and Diu. Both Districts are situated on western coast of India at a distance of about 700 kms. Daman is the head Quarter of this U.T.

Daman is on main land near southern portion of Gujarat State. Vapi is the nearest Railway Station ( 13 kms) which is on Western Railway between Mumbai and Surat. Vapi is 167 kms from Mumbai Central and 95 kms from Surat.

Diu is an island near Una of Junagarh District in Gujarat State. Nearest Railway Station is Delwada at the distance of 9 kms from Diu. But important trains are linked with Veraval which is 90 kms from Diu. A portion of Diu District is on main land which is named as Ghoghla. A small part of Diu known as Simar is situated in Gujarat at a distance of 25 kms from Diu.

### HISTORY

After Liberation on 19<sup>th</sup> December, 1961 from Portuguese Rule of more than four centuries, Daman and Diu became a part of the U.T. of Goa, Daman and Diu under Government of India. After delinking of Goa, which attained statehood, U.T. of Daman and Diu came into existence on 30<sup>th</sup> may 1987.

### PROFILE OF DAMAN & DIU

	<b>Daman</b>	<b>Diu</b>
<b>1. LOCATION</b>	<ul style="list-style-type: none"> <li>• Located at the Sangam of Damanganga river and Arabian Sea at Latitude 20°22'00" N to 20°27'25" N and Longitude 72°49'42" E to 72°54'43" E.</li> <li>• North-South Length = 11 Km.</li> <li>• East – West Length = 12 Km.</li> </ul>	<ul style="list-style-type: none"> <li>• Located at the river Chassy creek channel and Arabian Sea at Latitude 20°42'47" N and Longitude 70°59'47" E.</li> <li>• North – south length = 4.6 kms.</li> <li>• East – West Length = 13.8 Km.</li> </ul>
<b>2. ACCESSIBILITY</b>	<ul style="list-style-type: none"> <li>• Nearest Rail station is Vapi at a distance of 13 Kms on Mumbai-Delhi line.</li> <li>• Connected to National Highway No. 8, Mumbai-Vadodara – Delhi.</li> <li>• Distance from Valsad – 35 Kms.</li> <li>• Distance from Surat – 120 Kms.</li> <li>• Distance from Mumbai – 192 Kms.</li> </ul>	<ul style="list-style-type: none"> <li>• Nearest Rail head is Veraval at a distance of 90 kms on Ahmedabad - Mumbai line.</li> <li>• Connected to National Highway No.8E, Veraval - Bhavnagar - Ahmedabad.</li> <li>• Distance from Ahmedabad – 495 kms.</li> <li>• Distance from Daman – 675 kms</li> </ul>

	<ul style="list-style-type: none"> <li>Distance from Ahmedabad – 367 Kms.</li> <li>Distance from Delhi – 1800 Kms.</li> </ul>	<ul style="list-style-type: none"> <li>Distance from Mumbai – 980 kms</li> <li>Distance from Delhi – 2100 kms</li> </ul>
3. AREA	<ul style="list-style-type: none"> <li>72 sq. Kms.</li> </ul>	<ul style="list-style-type: none"> <li>40 sq. Kms.</li> </ul>
4. Altitude (above sea level)	<ul style="list-style-type: none"> <li>12 meters</li> </ul>	<ul style="list-style-type: none"> <li>06 meters.</li> </ul>

### SALIENT CLIMATIC FEATURES.

Sr. No.	Particulars	Unit	Daman District	Diu District
1.	Climate Temperature	-	Mild & Warm	Sultry
2.	Temperature			
	i) Mean Maximum	Degree	31	37
	ii) Mean Minimum	Centigrade	22	11
3.	Rainfall for the year 2013	MM	2529.1	Annual Rainfall = 1367 mm
4.	Humidity	%(between)	26-100	-
5.	Maximum Wind speed	Km/Hour	30	-

### ADMINISTRATIVE SETUP

Sr. No.	Particular	Unit	Daman District	Diu District	Daman & Diu
1.	District	Nos.	1	1	2
2.	Talukas/Tahsils	Nos.	1	1	2
3.	Blocks	Nos.	1	1	2
4.	District Panchayat	Nos.	1	1	2
5.	Village Panchayats	Nos.	10	4	14
6.	Villages	Nos.	21	4	25
7.	Census Villages	Nos.	15	-	-
8.	Municipal Councils	Nos.	1	1	2
9.	Statutory Towns	Nos.	1	1	2
10.	Census Towns	Nos.	6	-	-
11.	Urban Wards	Nos.	15	13	28

**(I) CENSUS 2011.****Population Statistics**

Sr. No.	Particular		Unit	Daman District	Diu District	Daman and Diu
1.	Area	Rural	Sq. Kms.	35.14	22.24	57.38
		Urban	Sq. Kms.	36.86	17.76	54.62
	Total		Sq. Kms.	72.00	40.00	112.00
2.	Population	Rural	Nos.	32313	28080	60396
		Urban	Nos.	158860	23976	182851
	Total		Nos.	191173	52056	243247
		Male	Nos.	124659	25639	150301
		Female	Nos.	66514	26417	92946
	Total		Nos.	191173	52056	243247
3.	Population Density 2011		Per Sq. Km	2655	1301	2172
4.	Sex ration		No. of females per 1000 males.	534	1030	618

**CATEGORISATION OF POPULATION:**

Sr. No.	Particulars	Daman District		Diu District		Daman and Diu	
		Nos.	%	Nos.	%	Nos.	%
i)	Scheduled Castes(SC)						
	<b>2001</b>						
	Total	3065	2.69	1773	4.01	4838	3.06

	Male	1627	--	871	--	2498	--
	Female	1438	--	902	--	2340	--
	<b>2011</b>						
	Total	4262	2.23	1862	3.57	6124	2.52
	Male	2224	1.78	927	3.62	3151	2.10
	Female	2038	3.06	935	3.53	2973	3.19
ii)	Scheduled Tribes (ST)						
	<b>2001</b>						
	Total	13881	12.18	116	0.26	13997	8.85
	Male	7128	--	62	--	7190	--
	Female	6753	--	54	--	6807	--
	<b>2011</b>						
	Total	15240	7.97	123	0.24	15363	6.31
	Male	7702	6.17	69	0.27	7771	5.17
	Female	7538	11.33	54	0.20	7592	8.16

### POPULATION OF WORKERS AND NON-WORKERS (2011)

Sr. No.	Particulars	Unit	Daman District	Diu District	Daman and Diu	
1)	Total Workers	Total	Nos.	105521	15750	121271
		Rural	Nos.	14779	8524	23303
		Urban	Nos.	90742	7226	97968
2)	Main Workers	Total	Nos.	101717	14718	116435
		Rural	Nos.	13492	7943	21435
		Urban	Nos.	88225	6775	95000
i)	Cultivators	Total	Nos.	1247	402	1649

Sr. No.	Particulars	Unit	Daman District	Diu District	Daman and Diu
	Rural	Nos.	669	384	1053
	Urban	Nos.	578	18	596
ii)	Agricultural Labourers Total	Nos.	302	189	491
	Rural	Nos.	139	182	321
	Urban	Nos.	163	7	170
iii)	Household industry workers	Nos.	332	48	380
	Rural	Nos.	88	31	119
	Urban	Nos.	244	17	261
iv)	Other workers Total	Nos.	99836	14079	113915
	Rural	Nos.	12596	7346	19942
	Urban	Nos.	87240	6733	93973
3)	Marginal Workers Total	Nos.	3804	1032	4836
	Rural	Nos.	1287	581	1868
	Urban	Nos.	2517	451	2968
i)	Cultivators Total	Nos.	598	69	667
	Rural	Nos.	538	63	601
	Urban	Nos.	60	6	66
ii)	Agricultural Labourers Total	Nos.	179	102	281
	Rural	Nos.	128	102	230
	Urban	Nos.	51	--	51
iii)	Household industry workers	Nos.	77	227	304
	Rural	Nos.	45	168	213
	Urban	Nos.	32	59	91
iv)	Other workers Total	Nos.	2950	634	3584
	Rural	Nos.	576	248	824
	Urban	Nos.	2374	386	2760

Sr. No.	Particulars	Unit	Daman District	Diu District	Daman and Diu
4)	Non-workers Total	Nos.	85652	36324	121976
	Rural	Nos.	17534	19559	37093
	Urban	Nos.	68118	16765	84883

Source :Population Census

**(II) AGRICULTURE LAND USE**

Particulars	Unit	Daman	Diu
Net cultivation	Hectares	3153.13	705
Permanent pasture & Grazing land	"	174	162
Net irrigated area	"	242.44	273
Area covered under HYV	"	1000	235
Village covered with safe drinking water supply:	%	100	100

**Other infrastructure**

Sr.No.	Particulars	Daman	Diu	Daman & Diu	
<b>1.</b>	<b>ANIMAL HUSBANDARY &amp; VETERINARY</b>				
	Veterinary Dispensaries	1	1	2	
	Govt. Dairy demonstration farms	1	nil	1	
	Govt. poultry farm	1	1	2	
	No. of slaughter houses	Registered	2	nil	2
		Unregistered	11	9	20
<b>2.</b>	<b>LIVE STOCK POPULATION</b>				
	Indigenous Cattle	2037	1463	3500	
	Buffaloes	512	105	617	
	Total Goats	791	2521	3312	
	Total Horse and Ponies	26	4	30	
	Total Dogs	522	364	886	
	Total Fowls	16499	5938	22437	
<b>3.</b>	<b>FOREST AND WILDLIFE</b>				
	Forest area (Hc.)	91.25	516.70	607.95	
	No. of forest checkpost Nos.	4	2	6	

Sr.No.	Particulars	Daman	Diu	Daman & Diu
4.	<b>Fishing Gears Crafts</b>			
	Total Gill netters	419	160	579
	Total Traditional Crafts	253	168	421
	No. of fishing vessels	1475	410	1885
5.	<b>Transport</b>			
	Road length (surfaced) (km)	191	18	209
	Number of vehicles (as on 31/03/2014)			
	Two wheelers-Motor	48829	16389	65218
	Three Wheelers	2294	506	2800
	Light Motor	26013	1169	27182
	Mini Bus/Bus	461	96	557
	Tractors	307	207	514
	Trailers/Crane/Excavator/Fork	286	135	421
	Light Commercial Vehicles/Delivery	2227	154	2381
	H.G.V./M.C.V./Articulated	3615	269	3884
	Motor Cycle Pass(TR)	0	37	37
	Total	<b>84032</b>	<b>18962</b>	<b>102994</b>
	Airport	-	<b>1</b>	<b>1</b>
6.	<b>COMMUNICATION</b>			
	a) No. of post office	3	6	9
	b) Telephone exchange	5	3	8
	c) Radio Relay Stations	1	-	1
	d) TV Relay Stations	1	1	2
7.	<b>Power</b>			
	Installed Capacity	340 mva	20 mva	360 MVA
	Energy Purchased	2185 lakh KWH	270 lakh KWH	2455 lakh KWH
8.	<b>INDUSTRIES</b>	(As on 31.03.2013)		
	No. of registered units	3232	38	3270
	Capital investment ( In crore Rs.)	4130.95	6.58	4137.53
	Employment (No.)	81365	276	81641
9.	<b>Health</b>			
	Hospital (Govt.)	1	1	2
	Community Health Centre	1	-	-
	Primary Health Centre	2	1	3
	Sub – Centers	20	6	26
	Hospital (Private)	8	-	-
	Bed Strength (Govt.)	172	70	242
	Blood Bank (Govt.)	1	-	-
	Integrated Counseling & Testing Centre	3	-	-
	STI Clinics (Govt.)	2	-	-
AYUSH Centre	3	-	-	



Sr.No.	Particulars	Daman	Diu	Daman & Diu
10.	<b>BANKING</b>			
	Scheduled Banks	14	7	21
	Cooperative Banks	2	1	3
	Private Banks.	9	3	12
11.	<b>TOURISM</b>			
	Hotels & Lodges	88	53	141
	Total beds in Hotel	5361	2048	7409
12.	<b>WATER CONSUMPTION (M<sup>3</sup>)</b>			
	Private Bodies	117248	-	-
	Gram Panchayat	229230	1500	230730
	Municipal Bodies	127679	2000	129679
	Total	474157	3500	477657

## **CHAPTER: 3:- Hazard Risk and Vulnerability Analysis of Daman and Diu**

### **3.1: Introduction**

Disaster is a condition which disrupts normal functioning of community and causes wide spread human, material and economic losses which cannot be controlled and prevented by locally available resources. This means that disaster is a crisis situation which cannot be dealt by affected community within its own resources. Disaster Management means planned and systematic approach towards understanding and solving problems in the wake of disaster. Practical experience has proved beyond doubts that commitment of resources to disaster preparedness in the community, yields better results both in terms of economy and effectiveness compared to sinking resources in an ad hoc way in rescue, relief and rehabilitation, but it is unfortunate that when disaster strikes people then organization and administration are not prepared for it. Neither action plans neither are prepared nor are drills carried out to mitigate the resultant damage. Only after disaster strikes to the particular area, the community and the administration in that area become sensitive and start planning. Till that they believe that worst will not come to them, and when the worst come, they feel helpless and face losses in terms of human lives and physical destruction of properties, crops and entire developmental process.

**Disasters can be classified** broadly into two types:-

#### **a) Natural Disaster**

- (i) Drought
- (ii) Floods
- (iii) Cyclone
- (iv) Earth Quake
- (v) Avalanches / Landslides

#### **b) Man-made Disasters**

- i) Chemical
- ii) Biological / Epidemic
- iii) Radiological
- iv) Accidents.

In order to deal with various kinds of disasters, we have a separate classification of disasters;

**a) Water and climate related disaster, namely:-**

- i) Cyclone
- ii) Flood
- iii) Hailstorm & cloud bursts
- iv) Sea erosion
- v) Tornadoes & Hurricanes
- vi) Snow avalanches

**(b)** Geologically related disaster, namely:-

- i) Earthquake
- ii) Dam bursts
- iii) Landslides and Mudflows
- iv) Mines fires

**(c)** Chemical Industrial & Nuclear disasters, namely:-

- i) Chemical & Industrial disaster
- ii) Nuclear disaster

**(d)** Accidents related disasters, namely:-

- i) Urban fires
- ii) Village fires
- iii) Forest fires
- iv) Electrical disaster
- v) Serial bomb blasts
- vi) Major building collapse

**(e)** Biologically related disasters, namely:-

- i) Epidemics
- ii) Pest attacks
- iii) Cattle epidemics
- iv) Food poisoning
- v) AIDS

### **3.2: CYCLONE**

Cyclones are intense low pressure areas from the center of which pressure increases outwards. The amount of the pressure drops in the center and the rate at which it increases outwards gives the intensity of the cyclones and the strength of winds. Damages expected during cyclonic storm. The types of damages likely to be caused by strong winds of various magnitudes which are associated with cyclonic storms are as follows:-

System	Expected wind speed in Km./Hour	Expected Damage
Cyclone	60-90	Tree branches break, some damage to kutcha houses
Severe Cyclone	90-120	Trees gets uprooted, Pucca houses damaged, communication disrupted.
Hurricanes	120 and above	Big trees uprooted, wide spread damage to houses and installations, total disruption of communication.

India with its long coastline is vulnerable to the impact of tropical cyclone that develops in North Indian Ocean (& moves on to by Bay of Bengal and the Arabian Sea). Cyclone develops in the oceanic area surrounding Indian Subcontinent. These systems are classified as:

- Depressions,
- Deep depression,
- Cyclonic storms,
- severe cyclones and
- Severe cyclone with core of hurricane winds depending on the surface wind associated with them.

#### **Meteorological Department of India**

The criteria followed by the Meteorological Department of India to classify the low pressure systems in the Bay of Bengal and in the Arabian Seas as adopted by World Meteorological Organization (W.M.O.) are:

Sr, No.	Type of Disturbances	Associated wind speed in the circulation in km per hour
01	Low Pressure Area	31.5
02	Depression	31.5 to 50
03	Deep Depression	50 to 61

04	Cyclonic Storm	61 to 87
05	Severe Cyclonic Storm	87 to 116.5
06	Severe Cyclonic Storm with a core of Hurricane winds	More than 116.5

### **Cyclone Monitoring:**

Cyclones are monitoring through synoptic charts and INSAT (Indian National Satellites) when it is in the high seas. When the cyclones approach the coastal areas they are tracked through cyclone detection radars which are installed in coastal stations of the east and west coasts of the country, covering the entire region.

### **Cyclone Warning System:**

Cyclone warning is provided in four stages.

#### **1.) Pre-Cyclone Watch**

It is issued when a depression forms over the Arabian Sea irrespective of its distance from the coast and is likely to affect Indian coast in future. The pre-cyclone watch is issued by the name of Director General of Meteorology and is issued at least **72 hours in advance** of the commencement of adverse weather. It is issued at least once a day.

#### **2.) Cyclone Alert**

It is issued at least **48 hours before** the commencement of the bad weather when the cyclone is located beyond 500 Km from the coast. It is issued every three hours.

#### **3.) Cyclone Warning**

It is issued at least **24 hours before** the commencement of the bad weather when the cyclone is located within 500 Km from the coast. Information about time /place of landfall is indicated in the bulletin. Confidence in estimation increases as the cyclone comes closer to the coast.

#### **4.) Post landfall outlook**

It is issued **12 hours before** the cyclone landfall, when the cyclone is located within 200 Km from the coast. More accurate & specific information about time /place of landfall and associated bad weather indicated in the bulletin. In addition, the interior distraction is likely to be affected due to the cyclone are warned in this bulletin.

### **Warning Dissemination process**

1. Cyclone/flood forecasting is generally the responsibility of the Indian Meteorological Department (IMD). IMD is the nodal agency for providing cyclone warning services. IMD's INSAT satellite based

Cyclone Warning Dissemination System (CWDS) is one of the best currently in use in India to communicate cyclone warnings from IMD to community and important officials in areas likely to be affected directly and quickly.

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

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

4. The UT (EOC) i.e. control rooms of the other line departments at the UT level as well as district level also get the warnings. The control rooms are activated on receiving the warnings.

Informatory messages on cyclones are issued for broadcast to AIR as soon as a cyclone is detected in the Arabian Seas.

- Telecast through Doordarshan
- Broadcast through AIR
- Bulletins to the Press
- Satellite based disaster warning systems (This is known as **Cyclone Disaster Warning System**).

In addition to the above, cyclone warnings are also disseminated through teleprinters, telex, facsimile and telephones wherever such facilities exist with the recipient. The warning bulletins are normally, issued at 3 hourly intervals, but more frequently whenever needed. These bulletins contain the information on the areas threatened by cyclones, heavy rainfall, and magnitude of destructive winds and inundation of coastal area by stern surges. Advisories for fishermen not to venture into the sea and for evacuation of the people from the low-lying areas are also included.

The cyclone warnings are disseminated to –

- Commercial shipping and Indian Navy/Coast Guard
- Port Authorities
- Fisheries Officials
- Officials of the State and Central Government
- Commercial Aviation.
- General Public

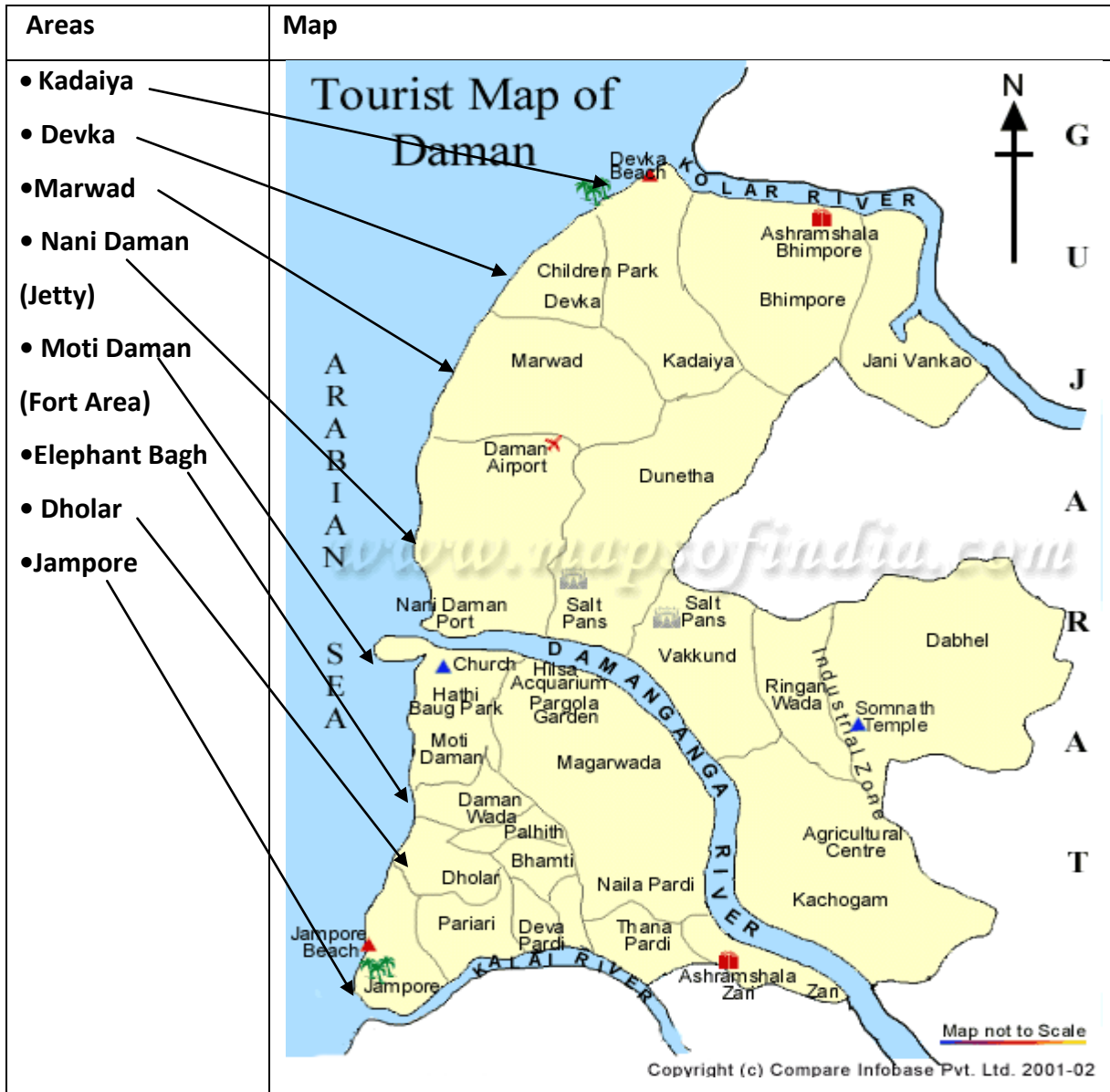
#### **Daman & Diu Scenario**

Looking into past records details of severe, medium and hurricane type cyclone affecting Daman District are as follows:

Sr.	Type of Cyclone	Month	Year
1.	Hurricane cyclone	November	1982
2.	Medium cyclone	June	1983
3.	Severe cyclone	June	1996
4.	Medium cyclone	October	1996
5.	Medium cyclone	December	1998
6.	Severe cyclone	May	1999
7.	Cyclone Hyphene	August	2008

According to Cyclone Hazard Map of India, Daman is located in the **moderate damage risk zone**, with probable maximum wind speed of 44 m/s. The coastal areas are subjected to severe cyclonic storms. The frequency of occurrence of cyclones on the different portions of the coast has been different. Even for the same design wind speed in same areas, the risk of damage for year will be higher, in areas subjected to more frequent cyclones. Daman lies in the latitude between 20° to 21 ° N. Thus, the cyclonic storms constitute a serious natural hazard in the territory. During last 150 years, Gujarat suffered more than 25 cyclones of varying intensity, lastly in the year 1999.

The areas likely to be affected by cyclone in Daman have been stated as under:-



**DIU SCENARIO**

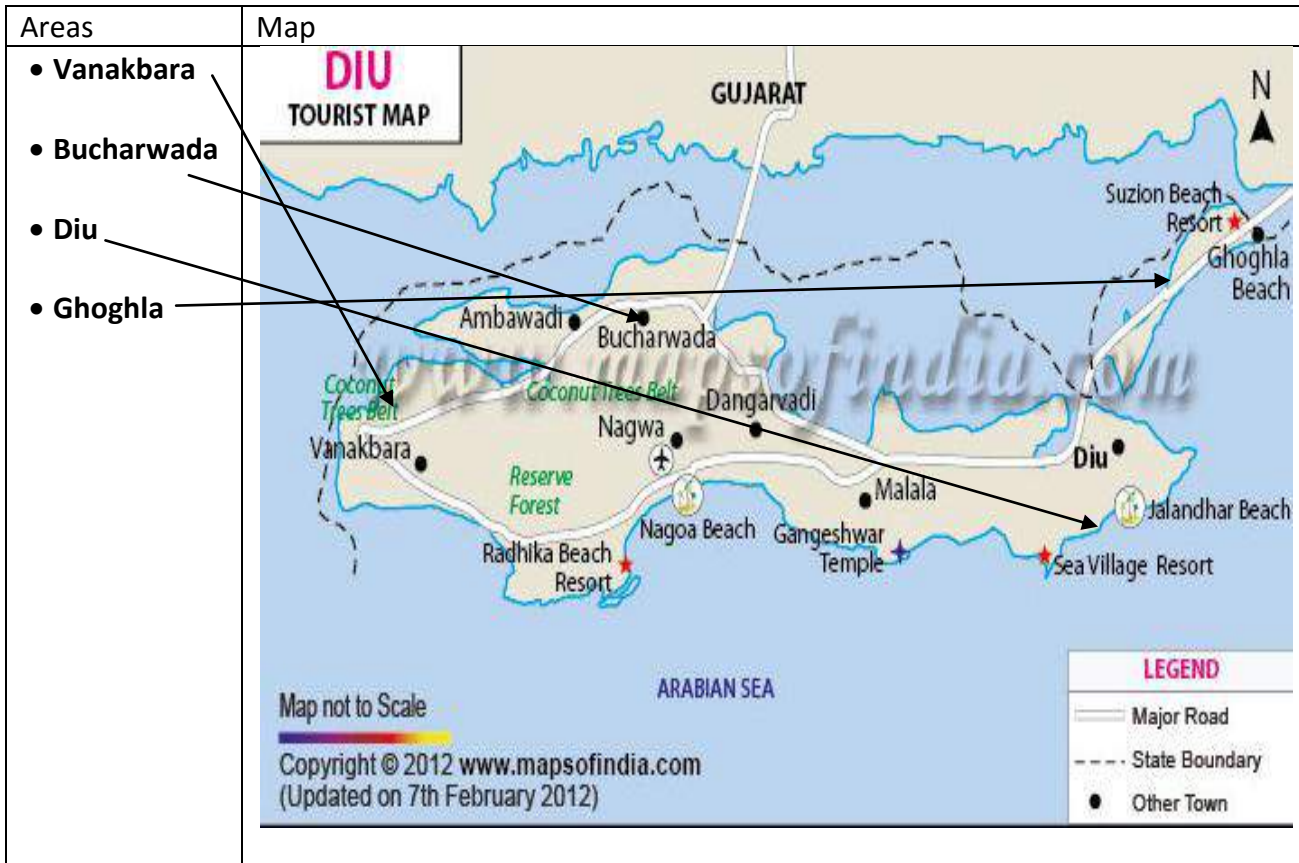
Looking into past records details of severe, medium and hurricane type cyclone affecting Diu District are as follows :

Sr. No.	Type of Cyclone	Month	Year
1	Hurricane cyclone	November	1982
2	Medium Cyclone	June	1983
3	Severe Cyclone	June	1996
4	Medium Cyclone	October	1996



5	Medium Cyclone	December	1998
6	Severe Cyclone	May	1999

**AREAS AFFECTED BY STORM SURGES IN DIU DISTRICT**



**3.3 FLOODS**

Flood occurs when surface water covers land that is normally dry or when water overflows normal confinements. The most widespread of any hazard, flood can arise from abnormally high precipitation, storm surges from tropical storms, dam bursts, and rapid snow melts or even burst water mains. Flood Atlas of India brought out by Central Water Commission draws pictorially the areas liable to floods and the achievement of flood protection measures. Besides the problem of flooding in the river basins, heavy intensity rains could cause local flooding in certain areas where the drainage is either naturally poor or the drains are choked due to various reasons such as careless dumping of refuse in the drains and lack of maintenance. Much of the flooding problems in towns & cities occur due to such causes.

**Flood Forecasting and Warning**

Flood forecasting is a process whereby the authorities are alerted to impending conditions where floods may be likely. Flood forecasting requires understanding of meteorological and hydrological conditions, and is therefore the responsibility of the appropriate government agencies, National Organization is required, but information needs to be made available at a river basin scale.

The main components of a **national flood forecasting and warning system** are as follows:

- Collection of real-time data and prediction of flood severity and time of onset of particular levels of flooding.
- Preparation of warning messages, describing what is happening, predictions of what will happen and expected impact. Messages can also include what action should be taken.
- The communication and dissemination of such messages.
- Interpretation of the predictions and other flood information to determine flood impacts on communities.
- Response to the warnings by the agencies involved and communities.
- Review of the warning system and improvement in the system after flood event.
- If predictions fail, the reasons of prediction failure should be communicated to communities in order to establish trust.

#### **Community based flood forecasting and warning systems**

It is important that the people in each community receive information as early as possible about the possibility of flooding in their area. In addition to the valuable information from the official flood warning system, communities should attempt to develop their own warning systems. At community level, it is important that warnings are received by all individuals. The way in which messages are disseminated in communities will depend on local conditions, but may include some or all of the following:

- Media warnings (print and electronic)
- General warning indicators, for example sirens
- Warnings delivered to areas by community leaders or emergency services
- Dedicated automatic telephone warnings to at-risk properties
- Information about flooding and flood conditions in communities upstream. One approach to disseminating messages is to pass warning messages from village to village as the flood moves downstream
- Keep watch and be regularly informed about the river level and embankment conditions in the local area. The monitoring of the river and embankment should be increased as the water level increases and crosses the critical danger level
- A community-based warning system to pass any information about an approaching flood to every family.

#### **Procedure for disseminating warnings to remote areas**

Communities in remote areas may not be able to receive the types of warnings described in the previous section. Responsibilities need to be defined clearly for lower tiers of administration and the emergency services to have predefined links with communities in remote areas.

This should include;

- Local radio, which should be supplied with clear and accurate information
- Local means of raising alarms, for example church bells, sirens, loud hailers, loudspeakers etc. The latter could be the responsibility of selected individuals or wardens, who need to be provided with equipment and transport, for example motor cycles or bicycles;
- High Priority Telegram
- Doordarshan and the local cable channels (TV channels & radio Channels including FM radio)
- Bulletins in the Press
- Satellite Based disaster Warning Systems
- Fax
- Telephone

#### **Daman Scenario**

Daman has a major river namely **Daman Gang** river which merges in the Arabian Sea. Daman has also two small rivers namely **Kulak and Kalian**. Daman Ganga River comes from Gujarat and it enters Daman from Vapi in Gujarat.

In August 2004, due to heavy rain in South Gujarat and water released from Madhuban Dam in Damanganga river, the some area of Daman District.

On account of construction of Madhuban Dam in Vapi, there are minimal chances of floods in Daman. Though the chances of floods in Daman has become minimal on account of construction of Madhuban Dam, Damanganga River at Vapi in Gujarat, the UT Administration has opened a **Flood Control Room** in Collectorate which receives information regarding discharge of water from Madhuban Dam from time to time. The co-ordination Committee and various departments will have similar responsibility in floods as in cyclones.

Villages and streets of **Kachigam, Varkund, Khariwad, Ghanchiwad, and Kharawad** are identified to be affected by floods.

Flood  
Prone  
Areas:

F

G

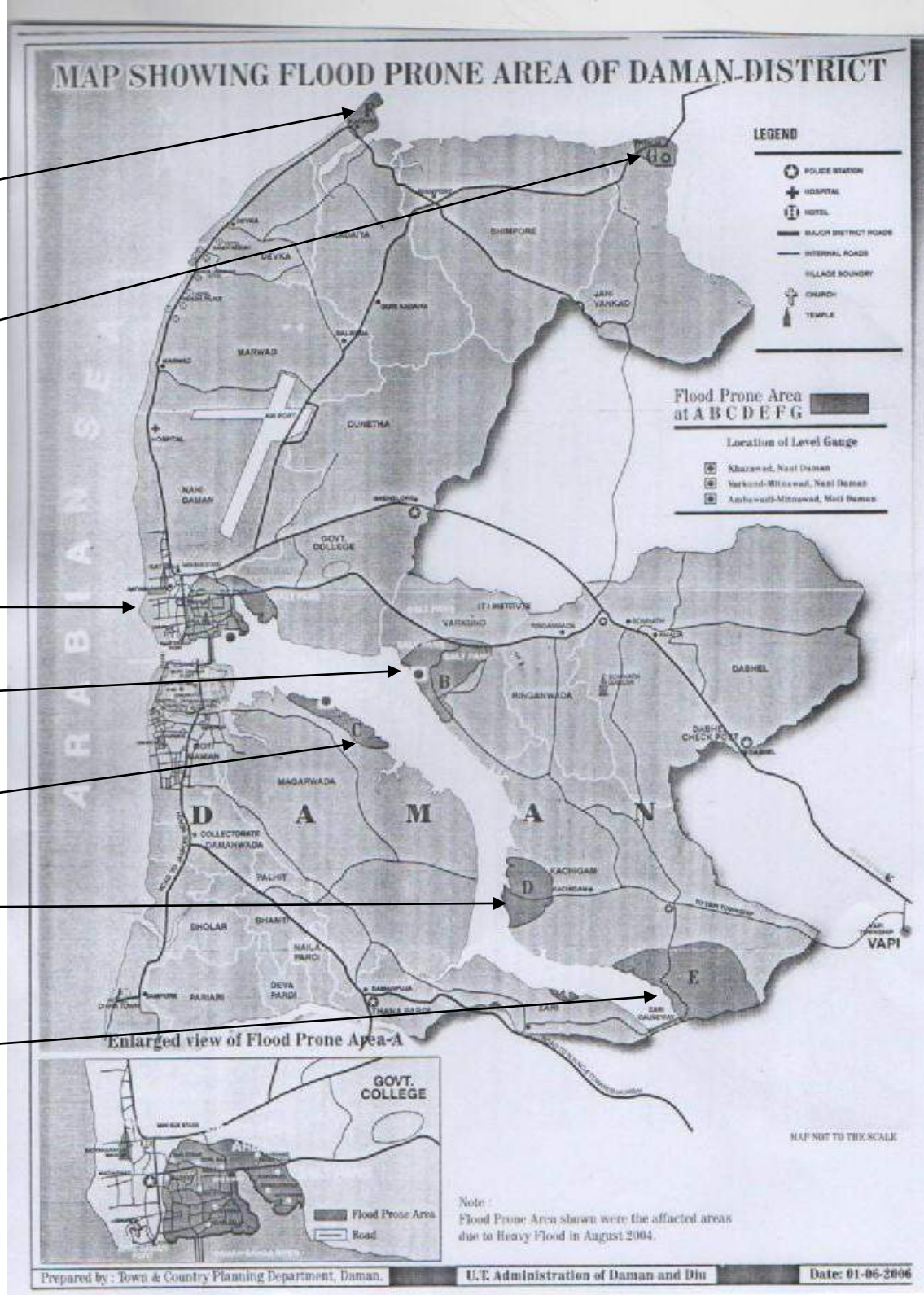
A

B

C

D

E



## **DIU SCENARIO**

Diu is a small Island. In northern side Arabian Sea and southern side river Chassy connected with hinter land by bridge with Una of Junagadh district in Gujarat State. So far, no any flood situation found in Diu district. However, during heavy rain and cyclonic wind lower line area filled up with water.

During hurricane cyclone in November 1982 and severe cyclone in 1996 due to heavy water fall flooding caused heavy damages to salt pans, fishing vessels, roads, electric polls, trees etc. Villages and streets of Jalaram Society and Vadi Sheri area of Vanakbara and Pavti area of Bucharwada village are identified to be affected by floods.

## **3.4 EARTHQUAKE**

Earthquakes strike suddenly without warning, and are unpredictable. Therefore preventive measures for ensuring safety of buildings, structures, communication facilities, water supply lines, electricity and life are of utmost priority.

Earthquakes are caused by natural tectonic interactions.

As per the Seismic Zoning Map of India, there are five seismic zones depending on the High Damage to Low Damage Risk Zone. The object of this Seismic Zoning map is to classify the area of country site a number of zones in which, one can reasonably forecast the intensity of earthquake shock which will occur in the event of a future earthquake. The magnitude and intensity of earthquake can be quantified as per the Richter scale. The magnitude  $M$  of an earthquake is denoted by a number which is a measure of energy released during earthquake occurrence.

### **Daman & Diu Scenario**

The UT of Daman is geographically part of Gujarat on the Arabian Sea Coast. During last 200 years, Gujarat recorded 9 earthquakes of moderate to severe intensity in the years 1819, 1845, 1847, 1848, 1864, 1903, 1938, 1956, 2001. The last one of the worst earthquakes in the history was in 2001 with death toll of 26.

On 4 October, 1851, Daman suffered moderate earthquake. According to one recorded version, it sounded like underground explosions and heavy rumblings which continued for some seconds.

According to earthquake hazard map of India, Daman is located in the moderate damage risk zone with probable earthquake of 5.0 to 6.0 magnitudes on Richter scale.

Before 2001, Diu suffered severe earthquake. According to one recorded version, it sounded like underground explosions and heavy rumblings which continued for some seconds. On 26th January 2001, collapsed around 10 houses and wall of several houses also cracked.

According to earthquake hazard map of India, Diu is located in the moderate damage risk zone with probable earthquake of 5.0 to 6.0 magnitude on Richter scale.

### 3.5: TSUNAMI

- Daman & Diu is prone to Tsunami risk due to its coastline and probability of occurrence of near and offshore submarine earthquakes in the Arabian Sea.
- Makran Subduction Zone (MSZ) -South West of Karachi is an active fault area which may cause a high magnitude earthquake under the sea leading to a tsunami.

### 3.6 CHEMICAL AND INDUSTRIAL ACCIDENTS

A "chemical accident or emergency" refers to an event which results in the release of a substance or substances hazardous to human health and/or the environment in the short or long term. These events can cause illness, injury, disability or death to human beings, often in large numbers, and can result in extensive damage to the environment with considerable human and economic costs (OECD/UNEP).

Chemical and industrial emergencies may arise in a number of ways:

- Disaster/explosion in a plant handling or producing toxic substances.
- Accidents in storage facilities, handling large and various quantities of Chemicals.
- Accidents during the transportation of chemicals from one site to another.
- Misuse of chemicals, resulting in contamination of food stocks or the Environment, overdosing or agrochemicals.
- Improper waste management such as uncontrolled dumping of toxic Chemicals, failure in waste management systems or accidents in wastewater treatment plant.
- Technological system failures.
- Failures of plant safety design or plant components.
- Natural hazards such as fire, earthquakes, and landslides.
- Arson and sabotage.
- Human error.

#### Indian Scenario

All over the world, people are becoming victims of industrial accidents that release hazardous substances into the environment. Trains carrying chemicals derail and trucks overturn. Pipelines rupture and chemical plants develop accidental leaks and releases. Accidents occurring in one district may seriously affect the populations of other districts or perhaps influence the ecology of the entire region. Therefore, crucial preparations must be made by Government to prevent or respond to such events and minimize harmful effects.

### **Daman and Diu Scenario.**

The Union Territory of Daman & Diu is considered as one of the most important industrial centers of the Country. From 1980 onwards, there has been a real influx of industries especially in Daman.

#### **Daman:**

Daman has about 2500 industrial units and employing about 60000 employees. The major industries are Plastic Processing units, Textiles (Texturizing/ Twisting/ Spinning/Knitting/Looms etc), Pharmaceuticals (formulations only and not bulk drugs ), Wire Drawing, Corrugated Boxes and other Paper products , Tiles, Engineering, Cosmetics & Detergents , Distilleries & Breweries , Oils & Greases, Woven sacks, Electrical & Electronic units, assembling units , ferrous and Non ferrous units etc., chemicals (non hazardous - mixing and blending of chemicals only).

As per the information of Pollution Control Committee, Daman and CIF/B these industries are allowed to keep the identified hazardous chemicals within the prescribed limits and hence the chances of chemical accidents are minimal.

Many factories have D.G. sets and Boilers and these units use Petroleum fuels, which are normally stored in tanks. These fuels are Furnace Oil/LDO/HSD and the threshold quantities under the Manufacture; Storage & Import of Hazardous Chemicals Rules, 1989 (notified under the Environment (Protection) Act, 1986 is 15000 Tones for isolated storage. However, the normal quantity restored in the industries in these UTs is between 1 ton to 150 tones. It is ensured that a dyke wall is provided around the petroleum tanks so that in case of leakage. The Petroleum products do not spread and cause hazards. It is also ensured that all Petroleum products/hazardous substances are isolated in all respects from the main plant. Moreover, proper fire fighting equipments, personal protective equipments, first aid boxes, mock drills, job related training etc. are provided by the management. In some Factories, wherever required, on site Emergency plans have been prepared, which will enable the Management to deal with the safety aspect in times of Emergency within the factory premises.

In Daman no chemical accident is reported so far.

#### **Diu:**

Diu has around 63 small scale industrial unit having 6.58 crores investment in giving employment generation in the territory. The industries are primarily of tins, ice plants, oil, plastics, etc. Fortunately, none of the industries deals with hazardous chemicals and accordingly the chance of chemical accidents are minimal. There has been no chemical hazard in past in Diu.

### 3.7: FIRE DISASTER

Incidence of fire becomes a disaster when at the human interface; proper safety norms are not followed. It is a disaster which spreads rapidly and mitigation and management requires spontaneous response. Planning and implementation machinery both at meso and micro levels should be at the highest -level of preparedness both pre-disaster and post-disaster. The loss of human and economic losses attains enormous levels.

#### Indian Scenario

Due to the haphazard growth of urban areas and unplanned expansion of industries in various pockets of our country, incidence of fire had taken the form of disaster. Normally, it starts as a small accident and takes the form of a conflagration if not controlled immediately.

#### Daman Scenario

As per the information collected from the 'Pollution Control Committee Daman', there is no industry situated in Daman who deals in hazardous chemicals out of the total 2500 registered large/medium/small industries. The major accident which may happen in industry is 'fire'. Our vulnerability analysis shows that other than fire, no incident of manmade disaster has taken place in any of the industries.

As per the detailed information of Daman Fire Service, the average number of fire incidents in Daman is around 40 per annum. Out of these incidents, near about 25 - 30% fire incidents are of serious nature.

#### Detailed information of Daman Fire Service

Year	FIRE CALL				Emer gency Call	Falls Call	Total	Injure d	Life Saved	Life Lost	Collection of Fees/ Revenue
	Small	Me d	Ma j	Seri ous							
2006	39	09	20	00	42	00	<b>110</b>	01	02	06	246461/-
2007	48	15	14	00	38	00	<b>115</b>	04	00	00	143386/-
2008	41	08	13	01	30	01	<b>94</b>	02	00	02	142299/-
2009	42	13	14	00	37	01	<b>107</b>	00	00	01	33623/-
2010	52	12	21	01	52	01	<b>139</b>	02	05	04	27491/-
<b>2011</b>	<b>53</b>	06	19	00	41	00	<b>119</b>	01	00	01	65346/-
<b>2012</b>	<b>51</b>	12	24	00	47	01	<b>135</b>	00	04	00	134590/-
<b>2013</b>	<b>61</b>	08	15	00	54	01	<b>139</b>	03	00	02	27049/-
<b>Total</b>	<b>387</b>	83	140	02	341	05	<b>958</b>	13	11	16	820245/-



District: MOTI DAMAN

Year	FIRE CALL				Emergency Call	Falls Call	Total	Injured	Life Saved	Life Lost	Collection of Fees/ Revenue
	Small	Med	Major	Serious							
2006	00	00	00	00	00	00	00	00	00	00	00
2007	13	01	03	00	15	00	32	00	00	00	00
2008	11	00	04	00	17	00	32	00	00	00	00
2009	08	02	01	00	10	00	21	00	00	00	00
2010	21	02	07	00	15	00	45	00	00	01	00
2011	29	03	04	00	15	00	51	00	00	00	00
2012	32	03	13	00	15	00	63	00	00	00	00
2013	29	05	07	00	18	01	60	01	00	06	00
<b>Total</b>	<b>143</b>	<b>16</b>	<b>39</b>	<b>00</b>	<b>105</b>	<b>01</b>	<b>304</b>	<b>01</b>	<b>00</b>	<b>07</b>	<b>00</b>

District: DIU

Year	FIRE CALL				Emergency Call	Falls Call	Total	Injured	Life Saved	Life Lost	Collection of Fees/ Revenue
	Small	Med	Major	Serious							
2006	19	02	02	00	33	00	56	00	00	00	
2007	24	06	05	00	83	00	118	00	00	00	
2008	20	04	06	00	40	00	70	00	00	00	
2009	36	06	06	00	51	00	99	00	00	00	
2010	26	04	00	00	43	02	75	02	00	03	
2011	52	03	02	00	28	01	86	00	04	01	
2012	47	03	03	00	31	00	84	00	00	00	
2013	39	02	00	00	68	01	110	00	00	00	

<b>Total</b>	<b>263</b>	<b>30</b>	<b>24</b>	<b>00</b>	<b>377</b>	<b>04</b>	<b>698</b>	<b>02</b>	<b>04</b>	<b>04</b>	
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## **DIU SCENARIO**

As per the detailed information of Diu Fire Service, the average number of fire incidents in Diu is around 50 per annum. Out of these incidents, near about 5–10% fire incidents are of serious nature. But there is no loss of life of humans and property damages in any incidents of fire.

### **3.8: EPIDEMICS**

An epidemic is defined as the occurrence of an illness or other health related event that is unusually large or unexpected. Epidemics are commonly caused by a disease known or suspected to be of infectious or parasitic origin; however, epidemics can be associated with other hazards. An epidemic can evolve rapidly into a disaster, thus a prompt response is needed.

The term epidemic can be applied to any pronounced rise in the occurrence of a disease and is not restricted to sudden outbreaks. New and unrecognized epidemics occasionally arise such as AIDS (acute-immunodeficiency syndrome) which was detected in the United States in 1981 when requests for medication increased.

Many epidemic diseases can cause epidemics if environmental conditions, host susceptibility, or host carriers change in a way that favors transmission and infection.

#### **Daman & Diu Scenario**

Daman & Diu has no history of epidemics in past. However, one recorded disaster was in Surat in 1994 which is 120 km away from Daman.

## CHAPTER: 4:- PREVENTIVE & PREPAREDNESS MEASURES

### 4.1 Strategy

- Policy framework on disaster management reflecting the holistic approach involving prevention, mitigation and preparedness in pre-disaster phase.
- Creation of Union Territory mitigation fund.
- Creation of awareness for disaster risk reduction at all level.
- Creating awareness for improving preparedness amongst the communities, using media and school education.
- Appropriate amendments in the legislative and regulatory instruments along with strengthening of the enforcement mechanisms at different levels.
- Capacity building at local and regional levels for undertaking rapid-assessment surveys and investigations of the nature and extent of damage in post disaster situations.
- Conducting micro-zonation surveys.
- To ensure use of disaster resistant construction techniques.
- The use of disaster resistant codes and guidelines related to disaster resistant construction in all sectors of the society by law and through incentives and disincentives.
- To promote and encourage Research & Development activities.

### 4.2 Prevention and Mitigation measures

Mitigation measures would be of twofold:

- **Structural:-** It generally refer to capital investment on physical constructions or other development works, which include engineering measures and construction of hazard resistant and protective structures and other protective infrastructure.
- **Non Structural: -** It refers to awareness and education, policies techno-legal systems and practices, training, capacity development etc.

#### All Hazard structural & non structural measures

Sr. No.	Task	Activities
1	Land use planning	<ul style="list-style-type: none"> <li>• Land use planning of the UT in view of hazard, risk and vulnerability of the Territory.</li> <li>• To ensure development, schemes of the UT are undertaken in view of hazard, risk, vulnerability and microzonation.</li> <li>• Planning permission of any factory/industry should consider the land use planning in view of hazard, risk and vulnerability of the UT.</li> </ul>

Sr. No.	Task	Activities
	Earthquake specific Planning	<ul style="list-style-type: none"> <li>• To develop earthquake resistant design features for the construction of residential/commercial structures.</li> <li>• Identify structures that require retrofitting.</li> <li>• Identification and removal of unsafe buildings/structure.</li> </ul>
2	Mainstreaming Disaster Management in development programmes	<ul style="list-style-type: none"> <li>• Ensure that each development programme /scheme in the UT should be sanctioned/undertaken only if it meets the requirement of disaster management.</li> <li>• Ensure the programme/ scheme/ project is facilitated with the provision for adequate funds of disaster management.</li> </ul>
3	Adaption of new technology	<ul style="list-style-type: none"> <li>• Application of Science and technology and engineering inputs to improve infrastructures including dams and reservoirs, building design, construction, etc.</li> </ul>
4	Tech-legal Regime	<ul style="list-style-type: none"> <li>• Review and revision of building by laws.</li> <li>• Ensure strict implementation of Code and Rules.</li> </ul>
5	Safety Audit	<ul style="list-style-type: none"> <li>• Carrying out structural safety audit of all critical lifeline structures.</li> </ul>
6	Capacity Building	<ul style="list-style-type: none"> <li>• Establish infrastructure for onsite and offsite warning dissemination.</li> <li>• Construction/Strengthening of EOC/ERC at all level.</li> <li>• Procurement of all necessary equipments including PPE .</li> </ul>
<b>Non Structural Measures</b>		
1	Planning	<p>Prepare Multi hazard disaster management plan</p> <ul style="list-style-type: none"> <li>• Prepare hazard wise contingency planning.</li> <li>• Ensure hazard wise departmental action plan and SOP.</li> <li>• Conduct mock drills at regular intervals.</li> <li>• Update the plan as per the requirement.</li> </ul>

Sr. No.	Task	Activities
		<ul style="list-style-type: none"> <li>• Monitor similar activities at district &amp; taluka level.</li> </ul>
2	Capacity Building	<ul style="list-style-type: none"> <li>• Develop multi-hazard IEC material for Publication &amp; Distribution.</li> <li>• Media campaign for awareness generation in general public.</li> <li>• Organize training programmes, seminars and workshops.</li> <li>• Include disaster related topics in curriculum.</li> <li>• Encourage disaster insurance.</li> <li>• Encourage favorable taxation/ incentive.</li> </ul>
3	Community based Disaster Management	<ul style="list-style-type: none"> <li>• Strengthening capacity of local self government entities to understand local vulnerability and risk, disaster prevention needs, preparedness and response capabilities through participatory approach.</li> </ul>

### 4.3 Mainstreaming DM Concerns into Developmental Plans/Projects

- Mainstreaming disaster risk reduction into development planning has been a priority concern for the UT Administration.
- Mainstreaming risk reduction should result in appropriate measures being taken to reduce disaster risk and ensure that development plans and programmes do not create new forms of vulnerability.
- In continuation with the efforts to integrate disaster management into development planning especially for new projects that are under preparation stage, the Central Government has revised the formats for pre-approval from **EFC** (Expenditure Finance Committee) and for preparing the **DPR** (Detailed Project Report) to address disaster management concerns.

To ensure the implementation of key areas, a check list for EFC format and the responsible departments are as shown below.

Task	Activities	Responsibilities
Mainstreaming disaster management into development planning	1.To ascertain whether project involve any creation/ modification of structural/ engineering assets. 2.To ascertain the possible risks, likelihood and impact from disasters due to the location of project sites.	UT Authority DDMA Local Bodies OIDC Line Department.

Task	Activities	Responsibilities
	<p>3. To ascertain whether probable risks have been prioritized and the mitigation measures being contemplated, both structural and non-structural measures.</p> <p>4. To ascertain whether the design and engineering of the structure has taken into consideration the National Building Code 2005, the appropriate BIS Codes, other applicable sources as per the type of the project and the NDMA guidelines.</p> <p>5. To ascertain whether the cost of disaster treatment/ mitigation measures been included in the overall project cost.</p> <p>6. To ascertain whether the process of risk assessment has been done based on available information and secondary evidence.</p>	

To ensure the implementation of key areas, a check list for DPR format and the responsible departments are as shown below:

Task	Activities	Responsibilities
Mainstreaming disaster management into development planning	<ul style="list-style-type: none"> <li>• Impact Assessment of project (damage that can be caused to the project by natural disasters, design of the project that could accentuate the vulnerability of the area to disasters and / or lead to rise in damage / loss of lives, property, livelihood and surrounding environment),</li> <li>• Risk assessment of project .</li> <li>• Vulnerability assessment of project (Evaluation of site with regards to parameters such as probable maximum seismicity, probable maximum storm surge, probable maximum wind speed, probable maximum precipitation, probable maximum flood discharge and level, soil liquefaction proneness under probable earthquake intensities)</li> <li>• Complacence of <ul style="list-style-type: none"> <li>➤ land use management</li> <li>➤ Building Code</li> <li>➤ Building use regulation</li> <li>➤ Directives and Legislation</li> <li>➤ Maintenance requirement.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• UTDMA</li> <li>• Line Depts. preparing the project.</li> <li>• Dept. approving the project <ul style="list-style-type: none"> <li>➤ Administratively</li> <li>➤ Financially</li> <li>➤ Technically</li> </ul> </li> <li>• Local Bodies</li> </ul>

Task	Activities	Responsibilities
	<ul style="list-style-type: none"> <li>• Details about the location of the project, proneness of the project area to various hazards and analysis of impact on safety of the project.</li> <li>• Impact of the project on the environment and the surrounding population with respect to the type of the project and adoption of mitigation measures to reduce the impact of the same.</li> </ul>	

#### 4.4: Preparedness Measures

##### 4.4.1: Resource Availability

During past disaster, it has been observed that a comprehensive database of disaster management related inventory is essential for an organized response. More often than not, lack of proper and adequate information has hampered swift and measured response resulting in delay which could be critical in such eventualities. Therefore, a need was felt to prepare a database of such resources, from Village level to UT level.

Task	Activities	Responsibility
Resource Mapping	<ol style="list-style-type: none"> <li>1. Identify available resources viz. Human, financial and equipment for disaster management with <ul style="list-style-type: none"> <li>- UT Level.</li> <li>- Dist. Level</li> <li>- Village Pnachayat level</li> <li>- Municipality level</li> <li>- Public sector</li> <li>- Private sector</li> <li>- Community level</li> </ul> </li> <li>2. Identification of gaps of resources as per the need.</li> <li>3. Process for procurement of lacking resources.</li> </ol>	<ul style="list-style-type: none"> <li>• Revenue Dept.</li> <li>• COR</li> <li>• Line dept.</li> <li>• Dist. Collectors</li> <li>• Local Bodies.</li> </ul>

#### India Disaster Resource Network (IDRN)

IDRN, a web based information system, is a platform for managing the inventory of equipments, skilled human resources and critical supplies for emergency response. The primary focus is to enable the decision makers to find answers on availability of equipments 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 updation 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 contact details.

UT Administration of Daman and Diu will ensure that regular updation of data of both districts on the IDRN Portal would be done.

#### 4.4.2: Community based Disaster Management

- Community is not only the victim but invariably the first responder in any disaster.
- Any disaster revolves around the coping capacity of the community.
- Therefore, community should be closely associated with prevention, mitigation, preparedness, training, capacity building, response, relief, recovery i.e. short term and long term, rehabilitation and reconstruction.

Task	Activity	Responsibility
Community Preparedness	1. Selecting vulnerable community and most vulnerable groups at risk (keep gender issues in mind)	<ul style="list-style-type: none"> <li>• Revenue Department</li> <li>• UTDMA</li> <li>• Finance Department</li> <li>• Local Bodies</li> <li>• Mamlatdar</li> </ul>
	2. Disseminate information about vulnerability and risk to the community	
	3. Promote local level disaster risk management planning through participatory approach	
	4. Advice and issue direction wherever necessary for community disaster prevention, mitigation and preparedness	
	5. Provide necessary resources and support for disaster risk reduction at community level	
	6. Promote community managed implementations	
	7. Review the preparedness at community level	



Task	Activity	Responsibility
	8. Take appropriate actions to enhance community preparedness.	
	9. Promote community education, awareness and training	
	10. Ensure fail safe mechanism for timely dissemination of forecasting and warning of impending disaster to the community	
	11. Disseminate information to community to deal with any disaster situation	

#### 4.4.3 Training, capacity building and other proactive measures

Task	Activity	Responsibility
	1. Training to Volunteers personal in various aspect of disaster management.	<ul style="list-style-type: none"> <li>• UTDMA</li> </ul>
	2. Training to home Guards personal in various aspect of disaster management including search and rescue.	<ul style="list-style-type: none"> <li>• NIDM</li> <li>• UTDMA</li> </ul>
	3. Training to educational and training institutions personal in various aspects of disaster management.	<ul style="list-style-type: none"> <li>• Education Department</li> <li>• UTDMA</li> </ul>
	4. Training to civil society and corporate entities in various aspect of disaster management .	<ul style="list-style-type: none"> <li>• NIDM</li> <li>• UTDMA</li> </ul>
	5. Training to fire and emergency service personal in various aspect of disaster management	<ul style="list-style-type: none"> <li>• NIDM</li> <li>• UTDMA</li> </ul>
	6. Training to police and traffic personal in various aspect of disaster management	<ul style="list-style-type: none"> <li>• Home Dept.</li> <li>• Police</li> <li>• NIDM</li> <li>• UTDMA</li> </ul>
	7. Training to media in various aspect of disaster management	<ul style="list-style-type: none"> <li>• NIDM</li> <li>• UTDMA</li> <li>• Information Dept</li> </ul>
	8. Training to govt. officials in various aspect of disaster management	<ul style="list-style-type: none"> <li>• NIDM</li> <li>• UTDMA</li> </ul>

Task	Activity	Responsibility
		<ul style="list-style-type: none"> <li>Departmental Training Institutes</li> </ul>
	9. Training to engineers, architects, structural engineers, builders and masons in various aspect of disaster management	<ul style="list-style-type: none"> <li>NIDM</li> <li>UTDMA</li> <li>Departmental Training Institutes.</li> </ul>

#### 4.4.4 Awareness

Task	Activity	Responsibility
Information education And communication	<p>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,</p> <p>- Planning and Design - Execution and Dissemination</p>	<ul style="list-style-type: none"> <li>Revenue Dept.</li> <li>Information Dept.</li> <li>UTDMA</li> <li>Education Dept.</li> <li>Local Bodies</li> </ul>

#### 4.4.5:-Techno-legal regime

Task	Activity	Responsibility
Institutional Arrangement.	1. Creation of State Level Disaster Management Authority .	<ul style="list-style-type: none"> <li>Revenue Department</li> </ul>
	2. Formation of DM policy and guidelines.	
	3. Development of relief norms and packages.	<ul style="list-style-type: none"> <li>Revenue Department</li> <li>Finance Department</li> <li>UTDMA</li> </ul>
	4. Development of Disaster Management Plans (UTDMA has prepared few hazard specific plans) <ul style="list-style-type: none"> <li>Hazard – wise State Disaster Management Plans</li> <li>State Action Plans</li> <li>Departmental Disaster Management Plans</li> <li>Dist., City &amp; Village Plans.</li> </ul>	<ul style="list-style-type: none"> <li>Revenue Department</li> <li>All Line Department</li> <li>UTDMA</li> <li>Mamalatdar</li> </ul>
	5. Regular rehearsal, review and updating of plans.	
	6. Publication & dissemination of Plans	
	7. Strengthening of Early Warning System <ul style="list-style-type: none"> <li>Conduct study</li> <li>Analyze</li> </ul>	<ul style="list-style-type: none"> <li>Revenue Dept.</li> <li>Science &amp; Tech Dept.</li> </ul>

Task	Activity	Responsibility
	<ul style="list-style-type: none"> <li>Implement</li> </ul>	<ul style="list-style-type: none"> <li>UTDMA</li> <li>IMD</li> <li>DDMA</li> <li>All Line Dept.</li> </ul>
	8. Arrangement with service provider companies for multiple warning messages	<ul style="list-style-type: none"> <li>Revenue Dept.</li> <li>Science &amp; Tech Dept.</li> <li>UTDMA</li> <li>IMD</li> <li>DDMA</li> <li>All Line Dept.</li> </ul>
	9. Safety Measures <ul style="list-style-type: none"> <li>Identification of places</li> <li>Alarm System</li> <li>Personnel protective equipments</li> <li>Promotion of life saving methods and techniques</li> </ul>	<ul style="list-style-type: none"> <li>Revenue Dept.</li> <li>DMC</li> <li>DP.</li> <li>UTDMA</li> <li>DDMA</li> <li>Civil Supply Dept.</li> </ul>
	10. Strengthening of relief distribution and accounting system at state and district level <ul style="list-style-type: none"> <li>Identification of centralized system for receipt, storage and distribution of relief</li> <li>Rate contract, procurement and stockpile of relief material</li> </ul>	<ul style="list-style-type: none"> <li>Revenue Dept.</li> <li>DMC</li> <li>DP.</li> <li>UTDMA</li> <li>DDMA</li> <li>All Line Dept</li> </ul>
	11. Strengthening of EOC at state, region and district level. <ul style="list-style-type: none"> <li>Retrofitting of existing buildings</li> <li>Strengthening of resources               <ul style="list-style-type: none"> <li>Task forces</li> <li>Equipments</li> <li>SOPs</li> <li>Financials</li> </ul> </li> <li>Arrangement for optional EOC</li> <li>Arrangement of mock drills</li> <li>Arrangement of logistics</li> <li>Strengthening communication means.</li> </ul>	<ul style="list-style-type: none"> <li>Revenue Dept.</li> <li>DMC</li> <li>DP.</li> <li>UTDMA</li> <li>DDMA</li> <li>All Line Dept</li> </ul>

#### 4.4.6: Medical Preparedness

Task	Activity
Medical Preparedness	1. Preparation of Authentic medical database for public and private facilities available in the UT. <ul style="list-style-type: none"> <li>Collection of Data</li> <li>gap analysis</li> <li>Strengthening</li> </ul>
	2. Resource management <ul style="list-style-type: none"> <li>Manpower, logistics, medical equipments, medicines, antidotes, personal protective equipments, disinfectant, vaccine</li> </ul>

Task	Activity
	<p>3. Identification of medical incident command system</p> <ul style="list-style-type: none"> <li>- Incident Commander <ul style="list-style-type: none"> <li>• UT Level</li> <li>• Dist. Level</li> <li>• Disaster site</li> </ul> </li> <li>- Identification of each section head at each level <ul style="list-style-type: none"> <li>• Operation</li> <li>• Planning</li> <li>• Logistic</li> <li>• Administration &amp; Finance</li> <li>• Media and Public information</li> </ul> </li> <li>- Identification of key members of different task force.</li> <li>- Control room arrangement <ul style="list-style-type: none"> <li>• Departmental control room</li> <li>• UT and district control room</li> </ul> </li> <li>-Appointment of liaison officer in shifts.</li> <li>- Planning <ul style="list-style-type: none"> <li>• Preparation of medical management plan <ul style="list-style-type: none"> <li>○ UT level</li> <li>○ Dist. Level</li> <li>○ Hospital preparedness plan</li> </ul> </li> </ul> </li> <li>-Training and capacity building <ul style="list-style-type: none"> <li>• Hospital preparedness,</li> <li>• Pre hospital care,</li> <li>• Mass casualty management, etc.</li> </ul> </li> </ul>

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## Chapter: 5:- **DISASTER RESPONSE**

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.

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 UT Administration 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 control rooms at the UT level as well as district control rooms should be activated with full strength.

### **5.1 Institutional Arrangements**

Under this UT Disaster Management Plan, all disaster specific mechanisms would come under a single umbrella allowing for attending to all kinds of disasters. The existing arrangements therefore will be strengthened by defining this administrative arrangement. This arrangement proposes **Administrator as the head supported by the Relief Commissioner/ District Collector** through the branch arrangements at the Control room both at UT level and at the district levels. The detail on disaster response structure is mentioned in chapter 1.

### **5.2 Trigger Mechanism and Plan activation.**

The Revenue Department of the UT Administration 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 disaster response structure will be activated on the receipt of disaster warning/on the occurrence of the disaster. The occurrence of disaster may be reported by the concern monitoring authority to the Collector by the fastest means. The Collector will further inform to Chairperson/Administrator of the UT level Disaster Management Authority and will activate all departments for emergency response including District EOC under the Guidance of UT level Disaster Management Authority. And also, they will issue instructions to include the following details:

- Exact quantum of resources (in terms of manpower, equipments and essential items from key departments/stakeholders) that is required.
- The type of assistance to be provided.
- The time limit within which assistance is needed.
- Details of other Task/Response Forces through which coordination should take place.

The District EOC and other control rooms at the district level should be activated with full strength. Once the situation is totally controlled and normalcy is restored, the COR declares End of Emergency Response and issues instructions to withdraw the staff deployed in emergency duties.

### **Emergency Operations Centre**

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. At present **District Disaster Cell (DDC) / Control Room is working as a form of EOC at District Level** under the supervision of District Collector/ COR.

UTDMA is in process of developing an EOC at UT as well as district level that will comprehensive network for effective disaster management which includes emergency communication, operation and response management. The EOC will be the hub of activity in a disaster situation. This is however, not to underestimate its normal time activities. The EOC, the key organizational structure, is flexible to expand when demand increases, and contracts when the situation comes to normal.

### **Activation of EOC**

The EOC is a nodal point for the overall coordination and control of relief work. In case of an **L1** Disaster the DEOC will be activated, in case of an **L2** disaster UTEOC will be activated along with the DEOC.

The primary function of an EOC:

- Receive, monitor, and assess disaster information.
- Keep track of available resources.
- Monitor, assess, and track response units and resource requests.
- Manage resource deployment for optimal usage.
- Make policy decisions and proclaim local emergencies as needed.
- Coordinate operations of all responding units, including law enforcement, fire, medical, logistics etc.
- Augment comprehensive emergency communication from EOC to any field operation

when needed or appropriate.

- Maintain EOC security and access control.
- Provide recovery assistance in response to the situations and available resources
- Keep senior, subordinate and tenant officials informed.
- Keep local jurisdictions (Village/town/City, district and State) informed.
- Operate a message centre to log and post all key disaster information.
- Develop and disseminate public information warnings and instructions.

### **5.3: Role Of UT Administration In Disaster Response**

#### **5.3.1 Role of District Administration**

On the basis of capability analysis of District Administration, our Command, Control and Coordination will be as follows:-

#### **District, Disaster Management Committee (DDMC)**

Chairman:

- District Collector.

Members:

1. Sup. Of Police
2. Deputy Conservator of Forests
3. CEO, District Panchayat
4. Deputy Collector
5. Chief of Police
6. Director of Medical & Health Services
7. Superintending Engineer, PWD
8. Executive Engineer, Electrical
9. Commanding Officer, Coast Guard
10. Chief Executive Officer, District Panchayat
11. Addl. Director Education
12. Asstt. Director Transport
13. Chief Officer, Daman Municipal Council
14. The Mamlatdar.

15. The Block Development Officer.
16. The Veterinary Officer
17. The Zonal Agriculture Officer.
18. Superintendent of Fisheries
19. The Fire Officer,
20. The Port Officer
21. Sub Inspector Civil Supply.
22. Concerned commanding authorities of Coast Guard.

**Special Invitees:**

- President, Industries Association
- Development Commissioner/ IG(Police)
- Commissioner & Secretary (Finance)
- President, District Panchayat
- President, Daman Municipal Council
- Member of Parliament, Daman & Diu
- Superintending Engineer - Madhuban Dam.
- Division Engineer – Telecommunications
- NGOs, Organizations, NSS, Scout and Guides

- **District Disaster Management Authority (DDMA) has been constituted in 2005.**
- **UT Disaster Management Authority (UTDMA/SDMA has been constituted in 2005.**

**Coordination meeting (District Disaster Management Committee)** by Collector with Heads of other Departments of Health, PWD, Police, Port, Education, Municipalities, Coast Guard, Animal Husbandry, Civil Supplies, Prominent NGOs, Political leaders and opinion workers of the District are to be conducted in first week of **April and September** every year on the following issues.

- Establishment and ensuring functionality of various shelters & treatment centers.
- Identification of various teams to visit affected areas for surveillance and treatment.
- Providing medicines and disinfectants to mobile teams and treatment centers.
- Organizing mobile teams to transport patient to nearest treatment centers.



- To carry out repairs of essential infrastructure, roads, drainages, vehicles, boats etc. Special directives to DMC and Panchayat to keep drainage system free of all blockages so that the rain water in the event of heavy rain drains out fast.
- To replenishing stocks of food, essential commodities, medicines including first aid kits, relief material and fodder for animals etc. wherever necessary, the Committee will also ensure availability of water at shelter points and other residential areas.
- In case of cyclone treat the administrative machinery to be geared up to meet the challenges.
- The co-ordination meeting of the related departments will take up the issue of, review of pre-contracts and pre-agreements and ask all the contractual parties to gear up for the eventuality.
- Planning of Evacuation, rescue and relief.
- Planning for participation of Public Volunteers, NGO's and charitable institutions.
- Updating of resource inventory of Daman.

### **The Collector**

- Facilitate and, coordinate with, local Government bodies to ensure that pre and post - disaster management activities in the district are carried out.
- Assist community training, awareness programmes and the installation of emergency facilities with the support of local administration, non-governmental organizations, and the private sector.
- Take appropriate actions to smoothen the response and relief activities to minimize the effect of disaster.
- Recommend Commissioner of Relief and UT Administration for declaration of disaster.

### **5.3.2: ROLE OF P.W.D.**

The Public Works Department is one of the important Departments of this UT. This department is very rich regarding resources and skilled personnel. This organization will work as subsidiary part of Collectorate. Chief Engineer PWD will ensure the prompt action of his department on the line of decision taken by Co-ordination Committee under the chairmanship of Collector, Daman. The PWD Department will also act as a filler as per the requirement of Administration. The main works assigned to PWD Department are as follows:-

1. Pre-disaster arrangement
  - i) All Technical Assistants and Jr. Engineers with road gang workers and building maintenance labourers should be called and kept ready at offices with truck and all tools & equipments.
  - ii) Constant inspection should be carried on by Jr. Engineers.

iii) Have to manage cement bags (also empty bags) which can be used during and after disaster.

2. Lifting of debris
3. Cleaning and preparing of roads, bridges with the help of DMC, District Panchayat and Forest Department.
4. Repairing of all Govt. buildings and to assist private building owners. For this as a pre disaster exercise, department has to keep ready all building, maintenance, labourers with all tools and equipments.
5. Have to maintain water supply before and after the disaster. Water supply maintenance and garage maintenance staffs are to be kept ready at and near the office/control room. To maintain uninterrupted water supply there must be generator facility at all pump houses.
6. Department has to make proper arrangement for oil, petrol, diesel within reach not only for PWD but also for other Govt. agencies.
7. All vehicles should be kept in working condition.

Special care for Govt. buildings and circuit house – Constant inspections are to be carried out with Jr. Engineer of Building Maintenance. The generators at Govt. offices and Circuit House should be kept in operative condition with stock of diesel and other items. eg food grains, vegetables, candles, matchbox, kerosene with staffs.

### **5.3.3: ROLE OF ELECTRICITY DEPARTMENT**

The contingency plan from Electricity Department is framed as follows:

#### **A. PRELIMINARY PREPARATIONS**

1. All technical and non-technical staffs are to be alert.
2. All Junior Engineers have to keep all materials ready to rectify any type of fault in supply lines.
3. The Substation battery should be checked and must be in ready to use condition.
4. Fuel for vehicle and sub-station generator must be in stock.
5. All line staff sub-stations have to be equipped with torches and cells.
6. The VHF sets should be kept in running condition. There must be sufficient sets of VHF sets.
7. The patrolling of lines should be carried out for tinning out weak points and should be recorded in sub-station for HT & LT line transformer etc.
8. First Aid Boxes should be provided at all complaint centres, sub-stations and offices.

9. Sufficient quantity to tools and plant for all section/Jr. Engineers or respective area and sub-stations should be provided. Address and phone numbers of all technical and non-technical staff with the information regarding assigned duty must be provided at all section office and sub-station.
10. The reserved stock of lying materials should be maintained on top priority.

**B. IMMEDIATE MEASURES:**

1. Restoration of Power Supply in emergency: In cases of breakdowns of Electrical Network due to Cyclone, Tempest and Earth quakes, the department immediately will take up urgent remedial steps for attending the disturbed and affected electrical infrastructures. For this purpose, the Junior Engineers who are stationed at various complaint centres in Daman & Diu districts shall attend such works with their line staff area wise and do the needful action for immediate reliefs.
2. The 220/ KV Substation at Magarwada and 66KV Sub-station at Dabhel, Kachigam, Varkund and Dalwada in Daman and the 66/11 kV Substation at Malala in Diu are provided with relay breaker and other facilities so as to enable their consecutive area to automatically 'put off' in case of conductor / poles snapping which may prove fatal.
3. Materials required for repairing of damages electric lines and equipments are always kept available in the stores of the electricity department.
4. The Junior Engineers of various sections are carrying out the said relief / repair works under guidance of their Executive Engineer / Assistant Engineer.
5. The Department also takes the help of authorized electrical contractors who are registered electrical practitioners for the UT of Daman & Diu, they provide assistant for imparting men and materials and technical expertise to the department and carryout the relief works as and when called for by the department.

**C. Activities for extra high-tension equipments:**

The Department has provision for repairing and reconditioning of Extra High Tension line and equipments through the Team of GEB stationed at 220/110/66KV Sub-station at Vapi, Navsari and Kansari.

**6. Communication facilities :**

The Department has V.H.F. & phone facilities for communication between various sub-stations and complaint centres.

**7. Standby power arrangement :**

Department has provisions for making use of diesel generating sets of LT and HT for Industrial consumers located at various industrial estates of **Somnath, Kachigam, Dabhel, Ringanwada,**

**Bhenslore, Bhimpore, Kadaiya and Dalwada** areas of Daman and Diu, in such disastrous conditions.

#### **5.3.4: ROLE OF THE DIRECTOR, MEDICAL & HEALTH SERVICES, DAMAN.**

Disaster may create work pressure on existing Health infrastructure, but Health infrastructure is used to this type of exigencies.

Health Department has prepared **Crisis Management Plan for Daman**. In this plan in detail role and responsibility of Health Department is given. Some common administrative measures for health related issues are given here:

- **Health Education** :-During the time of pre-disaster period, mass media like Radio, News Paper, Pamphlets, Leaflets containing small repeated messages on personal hygiene, water consumption, use of boiled water and chlorine tablets need to be distributed.

Food consumption: - To avoid use of cheap ice creams, candies, food prepared and stored in open, non consumption of stale and overnight food etc. will be printed and distributed among the population.

- **Preventive measures against disease :-**
  - Disinfection of water sources.
  - Necessary vaccine, medicines and ORS packets will be keep ready for any preventable epidemic in high risk groups of population.
  - Necessary instruction and guidelines may be issued to Daman Municipality and Gram Panchayat in affected area for proper disposal of water and excreta.
  - Health checkup for high risk group i.e. children below 5 years, pregnant and lactating mothers in Anganwadi, Balwadi, Checkpost and school to be done and required immunization treatment so be carried out.
  - Control room to be established at the affected area, affected PHC and District Headquarter to provide necessary information, Health Education and guidance to the population.
- Identification of target groups
- Procurement of Medical stores
- Establishment of Medical Camp
- Setting up of Epidemiological Surveillance: - Epidemiological Surveillance to be set up through Sub-Centre, PHC and Government and Private Hospital.

Incidence of epidemic prone diseases will be notified to Health Authority regularly.

➤ **Monitoring and Review:-**

- A monitoring cell will established under the charge of Senior Doctor to exclusively monitor and review the public health measures in the affected area in the District.
- Epidemiological cell of the Directorate of Health Services will be alerted and asked to keep itself ready for any eventuality. If any epidemic disease break-out, the unit will be asked to take anticipatory preventive measures in the form of obtaining information in respect of epidemic prone disease immunization of preventable diseases etc. The emergency drugs, vaccines etc. should be procured and kept ready.
- One Doctor is identified at District level to co-ordinate and monitors all public health measures for flood/cyclone affected area in the District.
- The Directorate of Health services will send regular information to officer who is earmarked to receive all the information and process the same to the Department of Health in the Directorate General of Health Services, New Delhi.

### **5.3.5: ROLE OF POLICE**

**Warning System:-**

As soon as warning about disaster is received through disaster warning system, all concerned authority of Daman and Diu i.e. Collector, Port Officer, Superintendent Custom, Mamlatdar etc. are informed and wide publicity is done in a district by Police and all out posts are alerted immediately on the wireless.

**Deployment of Force:** -At the time of disaster following staff can be deployed to help the disaster affected persons, prevent any theft, prevent entering of public in house likely to cause injuries to their life, maintenance of law and order etc.

#### LIST OF SANCTIONED/PRESENT STRENGTH FOR POLICE, RANK WISE

Daman & Diu (till date 31/08/2013)

	DIG/ IG	SP	ASP	COP /SDPO	PI	PSI	ASI	HC	PC	Driver
Sanctioned Strength	01	02	-	02	06	21	21	92	265	07
Present	01	04	01	02	06	12	21	77	132	08

Strength										
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	Steno	Head Cook	Asst.Cook	Sweeper	Mess servant	Skipper mate	Sukhani	UDC	LDC	Home Guard
Sanctioned Strength	01	01	02	01	01	04	08	02	02	225
Present Strength	01	01	02	01	01	03	05	02	02	225

### **Rehabilitation of Civil Facility after disaster is over:-**

Above force will be used for rehabilitation of civil facility to the disaster affected area after disaster is over. They will help the disaster affected area for supplying of essential commodity like milk, restoration of drinking water, medicine etc.

### **5.3.6: ROLE OF MUNICIPAL COUNCIL, DAMAN & Diu.**

For the precaution measures during monsoon season, four teams of Municipal field workers are constituted for emergency duty at Nani Daman and Moti Daman Municipal area in Daman and for Diu and Ghoghla Municipal areas in Diu separately for the purpose of rescue operation and removal of debris / fallen structure etc. These teams should always be in touch with the President, the Chief Officer and the Municipal Engineer and have to strictly follow the following instructions:-

### **Pre-Cyclone or any other Disaster Planning:-**

- Cleaning all existing drainage systems and road culvert to facilitate speedy drainage of water.
- Maintenance of vehicle undertaken (Heavy & Light).
- The stock of cleaning equipment must be maintained as per requirement.
- Good Stocks of Street lights are to be maintained for usage at later stage.
- Empty cement bags are to be collected.

### **During Receiving Cyclone or any other Disaster Warning:-**

- Total staff is deputed for emergency, leaves cancelled, if any.
- Sand bags maintained for usage.
- Training of staff to be undertaken.

**Post Disaster:-**

- Cleaning of drainage, roads etc. of various sledges and other blocking materials.
- Fallen trees and poles to be removed.
- Disposal of dead bodies.
- Providing vehicles for transportation of proper food and other materials
- Give employment to people of affected areas to carry out necessary works as well as create livelihood for them.
- Repairing of roads, street light and other assets proper functioning of municipal market, vegetable market, fish market etc. Undertaken to fulfill basic necessities.

**5.3.7: ROLE OF FOREST DEPARTMENT, DAMAN AND DIU FOR DISASTER.**

**Preliminary Works:-**

As soon as message of disaster warning is received, the DCF will communicate to all concerned officials and forest guards and the concerned officials will inform that they should inform Panchayat or leaders of the society that no one should remain under the tree which will cause the damage to life and property, and will take the further care.

**After the Disaster.**

DCF will ensure that all forest personnel will take prompt action and patrol the area and remove the trees fallen on road. The priority of work will be:-

- Cleaning of roads and transporting of the material to depot.
- Assessment report of damage caused to the forest plantation and further operations.

**Recruitment of Equipments & Labours:-**

- Every forest guard will provide with 10 labourers (male) along with axe, saw, rope, etc.
- The department is having one electric saw and required to purchase one more (including generator). The appropriate cost will be Rs.60,000/- for equipments.
- The work of roadside clearance will be taken up jointly with PWD, Fire Brigade and Forest office.
- The Range Forest Officer will carry out the overall supervision.

**5.3.8 : ROLE OF THE SUPERINTENDENT FISHERIES.**

Fisheries department is mainly concerned with Cyclone and Tsunami. In the coastal areas there may be condition of high wind and heavy sea waves but due to proper plantation of trees (casuarinas) will reduce the impact and there will be minimal impact on human lives and properties. In recent times,

with the latest technological developments in the dissemination of cyclonic information, loss of life had been reduced to negligible on land. But we have to ensure that the information regarding cyclone must reach to the fishermen who would be on the sea at the time of cyclone.

**1. Provision of Life Jackets and Radio Transistor in the Fishing Vessels:-**

The Fisheries Department provides life jackets to the fishermen. The Department is trying that every fishing vessel should have a Transistor Radio so that they get timely information about the warning of cyclone.

**2. Establishment of VHF network and fishing vessels:-**

The radio Tran receiver were available in many frequency bands and could be classified broadly into three categories, viz. Short Range Communication (VHF and UHF) Medium Range Communication (MF and HF low power) and Long Range Communication (HF high power). The wireless planning and coordination cell in Ministry of Communication had allotted channel 15 and 16 for safety of life of fishermen when they were at sea, broadcasting weather bulletins and cyclone rescue operations during emergencies. The installation of 25W or 50W VHF mobile radio Trans receiver in the mechanised fishing boats for effective communication. We insisted the fishermen/owner of fishing vessels to keep VHF sets and made provision of 20% subsidies to the fishermen for purchase and installation of wireless/VHF equipment in their fishing vessels and planned to establish each aerial masts and control tower of VHF network at office of the Suptd. Of Fisheries, Daman.

**3. Improve Safety at sea for small Trawlers:-**

The following recommendations are to be made.

- (a) The maximum OAL limit of small fishing trawlers may be considered up to 24 mt. and should be fully harmonized with Merchant Shipping and Fisheries Acts and should be enacted to ensure that a safety equipment including life floats, life jackets, life buoys, torches, flares, fire extinguishers, a first aid kit, a two band transistor radio, a compass, an aneroid barometer and an emergency hull repair kit.
- (b) The necessary legal framework together with the appropriate implementing at sea of regulations pertaining to safety equipment.
- (c) All small mechanized fishing vessels below 20 mt. OAL should be registered and insured with the competent authority.
- (d) Awareness building and practical training with regard to all aspects of Safety Sea should be provided to owners, operators and crew of small mechanized fishing trawlers using appropriate media and demonstration equipment by fisheries department, coastguard and other interested organizations through fishermen's associations, co-operatives, social and culture organizations.



- (e) Small mechanized fishing trawlers should be equipped with a VHF radio set procedures and should be laid down by the competent authority to facilitate the allocation of a VHF license.
- (f) Storm safety action groups with volunteers of fisheries co-operative societies, fishermen associations, local mandal etc. are to be established in the fishing villages of the district to organize relief measures and equipped with disaster preparedness skills.

#### **5.3.9 : Role of Veterinary Office**

- All action is over all supervised by the Veterinary Officer.
- Maximum no. of staff will be available within 10 minutes of disaster notification.
- The Veterinary Officer & Veterinary Assistant will take a round in all areas to take care of ill feted animals as well as injured animals. They will be treated at the same time.
- Any dead carcasses will be informed to DMC or Gram Panchayat or NGO for proper disposal to prevent further disease spread.
- Vaccination after disaster to prevent further loss of animals is necessary. We may carry out vaccination against H.S. & F.M.D.
- Department will keep ready all veterinary personnels with all first aid emergency treat along with medicine like Tine, Iodine, Beasoin, Wokadin, Plaster Bandage, Bandage, Cotton, Pel. Zinc Oxide, Boric acid, Inj. Terramycin, Inj. Novalgin, Inj. Avil, Inj. Gentamycin.

#### **5.3.10: ROLE OF PORT OFFICE, MARINE DEPARTMENT**

Port Office is mainly concerned with Cyclone and Tsunami.

##### **During first warning**

Telegraphically messaged received from IMD, Ahmedabad for hoisting of storm signals same will be hosted on the mast at Daman Jetty for day and night purpose and also to circulate the information to the fishermen in the localities for not to go for fishing. The Port Officer should also ensure that fishermen should keep radio in their fishing boats especially during cyclone period i.e. April to June and October to November.

##### **Responsible persons & Phone Nos. :**

Shri K. Vaghela, (Port Officer) - Phone No.2230615 (M), 9825735098

Shri P.K. Solanki, Port officer – 252263, 271004.

**During Second Warning:-**

After receiving of second cyclone warning, following steps are required to taken:

- To alert all the fishermen for proper beaching of their fishing vessels in safety place with proper ropes.
- To alert all the fishermen staying in lower area to keep ready for shelter area when ever any danger flood/ rain occurred.
- Be in continuous contact with control room to know about the position and intensity of cyclone so we can continue our further rescue work.
- If any vessels are in sea, the information about that to be collected from the local public and informed to the Collector for further necessary action to rescue them.
- The Port Officer will supervise all the area along the Coast and assign duties to personnels for round the clock duty of Port Office for receiving of cyclone message and hoisting of storm signals.
- After cyclone, a team will be ensured for inspection of different fishing area for damages of fishing vessels, and loss of lives etc. Also damage to the huts/ houses in port area.
- Prior to departure from a port of fishing hamlet of a small mechanized fishing trawler a certified crew member should file a departure report to be kept in a record maintained by the Port Office, Daman.

Port Office Daman Shall arranges training for fisherman in respect of Port Warning Signal in the month of April through fisherman Society.

Port office is intend to put siren of range of at least 7 K.m, radius on light house tower or on Port Warning Signal Mast in consultation with Director of Lighthouse & Lightships, Mumbai for early warning in case of Cyclone & Flood.

**5.3.11 : ROLE OF THE ZONAL AGRICULTURAL OFFICER, DAMAN.**

As soon as warning of any type of disaster is received by this department, this office will be alert to take up any kind of rescue operation. The ZAO will ensure that all staffs will perform assigned duties at the time of natural calamities.

Preventive Measures will be Carried out during Disaster:-

- The total staff will be deputed for any kind of rescue operation.
- As soon as message received from respective department the concerned field staff will be deployed at their respective area with a view to inform the farmers not to go in their fields to restrict casualties.
- The service of departmental tractor will be provided for quick disposal of fallen trees.

- This office has casual labors which will be deployed for rescue operation in their residential area.
- The affected families will be listed-out and damages of crop production will be taken into consideration and will be reported to the Directorate of Agriculture, Daman for necessary assistance.
- The Office staff will keep constant touch with other offices to coordinate the work during calamities.
- 

#### **5.3.12 : ROLE OF THE DEPARTMENT OF TELECOMMUNICATION, DAMAN & DIU**

The following action will be taken as and when required:

- All line-staff are called on duty for 24 hours to restore outdoor network.
- Sufficient diesel kept in store for continuous running of engine (telephone service) during power failure.
- All technical staffs are called on duty for 24 hours.
- Control room will be open at district head quarter office.

#### **5.3.13 : ROLE OF CIVIL SUPPLY**

Stock of Food and Essential Commodities:

**Essential Commodities/Articles:** - On receipt of the disaster warning, on the civil supply point of view, the following measures may be taken:-

To review the stock position item wise:-

- i) Food grains such as Rice, Wheat.
- ii) Sugar
- iii) Kerosene, Diesel, Petrol & Cooking Gas.
- iv) Storage of Potato.
- v) Edible Oils/Vanaspati Ghee.
- vi) Candles/Dry Cells.
- vii) Salt.
- viii) Milk, Baby Food/Milk Powder.

- (a) **Food grains:** - There will be sufficient stock of Rice and Wheat in Government Food grains Godown, as well as Fair Price Shops of Daman & Diu. However, in the Open Market, stock position of Rice & Wheat is required to be assessed.

In Daman & Diu there are three Government Food grains Godowns, two in Daman and one in Diu. We always have a minimum stock of one month at any given time in Government Food grains Godowns, Daman & Diu.

- (b) **Sugar:** - As regards Sugar the quota meant for Daman & Diu is being procured through private dealers.
- (c) **Kerosene Oil :-** As regard Kerosene Oil, in Daman district the monthly allotment of Kerosene Oil in is 96 K.L. & the same is being lifted by three agents namely (1) *M/s Raju Oil, Dori-Kadaiya Signal, Nani Daman* (2) *M/s C. P. Shah & Sons, Main Road, Nani Daman* and (3) *M/s Nasservanji & Sons, Main Road, Nani Daman*. These three agents supply Kerosene Oil meant for Public Distribution to forty other Retailers in District. Since Kerosene is day to day consumption commodity, generally at any given time, we have approximately 5,000 lts. of kerosene with the retailers and Agents. In Diu district the monthly allotment of kerosene oil is in 130 Kl to 140 kl and the same is being lifted by two Agents namely Shri Diu Sahakari Bhandar Limited, Diu and M/s Naraina S. Fugro, Diu. These two Agents are supplying kerosene oil meant for Public Distribution to ten other Retailers in District. Since kerosene is day to day consumption commodity, generally at any given time, we have approximately 5,000 lts. Of kerosene with the retailers and Agents.

The supply of Kerosene Oil is received from Hajira, Surat (190 Kms). The monthly requirement of Kerosene Oil of Daman District under PDS (Ration Cards) is 120 Kls. The monthly allocation of Kerosene is 96 Kls. We are also supplying Kerosene Oil to the Fishermen (Numbering approximately 900 vessels of different types). Kerosene Oil is one of the most essential commodities and constant observation/watch is required to be taken. If need be, the distribution of Kerosene Oil to the Fishermen may be withheld till the restoration of normal position.

- (d) **Cooking Gas:-** In Daman District, there are two Dealer of LPG namely (1) *M/s Roma Gas Agency, Near Dhobhi Talav, Nani Daman* and (2) *M/s C.P. Gas Service, Red Cross Bhavan, Nani Daman*. The Agent is usually having stock of 400 to 600 cylinders. In Diu District, there is one Dealer of LPG namely Somnath Gas Service, Diu. The Agent is usually having stock of about 50 cylinders.
- (e) **Motor Spirit and Diesel Oil:-** In Daman, there are seven Diesel & MS pump operated pump dealers. There is no quota system & dealers bring the above Petroleum products as per requirement. In Nani Daman, there is one diesel pump operated by M/s Masaya Udhog Co-operative Society, Nani Daman is also having Diesel out meant for their members only. Generally, the Agent has stock of 3 to 4 days.

In Diu, there is one Diesel and MS pump operated by M/s Naraina S. Fugro, Diu. There is no quota system and dealer bring the above Petroleum products as per requirement. Besides, Mahasagar Fisheries Co-operative Society, Vanakbara is also having Diesel outlet meant for their members only. Generally the Agent have stock of 2 to 3 days.

- (f) **Motor Spirit/HSD:-** In Daman the supply of Motor Spirit HSD is from Hazira, Surat (190 kms) and in Diu from Sabarmati (650 Kms). Since, there is no quota system. Agents bring the above Petroleum products as per requirement. Stock position may be reviewed on receipt of Disaster warning and efforts may be made to store maximum stock. From the available stock, a quantity 6000 Lts. HSD and 4000 Lts in Daman & a quantity of 2000 Lts. HSD and 1000 Lts. MS may be kept as reserve for Government purpose. If need arises, restriction may be imposed on sale of these products.
- (g) **Stock Position of Potato & Onion:-** Leading Merchants of Daman & Diu may be advised to keep sufficient stock of Potatoes & Onions. (M/s.Mohanlal N. Rana and Jitendra Traders, Nani Daman as well as Gayatri Potato Centre and Thakor Om Prakash, Vapi and M/s Hassan Usman & Nurddin, M/s Abdul Aziz Abdul Latif, Vasantlal Shobhagchand Shah of Diu ).
- (h) **Edible Oils/Vanaspati Ghee:-** Edible Oils/Vanaspati Ghee are not supplied under PDS in Daman & Diu but it is supplied through Merchants in the Open Market. The monthly requirement of Edible Oil is approximately 300 M.T. to 500 M.T. in Daman District and 20 M.T. in Diu. Merchants are advised to keep sufficient stock.
- (i) **Milk:-** If on account of cyclone, there is disruption in vehicular traffic/Transportation, the supply position of pasteurized milk will be adversely effected as the same is being received from Valsad – Gujarat (50 Kms) and Mumbai (200 Kms). In that case the Public in general as well as other establishments will have to depend on raw milk supplied by the vendors. Veterinary Staff as well as Food Inspector attached to Primary Health Center, Daman & Diu may be pressed into service to check the quality of milk. Merchants as well as Co-Operative Society may be advised to stock sufficient quantity of skimmed milk powder as well as baby food.
- (j) **Continuation of Flour Mills:** - If there is power failure on account of cyclone and there is no possibility of it restoration within two days then action may be taken for commissioning at least two flour mills each in Daman and in Diu with the help of Electric Department and if required the flour mills can also be operated through the belt.
- (k) **Miscellaneous:** - Merchants may be advised to keep sufficient stock of candles as well as dry cells and Iodized salt.

Over and above steps may also be taken to keep strict vigil on the marketing position, availability of stock, requirement and to book the hoarders/black marketers. Public in general may also be advised not to make any panic buying and not to hoard any commodity in excess to their requirement.

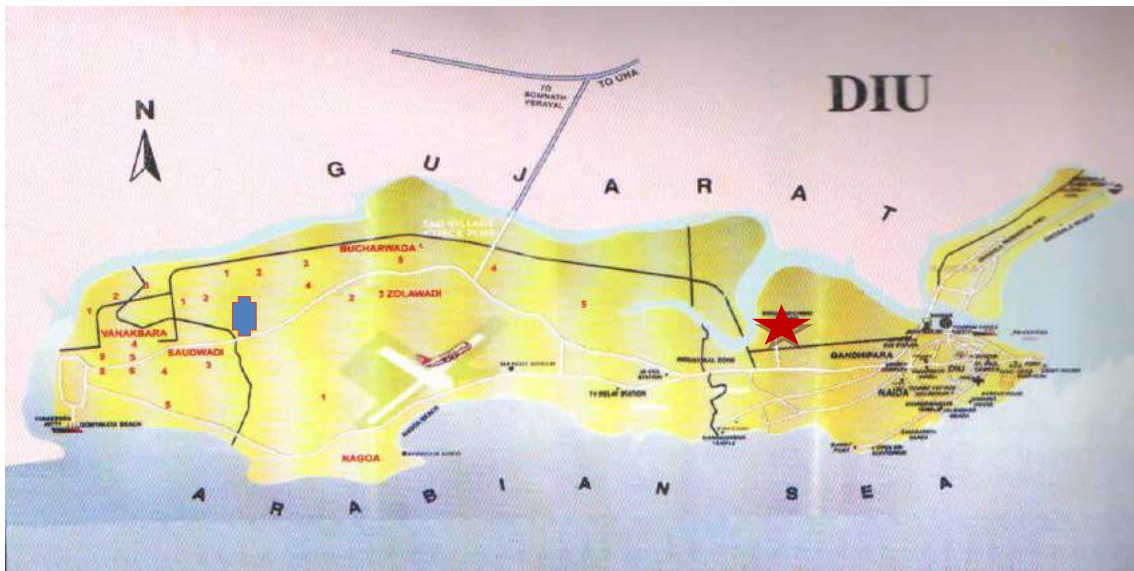
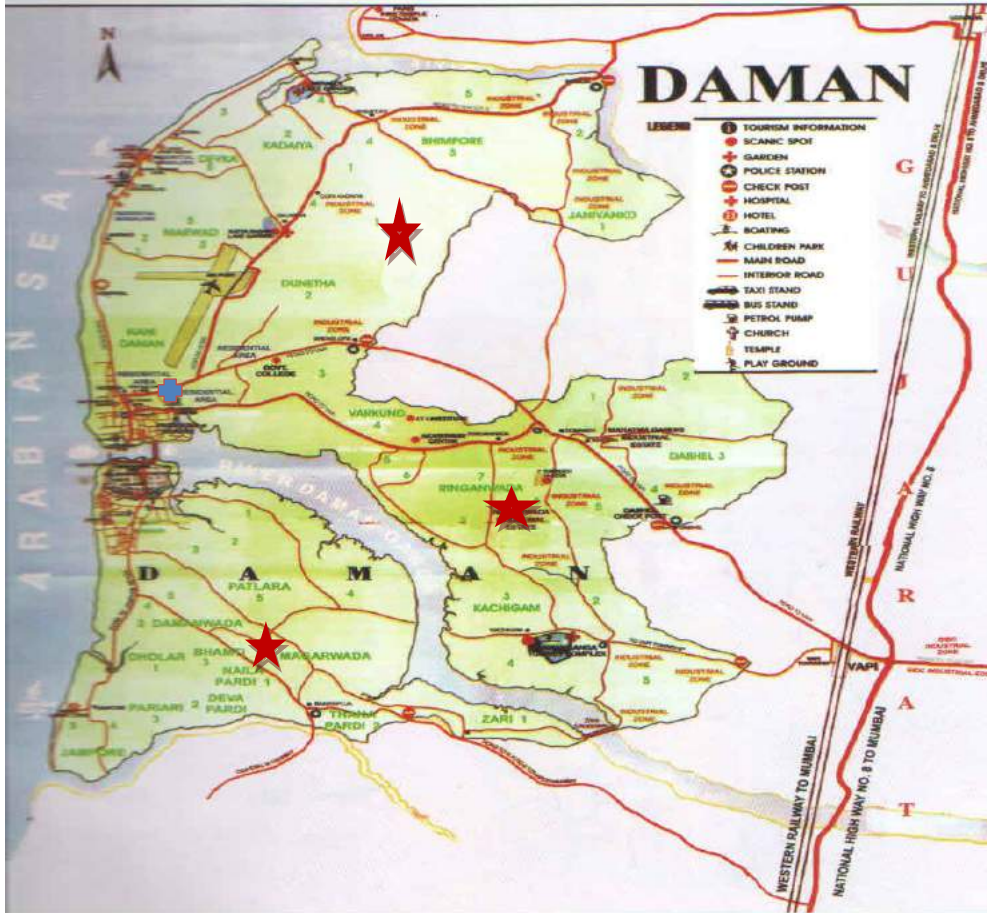
### **5.3.14 : ROLE OF THE FIRE SERVICES, DAMAN**

The Fire & Emergency Services is an essential department of Government Organization to save life and property from fire and various disasters and render Emergency Services in the U.T. of Daman & Diu. The duties of the Fire & Emergency Services are Fire Extinction, Fire Prevention and Rescue Operation in various disasters being first responder in the whole U.T. of Daman & Diu.



### **POSTAL ADDRESS, TELEPHONE NUMBER OF FIRE STATION**

Sr. No.	Name of Fire Station/Office	Postal address	Contact No.
1.	Fire & Emergency Services Headquarters. (Fire Station, somnath)	Fire & Emergency Services, Plot No.51, G.I.D.C. Ringanwada, Somnath, Nani Daman, Daman – 396 215.	Tel. No.0260-2242666 0260-2241101 0260-2241666/101
2.	Fire Station, Moti Daman.	Bhamti, Bamanpuja Main Road, Moti Daman, Daman 396 220.	Tel. No.0260-2230201
3.	Fire Station, Diu	Near be-otly, Main Road, Opp. District Court, Diu – 362 520.	Tel. No.02875-253039 02875-252475/101



Sanctioned Fire Station 

Proposed Fire Station 

**NUMBER OF FIRE STATION AND STRENGTH**

Sr. No.	Name of Posts	Group	Fire Stations				TOTAL
			Somnath	Moti Daman	Diu	Bhimpore	
01.	Asstt. Divisional Fire Officer	'B'	01	--	--	--	01
02.	Station Fire Officer	'C'	01	--	--	03	04
03.	Asstt. Station. Fire Officer	'C'	02	04	01	06	13
04.	Leading Fireman	'C'	04	04	04	04	16
05.	Driver Operator	'C'	03	04	03	16	26
06.	Store Keeper	'C'	--	01	--	--	01
07.	Fireman	'C'	12	15	09	15	51
08.	Sweeper	'C'	01	01	01	--	03
	<b>TOTAL</b>		<b>24</b>	<b>29</b>	<b>18</b>	<b>*44</b>	<b>115</b>

**NOTE:** Fire Station, Bhimpore has conveyed sanction along with 44 posts in various ranks and appliances by the MHA, GOI, New Delhi in the year 2011. The recruitment of staff is under process.

**STANDARD OPERATING PROCEDURE OF A FIRE SERVICES IN CASE OF FIRE OR DISASTER.****1. FIRE/EMERGENCY OR RESCUE CALL:**

Control Room In-Charge receives the fire/emergency call through telephone or other message of communication, Control room in charge inform the duty In charge with details of address and other information received by him. Thereafter, duties in charges simultaneously inform the Station In charge.

**2. TURN OUT:**

The duty in charge along with water tender and duty crew leave the fire station followed by an ambulance.

**3. REACHING AT THE SCENE OF FIRE:**

On reaching at the scene of fire, at first instance, the crew will start fire fighting operation meanwhile officer In charge ask details information of premises to presence responsible person and thereafter considering velocity of the fire or disaster, the Officer In charge shall inform the control room to acquaint the Station In charge and Director of Fire & Emergency Services along with details of Fire Call/Disaster and also intimate the Control Room to inform other utility services such as Police, Water Supply, Ambulance Service, Medical and Health, Electricity, Local



Transport undertaking, Gas Authority, Inspector of Factories, Airport Authority, Port Authority and other relevant Govt. department.

**4. INFORMATIVE MESSAGE:**

Officer in Charge shall also inform the control room regarding the type of fire/disaster and other details, etc.

**5. RE-INFORCEMENT MESSAGE:**

If, required the In Charge of the operation shall also intimate the Control Room for the In turn out and call for other neighboring Fire Services for assistance, etc.

In the mean time the Fire Services shall also carry out the rescue operations and shifting of casualties if any due to Fire/Disaster to the hospital and also carry out the salvage operation.

**6. FIRE/DISASTER OUT MESSAGE:**

On completion of fire fighting operation the Officer in Charge shall inform the control room that the operation is over.

**7. RETURN BACK TO STATION:**

8. After completion of entire operation, the duty crew shall return – back to the station also sent-back the other agencies.

**9. REACHING BACK TO FIRE STATION:**

After reaching back to fire station, the crew shall clean and wash all the equipments/appliances and check fuel and oil of the vehicles and then report to the Station Fire Officer that the appliances is ready for next call.

**5.3.15 :Role of Local Authority**

Provide assistance to UTDMA, COR and Collector in disaster management activities.

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

**5.3.16 : Role of Private Sector**

- The private sector should ensure their active participation in the pre-disaster activities in alignment with the overall plan developed by the UTDMA or the Collector.

#### **5.3.17 : Role of Community Groups and Voluntary agencies**

Local community groups and voluntary agencies including NGOs should actively assist in prevention and mitigation activities under the overall direction and supervision of the UTDMA or the Collector.

- They should actively participate in all training activities as may be organised and should familiarise themselves with their role in disaster management.

#### **5.3.18 : Role of Citizen**

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

### **5.4:- Dealing with Media during Disaster**

Liaison with the media on regular basis on any emergency is critical, so that rumors can be scotched and public awareness is correctly generated.

Media relations do not have to be adversarial and in fact should not be. Dealing with the media during emergencies is not different from any other emergency function, the better the result will be. This is not to suggest that effective media management will turn bad news, but it can prevent bad news from becoming worse.

Immediately following an emergency incident, or as soon as possible, the media should be notified, you will be judged to be forthcoming and credible if you talk to the media before they learn of the incident from other sources. One effective tool for providing information to the media is the press release. This can be distributed in person or by telex/telegram or mail. The fastest means of distribution is usually the most desirable.

A good emergency press release answers these basis questions concerning the event.

- Who is involved?
- What is taking place?
- Where did it happen?
- How did it happen?
- Why did it happen?

The release should then go on to provide the details and background information. Also, be sure to include the name and telephone number if additional information is required for your organization.

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## Chapter 6:- Disaster Specific Plan

### 6.1:-CYCLONE

#### Plan Activation

The cyclone response structure will be activated on the receipt of cyclone warning by the Indian Meteorological Department (IMD). The occurrence of a cyclone may be reported by the IMD to the Commissioner of Relief/UTDMA by the fastest means. The Commissioner of Relief (COR) will activate all the Departments for emergency response including the UT and District Control room. He will issue instructions to include the following details:

- Specify exact resources (in terms of manpower, equipments and essential items from key dept. /stakeholders) required.
- The type of assistance to be provided
- The time limit within which assistance is needed
- Details of other Task/Response Forces through which coordination should take place

The control rooms at the state level as well as district control rooms should be activated with full strength. Coordination meeting (District Disaster Management Committee) will also ensure wide publicity of cyclone through local modes of dissemination, in vogue, so as to increase the alertness of the public particularly the fishermen community. The Committee will enforce the above said action through Line Departments.

#### Steps for Pre-Cyclone Phase

Collector remains at the pivot of district administration to monitor the course of action during cyclone. At District level, a **Control Room /DDC** with telephone and wireless system is to function round the clock. If possible, links should be established with Ham Radio Operators at remote areas. At the end of day, the relief medical rescue and construction teams should meet with Collector, to review the situation. Different departments operating at district level must be under constant watch and Collector to be in constant touch with state authorities to pass on the real figures to the Administration.

\* Keep sufficient stock of food grains, kerosene and other dry food commodities for distribution to the people and victims?

\* The Medical and Veterinary Departments are fully equipped with required drugs and vaccines for taking preventive steps after cyclone and to arrest the spread of epidemics?

\* Whether all the Government vehicles are kept in road-worthy condition for putting them to use in the emergency with drivers assigned?

\* Opening of cyclone stores for providing the following materials in adequate quantities.

- Hooks of the type available with the Fire Service Department for cleaning debris.
- Rubber tyres and tubes for using as floats in water.
- Tents.
- Kerosene lanterns.
- Large cooking vessels for use in relief camps.
- Identity slips to be issued to the victims in relief camps.
- Copies of maps.
- Ropes, wires, chains, lights with wire fittings, lead wires, torches, etc.
- Steel poles, bamboos, G.C. sheets and slotted stripes of metal (to be laid on slushy road surface for better transportation).
- Double handle saws (for cutting fallen trees), shovels, candles, loud hailers, hose pipes, first aid kits, cyclone duty sign boards, ropes, asbestos sheets, torch lights, jerry cans, empty oil drums, gunny bags and sand bags, polythene sheets, V.H.F. sets with batteries for use.
- Pumps for bailing out water along with hose, spades, crow bars, hand gloves, Eucalyptus oil, naphthalene balls, bamboo mats, phenyl, slate lime, etc. useful for burying dead bodies.

#### **After Cyclone – Responsibility of District Administration**

- Rescue the people who are stranded or otherwise affected.
- Restore the supply of power, and clear the roads (remove the fallen trees, etc.) as early as possible.
- Food and water should be supplied to the stranded people and those who are in shelters.
- Search and rescue operation to be initiated, if necessary, for the people (particularly, for the missing including fishermen).
- Check for the outbreak of epidemics. Appropriate measures for inoculation and vaccination must be undertaken to prevent any outbreak of epidemic.
- If there is serious disruption of the regular communication system, communication through HAM radios and/or wireless sets may be pressed into service.
- Supply of electricity must be restored by carrying out repairs to the dismantled wires, uprooted or damaged transformers and other switchgears.
- Help of voluntary organizations to be taken by the security aspect should not be ignored so as to prevent the entry of undesirable, anti-social elements. (Issue identity cards).
- Veterinary medical care should be made available, along with the provision of fodder to the displaced cattle.
- Minimum road communication in the affected districts should be restored on war footing.
- Use cycle and two wheelers - Bikes for transportation.

- Supply of all essential commodities, such as rice, wheat, pulses, salt, match-box, kerosene, diesel, etc. should be ensured to all the habitats in the disaster affected areas at concessional rates, or free of cost.
- Inundated land should be reclaimed by desalination.
- If the drinking water wells are inundated by saline water, bore wells are to be dug; pumps are to be installed for the supply of water to the public.
- Whether relief operations started effectively?
- Make arrangements for removal of dead bodies and carcasses of animals and waste disposal. (Dead bodies - take photos for identification).
- Take steps for the restoration of traffic?
- Provision of medical help to injured people.

### **"ACTION TAKEN IN DAMAN"**

In our plan we are proposing to set up **five relief camps** at the time of Disaster. These will be at following locations:-

- Navodaya Vidyalaya, Dunetha
- Directorate of Education Building
- Dabhel Multipurpose Shelter Point (proposed)
- Zari Ashramshala
- Bal Bhavan, Moti Daman

All the places identified as shelter point have enough space to accommodate evacuated people from affected areas. These shelter points have enough rooms and space to store food, kerosene, tent materials, medicines and other materials which will be required. All these shelter points are equipped with generator facilities and facility of drinking water.

### **Responsible officers of shelter points**

#### 1. NavodayaVidyalaya

- I/c Mamlatdar
- Principal NavodayaVidyalaya
- S.I. Civil Supply
- Talathi

#### 2. Directorate of Education

- I/c Asstt. Director Education
- Section Officer, Red Cross
- Superintendent, Dept, of Education

- One UDC of Education Dept.

3. Bal Bhavan

- I/c City Survey Officer
- Director, Bal Bhavan
- Sr. Inspector, ARCS
- One UDC of Dept. of Personnel

4. Dabhel

- I/c BDO
- Sr. Auditor, ARCS
- Manager OIDC
- One Talathi

5. Zari Ashramshala

- **I/c Social Welfare Officer**  
**Labour Inspector**
- One UDC from **Secretariat**
- One Talathi

Apart from these officials there is a provision of following personnel at all shelter points:

1. One JE from PWD
2. One JE from Electricity Dept.
3. Three Doctors (one female)
4. One Head Constable with two Constables.

**List of identified cyclone shelter points in Daman**

- i) Panchayat Ghar/Community Hall, Kadaiya
- ii) Bhimpore Ashramshala
- iii) Primary School, Janivankad
- iv) Navodaya Vidyalaya, Dunetha
- v) Government College
- vi) MachhiMahajan School
- vii) Directorate of Education
- viii) Red Cross Building
- ix) Bal Bhavan, Moti Daman
- x) Primary/ Middle School, Ambawadi

- xi) Circuit House Annexe, Dholar
- xii) High School, Pariyari
- xiii)** Zari Ashramshala
- xiv) Panchayat Ghar, Kachigam
- xv) ITI Institute
- xvi) Dabhel Multipurpose Shelter point (proposed)

### **"ACTION TAKEN IN DIU"**

In our plan we are proposing to set up **five Shelter Points** for relief work at the time of Disaster. These will be at following locations:-

- Vanakbara Primary School, Near Bus Stand, Vanakbara
- Bucharwada High School, Old Building, Bucharwada
- Girls School, Near Bhavsarwada, Diu
- Primary School, Koliwada, Main Road, Diu
- Government High School (Boys), Zampa Bahar, Ghoghla

Besides these at following locations **Relief Camps** will be established:

1. Primary Sub-Health Centre Vanakbara

Responsible Officers :

- i) Medical Officer, Vanakbara
- ii) Port Officer, Resident of Vanakbara
- iii) Talathi, Resident of Vanakbara
- iv) Junior Engineer, Electrical
- v) Head Constable of respective Police Station
- vi) Fisheries Officer, Diu

NGO's (Vanakbara):

- i ) Sagar Samrat Yuvak Mandal
- ii) Khandhan Yuvak Mandal
- iii) Radhakrishna Yuvak Mandal

2. Police Chowky, Bucharwada

Responsible Officers :

- i) Medical Officer, Resident of Vanakbara
- ii) Village Secretary
- iii) Talathi

- iv) Junior Engineer, Electrical
  - v) Head Constable of respective Police Chowky
- NGO's (Bucharwada) :
- i) Bucharwada Yuvak Mandal
  - ii) Patelwadi Yuvak Mandal

**3. Government Hospital Diu**

Responsible Officers :

- i ) Executive Engineer, PWD, Diu
- ii) Assistant Engineer, Electricity, Diu
- iii) Port Officer, Diu
- iv) Chief Officer, Diu Municipal Council, Diu
- Health Officer, Primary Health Centre, Ghoghla, Diu

NGO's (Diu) :

- i) Diu Nagrik Samittee, Diu
- ii) Sports Councils, Diu
- iii) Red Cross Society, Diu
- iv) Chamber of Commerce, Diu

**4. Primary Health Centre, Ghoghla.**

Responsible Officers:

- i ) Health Officer, PHC, Ghoghla
- ii ) The Mamlatdar, Diu
- iii ) The chief of Police, Diu
- iv ) The Port Officer, Diu
- v ) The Talathi, Ghoghla

NGO's (Ghoghla):

- i ) Macchimar Kalyan Mandal, Ghoghla
- ii ) Vishwas Fisheries Cooperative Society, Ghoghla.
- iii ) Bajrang Mandal, Ghoghla.
- iv ) Mahatra Groups, Ghoghla

**The Measures to be taken by people in post Cyclone Scenario**

After a cyclone passes, the public are advised to take the following safety measures:-



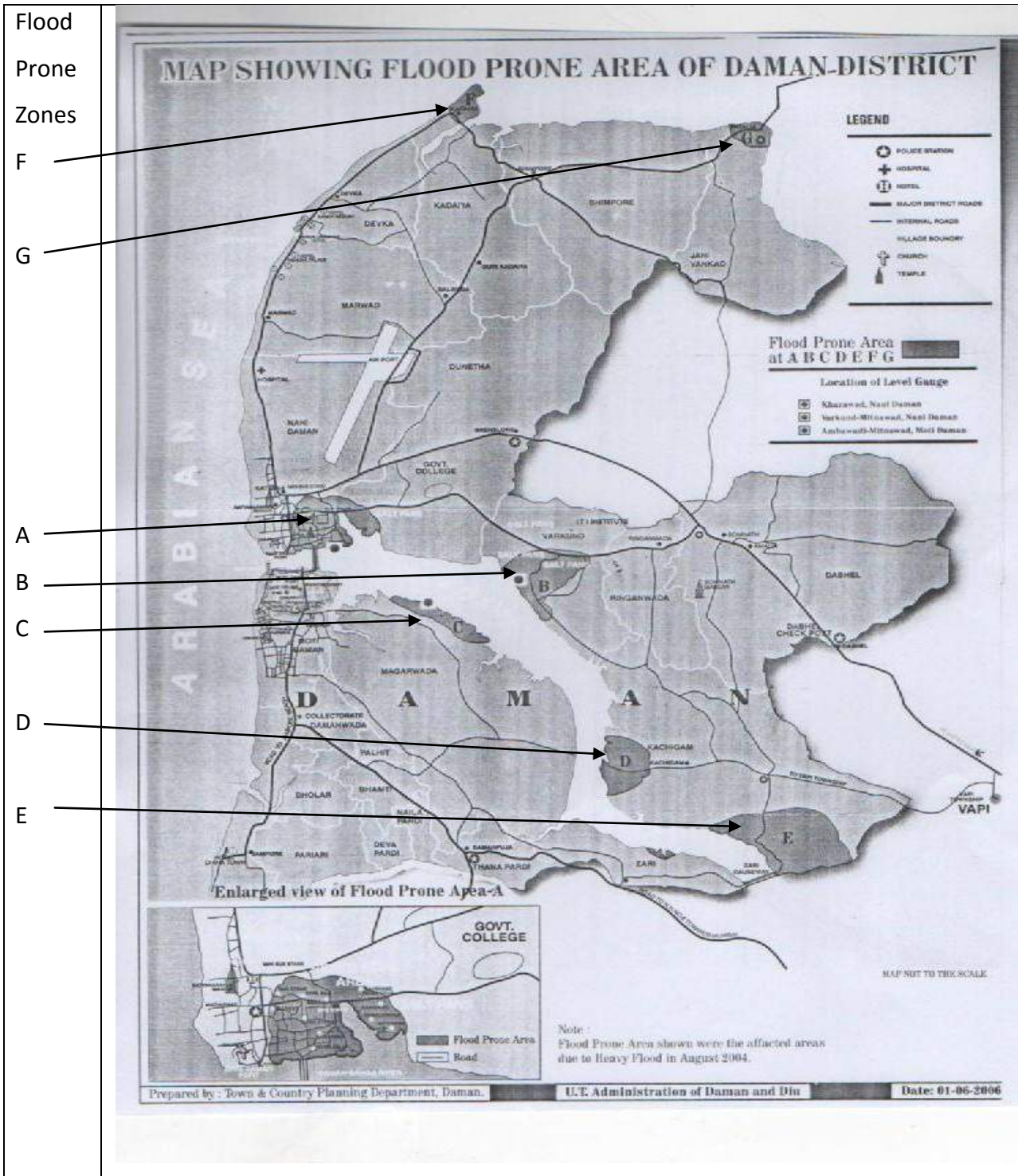
- They should remain in shelters until informed by those in charge that they may return home.
- They should get themselves inoculated against diseases immediately at the nearest hospital and seek medical care for the injured and sick.
- Any loose hanging wire from the lamp post should be strictly avoided. (A person should be kept to watch so that nobody goes near the wire and the nearest electrical authorities should be informed immediately).
- People should keep away from disaster areas, unless they are required to assist.
- Anti-social elements should be prevented from doing mischief.
- Houses and dwellings should be cleared of debris.
- The losses should be reported to the revenue authorities (proforma to be obtained from District Administration).
- Relatives should be promptly informed about the safety of persons in the disaster area.
- Evacuation Instructions
  - Head for the proper shelter or evacuation points indicated by your area.
  - Do not worry about your left over property, as evacuated areas will be policed to prevent looting. - Arrange community policing.
  - At the shelter, follow instructions of the personnel in charge.
  - Remain in shelter until informed that you may leave.
  - Keep calm at all times. If instructions are observed promptly, there is little personal danger involved.

## 6.2 FLOOD

### DAMAN

Daman has a major river namely **Daman Ganga** river which merges in the Arabian Sea. Daman has also two small rivers namely **Kolak and Kalai**. Daman Ganga River comes from Gujarat and it enters Daman from Vapi in Gujarat. On account of construction of Madhuban Dam in Vapi, there are minimal chances of floods in Daman. Though the chances of floods in Daman has become minimal on account of construction of Madhuban Dam, Damanganga River at Vapi in Gujarat, the UT Administration has

opened a **Flood Control Room** in Collectorate which receives information regarding discharge of water from Madhuban Dam from time to time.  
 Here villages and streets of **Kachigam, Varkund, Khariwad, Ghanchiwad, and Kharwad** are identified to be affected by floods.



All the Department of Daman District shall prepared for flood from the month of May. The Control room in Collector office Daman shall be open from 15`x' June and will work round the Clock. The A.D.M/Deputy Collector will interact with the Executive Engineer, Madhuban Dam. As soon as the warning of release of water from Madhuban Dam is received, the Control room will informed the same to the Police, Fisheries Department, Port officer, P.W.D, D.M.H.S. The Supdt. of fisheries with help of Machhi Mahajan and other NGO's announce the information of release of water.

## **DIU**

In Diu, Villages and streets of Jalaram Society and Vadi Sheri area of Vanakbara and Pavti area of Bucharwada village are identified to be affected by floods. Though the chances of floods in Diu has become minimal on account of construction of Kodinar Dam, Chassy River at Kodinar in Gujarat, the UT Administration has opened a Flood Control Room in Collectorate which receives information regarding discharge of water from Kodinar Dam from time to time.

Villages and streets of Jalaram Society and Vadi Sheri area of Vanakbara and Pavti area of Bucharwada village are identified to be affected by floods.

### **The Action Plan for Flood in Daman and Diu will consist of the following activities:**

1. Flood disaster
2. Flood Forecasting and Warning
3. Trigger mechanism
4. Response mechanism of the concerned line departments along with the roles and responsibilities
5. Relief

About forecasting, warning and dissemination detail is given in para 3.3 of chapter 3.

### **Plan Activation**

The flood response system will be activated on the occurrence of a heavy rain. The commissioner of Relief (**COR**)/ District Collector will activate all the Departments for emergency response including the UT Control room. He will issue instructions to include the following details:

- Specify exact resources required
- The type of assistance to be provided
- The time limit within which assistance is needed
- The UT, district or other contact persons/agencies for the provision of the assistance
- Other Task Forces with which coordination should take place.

The UT and district Control room and other control rooms should be activated with full strength.

Once the situation is totally controlled and normalcy is restored, the COR declares End of Emergency Response and issues instructions to withdraw the staff deployed in emergency duties.

### Roles and Responsibilities

S. No.	Response To be Taken	Responsible Department
1.	Reporting the occurrence of flood to CoR, UTDMA, and Heads of line departments, Administrator and National Disaster Management and GoI.	District Collector.
2.	Establish communication links by alternate communication equipment like phone; radio etc. in state/district control rooms.	District Collector
3.	Deployment of Mobile Emergency Communication Units to affected areas for establishing communication links.	COR, Revenue Dept.
4.	Verifying authenticity of flood from agencies like IMD and also from Districts control room.	COR, Revenue Dept.
5.	Contact the Heads of all the line departments to reach Control room	COR, Revenue Dept.
6.	Dispatch of Search & Rescue teams to the affected areas.	COR, Revenue Dept.
7.	Make arrangements for the aerial survey of affected areas.	COR, Revenue Dept.
8.	Instruct local administration to evacuate victims to safer sites.	COR, Revenue Dept.
9.	Assess the condition of road and rail network for quick mobilization of Emergency teams and resources to affected areas and take follow up steps.	COR, Revenue Dept., Transport Dept.
10.	Maintain constant touch with National/District Control room	COR, Revenue Dept.

### Distribution of activities among various state agencies in UT Administration during Relief.

S. No.	Response To be Taken	Responsible Department
1.	Providing temporary shelters to evacuated persons	COR, Revenue Dept., PWD
2.	Providing food materials to the victims	COR, Revenue Dept., Civil Supply Dept.
3.	Providing safe drinking water to the victims	COR, Revenue Dept., PWD

S. No.	Response To be Taken	Responsible Department
4.	Provision of hygienic sanitation facilities	Health Dept. NGOs, Community groups
5.	Provision of health assistance	Health Dept.
6.	Clothing and utensils	PWD, Civil Supply Dept.
7.	Relief camps	COR, Revenue Dept.
8.	Providing transport services to shelter sites	COR, Revenue Dept., Transport Dept

**Relief:** - The co-ordination Committee and various departments will have similar responsibility in floods as in cyclones. The shelter point's relief camps of cyclone will also work as shelter points and relief camps for floods.

#### Short-term relief measures

- **Food & nutrition:** - In an extreme flood situation, people lose standing crops and stored food grains. In such cases, free distribution of foods shall be made to avoid hunger and malnutrition. Wherever possible, dry rations should be distributed for home cooking.
- **Water:** - Water supply is invariably affected in natural disasters. Availability of safe drinking water is very challenging particularly during floods. It must be ensured that affected people have adequate facilities and supplies to collect, store and use clear and safe water for drinking, cooking and personal hygiene.
- **Health:** - During post disaster phase many factors increase the risk of diseases and epidemics because of overcrowding, inadequate quantity and quality of water, poor environmental and sanitary conditions, decaying biological matter, water stagnation, and inadequate shelter and food supplies. There should be adequate supply of medicines, disinfectants, fumigants etc. to check outbreak of epidemics. It should be ensured that the medicines have not reached expiry date.
- **Clothing & Utensils:** - The people affected by the disaster shall be provided with sufficient clothing, blankets etc. to ensure their safety and well-being. Each disaster-affected household shall be provided with cooking and eating utensils.
- **Shelter:** - In case of flood, a large number of people are rendered homeless. In such situations shelter becomes a critical factor for survival and safety of the affected population. In view of this, flood affected people who have lost their houses, shall be provided sufficient covered space for shelter.
- **Relief camp:** - Relief camps also provide *good temporary arrangements* for people affected by flood. Adequate numbers of buildings or open space should be identified where relief camps can be set up during emergency. The use of premises of educational institutions for setting up relief camps

should be encouraged. The requirements for operation of relief camps should be worked out in detail in advance. The temporary relief camps should have adequate provision of drinking water and bathing, sanitation and essential health-care facilities.

- **Sanitation and Hygiene:** - Sanitation services are crucial to prevent an outbreak of epidemics in post disaster phase. Therefore a constant monitoring of any such possibilities needs to be carried out. It should be ensured that disaster-affected households have access to sufficient hygiene measures.

### **Interim Relief Measures**

- Arrangements to be made for quick identification and maintenance of the records of disposal of dead bodies in the affected areas (**PWD Dept., Revenue Dept., Health Dept. and Local Authorities**).
- Arrangements to be made to record the complaints of all persons reported missing. Follow up action in terms of verification of the report also needs to be made. (**Home Dept., Revenue Dept.**)
- District Magistrates and sub-divisional magistrates to be empowered to exempt the requirement of identification and post-mortem in case of mass casualties. Revenue Dept may depute additional sub-divisional magistrates to expedite disposal of the dead bodies. (**Revenue & Home Dept.**)
- Unclaimed/unidentified dead bodies to be disposed off with the help of pre identified voluntary Agencies at the earliest after keeping their records. (**Home Dept., Revenue Dept., Health Dept. & Local Bodies**)
- Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration. (**GAD**).
- Regular meetings of the different stakeholders/departments should be organized at UT level for sharing information, developing strategies for relief operations. (**Commissioner of Relief & Collectors at District Level**).
- **Information & Public Relation Dept** to coordinate with the media to play a positive role in disseminating appropriate information to public and the government in order to facilitate the speedy recovery.

### **Assessment of Damage/Loss and Relief needs**

- The Administrator to issue instructions to the district collectors to provide the '**Need Assessment Report**'. The Commissioner of Relief should consolidate the same and to prepare "**UT's Need Assessment Report**".
- The Administrator to issue instructions to the District Collectors to provide the "**Damage and Loss Assessment Report**". The Administrator to consolidate the same and to prepare "**State's Damage and Loss Assessment Report**" which will be useful in planning and implementing the relief operations for disaster victims.

- Adequate manpower, vehicles, stationery etc. should be provided to supplement the efforts for need/loss assessment. (**Commissioner of Relief & Revenue Dept.**)
- The relief need assessment report should be provided by the Collectors. (**Commissioner of Relief & Collectors**).
- Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries. (**Revenue Dept and Local Bodies**).
- Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons. (**Revenue Dept.**)
- Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property damage assessment. (Revenue Dept. and Local authorities).

### 6.3 Tsunami

**The Nodal Department** for controlling, monitoring and directing measures for organizing rescue, relief and rehabilitation is **the Revenue Department** of the Union Territory. All other concerned Departments should extend full cooperation in all matters pertaining to the management of the Tsunami disaster whenever it occurs. Departments like Revenue, Home including Transport, Ports & Fisheries, and R & B, Power, Finance, Information and Broadcasting etc. shall have a major role in emergency response during occurrence of Tsunami generating earthquake and Tsunami hitting the shore.

#### Early Warning

The Early Warning Centre continuously monitors the seismic activity in the two tsunami genic source regions of the Indian Ocean through the network of national and international seismic stations. This network enables us to detect any tsunami genic earthquakes within a time period of 10 minutes of occurrence. Tsunami bulletins are then generated based on pre-set decision support rules and disseminated to the concerned authorities for action, following the Standard Operating Procedures.

The criteria given below is followed for generation of different types of advisory bulletin messages (**Warning/Alert/Watch**) for a particular region of the coast based on the earthquake parameters, available warning time (i.e. time taken by the tsunami wave to reach the particular coast) and expected run-up from pre-run model scenarios.

#### Warning/ Alert / Watch:

**The warning criteria** are based on the premise that coastal areas falling **within 60 minutes** travel time from a tsunami genic earthquake source need to be warned based solely on earthquake information, since enough time is not available for confirmation of water levels from BPRs and Tide Gauges. Those coastal areas falling **outside the 60 minutes** travel time from a tsunami genic earthquake source are put under a **watch status** and upgraded to a warning only upon confirmation of water-level data, e.g. If

a tsunami genic earthquake happens in the coast of the Northern Indonesia, parts of the Andaman & Nicobar Islands falling within 60 minutes travel time of a tsunami wave are put under „Warning“ status. Other areas are put under „Watch“ Status and upgraded to a „Warning“ only if the BPRs or tide gauges reveal significant change in water level. This implies that the possibility of false alarms is higher for areas close to the earthquake source; however for other regions since the warnings are issued only after confirmation of water-level data, the issue of false alarms doesn't arise. To reduce the rate of false alarms even in the near source regions, **alerts** are generated by analyzing the pre-run model scenarios, so that warnings are issued only to those coastal locations that are at risk.

### Plan Activation

The tsunami response structure will be activated on the occurrence of a major tsunami. The commissioner of Relief (COR) will activate all the Departments for emergency response including the Control room. He will issue instructions to include the following details:

- Specify exact resources required.
- The type of assistance to be provided.
- The time limit within which assistance is needed.
- The state, district or other contact persons/agencies for the provision of the assistance.
- Other Task Forces with which coordination should take place.

The UT EOC and other control rooms at the state level as well as district control rooms should be activated with full strength.

Role and responsibility of COR, revenue department and all other Line Departments are given in detail will perform the following task.

<b>Time Frame</b>	<b>Task</b>
0 to (-) 60 Minutes	<ol style="list-style-type: none"> <li>1. Warning receipt and dissemination</li> <li>2. Interdepartmental Coordination</li> <li>3. Establishment of all lines of Communication i.e. satellite phones, HF/VHF sets, Ham radio, VSAT in UT EOC.</li> </ol>
0 to (-) 50 Minutes	<ol style="list-style-type: none"> <li>1. Review of situation and reporting</li> <li>2. Management of EOC and Control Room.</li> <li>3. Tsunami response to coastal areas (likely to be affected)</li> <li>4. Identifying safe places/shelters for evacuation.</li> <li>5. Ensure arrangements are in place to evacuate fishermen if needed.</li> <li>6. Make transport arrangement for mobilization of all emergency response teams.</li> <li>7. Ensure that the information to public and media about the progress of Tsunami at periodic intervals is released.</li> </ol>



Time Frame	Task
	<ol style="list-style-type: none"> <li>8. Ensure that all critical activities (mainly industrial production) in areas likely to be affected are shutdown.</li> <li>9. Ensure law and order is maintained in areas likely to be affected.</li> </ol>
0 to (-15) minutes	<ol style="list-style-type: none"> <li>1. Review of situation and reporting.</li> <li>2. Emergency Relief Management.</li> <li>3. Arrangement for basic amenities(shown below) at evacuation/relief centers.</li> <li>4. Request for help (if needed) to MHA/National Disaster Management Authority.</li> </ol>
Time = 0 Hour	<ol style="list-style-type: none"> <li>1. Disaster Declaration with affected area detail.</li> <li>2. Preliminary assessment of affected areas.</li> <li>3. Deployment of following teams to Tsunami affected areas: <ul style="list-style-type: none"> <li>• Emergency Communication Teams</li> <li>• Emergency Medical Services Teams</li> <li>• Search and Rescue Teams (With Equipments)</li> <li>• Preliminary damage Assessment Teams</li> <li>• Need Assessment Teams</li> </ul> </li> </ol>
Time = 0 + 24 Hours.	<ol style="list-style-type: none"> <li>1.Immediate mobilization of following units/teams to areas affected by Tsunami. <ul style="list-style-type: none"> <li>• S &amp; R Teams of Fire and Emergency Services</li> <li>• Quick Medical Response Teams</li> <li>• Quick Damage &amp; Loss Assessment Teams</li> <li>• Quick Need Assessment Teams</li> <li>• Road Clearance Teams</li> <li>• Teams for disposal of dead bodies</li> <li>• Teams for disposal of carcasses</li> <li>• Teams for debris clearance (if any)</li> <li>• Teams for maintaining Law &amp; Order in the affected areas</li> <li>• Arrange for S &amp; R teams of Air Force (If required).</li> </ul> </li> <li>2. Clearance of access roads to reach at the sites of affected areas.</li> <li>3. Necessary Arrangements at evacuation/relief centers.</li> <li>4. Safety of fishermen and visitors at Tsunami affected coastal areas.</li> <li>5. Ensure immediate health and minimization of outbreak of disease.</li> <li>6. Prepare quick need assessment report for planning of relief operation.</li> <li>7. Conduct Arial Survey of affected areas for taking a stalk of the situation.</li> <li>8.</li> </ol>
Time = 0 + 24 to 48 Hrs.	<ol style="list-style-type: none"> <li>1. Restoration of critical infrastructure/essential services.</li> <li>2. Disposal of Dead Bodies and animal carcasses.</li> <li>3. Public Information and Media Management.</li> </ol>

Time Frame	Task
	4. Ensure that the relief assistance received from outside is centrally received, stored and sent for distribution to Tsunami affected areas according to their need and proper accounts are maintained about both receipt and distribution.
Time = 0 + 48 to 96 hrs,	<ol style="list-style-type: none"> <li>1. Arrange for procurement and mobilisation of additional relief material required for relief operations (on the basis of need assessment).</li> <li>2. Arrangement for transportation of injured from field hospital to base hospital.</li> <li>3. Arrangement for transport of dead bodies to their native places.</li> <li>4. Ensure maintenance of record, timely reporting and information management.</li> </ol>
Time = 0 + 96 to 168 Hrs.	<ol style="list-style-type: none"> <li>1. Review the restoration of all the public and essential items in Tsunami affected areas.</li> <li>2. Organize a quick rapid visual survey of the affected areas (through a technical team of engineers) to ascertain the safety of the structures decide on giving the go-ahead to people to move back to their respective houses.</li> <li>3. Ensure relief disbursement, allotment of funds and grants to line department and district collectors for organizing emergency response, relief and evacuation arrangements.</li> </ol>

## Relief Measures

### Short-term relief measures

- (1) Provide temporary shelter to affected people
- (2) Temporary shelter site should be safe, and easily accessible.
- (3) Continue to provide essential services to the affected people.
  - food,
  - water,
  - clothing,
  - sanitation
  - medical assistance
  - power

The COR, Secretaries of Line Departments and concerned Collector to ensure the following in the relief camps:-

- Special emphasis on Hygiene and sanitation aspects should be given in relief camp sites. **(Health Dept.)**
- Separate area should be earmarked within the relief camp for storage of relief materials. **(Civil Supply & PWD Dept.)**

- Adequate manpower and transport facilities for the camp site. **(Transport Department)**
- Arrangements to be made for trauma management. **(Health Department)**
- Mobile medical units to be sent to remote areas with a view to provide medical assistance to the victims/injured. **(Health Dept.)**
- Information centre should be established by the administration. **(Information Dept. & PWD Department)**

#### **Interim Relief Measures**

- Arrangements to be made for quick identification and maintenance of the records of disposal of dead bodies in the affected areas **(Home, Revenue, Health Dept., Local Authorities)**.
- Arrangements to be made to record the complaints of all persons reported missing. Follow up action in terms of verification of the report also needs to be made. **(Home Dept.)**
- District Magistrates and sub-divisional magistrates to be empowered to exempt the requirement of identification and post-mortem in case of mass casualties. Revenue Dept may depute additional sub-divisional magistrates to expedite disposal of the dead bodies. **(Revenue & Home Dept.)**
- Unclaimed/unidentified dead bodies to be disposed off with the help of pre identified voluntary Agencies at the earliest after keeping their records. **(Home, Revenue, Health Dept. & Local Bodies)**
- Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration. **(GAD)**.
- Separate Cell to be established at UT/district/Village level to coordinate with the NGOs and outside donor/aid agencies. **(Revenue Dept.)**
- Regular meetings of the different stakeholders/departments should be organized at UT level for sharing of information, developing strategies for relief operations. **(Commissioner of Relief & Collector at District Level)**.
- Information & Public Relation Dept to coordinate with the media to play a positive role in disseminating appropriate information to public and the government in order to facilitate the speedy recovery.

#### **Assessment of Damage/Loss and Relief needs**

- The Commissioner of Relief to issue instructions to the district collector to provide, “the need assessment report”. The Commissioner of Relief should consolidate the same and to prepare “UT need assessment report”.
- The Commissioner of Relief to issue instructions to the District Collector to provide the damage and loss assessment report. The Commissioner of Relief to consolidate the same and to prepare

“UT’s damage and loss assessment report” which will be useful in planning and implementing the relief operation after the disaster for the victims of the disaster.

- Adequate manpower, vehicles, stationery etc should be provided to supplement the efforts for need/loss assessment. **(Commissioner of Relief & Revenue Dept.)**
- The relief need assessment report should be provided by the Collector. **(Commissioner of Relief & Collector).**
- The damage assessment Performa is also attached in the annexure. **(COR & Collector).**
- Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries. **(Revenue Dept and Local Bodies).**
- Arrangements for distribution of gratuitous relief and cash doles. **(Revenue Dept., Panchayat & Rural Housing Dept., UD&UHD Dept. and Collector).**
- Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons. **(Revenue Dept.).**
- Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property damage assessment. **(Revenue Dept and Local authorities).**
- As reconstruction of houses will take a long period, arrangements to be made to provide interim shelters to the affected. **(Revenue Dept and Line Departments like Water Supply Dept., etc).**
  - Identification of the site for interim shelter
  - Allocation of areas to affected families
  - Providing appropriate shelters to the affected families
  - Providing essential services as under in the interim shelter sites.
    - Water
    - Transportation
    - Power
    - Road
    - Drainage/Sanitation
    - School
    - PDS Shops
    - Health/ Protection.

## 6.4 EARTHQUAKE

The UT of Daman is geographically part of Gujarat on the Arabian Sea Coast. During last 200 years, Gujarat recorded 9 earthquakes of moderate to severe intensity in the years 1819, 1845, 1847, 1848, 1864, 1903, 1938, 1956, 2001. The last one of the worst earthquakes in the history was in 2001 with death toll of 26. On 4 October, 1851, **Daman suffered moderate earthquake.**

According to earthquake hazard map of India, Daman and Fiu falls under **Seismic Zone III** and is located in the **moderate damage risk zone** with probable earthquake of 5.0 to 6.0 magnitudes on Richter scale.

**The Action Plan** will consist of the following five activities:

- i) Declaration of earthquake disaster.
- ii) Institutional mechanism of the UT Administration to respond to earthquake disaster.
- iii) Trigger mechanism on receiving the report of occurrence of an earthquake
- iv) Response mechanism of the concerned line departments along with the roles and responsibilities of each one of them and
- v) Immediate relief to be provided to the affected population.

#### **Declaration of earthquake disaster**

The UTDMA will declare any area where earthquake has occurred **as disaster affected area** on the recommendations of the Relief Commissioner or the District Collector. The purpose of declaration of disaster is to organize effective response and mitigating the earthquake effects.

#### **Institutional mechanism to respond to earthquake disaster**

The Revenue department is primarily responsible for emergency response and relief in the District, while the UT Disaster Management Authority (UTDMA) is designated as the nodal agency for formulation of policies, long term planning, coordination and monitoring body for mitigation, reduction and preparedness for disasters in the UT.

#### **Trigger mechanism**

An earthquake of magnitude 5 or more is likely to cause deaths and injuries to human beings and damage to all kinds of property, both private and public. Unfortunately there is very little warning available before the earthquake. Therefore planning should cater for a quick response at all levels to reduce the effects of the earthquake to the minimum.

**The Revenue department** of the District will be the **nodal department** for formulating, controlling, monitoring and directing measures for earthquake preparedness, organizing rescue, relief and rehabilitation. All other concerned departments should extend full cooperation in all matters pertaining to the management of the earthquake disaster whenever it occurs.

The occurrence of an earthquake may be reported by the Indian Meteorological Department (IMD) / National Geophysical Research Institute (NGRI) / Institute of Seismological Research (ISR) to the Commissioner of Relief by the fastest means. Besides these, the Control Room/EOC receives reports on the earthquake from village levels. On receipt of the information, the EOC verifies the authenticity of the reports and will inform the real situation to concerned authorities.

#### **6.4.1: Information and reporting:**

1. The agencies who provide information to the EOC about the occurrence of an earthquake in the UT are as shown below:
  - IMD, Ahmadabad / New Delhi
  - ISR
  - NGRI
2. The EOC/Control Room should be activated for emergency response on the occurrence of any major earthquake. The EOC should initiate following activities:
  - i) EOC should report the occurrence of a major earthquake to the following:
    - Commissioner of Relief
    - Secretary (Revenue)
    - Chairperson, UT Disaster Management Authority
    - Members of Crisis Management Committee
    - National Disaster Management EOC at MHA, GoI
    - Vice Chairman, National Disaster Management Authority (NDMA)
    - Secretary, MHA
  - ii) EOC to alert District search and rescue machinery for emergency response as also fire brigade personnel.
  - iii) EOC to verify the authenticity of the information from authorized scientific agencies as well as district control rooms.
  - iv) EOC to contact its regular and emergency staff to report immediately.
  - v) All Secretaries of the UT Departments to be contacted to be available in the EOC immediately.
  - vi) EOC to remain in constant touch with control rooms at national and district level.
  - vii) Overall management of UTEOC/DEOC shall be taken over by the Commissioner of Relief.

#### **6.4.2 Restoration of lines of communications and essential services to facilitate emergency response:**

- Establishment of Emergency Communication
- Restoration of Communication Links (Rail, Road & Air)
- Restoration of power and electricity
- Supply of safe drinking water
- Restoration of essential lifeline infrastructure

#### **6.4.3 Search, rescue and medical assistance**

- Identification of areas where SAR Teams to be deployed,
- Coordination of SAR teams for their quick deployment in allotted areas,
- Provision of quick transport of SAR teams to affected areas,
- The department of PWD/OIDC/Transport to evolve a mechanism for clearing access routes and debris in order to facilitate search and rescue operations,

- Mobilization of specialized equipments and machinery to affected areas,
- Cordoning of affected areas with control of entry and exit,
- Traffic Management by establishment of traffic points and check-posts,
- The Home Department to evolve a mechanism for providing security of properties of government and public in the affected areas,
- Setting up of field hospitals in the affected areas and deployment of mobile hospitals,
- Arrangements to be made for quick transportation of injured victims to the hospitals,
- Secretary (Health) to evolve a mechanism for speedy treatment of casualties.

#### 6.4.4 Emergency relief (shelter, food, clothing, etc.)

(a) Establishment of Temporary shelters for evacuees.

(b) Ensuring provision of essential services as under:

- Arrangement for food, clothing, blanket/bedding, drinking water, sanitation and hygiene, lighting arrangements and essential medicines.
- Deployment of mobile hospitals in affected areas for treatment of victims.
- Providing counseling services to the earthquake victims and their relatives.

(c) Arrangement for providing transport facility to send dead bodies of non-locals to their natives. The administration should also ensure Law and Order during shifting of the dead bodies.

(d) Ensure establishment of communication link between the affected people and their relatives outside.

#### 6.4.5 Task Matrix for Emergency Response Phase by Collector with the help of other line departments (First 72 Hours of the Incident)

Time Frame	Task
0 + 15 Minutes	1. Report the occurrence of earthquake to COR, Sec (Rev. Dept), Chairperson- UTDMA, Heads of all line departments, and National Disaster Management EOC at MHA, Gol .
0 + 30 Minutes	1. Establish communication link by activating alternate communication equipment i.e. satellite phone, HF / VHF set, HAM Radio, VSAT etc. in District EOC/ control rooms. 2. Instruct deployment of Mobile Emergency communication Units to affected areas for establishing communication link. 3. Hold first meeting with duty officers and all line departments.
0 + 1 Hour	1. Instruct both regular and emergency staff of EOC to report for duty. 2. Dispatch of Search & Rescue teams to the affected areas. 3. Instruct Quick Assessment Task Force to submit preliminary need and loss assessment report of the affected areas. 4. Alert Quick Medical Response Teams to the affected areas.

Time Frame	Task
	<ol style="list-style-type: none"> <li>5. Make arrangements for aerial survey of the affected areas.</li> <li>6. Instruct local administration to evacuate victims to safer sites.</li> <li>7. Contact Administrator for deciding on time and venue for holding Crisis Management Group (CMG) meeting at the earliest and held the same.</li> <li>8. Instruct concerned authorities or Agencies to shut down critical operations.</li> </ol>
0 + 2 Hours.	<ol style="list-style-type: none"> <li>1. Inform GAD to ensure all UT Administration employees report for emergency duties within half an hour.</li> <li>2. Senior UT level officers to be deputed to the affected areas.</li> <li>3. Assess the conditions of road, rail and air communication link for quick mobilization of Emergency Teams and resources to affected areas and take follow up actions.</li> <li>4. Establish media management / information cell for public information, guidance and rumor control.</li> <li>5. Request may be made for assistance from Central Government (MHA and MOD) if required.</li> <li>6. Request the nearest headquarters of the Armed Forces to render assistance in emergency search, rescue and relief operations.</li> <li>7. Contact private / public sector agencies in the UT to assist in emergency rescue and relief operations.</li> <li>8. If necessary, assistance may be asked from neighbouring UT and outside agencies.</li> <li>9. Set up separate desks for each operation task force and NGO coordination desk in the EOC for coordinating emergency operations.</li> <li>10. Provide security in affected areas and maintain law and order situation.</li> <li>11. Make arrangement of mobilization of Medical First Response Teams and SAR Teams, equipment and machinery to affected areas.</li> <li>12. Instruct district information officers to establish information centre near affected areas to provide guidance to volunteers and aid agencies.</li> </ol>
0 + 3 Hours	<ol style="list-style-type: none"> <li>1. Make suitable transportation arrangement for mobilization of quick response teams to the affected areas.</li> <li>2. Maintain constant touch with the National / District EOC.</li> <li>3. Establish Press / Media Centre for media management and information dissemination, rumor control and public information and guidance.</li> <li>4. Alert all major hospitals to make necessary arrangement for treatment of injured.</li> </ol>
0 + 6 Hours	<ol style="list-style-type: none"> <li>1. Establish relief coordination centre at the airport, railway station, etc. for arrival of Search @ Rescue and Medical Teams coming for humanitarian aid.</li> <li>2. Instruct to cordon affected areas and setting up of check posts to control entry and exit.</li> <li>3. Manage traffic for mobilization of equipment, machinery and volunteers to the affected areas.</li> <li>4. Conduct aerial survey and also mobilize quick assessment teams to affected areas.</li> <li>5. Establish information centers at the arrival and departure points especially at the airports, railway stations and interstate bus terminus.</li> </ol>



Time Frame	Task
0 + 12 Hours	<ol style="list-style-type: none"> <li>1. Mobilize relief material to the affected districts and village Level.</li> <li>2. Arrange to shift evacuated persons to temporary shelters and ensure provision of food, water facilities, blankets and storage of relief materials.</li> <li>3. Arrange road, rail and air transport at UT/ District headquarters for dispatch of relief materials to the affected areas.</li> <li>4. Set up field hospitals near the affected areas and arrange to shift injured persons to field hospitals.</li> <li>5. Instruct district collectors to establish relief coordination centre and godowns near affected area and provide full security cover as well.</li> <li>6. Prepare quick need assessment report for planning of relief operation and mobilization of resources to the affected areas.</li> </ol>
0 + 24 Hours	<ol style="list-style-type: none"> <li>1. Hold review meetings with Duty Officers in every 12 hours.</li> <li>2. Prepare and circulate the situation report.</li> <li>3. Prepare press notes twice a day.</li> <li>4. Depute additional officers and supporting staff to affected areas from non-affected areas.</li> </ol>
0 + 48 Hours	<ol style="list-style-type: none"> <li>1. Ensure safety and security of personnel deputed in affected areas for emergency response operation.</li> <li>2. Earmark storage point for medical supplies at affected sites.</li> <li>3. Arrange for identification, photograph, post mortem and maintenance of records for disposal of dead bodies.</li> <li>4. Arrange information centre at shelter site for maintaining records of victims and to provide guidance to relatives, NGOs, etc.</li> <li>5. Arrange for complaints regarding missing persons and initiate search in shelters, hospitals and police records.</li> <li>6. Arrange for additional manpower if necessary for disposal of dead bodies.</li> <li>7. Arrange for transportation of dead bodies to their native places if so required.</li> </ol>
0 + 72 Hours	<ol style="list-style-type: none"> <li>1. Arrange for disposal of unidentified and unclaimed dead bodies.</li> <li>2. Arrange for transportation of injured from field hospitals to base hospitals.</li> <li>3. Activate short and interim relief measures.</li> <li>4. Arrange for distribution of cash doles to the victims.</li> </ol>

### **Immediate relief to be provided to the affected population**

#### **Short-Term Relief Measures**

(1) Provide temporary shelter to affected people.

(2) Evacuation site should be safe, and easily accessible.

(3) Continue to provide essential services to the affected people i.e. food, water, clothing, sanitation and medical assistance.

The COR to ensure the following in the relief camps:

- Special emphasis on Hygiene and sanitation aspects should be given in relief camp sites.
- Separate area should be earmarked within the relief camp for storage of relief materials.
- Adequate manpower and transport facilities for the camp site.
- Arrangements to be made for trauma management.
- Mobile medical units to be sent to remote areas with a view to provide medical assistance to the victims/injured.
- Information centre should be established by the administration.

### **Interim Relief Measures**

- Arrangements to be made for identification and maintenance of the records of disposal of dead bodies in the affected areas.
- Arrangements to be made to record the complaints of all persons reported missing. Follow up action in terms of verification of the report also needs to be made.
- Sub-divisional magistrates to be empowered to exempt the requirement of post-mortem in case of mass casualties. Revenue Dept may depute additional SDMs to expedite disposal of the dead bodies.
- Unclaimed/unidentified dead bodies to be disposed off at the earliest after keeping their records.
- Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration.
- Separate Cell to be established at UT/district level to coordinate with the NGOs and outside donor/aid agencies.
- Regular meetings of the different stakeholders/departments should be organized at state level for sharing of information, developing strategies for relief operations.
- Information & Broadcasting Dept to coordinate with the media to play a positive role in disseminating appropriate information to public and the government in order to facilitate the speedy recovery.

### **Assessment of Damage / Loss and Relief needs**

- The COR to issue instructions to the district collector provide „the need and loss assessment“.
- Adequate manpower, vehicles, stationery etc should be provided to supplement the efforts for need/loss assessment.

- Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries.
- Arrangements for debris removal and its appropriate disposal.
- Arrangements for distribution of gratuitous relief and cash doles.
- Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons.
- Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property assessment.
- As reconstruction of houses will take a long period, arrangements to be made to provide interim shelters to the affected
- Identification of the site for interim shelter
- Allocation of areas to the affected families.
- Providing essential services at the interim shelter sites such as water, power, drainage / sanitation, PDS shops, etc.
- Distribution of shelter materials to individual families.

## **6.5: CHEMICAL & INDUSTRIAL DISASTER.**

### **Sources of Industrial Disasters**

Industrial & Chemical accidents may originate in:

1. Manufacturing and formulation installations including during commissioning and process operations; maintenance and disposal.
2. Material handling and storage in manufacturing facilities, and isolated storages; warehouses and godowns and fuel depots.
3. Transportation (road, rail, air, water, and pipelines).

### **Causative Factors Leading to Industrial Disasters**

Industrial & Chemical disasters, in general, may result from:

1. Fire
2. Explosion
3. Toxic release
4. Poisoning
5. Combinations of the above

### **Initiators of Industrial Accidents**

A number of factors including human errors could spark off chemical accidents with the potential to become chemical disasters. These are:

1. **Process and Safety System Failures:**
  - a. Technical errors: design defects, fatigue, metal failure, corrosion etc.
  - b. Human errors: neglecting safety instructions, deviating from specified procedures etc.
  - c. Lack of information: absence of emergency warning procedures, nondisclosure of line of treatment etc.
  - d. Organizational errors: poor emergency planning and coordination, poor communication with public, noncompliance with mock drills/exercises etc., which are required for ensuring a state of quick response and preparedness.
  
2. **Natural Calamities:** The UT of Daman & Diu is highly prone to natural disasters, which can also trigger Industrial disasters.

### **Flow of Information (Communication)**

A procedure has to be laid out to communicate the accident / attack to the **District Control Room** (DCR) giving details such as location of incident, chemical(s) involved, severity of incident, casualties (if any), etc. The person in-charge at DCR shall then **inform the first three responders** i.e. Police, Fire & Emergency Services and Medical Department. He will then inform the District Collector and all other members of the District Crisis Group. The District Collector, in turn, would inform the UT Disaster Management Authority (UTDMA) about the incident and ask for additional help in terms of resources and manpower (if at all required) after assessing the situation on site.

The UTDMA would then inform the **Central Crisis Group** (CRG) about the incident along with other relevant details on hand. The first responders, after reaching the site, will secure more information about the incident and try to establish communication with the concerned agencies / departments for deploying resources / personnel as per the need of the situation.

### **Trigger Mechanism for Industrial (Chemical) Disasters**

On getting the first hand information about an emergency/disaster, the in-charge of the DCR/DEOC should immediately inform the District Collector and the first three responders i.e. Police, Fire & Emergency Services and Medical Services. Informed District Collector then runs down to DCR/DEOC.

The notification should specify the location of the incident, the type of chemical released/used (if known), possible consequences and provide written reports on actions taken and on health effects.

The District Collector should then inform the UT Control Room (UTCR)/UTEOC and the Chairman of the UTDMA about the incident.

The UTCR/UTEOC will then issue alert or direct all the Emergency Responder Agencies at the UT and District level for providing their services immediately. The UTCR/UTEOC will immediately take decision to deploy UT Level Response Teams (UTRTs) in the affected area/s.

During the initial stages of the emergency it is likely that the reports may be unclear and conflicting. Therefore, the first responders conducting the on-site assessment should secure reliable sources of information to allow an objective assessment of the situation. The assessment should include casualty, material damages, and the likely health consequences. It should also suggest antidotes and treatment regimes for those affected by medical care if the type/nature of chemical released/used during the attack is known.

The District Crisis Group (DCG), after analyzing the information received from the District Collector and the first responders would then decide on mobilization of additional resources, medical aid and rescue equipment as required through various sources.

The DCG should also instruct the Fire & Emergency/Rescue Services and Hospitals of the neighbouring districts to be on alert in case their services are needed.

The Team Commander of the ERT should cordon off the affected area. He should instruct the neighbouring population to stay away from the site. He should instruct the medical unit to detect the substances used during the attack through the available equipment/kit. He should also decide the place for establishing the decontamination unit at an appropriate location in consultation with doctors and paramedics. The Search & Rescue unit of the ERT should rescue and evacuate the affected people to a safe location.

## **Response for Industrial (Chemical) Disasters**

Response measures are those which are taken instantly prior to, and following, a Industrial (Chemical) emergency/attack 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 it.

DCG will ensure that the functions and responsibilities of the chemical facility operators and response organizations are clearly defined and understood by all stakeholders.

For the fastest response, it is very important that the person who is receiving the information shall immediately pass on to the first responders, Dist. Collector, Sub Div. Magistrate (chairman for LCG) and other members of DCG. If he receives, further information after making the first call, he will convey

that also in same order. Alternatively, if the information is more relevant to any particular department, he will first pass that information to its head.

The specific activities and role & responsibilities are as under:

Task	Responsibility	Activity.
Disaster declaration and Plan Activation	COR, Collector	<ul style="list-style-type: none"> <li>• Declare an off-site emergency in consultation with DCG and activate an off-site emergency plan.</li> <li>• Activate LCG.</li> <li>• Establish immediate communication with LCG, DCG, DEOC, UTEOC and UTDMA .</li> </ul>
Mobilization & Deployment	COR, Collector, Revenue Dept Home Dept, Health Dept., Industries Dept. Industrial Association.	<ul style="list-style-type: none"> <li>• Arrange an immediate deployment of various ERTs in affected sector(s). (Police, Fire, S&amp;R, Medical etc.)</li> <li>• Based on the emergency monitoring teams from off-site areas initiate countermeasures (such as sheltering and medical help).</li> <li>• Arrange an evacuation of the affected/likely to be affected workers and population to safer places.</li> <li>• Activate systems of the UT machinery to meet the necessary requirements of the public in the camp till the people are in a position to go back to their homes after the affected areas are cleared and declared safe.</li> <li>• Deploy QRMTs consisting of physicians, triage officer, nurses and paramedical staff.</li> </ul>
	COR, Collector, Revenue Dept. PWD, Civil Supply Dept. Health Dept. Electricity Dept. Home Dept., Local Bodies	<ul style="list-style-type: none"> <li>• To ensure that necessary arrangements at evacuation/relief centers is made with sufficient availability of: <ul style="list-style-type: none"> <li>➤ Food,</li> <li>➤ Water,</li> <li>➤ Blankets/Clothing</li> <li>➤ Medicines</li> <li>➤ Lighting</li> <li>➤ Sanitation and hygiene etc.</li> </ul> </li> <li>• To ensure necessary security arrangements for the personals (Emergency responders/relief teams) who are working at Relief Centers and involved in distribution of Relief Materials.</li> <li>• To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well.</li> </ul>

Task	Responsibility	Activity.
Addressing Health related issues	Health Dept.	<ul style="list-style-type: none"> <li>• Ensure that the required medical assistance/aid and medicines/antidotes are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained.</li> <li>• Ensure that the Hospitals are well prepared to deal with seriously injured persons.</li> <li>• Keep adequate stock of essential medicines, antidotes, first-aid etc. at Village/district hospitals.</li> <li>• If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the Village/district level for immediate medical assistance.</li> </ul>
Information to public and media	Information Dept, COR, Collector	<ul style="list-style-type: none"> <li>• Make an arrangement for providing useful, timely, correct, consistent, and appropriate information to the public and media in the event of a chemical attack/disaster.</li> <li>• Ensure that the information to media/general public about the coordinated response is released in an organized manner.</li> </ul>
Disposal of Dead bodies	Home Dept. Revenue Dept. COR, Health Dept. Industries Dept. Industrial Associations.	<ul style="list-style-type: none"> <li>• Ensure following procedure is followed before disposal/handing over of dead bodies:               <ul style="list-style-type: none"> <li>➤ Photographs of the dead bodies are taken,</li> <li>➤ Identification of the dead bodies is done,</li> <li>➤ Post Mortem where ever necessary and possible is carried out,</li> <li>➤ Handing over dead bodies of persons known/identified to their relatives,</li> </ul> </li> <li>• Disposal of unclaimed and unidentified dead bodies</li> </ul>
	Animal Husbandry, Health Dept, Local Bodies	<ul style="list-style-type: none"> <li>• Animal Husbandry Department to ensure medical aid to cattle that are injured.</li> <li>• Disposal of animal carcasses with the help of local bodies/health dept.</li> </ul>
Police	UTDMA Home dept. Collector	<ul style="list-style-type: none"> <li>• Control and divert the traffic near the affected areas.</li> <li>• Ensure law and order at the incident site during chemical emergency/disaster and at evacuation centers too.</li> <li>• Provide security in evacuated areas.</li> </ul>

Task	Responsibility	Activity.
		<p><b>In case of Chemical attack;</b></p> <ul style="list-style-type: none"> <li>• Collector and Superintendent of Police (SP) will direct the participation of police in the emergency response. Collector and Superintendent of Police will constitute an <b>integrated command</b>.</li> <li>• Collector and SP will report to the UT Level Control Room immediately upon the receipt of information about the disaster.</li> <li>• The SP will establish contact with the District Police Control Room immediately. He will get a situation estimate and assess the operational requirements for the police.</li> <li>• The SP will direct all the police officials and forces in adjacent Districts to be deployed if necessary. The SP will ensure that the police forces required for traffic management, evacuation and law and order are available with the District administration.</li> <li>• The SP will review the dissemination of warning and the need for evacuation. He will help the Fire &amp; Emergency Services and the Deputy Director, Industrial Safety and Health with Police Wireless sets, so that there is continuous communication among the first responders in the emergency situation.</li> <li>• The SP will ensure that the police force will not enter the area under disaster without the permission of the Fire &amp; Emergency Services and Health officials.</li> <li>• In case of big explosion and fire, the SP will assess the situation and suggest a Plan of Action based on his assessment of the immediate causation.</li> <li>• The SP will order deployment of the police force for evacuation of the people from the zone of the danger.</li> <li>• The SP will send instructions for the cordoning off of the area. People should not be allowed access anywhere close to the site of the disaster.</li> <li>• The SP will review the traffic management in the area. The primary aim would be to ensure the transport of the injured to the hospital, easy access for emergency responders and safe evacuation of the people from the danger zone.</li> <li>• The SP will also issue directives that all the Private and Public Transport (trains and buses) be diverted from the disaster area.</li> </ul>



Task	Responsibility	Activity.
		<ul style="list-style-type: none"> <li>• The SP will contact the SP and ask him to organize the deployment of police force from other District, based on the need assessment. The UTDMA/IGP will also contact the Central Industrial Security Forces, and other paramilitary force to seek their deployment, if needed.</li> <li>• The SP will supervise law and order situation. He will take all the possible precautions to ensure that public order is maintained, and no one takes undue advantage of the situation.</li> </ul>
Fire and Search & Rescue	Secretary, Industry & Fire Dept.	<ul style="list-style-type: none"> <li>• Reach at the site soonest possible and assess the situation. (information about the chemical leak/spill, the action taken and current status).</li> <li>• In case of fire, start fire fighting with suitable media and also take care of surrounding storages/tanks to be over heated so that reduce the chances of 'domino effect'.</li> <li>• In case of chemical leak, try to plugging/stopping of leak with the use of proper PPE.</li> <li>• Secretary, Industries will coordinate redeployment of Fire Tenders from other places, as required.</li> <li>• Secretary, Industries will also coordinate with the Private and Public Sector industries for deployment of their Fire Brigades to the site of the disaster.</li> <li>• The <b>District Crisis Group</b>, in consultation with the District Collector and other local officials will ensure that CFO Fire Services, Dy. Director - Industrial Safety and Health, Officer in charge Police and Health Personnel all work closely with full coordination.</li> <li>• Search and identify the risk and nullify the sources of leak / toxic release. If any unclear or unidentified substance or source is identified or detected, the team should send them immediately to the laboratory for further investigation / analysis.</li> <li>• To search and evacuate the affected population from the site of the incident.</li> </ul>

Task	Responsibility	Activity.
Medical Services	UTDMA, DDMA, Health Dept. Family Welfare Dept. Revenue Dept.	<p>3. The Secretary - Health and emergency medicine experts will provide the necessary expertise and specialized services to the DCG.</p> <p>4. The DCG will consider the level of exposure on the basis of situation estimate received from the District administration. It will consider the intrinsic toxic potential of the chemical, its concentration, the duration of exposure, and the health status of the people exposed.</p> <p>5. Based on the information upon the level and extent of contamination, the UTDMA will decide on the issue of alert and warning to the people in the affected areas through the All India Radio, Doordarshan, and Cable TV.</p> <p>6. The DCG will contact the Civil Surgeon and the District Health Officer of the concerned district and ask them to deploy all the necessary medical facilities including doctors, nurses, medicines, and ambulances.</p> <p>7. The DCG will alert major hospitals in the area, and ask them to be in readiness for receiving patients.</p> <p>8. In case the nature of contamination requires much greater intervention, the DCG will inform the DDMA and ask for the necessary medical assistance of experts, doctors and equipments. The relevant agency for emergency medicine in the Government of India is the Directorate General of the Health Services (DGHS) in the Ministry of Health and Family Welfare. The DGHS has set up the Emergency Medical Relief cell, for dealing with these contingencies.</p> <p>9. The DCG will review the diagnostic support services: clinical laboratory, blood banks, radiology, pathology, pharmacy, paramedics, Red Cross, NGOs and volunteer personnel. It will seek all the steps to organize the necessary medical help through the deployment of doctors, paramedics, and provision of blood and medicines, as required.</p> <p>10. The DCG will review the administrative support required for the situation, which includes communications, transport of the victims and of the personnel, feeding of the personnel and patients and supplies.</p> <p>11. The DCG will collect information on the number of deaths and persons injured; the nature of injuries and the likely long-term consequences.</p>

Task	Responsibility	Activity.
		12. The DCG must assess the medical needs of the area on the basis of likely long-term consequences and take steps to equip local medical facilities for treating people on a long-term basis. The DCG must also make financial provision for spending on long-term treatment.

## Responsibilities after the disaster

Once the situation at the site is under control, fire has been extinguished; the emission of vapours to the atmosphere has been effectively checked, the following actions have to be performed by various sub-teams of the SRT and the respective line departments as well as the district administration:

**Search & Detection of Leak / Toxic Release** - The Search & Detection Team would identify the risk and nullify the sources of leak / toxic release. If any unclear or unidentified substance or source is identified or detected, the team should send them immediately to the laboratory for further investigation / analysis. The Team should also preserve the samples from the site of the incident such as sand, water, air and other infected substances for further investigation which could aid in strengthening the case later on.

Technical expertise of Fire & Emergency Services and the Health Department may be used by the Search & Detection Team in carrying out the activities if required.

**Structural Inspections After Fires or Explosions** - A major explosion could damage or destroy numerous buildings and any nearby bridges or tunnels. Similarly large fires can have major effects on buildings and other infrastructure facilities over a vast surrounding area. In either case, residents / owners of the partially damaged buildings will want to know if the structures are safe to occupy while they await repairs. Questions pertaining to the safety of highway or railway bridges must also be resolved quickly to avoid traffic complications. It must be ensured that the inspection personnel have special precautions (i.e., chemical protective gear) in addition to normal safety equipment in those cases where the structure may still be contaminated by hazardous residues.

Fire & Emergency Services personnel along with the structural experts from the PWD/OIDC/DMC Department shall be responsible for inspecting the structural integrity of damaged buildings, bridges, or other structures in the aftermath of a fire or explosion.

**Search, Rescue And Evacuation** - After getting the go ahead from the technical personnel responsible for ensuring structural safety of the buildings in and around the incident site, the Search & Evacuation Team should carry out their job and evacuate the affected population from the site of the incident.

They should brief the Information Officer about the rescue and evacuation status (including the place of temporary shelter) to ensure that no rumors are spread to avoid any panic amongst the general public. The Team, with the help of Police personnel should also stop general public from moving towards the danger zone. The Team should provide guidance to people regarding evacuation route, first aid and decontamination area. They should also help the Medical Team in rushing the victims to nearby hospitals.

**Post-Incident Testing for Contamination** - The De-contamination Team would be responsible to decontaminate the affected area, population, members of the SRT and equipment used during the operation on the site of the incident. In addition, the Team should also be responsible for erecting the decontamination chambers for the affected population. After the operation is completed in all respects, the Team should ensure that the site is totally decontaminated from the toxic substances. The Team should also ensure that the water that was used for decontamination is properly discharged preferably to a sewerage system outlet.

Technical personnel from the UT Pollution Control Board (UTPCB), Fire & Emergency Services and the nearby industrial units as well as the personnel from the Medical Team should help the De-contamination Team to carry out their duty. Further, the Team shall also check crops, water (ground & surface), homes, stored foods, and animals for possible chemical contamination.

**Providing Medical And First Aid To The Victims** - The Medical Team should provide first aid to the victims of the incident. If need arises, the Team should also help the hospital staff of the hospital where the victims would be transported from the incident site. They should monitor the level of triage of the victims through checking their breathing and pulse. They should also decide on the type of decontamination (either wet or dry) depending upon the substances / chemicals used during the disaster. The Team should also identify the trauma cases and counsel them appropriately.

**Provision of Alternate Water Supplies** - There are a number of circumstances under which a potable water supply may become unfit for human consumption for a time and require replacement. This is most commonly accomplished by bringing in supplies of bottled water and / or tankers / trailers capable of carrying water. The district administration must ensure the availability of potable water for consumption of affected population as well as first responders engaged at the incident site.

**Re-Entry Into Evacuated Areas** - Based on the assessment of the situation at the site, the DCG would take a decision on the termination of emergency. However, before taking this decision, several other actions needs to be ascertained such as restoration of electricity, gas, and water supplies in the affected areas / buildings, transport arrangements for bringing the affected population back from the

temporary shelters, restoration of law & order in the affected area /s, etc. through the concerned Teams / departments.

## **6.6 : EPIDEMICS**

Though, Daman & Diu does not have a history of any epidemic since 1947, the Disaster Management Plan has been prepared to take care of any unforeseen eventuality.

During epidemics the foremost responsibilities lies on individuals and concerned Departments (Health & Sanitation). The action cards are prepared describing in detail the responsibilities and actions to be taken by each member of the District Health Organization and key Hospital staff involved in disaster management such as Chief Medical Officer, Superintendent of Government Hospital, Medical Officer, Nursing personnel, Health supervisors and Health Workers.

All action should be listed in chronological order: Following are the silent points:

### **Initial Alerts:**

Superintendent of the hospital/CMO need to get alerted by the casualty itself, if the area affected is nearby or he may get information on telephone or through a person. The person receiving the information should gather details regarding the persons affected the nature of effect and the population at risk. This will be useful for preparations required.

### **Preparation of Hospital for Medical Relief:**

Key personnel from departments like Radiology, OT, Blood Bank, Laboratory, Medical Stores, and Ambulance etc. have been notified. The 165 maximum numbers of staff should be available in 10 minutes of disaster. The matron or senior nursing staff should arrange ward for receiving the affected. Following actions may be taken for expansion of beds facility.

- Utilize all available space such as corridors, lecture hall etc.
- Discharging minor cases.
- Transfer cases to other hospitals.
- Occupying building in close proximity.

The command nucleus should be formulated immediately, which include Hospital Superintendent, Matron or Senior Nursing Staff, R.M.O. and casualty officer. Key persons should know following clinical principles for management of cases.

- **Admission of Patients:** - The patients may be kept in the same ward irrespective of age and sex so that whole attention can be concentrated and resources optionally utilized.

- **Clinical Services:** - Radiological and pathological examinations should not be done as routine for all patients.
- **Triage:** - This should be done to give priority for treatment by sorting out and classifying the cases into priority I, II and III such as critical and severely ill, moderately ill and minor illness respectively.

#### **Visit of Affected Area**

Director (Medical & Health Services) CMO should immediately visit the affected area with necessary medical paramedical manpower, medicines and material depending upon the nature and extent of Biological disaster. Team of physician, pathologist and epidemiologist may accompany him for clinical diagnosis and epidemiological analysis.

#### **Checklist of Personnel includes: -**

- Doctors including specialists,
- Nurses
- Pharmacists,
- Laboratory Technicians,
- Ward Boys, Aaya, Sweepers,
- Drivers, Clerical Staff,
- Field personnel like Health Workers and Supervisors, Entomologists, Biologist, Insect Collectors.

Health Department has constituted a **Rapid Response team** which will take steps to eradicate the epidemic and investigate the cause of its outbreak.

The composition of Rapid Response Team District is as follows:-

1. Director, DMHS
  2. Deputy Director, DMHS
  3. PD (AIDS)
  4. S.S.O. (IDPS)
  5. Food Inspector
  6. Junior Chemist, Food Laboratory
  7. Entomologist (IDPS)
  8. LHV/ANM/BHW OF the affected areas.
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## **CHAPTER: 7:- REHABILITATION & RECONSTRUCTION**

Reconstruction and rehabilitation activities come under the post-disaster phase. Currently, the activities in this phase are primarily carried out by the local bodies (Gram Panchayats, District, Taluka, Municipalities etc.) and various Government departments and boards. However, their activities in this phase shall be in accordance with the reconstruction and rehabilitation plans framed by UTDMA, in conjunction with implementing authorities.

The reconstruction and rehabilitation plan is design specifically for worst case scenario. It is activated in case of L3 type of disaster in which the capacity of UT and District authorities have been overwhelmed and require assistance from the Central Government for re-establishing normalcy in the UT.

The key activities in this phase are as below;

**Detailed damage assessment:-** While a preliminary damage assessment is carried out during disaster phase, a detailed assessment must be conducted before commencing reconstruction and rehabilitation activities. The relevant Government departments and local authorities shall initiate detailed assessment at their respective level for damages sustained in housing, industry/services, infrastructure, agriculture, health/ education assets in the affected regions.

### **Assistance to restore houses and dwelling units**

UT Administration may, if needed, will formulate a policy of assistance to help the affected to restore damaged houses and dwellings. This should neither be treated as compensation for damage nor as an automatic entitlement.

### **Relocation (need based)**

The UT Administration believes that need-based considerations and not extraneous factors drive relocation of people. The local authorities, in consultation with the people affected and under the guidance of UTDMA, shall determine relocation needs taking into account criteria relevant to the nature of the calamity and the extent of damage. Relocation efforts will include activities like:

- Gaining consent of the affected population
- Land acquisition
- Urban/ rural land use planning
- Customizing relocation packages
- Obtaining due legal clearances for relocation
- Getting the necessary authorization for rehabilitation
- Livelihood rehabilitation measures for relocated communities, wherever necessary

### **Finalizing reconstruction & rehabilitation plan**

The effectiveness of any reconstruction and rehabilitation is based on detailed planning and careful monitoring of the relevant projects. UTDMA will oversee reconstruction and rehabilitation work and ensure that it takes into account the overall development plans for the state. UTDMA will approve reconstruction and rehabilitation projects based on:

- Identification of suitable projects by relevant departments;
- Project detailing and approval by the relevant technical authority.

### **Funds generation**

Reconstruction & rehabilitation projects are fairly resource intensive. UT Administration shall finalise the fund generation mechanism, including the covenants and measures that govern fund inflow and disbursement and usage. This includes:

- Estimation of funds required based on detailed damage assessment reports and consolidation of the same under sectoral and regional heads;
- Contracting with funding agencies and evolving detailed operating procedures for fund flow and corresponding covenants.

### **Funds disbursement and audit**

- The funds raised from funding agencies are usually accompanied by stringent disbursement and usage restrictions. It is therefore important to monitor the disbursement of such funds to ensure that none of the covenants are breached. UTDMA, in conjunction with relevant agencies, shall monitor disbursal of funds by:
  - Prioritizing resource allocation across approved projects;
  - Establishing mechanisms (like a chain of banks, collection centres, nature of accounts, spread etc) for collection of funds;
  - Ongoing monitoring and control of fund usage throughout actual project implementation.

### **Project management**

- Since rehabilitation and reconstruction effort typically involves the co-ordinated efforts of several entities, the UT Administration shall encourage the respective entities to strengthen program management capabilities to ensure that synergies across and within entities are managed efficiently. In addition, it is also necessary to constantly monitor the activity to ensure that the project is executed on time, in accordance with the technical specifications and to the satisfaction of the beneficiaries. UTDMA, in conjunction with relevant Government departments, will monitor the reconstruction activity that is carried out by various implementation agencies. Typical implementation activities would include:
  - Disaster proofing and retrofitting of houses;



- Creation/ Retrofitting of structures – including roads, bridges, dams, canals etc that may have been destroyed/ damaged due to the disaster;
- Restoration of basic infrastructure facilities, for example, ports, airports, power stations etc.;
- Creation of health centres, first aid centres, hospitals, groups of doctors and surgeons etc.;
- Restoration of the industrial viability of the affected area.;
- Restoration of livelihood.

### **Information, Education and Communication**

Communication activities are necessary to convey to the larger community the scope and nature of the proposed reconstruction and rehabilitation effort so as to increase the stakeholder awareness and buy-in for the ongoing activities. Hence, UTDMA and relevant Government departments, district administration and local authorities shall undertake:

- Ongoing media management/ Public Relations: To ensure accurate communication of the reconstruction and rehabilitation measures being taken to various stakeholders;
- Community management: This includes communicating to the affected communities with a view to appraising them of efforts being made for their relocation/ rehabilitation/ reconstruction;
- Feedback mechanisms: Using the communication network to get feedback on reconstruction and rehabilitation measures.

### **Dispute resolution mechanisms**

UTDMA, in conjunction with relevant agencies, shall institutionalize mechanisms to address beneficiary grievances at various levels, as well as explore innovative ways of dispute minimisation like involving the community in reconstruction initiatives. Appropriate mechanism with penalties for dealing with false claims will be evolved to prevent misuse of assistance.

### **Implementing initiatives for recovery of reconstruction costs**

The UT Administration shall finalise and implement select recovery measures such as:

- Imposing tax surcharge levies (central);
  - Imposing local taxes;
  - Facilitation of funding responsibility sharing by beneficiaries etc.
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## CHAPTER: 8:- PLAN MAINTENANCE

### **Introduction**

Plan maintenance is a dynamic process of updating the plan on a periodic basis. The back-bone of maintaining the plan is carrying out mock drills and updating the plan based on the lesson learnt as an outcome of the mock exercise which consists of identifying the gaps and putting in place a system to fill the same.

### **Plan Testing**

The Commissioner of Relief, Revenue Dept. shall prepare, review and update UT Disaster Management Plan as provided for in the DMA Act, 2005. He shall also ensure that disaster management drills and rehearsals are carried out periodically. While updating the plan the following aspects need to be considered by the COR every year:

- i) Critical analysis of the outcome of exercises & mock drills as part of plan testing.
- ii) Incorporation of lessons learnt in the updated plan as an outcome of mock exercises through identification of gaps and measures to fill them.

The plan must be thoroughly tested and evaluated on a regular basis once in a year. The plan testing should preferably be organized on the first Monday in the months of March every year. After plan testing and incorporation of lesson learnt, the COR should send a copy of the revised and updated plan to the following officials:

- (a) Chief Secretary, Government of Gujarat
- (b) Chief Executive Officer, Gujarat State Disaster Management Authority
- (c) Principal Secretary, Revenue Dept
- (d) Head of all line Depts.
- (e) State EOC
- (f) District EOCs
- (g) ERCs
- (h) IMD
- (i) CWC/ACWC

The main objectives of plan testing are to:

- (i) Determine the feasibility and compatibility of back up facilities and procedures
- (ii) Identify areas in the plan that need modification.
- (iii) Identify training needs of key stakeholders.
- (iv) Assess the ability of the organization/department to respond to disasters.

All the departments, which have specific roles and responsibilities in State Disaster Management Plan, must have a system to ensure that all Officers of their departments who have a specific role to play are fully conversant with their responsibilities/tasks.

#### **Debrief and Evaluation-Mock Drills**

- After the mock exercise, debriefing and evaluation is very important. It is of critical importance that these insights are collected from participants (who participated in the exercise) and used to modify the plan.
- Hot debriefing is very effective as it is carried out immediately after the exercise. It also includes documentation in terms of recommendations and improvements of the plan.
- The lessons learned from the mock exercise are likely to be similar to those from real events. The only major difference is that exercises are controlled events, specifically designed to test procedures and they can be repeated again and again until sound/workable arrangements are in place.

#### **Review / Updation of Plan**

- The UT Disaster Management Plan should be reviewed and updated regularly by month of April, based on inputs as under:
  - (a) Drills and Rehearsals
  - (b) Recommendations from all Depts. in their Annual DM Report
  - (c) Lessons learnt from any disaster event in other states and countries
  - (d) Directions from Ministry of Home Affairs, National Disaster Management Authority, Government of India, etc.

UTDMA and all other concerned Depts. should encourage formal and informal interaction with various stakeholders at different levels to learn and document their experiences, so that such experiences can contribute constructively towards updation of UT Disaster Management Plan for further improving the capability to deal with future disasters.

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## **CHAPTER: 9:- PARTNERSHIP WITH OTHER STAKEHOLDERS**

Disaster Management is an inclusive field and requires contribution from all stakeholders in order to effectively manage the emergency situation. Coordination amongst various stakeholders hence becomes extremely important to achieve the desired results.

There are various agencies / organizations / departments and authorities that constitute a core network for implementing various disaster management related functions / activities. It also includes academic, scientific and technical organizations which have an important role to play in various facets of disaster management.

### **NDMA**

- The National Disaster Management Authority (NDMA), as the apex body in the Gol, has the responsibility of laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters.
- The guidelines assist the central ministries, departments and states to formulate their respective plans. It also approves the National Disaster Management plan prepared by the National Executive Committee (NEC) and plans of the central ministries and departments.
- It takes such other measures as it may consider necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster.

It also oversees the provision and application of funds for mitigation and preparedness measures. It has the power to authorize the departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster. It also provides such support to other countries in times of disasters as may be determined by the central government.

- The UT keeps in touch with the NDMA for implementing various projects / schemes which are being funded through the Central Government. The UT also appraises the NDMA about the action taken by the UT Administration regarding preparation of DM plans and implementation of guidelines issued by NDMA for various hazards from time to time.

### **National Institute of Disaster Management (NIDM)**

- The NIDM, in partnership with other research institutions has capacity development as one of its major responsibilities, along with training, research, documentation and development of a National level information base. It networks with other knowledge-based institutions and function within the broad policies and guidelines laid down by the NDMA.

- It organizes training of trainers, DM officials and other stakeholders as per the training calendar finalized in consultation with the respective State/UT Governments.

## **6. National Disaster Response Force (NDRF)**

- For the purpose of specialized response to a threatening disaster situation or disasters/emergencies both natural and man-made origin, the National Disaster Management Act has mandated the constitution of a National Disaster Response Force (NDRF).
- The general superintendence, direction and control of this force is vested in and exercised by the NDMA and the command and supervision of the Force is vested in an officer appointed by the Central Government as the Director General of Civil Defence and National Disaster Response Force.
- NDRF units maintains close liaison with the designated UT Administration and are available to them in the event of any serious threatening disaster situation.
- Training centres are also set up by respective paramilitary forces to train personnel from NDRF battalions of respective forces and also meets the training requirements of State/UT Disaster Response Forces. The NDRF units also impart basic training to all the stakeholders identified by the UT Administration in their respective locations. In addition, the UT Administration also utilizes the services of the NDRF whenever required during emergency search, rescue and response.

### **6.4 Armed Forces**

- Conceptually, the Armed Forces are called upon to assist the civil administration only when the situation is beyond the coping capability of the UT Administration. In practice, however, the Armed Forces form an important part of the UT Administration response capacity and are immediate responders in all serious disaster situations.
- On account of their vast potential to meet any adverse challenge, speed of operational response and the resources and capabilities at their disposal, the Armed Forces have historically played a major role in emergency support functions. These include communication, search and rescue operations, health and medical facilities, and transportation, especially in the immediate aftermath of a disaster. Airlift, heli-lift and movement of assistance to neighboring countries primarily fall within the expertise and domain of the Armed Forces.
- The Armed Forces also participates in imparting training to trainers and DM managers, especially in CBRN aspects, high-altitude rescue, waterman ship and training of paramedics. At the UT and District levels, the local representatives of the Armed Forces have been included in their executive committees to ensure closer coordination and cohesion in all aspects related to Disaster Management.

### **Indian Railways**

- Indian Railways is spread over a vast geographical area over 63000 route kilometers. Unlike in other countries where the role of Railways, in the event of a disaster, is restricted to clearing and restoring the traffic, in our country Indian Railways handles the rescue and relief operations. Railways are preferred mode of transport both for the movement of people and relief material in bulk, if accessible.
- Railways should have a provision for transportation of mass community and proper handling and distribution of relief material (through special trains, if required) in their disaster management plan.

### **Indian Meteorological Department (IMD)**

- The meteorological department undertakes observations, communications, forecasting and weather services. IMD was also the first organization in India to have a message switching computer for supporting its global data exchange.
- In collaboration with the Indian Space Research Organization, the IMD also uses the Indian National Satellite System (INSAT) for weather monitoring of the Indian subcontinent, being the first weather bureau of a developing country to develop and maintain its own geostationary satellite system.
- During the cyclone and flood seasons, the UT Administration keeps close contact with the IMD – Ahmedabad office for weather related forecasts.
- Earthquakes occurring in the UT which are of magnitude 3.0 and above on Richter Scale are also reported by the IMD to the UT Administration immediately.

### **INCOIS**

- Indian National Centre for Ocean Information Services (INCOIS) is a national agency of the Government of India, under Ministry of Earth Sciences. It provides the coastal and ocean information services, supporting developmental and operational sectors like ports, fisheries, shipping, meteorology, environment, off shore and coastal zone management in addition to promoting advanced oceanographic research in the country.
- INCOIS generates and disseminates near real time information on Sea Surface Temperature (SST), chlorophyll, Potential Fishing Zones (PFZ) advisories, tracking of oil spills, forecast economical shipping routes, and upwelling zones along the Indian coast, utilizing both remotely sensed and conventionally observed data.
- The parameters envisaged for dissemination include wind, wave, current, mixed layer depth, heat budget and maps on coral reef, mangroves, shore line change and land use pattern. INCOIS thus, plays an important role in supporting the nation for sustainable development of the coastal and ocean sectors through ocean information services.

- INCOIS has already put in place an early warning system for Tsunami through which it alerts the coastal whenever an undersea earthquake of higher magnitude capable of triggering a Tsunami is reported.
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