GUJARAT STATE DISASTER MANAGEMENT AUTHORITY

GSDMA

Gujarat State Mass Rescue Operation (MRO) Plan at Sea

GUJARAT STATE DISASTER MANAGEMENT AUTHORITY
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CHAPTER-1: INTRODUCTION

1. Background

The State of Gujarat was formed on 1st May 1960. It is located on the western most part of India and shares border with Pakistan and Rajasthan in the north east, Madhya Pradesh in the east, and Maharashtra and the Union territories of Diu, Daman, Dadra and Nagar Haveli in the south. The Arabian Sea borders the state both to the west and the south west.

As per 2011 census, the population of the State comes to nearly 6.03 crores, which is around 5 % of the population India Literacy rate in Gujarat has seen upward trend and is 79.31% as per 2011 population census. Of that, male literacy stands at 87.23% while female literacy is at 70.73%. Urban Population of the State is 42.6%, which used to be at 37.4% in 2001. Rural population in the state in 2011 fell to 57.4% from 62.6% in 2001.

Ahmedabad is the most populated District in the State, with 7.20 million people. Gujarat has the longest coastline of about 1,600 Km in India which makes it vulnerable to numerous hydro-meteorological hazards viz. Cyclone, storm surge, Gusty winds, Heavy rainfall etc. Over the last few years, scientists have been observing unusual activity in the Arabian Sea due to climate change.

The oceanic basin to the west of the Indian sub-continent which usually sees low-intensity cyclonic activity has suddenly turned into a hotspot of sorts, churning out severe cyclonic storms one after the other. 2019 recorded one of the most active cyclone seasons in the North Indian Ocean (NIO). Six cyclonic activities were observed in Arabian sea out of which four cyclones were of intensity VSCS and above – VSCS Vayu, VSCS Hikaa, SuCSKyarr and ESCS Maha. While Vayu, Hikaa and Kyarr did not make landfall in India, the western coast from Kerala to Gujarat witnessed heavy rains and strong winds, affecting normal life in several areas.

2. Aim

The aim of this plan is to assist those who are responsible for establishing, managing, supporting/ facilitating and conducting Mass Rescue Operation to understand the following:-

a) Functions and importance of Mass Rescue Operation Services.
b) Components and support infrastructure essential for MRO.
c) Training needed to co-ordinate, conduct and support MRO operations
d) Communications functions and requirements for MRO.
e) Coordinating functions for ensuring efficiency by sharing resources.
f) Basic principles of managing and improving SAR services to ensure success.

3. Objective of the Plan

In order to carry effective mass rescue operation following objectives are to be considered:-

a) To carry effectively and timely rescue operations
b) To develop Well-coordinated, planned and, effortless response mechanism.
c) Through this plan, there would be the coordination between the important aspect of Mass Rescue Operation such as scope, rescue procedures, documentation, capacity building and media interaction.

4. Guiding Principles:

Disaster Risk Reduction Post-2015

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

4.1 Sendai Framework of Actions for Disaster Risk Reduction 2015-2030

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

The Four priorities of actions are:-

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

The seven global targets are: -

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

4.2 Sustainable Developmental Goals

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in September 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030.The 17 SDGs are integrated—that is, they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.In order to make the 2030 Agenda a reality, broad ownership of the SDGs must translate into a strong commitment by all stakeholders to implement the global goals.

4.3 Prime Minister's 10 Point Agenda towards Disaster Risk Reduction

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

i. All development sectors to imbibe principles of Disaster Risk Management

ii. Work towards risk coverage for all-starting from poor households to small and medium enterprises to multi-national corporations to nation states.
iii. Encourage greater involvement and leadership of women in disaster risk management
iv. Invest in risk mapping globally related to hazards such as earthquakes based on widely accepted standards and parameters.
v. Leverage technology to enhance the efficiency of disaster risk management efforts.
vi. Develop a network of universities to work on disaster issues.
vii. Utilise the opportunities provided by social media and mobile technologies.
viii. Build on local capacity and initiative. Response agencies need to interact with the communities and make them familiar with the essential drill of disaster response.
ix. Ensuring that disaster learning is well documented.
x. Bring about greater cohesion in international response to disasters.

5. Need of Plan

A mass rescue operation (MRO) is one that involves the need for immediate assistance to large numbers of persons in distress such that capabilities normally available to search and rescue (SAR) authorities are inadequate.

MROs are relatively rare low-probability high-consequence events compared to normal SAR operations. But major incidents leading to the need for MROs have not been infrequent on a world-wide basis, and can occur anywhere at any time. The nature of such operations may be poorly understood due to limited experience of such incidents.

Flooding, earthquakes, terrorism, emergencies in the offshore energy industry and accident involving release of hazardous materials are examples which, because of their scale, may require the application of the same resources as required for mass maritime or aeronautical rescue operations. There are many potential causes of MROs, and the risks should be analysed locally: but the effects are more important than the causes for response planning and purposes

The sequence of priority in major multi-mission incident must be life saving first, generally followed by environmental protection, and then protection of property. Moral and legal obligations and public and political expectations require preparedness to carryout MROs safely and effectively should they become necessary. Since the need for MROs is relatively rate, it is difficult to gain practical experience to help deal with them. Types of potential MRO scenarios vary, but there are certain general principles that can be followed based on lessons of history.

Effective response to such major incidents requires immediate, well-planned and closely coordinated large-scale actions and use of resources from multiple organisations. The following are typical MRO demands:-

a) Intense and sustained high priority lifesaving efforts may need to be carried out at the time and place as major efforts to protect the environment and property.
b) Huge amounts of information needs to be readily available at the right times and places to support the response efforts and meet the needs of emergency responders, the news media, the public, and friends and families of the person in distress, who may number in the hundreds or thousands.
c) Many means of communication need to be available and inter-linked amongst organisations at various levels to handle this information reliably for the duration of the response.
d) An increase in the number of competent staff in all key organisations must be made available immediately and be sustainable for up to weeks at a time.
e) Equipment and logistics demands may increase to unprecedented levels.
f) Successful MROs depend on the advance provision of flexible and all-level contingency plans. Intense integrated planning and operational efforts must also be carried out in real time throughout the rescue efforts.

All involved in the overall multi-agency, multi-jurisdiction, multi-mission and possibly international response to major incidents must clearly understand who is in-charge, the respective roles of all involve, and how to interact with each other. SAR authorities may be responsible for all or part of the MRO functions, and must be able to co-ordinate their efforts with other responders under the overall direction of another authority within or outside their own agency

The broader response environment may involve activities such as:-

a) Hazards mitigation.
b) Damage control and salvage operations.
c) Pollution control.
d) Complex traffic management.
e) Large-scale logistics efforts.
f) Medical and coroner functions.
g) Accident-incident investigation.
h) Intense public and political attention.

MRO plans need to be part of and compatible with overall response plans for major incidents. Plans must typically allow for command, control and communications structures that can accommodate simultaneous air, sea and land operations

The consequences of poor preparations for MROs in terms of loss of life and other adverse results may be disastrous. Major incidents may involve hundreds or thousands of persons in distress in remote and hostile environments. A large passenger ship collision, a downed aircraft, or a terrorist incident could, for example, call for the immediate rescue of large numbers of passengers and crew in poor environmental conditions, with many of the survivors having little ability to help them selves.

Preparedness to mount an extra ordinarily large and rapid response is critical to preventing large-scale loss of lives. Such preparedness are often depends on strong and visionary leadership and unusual levels of co-operation to achieve at the planning stage.

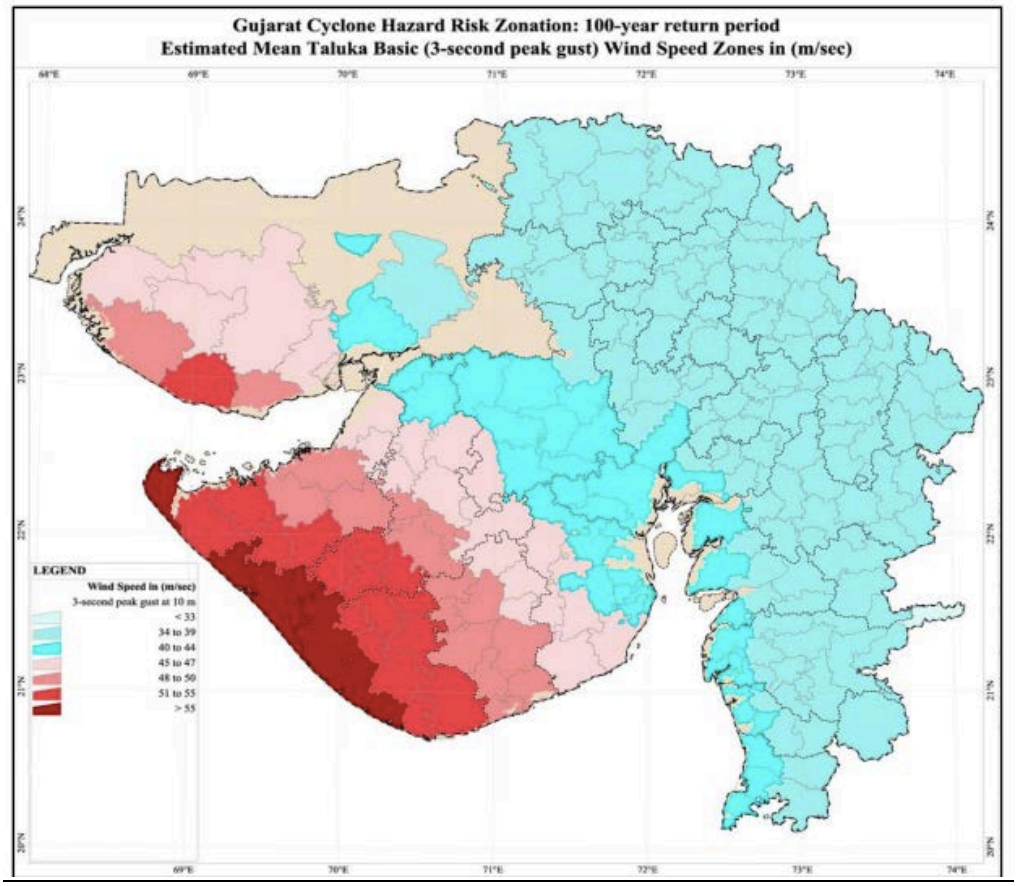
There will often be resistance to paying the high price in terms of time, efforts and founding that preparedness for major incidents entails, particularly as they are relevant. The required levels of co-operation, co-ordination, planning, resources and exercises required for preparedness are challenging and do not happen without the requisite commitment of SAR authorities, regulatory authorities, transportation companies, sources of military and commercial assistance and others.

MRO planning, preparations and exercises are essential since opportunities to handle actual incidents involving mass rescues are rare. Therefore, the exercising of MRO plans is particularly important.

CHAPTER-2: HAZARD, RISK AND VULNERABILITY ASSESSMENT

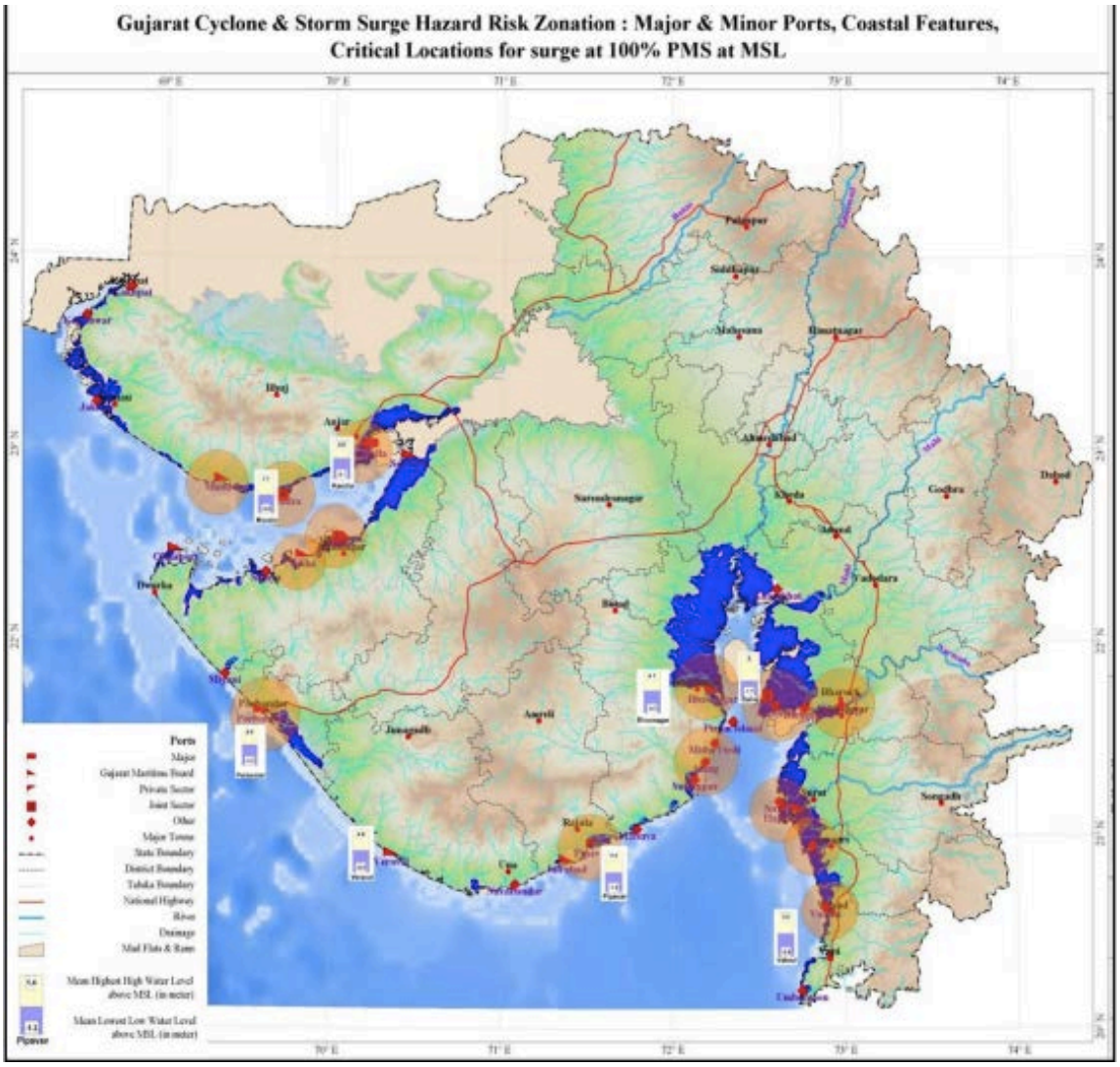
1. Cyclone

Gujarat falls in the region of tropical cyclone. With the longest coast line of 1600 km in the country, it is highly vulnerable to cyclone and its associated hazards such as floods, storm surges, etc. Most of the cyclones affecting the state are generated in the Arabian Sea. They move North-East and hit the coast particularly the Southern Kutch and Southern Saurashtra and the Western part of Gujarat. Two cyclonic storm seasons are experienced in Gujarat: May to June (advancing southwest monsoon) and September to November (retreating monsoon). Over 120 cyclones originating in the Arabian Sea had passed through Gujarat over a period of 100 years. Figure below shows a maximum wind speed class of more than 55 m/sec along the Saurashtra coast, specifically in Amreli, GirSomnath, Junagadh, Porbandar, DevbhoomiDwarka, Jamnagar, Morbi, and Kutch districts, which are exposed to high intensity cyclonic and storm impact.



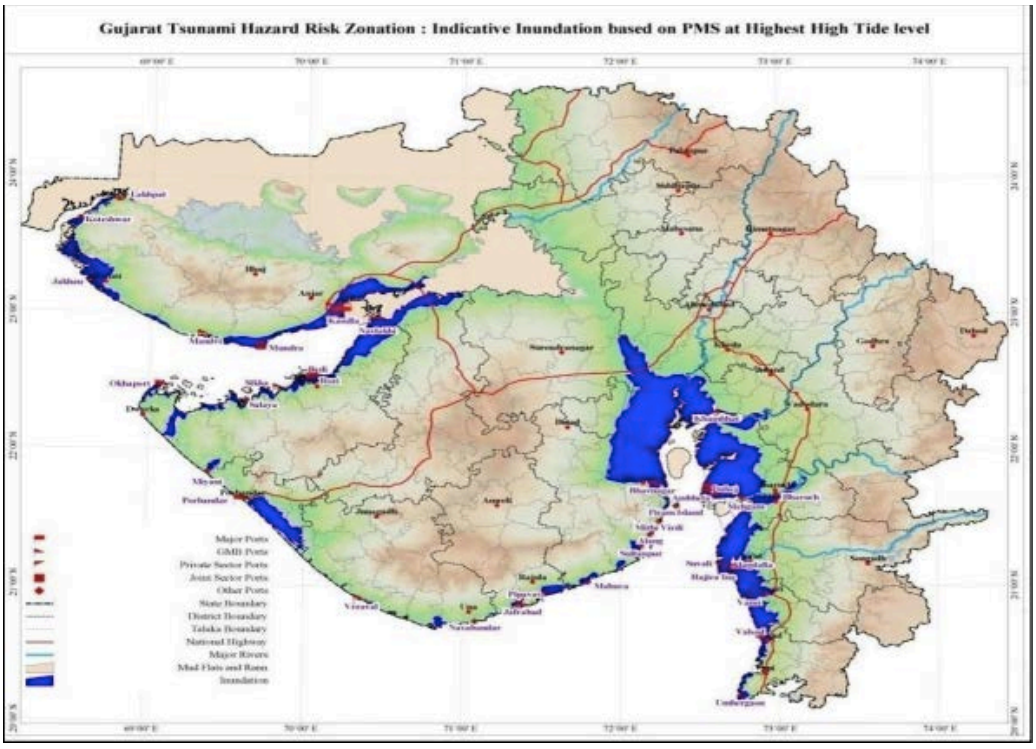
The 51 to 55 m/sec class extends further inland to cover much of Jamnagar, part of Rajkot, Morbi and Kutch districts. The 48 to 50 m/sec class extends to most of Rajkot, part of Amreliand Jamnagar districts including Jamnagar, Rajkot cities and parts of Kutch. The 45

to 47 m/sec class covers much of Saurashtra and all of Kutch. This is followed by the 40 to 44 m/sec class that gets its swathe from Kutch through northern Saurashtra all the way to the coast of Gulf of Khambhat and southern Gujarat. The rest of the State falls into the 34 to 39 m/sec class.



2. Tsunami

Gujarat is prone to tsunami risk due to its long 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. In past, Kandla coast was hit by a Tsunami of 12 mtrs height in 1945, due to an earthquake in the Makran fault line. Tsunami prone areas in the State include coastal villages of Kutch, Jamnagar, Rajkot, Porbandar, Bhavnagar, Anand, Ahmedabad, Bharuch, Surat, Navsari and Valsad districts.



3. Boat Capsizing

In a storm or cyclonic situation or tsunami situation, large vessels and cruise ships may be rolled by being hit broadside by a large wave or swell in extreme waves. It can become a disaster for larger ships. The incident may occur in very rough situation in oceans. Arabian sea has faced very rough sea condition during monsoon and cyclonic storms. The risk of boat capsizing is non-negotiable as many large vessels from overseas dock in ports of Gujarat.

4. Terrorist attack

Considering the proximity of Gujarat to international water, the risk of terrorist attack is high. During the terrorist attack of 26/11, Arabian sea was used to ferry the terrorist in India. Terrorist attack on Cruise ships and large vessels of economic importance cannot be ruled out and may require mass rescue operation.

CHAPTER-3: DISASTER RISK GOVERNANCE

Disaster risk governance is the system of institutions, mechanisms, policy and legal frameworks and other arrangements to guide, coordinate and oversee disaster risk reduction and related areas of policy. Disaster governance goes beyond governmental settings, powers, processes and tools by encouraging collective actions through the engagement of all stakeholders operating at all scales— from village to country. The legal framework in the country and in Gujarat provides direction to government all other stakeholders for Disaster Risk Management (DRM).

The role, composition and key decision making bodies for disaster management at National, State, district and below level are described below. The extent of involvement of central agencies will depend on the type, scale, and administrative spread of the disaster. If the situation requires, the state government shall request central government to provide necessary support. Disaster management structure is in place right from the national to local level. This institutional mechanism plays a crucial role in all activities from policy making to implementation across the entire disaster management cycle

1. Legal Obligations

A. At international level

The current legal obligations placed upon shipping were never intended for the purpose of rescuing large numbers of migrants and refugees. But providing assistance to any person in distress at sea is a clear legal requirement under international maritime law, which is also firmly based on a deep rooted moral obligation which the shipping industry has always accepted without question. The legal provisions concerning rendering assistance to persons in distress at sea are:

- United Nations Convention on the Law of the Sea (UNCLOS), 1982, Article 98(1) & (2);
- IMO International Convention for Safety of Life at Sea (SOLAS), 1974 as amended, Chapter V, Regulations 7 and 33; and
- IMO International Convention on Maritime Search and Rescue (SAR), 1979 as amended.

The underlying legal principle is that nation States and ships have an obligation to assist persons in distress at sea, regardless of their nationality, status or the circumstances in which they are found. The practicalities of meeting the obligations under these international Conventions are described in:

- The International Aeronautical and Maritime SAR Manual (IAMSAR) Volumes I-III.2 The matters described in IAMSAR Volume III are of particular relevance to shipping companies and ship's Masters;
- The procedures for responding to emergencies as required by the International Safety Management (ISM) Code and included in the company's Safety Management System (SMS);

B. At National Level

National Disaster Management Act 2005

The NDM Act 2005, lays down the necessary provision for preparing incident/event specific response plan at various level.

C. At State level

Gujarat State Disaster Management Act 2003

The GSDM Act 2005, lays down the necessary provision for preparing incident/event specific response plan at various level.

2. Risk Governance at National Level

a) **Ministry of Shipping**

Ministry of Shipping carries out broad responsibility w.r.t. Navigation and Port State Control of vessels and transportation safety. The Director General of Shipping, implementing agency for international conventions on maritime matters, shall promulgate all SAR preventive programmes on advise from the National Maritime SAR Board for commercial vessels operating in the Indian waters. They also maintain database of Maritime Mobile Service Identity (MMSI) numbers of all vessels registered with them and extend other assistance regarding LRIT information on data maintained with DG Comm Centre, Mumbai.

b) National Maritime SAR Board

To coordinate national maritime SAR objectives in accordance to the provisions of the international conventions, the National Search and Rescue Board was constituted vide Ministry of Shipping, GoI, resolution number SW-MIC/27/77/MD/AG dated 28 Jan 2002 with the Director General, Indian Coast Guard as the National Maritime Search and Rescue Coordinating Authority (NMSARCA). This Board was formed subsequent to India's accession to SAR 79 Convention in May 2002.

The terms and reference of National Maritime SAR Board are as follows:-

- Formulation and promulgation of National SAR plan including its review and updating.

- Define functions to be performed by participating agencies.
- Coordinate measures to be adapted by participating agencies and formulation of contingency plan.
- Attending to matters relating to SAR as per IMO requirements in consultation with Ministry of Shipping.

c) Indian Coast Guard

Indian Coast Guard is an Armed Force of the Indian Union and has been entrusted with the duties of providing search and rescue assistance to mariners and protection to fishermen including assistance to them at sea while in distress and safety of life and property at sea vide sections 14(2) (b) and 14 (2) (f) respectively of Coast Guard Act 1978.

Related to SAR, the Coast Guard charter of duties includes:-

- Providing protection to fishermen including assistance to them at sea when in distress.
- Safety of life and property at sea.
- Search and Rescue at sea.
- Enforcement of Maritime laws at sea.

In addition to the resources available with Indian Coast Guard, being the National Maritime SAR Coordinator, the ships/ aircraft/ crafts/ shore based facilities with following agencies will also be requisitioned for carrying out SAR operations. These resources can be requisitioned by the SAR Mission Coordinator (SMC).

(a) Indian Navy.
(b) Indian Air Force.
(c) Port Authorities.
(d) Shipping Corporation of India.
(e) Director General Civil Aviation.
(t) States/ Central Fisheries Authorities.
(g) States/ Central Customs Authorities.
(h) Merchant Ships operating close to position of distress.
(J) Civil Authorities.
(k) Indian Meteorological Department.
(l) INMCC, Bangalore.
(m) Department of Telecommunications.
(n) DG (Shipping).
(p) NIOT.
(q) State Marine Police.
(r) National Disaster Response Force (NDRF).
(r) Other resources maintained by private companies where necessary.

3. Risk Governance at State level

Agencies	Roles & Responsibilities
Gujarat State Disaster Management Authority (GSDMA)	• Promotes an integrated and coordinated system of disaster management including prevention or mitigation of disaster by the State, local authorities, stakeholders and communities. • Collect/cause to be collected data on all aspects of disasters and disaster management and analyze it and further cause and conduct research and study relating to the potential effects of events that may result in disasters. • Acts as a repository of information concerning disasters and disaster management • Lays down the policies and plans for disaster management in the State. • Promotes or causes to promote awareness and preparedness, advices and trains the community and stakeholders • Co-ordinating Rehabilitation and Reconstruction activities by different government departments.
Commissioner of Relief (COR)	• On the recommendation of COR, State Government may declare disaster. • Primary responsibility of co-ordinating an effective emergency response and relief on the occurrence of a disaster. • Prepare, review and update State level emergency plans and guidelines and ensure that the district level plans are prepared, revised and updated • Develop an appropriate relief implementation strategy for the State in consultation with the Authority, taking into account the unique circumstances of each district and deficiency in institutional capacity and resources of the State. • Provide directions to the District Collector and the local authority having jurisdiction over the affected area to provide emergency relief in accordance with disaster management plans to minimize the effects of disaster.

State Crisis Group (SCG)	• Develop a strategic policy framework for disaster management for the State. • Ensure that the disaster operations in the state are consistent with the State Disaster Management Authority and in line with the policy framework for disaster management for the state. • Identify resources in and outside the State that may be used for disaster operations. • Provide reports and make recommendations about matters relating to disaster management and disaster operations. • Develop a thorough approach to disaster management - Prevention / Preparation / Response and Recovery. • Establish District and Local Crisis Group
Gujarat Institute of Disaster Management (GIDM)	• To serve as the apex institute in the State for Disaster Management Capacity Building. • To provide disaster management related training to all the stakeholders. • To act as a resource centre and clearing house of information on disaster management by documentation of field experiences including case studies, lessons learnt and best practices. • To undertake quality research projects on Disaster Management and mitigation covering both natural and human induced disasters. • To facilitate partnership with reputed national and international organizations, universities, institutions, bodies and individuals specialized in Disaster Management. • To run and award degree/diploma/certificate courses on Disaster Management on its own or with the affiliation to any other institute/ universities, local/ national/ international
State Fire and Emergency Services	• Provides crucial immediate response during any disaster. • Provides regular training to the fire staff and all in using and maintaining the equipment and containing fire in the state.

Institute of Seismological Research (ISR)	• Engaged in dedicated seismological research • Monitors seismic activity of Gujarat round the clock through a dense network of instruments installed in Gujarat • Reports earthquake location along with magnitudes at the earliest of the arrival of seismic waves • Engaged in seismic micro zonation of areas prone to earthquakes • Provide consultancy services to various private companies in feasibility studies related to seismicity of the area prior to establishing a major project
Bhaskaracharya Institute for Space Applications and Geo-Informatics (BISAG-N)	• State level nodal agency to facilitate the use of spatial and geo-spatial technologies for the planning and developmental activities pertaining to agriculture, land and water resource management, wasteland development, watershed development, forestry, disaster management, infrastructure and education. • Provides specialized services and solutions in implementing map-based Geo-Spatial Information Systems. • Provides GIS solutions for disaster management and specialized needs of Public Safety agencies like police, fire and ambulance services. • Provides e-governance solutions to address varying GIS and MIS needs of governments and municipal corporations.
State Disaster Response Force (SDRF)	• GSDMA, through the Home Department, has created 11 State Disaster Response Force (SDRF) Companies with a total strength of around 1100 personnel. • 11 Companies of SDRF are stationed at Vadodara (2 Companies), Ahmedabad, Madana, Godhra, Nadiad, Gondal, Valiya, Vav, Gandhinagar and Rajkot. • Around 140 types of search and rescue equipments were provided for training. • The SDRF teams are deployed at various locations based on the severity of the disaster.
Local Authorities	• Provide assistance to GSDMA, COR and District 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.

4. Risk Governance at district level

All the districts in the state have District Emergency Operation Centre (DEOC) headed by the Collector. Further, every DEOCs act as the planning, coordinating and implementing body for disaster management at the District and below level and take all necessary measures for the purposes of disaster management in accordance with the guidelines laid down by the NDMA and GSDMA

Agencies	**Roles & Responsibilities**
District 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, nongovernmental organizations, and the private sector. • Take appropriate actions to smoothen the response and relief activities to minimize the effect of disaster. • Recommend CoR and State Government for declaration of disaster.
District Crisis Group (DCG)	• Ensure that disaster management and disaster operations in the district are consistent with the State. • Develop effective disaster management for the district, including a district disaster management plan and regularly review and assess the disaster

	management arrangements in the disaster district. • Provide reports and make recommendations to the State group about matters relating to disaster management and disaster operations in the district. • Regularly review and assess the disaster management of Local Groups in the district. • Ensure that any relevant decisions made by the State group are incorporated in its disaster management arrangements, and the disaster management arrangements of Local Groups in the district. • To ensure the community is aware of ways of mitigating the adverse effects of an event, and preparing for, responding to and recovering from a disaster. • Coordinate the provision of State resources and services provided to support Local Groups in the district. • Identify resources that may be used for disaster operations in the district. • To make plans for the allocation of resources that may be used for disaster operations within the district and the coordination of their use. • Establish and review communications systems in the group, and also with Local Groups in the district for use when a disaster happens. • Ensure information about an event of a disaster in the district is promptly given to the State group and each Local Group in the district. • To assist the district administration in the preparation of a district disaster management plan.
Local Crisis Group (LCG)	• Ensure that disaster management and disaster operations in the area are consistent with the State and in line with the policy framework for disaster management for the state. • Develop effective disaster management, and

	regularly review and assess the disaster management activities. • Help the local administration for its area to prepare a local disaster management plan. • Identify, and provide advice to the relevant district group about, support services required by the local group to facilitate disaster management and disaster operations in the area. • Ensure the community is aware of ways of mitigating the adverse effects of an event, and preparing for, responding to and recovering from a disaster. • Manage disaster operations in the area under procedures decided by the state group. • Provide reports and make recommendations to the relevant district group about matters relating to disaster operations. • Identify, and co-ordinate the use of resources that may be used for disaster operations in the area. • Establish and review communications systems in the group with the relevant district group and other local groups when a disaster happens. • Ensure information about a disaster in the area is promptly given to the relevant district group.

5. Other Stakeholders

Agencies	Roles & Responsibilities
Private Sector	• The private sector should ensure their active participation in the pre disaster activities in alignment with the overall plan developed by the GSDMA or the Collector. • They should also adhere to the relevant building codes and other specifications, as may be stipulated by relevant local authorities.
Community Groups and Voluntary agencies	• Local community groups, —AapdaMitra‖ and voluntary agencies including NGOs should actively assist in prevention and mitigation activities under the overall direction and supervision of the GSDMA or the Collector. • They should actively participate in all training activities as may be organised and should familiarise themselves with their role in disaster management.
Citizen	• It is a duty of every citizen to assist the Commissioner, 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.

CHAPTER-4: DISASTER PREPAREDNESS

All institutions relevant to a state's resilience must have the capabilities they need to discharge their roles. It is critical to involve all stakeholders right from the pre-disaster phase and to work together in a risk-informed and integrated approach. For this, all stakeholders should be aware and informed of the existing and imminent risks, incorporate disaster risk reduction as part of their policy and routine functioning and should allocate resources and develop capacities to increase the level of commitment to disaster risk reduction for resilience.

1. Participating Agencies

a) **Ministry of Shipping -**Ministry of Shipping carries out broad responsibility w.r.t. Navigation and Port State Control of vessels and transportation safety. The Director General of Shipping, implementing agency for international conventions on maritime matters, shall promulgate all SAR preventive programmes on advise from the National Maritime SAR Board for commercial vessels operating in the Indian waters. They also maintain database of Maritime Mobile Service Identity (MMSI) numbers of all vessels registered with them and extend other assistance regarding LRIT information on data maintained with DG Comm Centre, Mumbai.

b) **Indian Coast Guard** - Indian Coast Guard has been designated as the national coordinator for the conduct of maritime SAR operations on and over the sea areas of the Indian SRR. Towards this, the Indian Coast Guard develops, establishes, maintains and operates SAR facilities for maritime SAR operations. The operation is coordinated through Maritime Rescue Coordination Centers (MRCCs) and Maritime Rescue Sub Centers (MRSCs) located in maritime states of India.

c) **Indian Navy** - Indian Navy has facilities and resources that are used to support their own operations. These facilities may be used for maritime SAR needs on a 'not-to-interfere' basis with military missions.

d) **Indian Air Force** – Indian Air Force has SAR facilities for their own operations over land and sea. These facilities may be used for maritime SAR needs on a 'not-to-interfere' basis with military missions.

e) **Shipping Industry** - Shipping industry operates a fleet of merchant ships for national use and promotes a safe merchant marine, which should assist and support when called upon in maritime SAR operations, in accordance with the national and international conventions and provisions.

f) **Airports Authority** - Airports Authority of India provides Air Traffic Management services over entire Indian Air Space and adjoining oceanic areas assigned by ICAO, and is also responsible for establishment and provision of search and rescue services in coordination with other agencies.

g) **Meteorological Department** - Meteorological Department shall support SAR operations through timely input of weather messages, marine environment forecasts and warnings for the coastal and high seas and provide weather information on demand to SAR coordinator and coordinating agency.

h) **Department of Space (DoS)** - Department of Space (DoS) shall provide satellite "alert" services as per the guidelines of COSPAS-SARSAT, for detection and location of aircraft, ships and individuals in potential distress situation that carry recommended distress beacons. DoS also maintains beacon registration data base of DATs and also maintain emergency contact details as provided by the users and also distributes the same to concerned rescue co-ordination centre for SAR mission planning.

i) **Chief Hydrographer** - Chief Hydrographer to Govt of India shall assist the maritime SAR agencies by timely promulgation of navigational warnings through NAVAREA and other measures.

j) **Customs and Excise** - Customs and Excise provide rescue facility assistance, and equipment clearance during SAR operation involving foreign crew/ passengers.

k) **Major Ports** - Major Ports provide rescue facility assistance to the SAR agencies during SAR operations occurring near ports and offshore areas. The major ports shall also provide berthing, towing, tug assistance to SAR agencies, when requested.

l) **Department of Telecommunication (DoT)** - Department of Telecommunication (DoT) on advice from the coordinating agency, promulgates rules and regulations for non-government use of wireless and radio facilities for promoting safety of life and property and co-operation in SAR operations by relaying inputs obtained from Coast Radio Stations.

m) INCOIS - The Indian National Centre for Search Information Service under the Ministry of Earth Science shall provide ocean information parameter to MRCC/ MRSC and also maintain special software for establishing search area which would contribute to the effective SAR operation when requested by MRCC/ MRSC and other agencies as required.

n) **Fishing Community** - Fishing Community representing fisher-folk and operating around our coasts shall provide assets to the coordinating agencies, when requested to augment SAR effort.

o) **Sailing Vessel Operators** - Sailing vessels operating around our coasts for commercial purposes shall provide assistance to the coordinating agencies, when requested to augment SAR effort.

p) **Director General of Civil Aviation (DGCA)** - Director General of Civil Aviation (DGCA) is to provide an updated list of civil aircraft registered in India, coordinate flexi use of air space by civil and military air traffic and issue air safety notices during a particular SAR operation involving various air units.

q) **Bureau of Immigration** - Bureau of Immigration to assist SAR agencies by expediting immigration clearance during SAR operation involving foreign crew/ passengers and also provide Regional and Foreign Language Experts whenever requisitioned by SAR agencies.

r) **Minor Ports** - Minor Ports to provide rescue facility assistance to the SAR agencies during SAR operations occurring near ports and nearby areas. The minor ports shall also provide priority berthing, towing, tug assistance to SAR agencies when requested.

s) **Private Ports** - Private Ports to provide rescue facility assistance to the SAR agencies during SAR operations occurring near ports and nearby areas. The private ports shall also provide priority berthing, towing, tug assistance to SAR agencies when requisitioned by SAR agencies.

t) **Oil Exploration Agencies** - Oil Exploration agencies (Government, PSUs and Private) to provide offshore Supply Vessels, Tugs, helicopters, extend helipad of oil platforms/ drill ships, medical facility whenever requisitioned by SAR agencies.

u) **Airlines** - Airlines (Government, PSUs and Private) are to extend facilities to maritime SAR agencies whenever requisitioned. The airlines to provide passenger list of the aircraft in distress at sea and diversion of other aircraft, if feasible, to locate vessel/ aircraft in distress.

v) **Marine Police/ Coastal Security Police (CSP)** - Marine Police/ Coastal Security Police (CSP) shall provide boats and other assistance to the coordinating agencies, when requested to augment SAR effort.

w) **District Administration -** The concerned district administration shall provide search and rescue equipment's, boats and other necessary clearance upon requisition to carry out rescue operations smoothly.

2. Communication

Good communication is critical as they promptly provide the Rescue Coordination Centres with alerting information thereby enabling the Rescue Coordination Centres to dispatch SRUs and other resources to search areas without delay. This also ensures maintenance of two-way contact with person in distress

The SAR communication consists of a sender passing information to a receiver by various means. The SAR communications occur between the distressed unit/ survivor and SAR system and also the components and facilities of the SAR system. It is very vital to ensure that the message received is treated crucial so as to enable the successful accomplishment of the SAR system. Therefore, it is of paramount importance to provide the essential communications elements to receive distress alerts and enable further communication, as required. The necessary communication for SAR system includes telephones, radios operating on international distress frequencies, long range terrestrial and satellite systems and other equipment depending upon the geography and the factors affecting the ability of persons to contact each other

The main functions of a SAR communications system are:-

(a) Receipt of alerts from equipment used by persons in distress.
(b) Exchange of information with persons in distress, and among the SAR mission coordinator (SMC), OSC and SAR facilities for coordination of responses to SAR incidents.
(c) Direction finding (DF) and homing which allow SRUs to be dispatched to the vicinity of the distress and to home on signals from equipment used by survivors.

GMDSS Sea Areas - The GMDSS is based on the concept of using marine communication sea areas to determine the operational, maintenance and personnel requirements of maritime radio communications. The four sea areas are described as follows:-

(a) Sea Area A1. Within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available. Such an area could extend typically 30 - 50 nautical miles from the coast station.
(b) Sea Area A2. An Area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available. For planning purposes this area typically extends to up to 150 nm offshore, but would exclude any Al designated areas. In practice, satisfactory coverage may often be achieved out to around 400 nautical miles offshore.

(c) Sea Area A3. An area, excluding sea areas A1 and A2, within the coverage of an INMARSAT geo stationary satellite in which continuous alerting is available. This area lies between about latitude 70 North and South, but excludes Al and A2 designated areas.
(d) Sea Area A4. An area outside sea areas A1, A2 and A3. This is essentially the Polar Regions, North and South of about 70 deg of latitude, but excludes any other areas.

The carriage requirement of MRCC and MRSC in order to satisfy above functional requirements are as listed below: -

(a) VHF, MF and HF RT.
(b) VHF, MF and HF DSC.
(c) MF or HF Radio telex.
(d) EGC receiver.
(e) IMO recognized satellite services terminal.
(f) AFTN.
(g) INMARSAT Safety Net.
(h) Vessel Tracking Systems and Services.
(i) Telephone, Telefax and Email facility

3. SAR Resources

The primary responsibility of SAR coordinator is to effect search operation in minimum time and call out the rescue successfully. The time is the only deciding factor to deploy the forces available with the SAR coordinator or it requires mobilisation of facilities with other resource agencies. If MRCC feels the facilities available with other agencies will accomplish the mission with minimal time delay, the appropriate authorities are to be requested to extend the services of the assets at their disposal for mission accomplishment.

(a) Indian Coast Guard

- Pollution Control Vessel (PCV)
- Offshore Patrol Vessel (OPV)
- Fast Patrol Vessel (FPV)
- Air Cushion Vehicle (ACV)
- Interceptor Boats (IB)
- Dorniers
- Chetaks
- Advanced Light Helicopters (ALH MK-III)

(b) Indian Navy

The facilities of the Indian Navy that can be requested for SAR Operations include the following:-

- Patrol Vessels.
- Survey vessels.
- Fast Attack Crafts
- Other classes of war ships depending upon the requirement and availability.
- Helicopters
- Fixed wing aircraft Dornier, Islander and other types of long-range aircraft namely P8I and IL-38 depending upon the requirement.

(c) Indian Air Force

- Helicopters
- Fixed Wing Aircraft

(d) National Hydrographic Office

Chief Hydrographer to Govt of India shall assist concerned MRCC/ MRSC by timely promulgation of navigational warnings through NAVAREA and other measures.

(e) Indian Space Research Organisation

Department of Space (DoS) shall provide satellite "alert" services for detection and location of aircraft, ships or individuals in potential distress situation that carry distress beacons as per IMO and ICAO regulations. As a mandatory requirement for the users, the DoS also maintains beacon registration data base containing unique identity of the beacon, vessel/ aircraft type, owner and emergency contact details and distributes to concerned rescue co-ordination centre for SAR mission planning.

(f) India Meteorological Department

Meteorological Department shall support SAR operations through timely input of weather messages, marine environment forecasts and warnings for the coastal and high seas and provide weather information on demand to coordinator and coordinating agency. The coordinating MRCC/ MRSC may request whether update from IMD for effective SAR coordination.

(g) Major Ports and Minor Ports

The assets available with the Port authorities can be requested by MRCC/ MRSC to coordinate and respond to distress in their area of jurisdiction depending upon their capabilities and reach. The Ports can also coordinate traffic in the incident area and assist in ongoing SAR operations.

(h) Other Resource Agencies

The following assets available with other resource agencies can also be requested for SAR operation depending on the requirement: -

S.No.	Resource Agency	Assets
a	Oil and Natural Gas Commission	Off shore Supply Vessels, Tugs and helicopters
b	Port authorities	Tugs and other crafts
c	Shipping Corporation of India	Ships enroute can be requested to assist in the on going Search and Rescue operation
d	Transport Corporation of India	Ships enroute can be requested to assist in the on going Search and Rescue operation
e	Dredging Corporations of India	Ships enroute can be requested to assist in the on going Search and Rescue operation
f	Fishing authorities	Crafts and Vessels
g	Customs authorities	Crafts and Vessels
h	State Government/Administration	Crafts and Vessels and also helicopters and aircraft, as available
i	Marine Police	Crafts available with the Coastal Marine Police
j	IndianArmy	Helicopters - Chetak and Cheetah
k	Pawan Hans Helicopters Limited	Helicopters - Dauphin

4. Capacity Building & Training

Training is critical to performance and safety. The SAR system should save those in distress when it can, and also use training to reduce risks to its own valuable personnel and facilities. Training personnel in making sound risk assessments will help to ensure that these trained professionals and valuable facilities remain available for future operations. The MRCC and RSC have particularly important duties.

All SAR specialists need some training, in particular, the SCs, SMCs, and OSCs. Operational facilities which need training include:-

(a) MRCCs and MRSCs.
(b) Aeronautical units.
(c) Maritime units.
(d) Land units.
(e) Specialized units (Para rescue, paramedical, desert rescue, mountain rescue, urban SAR teams that deploy to disasters), divers, etc.
(f) Supply depots.

The aviation and maritime communities require training in distress prevention, escape procedures, survival techniques, how to be located and actions to be taken to assist in one's own rescue. This training may focus on individuals or groups. Such training may be provided by the industry or company involved. It may also be provided by public and private education efforts for safety.

5. Exercises

Exercises test and improve operational plans, provide learning experience and improve liaison and co-ordination skills. Exercises, conducted on a realistic basis, help to demonstrate and assess the true effectiveness of training and the operational efficiency and competence of the SAR service. Exercises will reveal deficiencies that may exist in SAR plans and enable them to be improved. It is safer to have shortcomings revealed by exercises rather than during actual operations

Types of Exercises. Exercises can and should be conducted on three levels.

(a) The simplest type of exercise, a Communications Exercise, requires the least planning. It consists of periodic use of all means of communications between all potential users to ensure capability for actual emergencies.

(b) A Co-ordination Exercise involves simulated response to a crisis based on a series of scenarios. All levels of the SAR service are involved but do not deploy. This type of exercise requires considerable planning, and usually one to three days to execute.

(c) The third type, a Full-Scale Exercise or a Field Exercise, differs from the previous types in that actual SAR facilities are deployed. This increases the scope of SAR system-testing and adds realistic constraints due to times involved in launching, transit and activities of the SRUs and facilities

CHAPTER-5: DISASTER RESPONSE & RELIEF

1. SAR Planning

For surface and aircraft facilities to search effectively, search patterns and procedures must be pre-planned so ships and aircraft can operate in coordinated operations with minimum risks and delay. Standard search patterns have been established to meet varying circumstances.

Search action plan and message

(a) The SMC typically provides the search action plan.

(b) The OSC and ACO (if designated) and SAR facilities on-scene implement the search action plan.

(c) The search action plan message generally includes six parts

c.1 Situation

i. A brief description of the incident.
ii. Position of the incident, and time that it occurred.
iii. Number of persons onboard (POB).
iv. Primary and secondary search objects.
v. Number and types of survival equipment.
vi. Weather forecast and period of forecast.
vii. SAR facilities on-scene.

c.2 Search area(s)

i. Area designation, size, corner points, centre point, and circle radius.
ii. Other essential data

c.3. Execution

SAR facility identification, parent agency, search pattern, creep direction, commence search points, and altitude.

c.4. Coordination required

i. Designates the SMC, OSC and ACO.
ii. SAR facility on-scene times.
iii. Desired track spacing and coverage factors.
iv. OSC and ACO instructions (e.g. use of datum marker buoys).
v. Airspace reservations (e.g. danger area).
vi. Aircraft safety instructions.
vii. SAR facility change of operational coordination (SAR facility follows coordinating guidance of SMC, OSC and/or ACO).
viii. Parent agency relief instructions.
ix. Authorizations for non-SAR aircraft in the area.

C.5. Communication.

The communication channels that need to be established such as:-

i. Coordinating channels.
ii. On-scene channels.
iii. Monitoring channels.
iv. Exclusive channel for OSC and/or ACO to be identified by SAR facilities.

c.6. Reports.

The following reports are to be prepared by the appropriate authorities:-

i. OSC reports of on-scene weather, progress, and other SITREP information, using standard SITREP format.
ii. Resource agencies to provide summary at the end of daily operations {hours flown, area(s) searched, and coverage factor(s)}.
iii. The OSC may be authorized by the SMC to alter the search action plan based on on-scene considerations and efforts achieved in previous searches.

2. Situation Reports (SITREPS)

Situation Reports (SITREPS) are used to pass information about a particular SAR incident. MRCCs shall use them to keep CGHQ, other MRCCs, MRSCs and appropriate agencies informed of cases which are of immediate or potential interest. The On Scene Coordinator (OSC) shall use SITREPS to keep the co-ordinating MRCC aware of mission events. Search facilities use SITREPs to keep the OSC informed of mission progress. The following procedures may be adopted for SITREPS:-

(a) The OSC shall address SITREPs only to the Co-Ordinating MRCC unless otherwise directed.
(b) The Co-ordinating MRCC shall address SITREPs to as many agencies as necessary, including CGHQ, MRCCs and MRSCs to keep them informed. SITREPs prepared by anco-ordinating MRCC should include a summary of information received from OSCs.
(c) A short SITREP may be used to provide the earliest notice of an causality or to pass urgent details when requesting assistance. Complete SITREP will be used to pass amplifying information during SAR Operations. Initial SITREP will be used to pass amplifying information during SAR operations. Initial SITREP should not be transmitted as soon as details of an incident become clear and should not be delayed unnecessarily for confirmation of all details. The SITREP message should generally contain the following information:-
    i. **Identification** - This section contains the subject, SITREP number, and identification of the distressed vessel/ craft and brief description of the emergency. The SITREP should be sequentially numbered throughout the

entire case during an operation. When the OSC is relieved on the scene the new OSC continues the SITREP numbering sequence.

ii. **Situation -** This part covers the description of the case, the conditions that affect the case including on scene weather, any amplifying information as required. After the first SITREP, only changes to the original reported situation need to be included.

iii. **Action Taken** - This portion comprises a complete report of all actions taken since last report, including the results of such actions, number of sorties/ hours flown by the aircraft during the search and compilation of the search efforts by all SRUs. In addition, when the search is unsuccessful, the report should also include the areas searched.

iv. **Future Plans -** This section contains descriptions of the actions planned for future execution, including any recommendations and if necessary, request for additional SRUs/any other assistance.

v. **Case Status** - This is used only on the final SITREP message whenever the case is closed or when active case is suspended pending further developments or when suspended. SMC should recommend to SAR coordinator on suspension of SAR ops when there is no longer reasonable chance of success. On receipt of recommendation from SMC, SAR coordinator may suspend SAR case or direct to SMC to continue SAR efforts depending on prevailing situations.

3. Delivery of Rescue Personnel and Equipment.

The maritime SRUs are liable means of delivering supplies, equipment and personnel to the scene of distress. Equipment may include bilge pumps, towing equipment, fire-fighting equipment and medical supplies. Personnel delivery is usually limited to medical personnel, damage control/ repair and salvage parties.

4. Supplies and Survival Equipment.

The supplies and survival equipment are carried by air and maritime, SAR facilities to aid survivors and facilitate their rescue. The type and number to be carried depend upon the circumstances on scene. Maritime facilities and helicopters generally can deliver this equipment directly to survivor. Fixed wing aircraft can deliver supplies to survivors if suitable landing areas exist nearby or if the supplies can be dropped at the scene. The packing of supplies and survival equipment should be adapted to the manner of delivery. Packs of supplies and survival equipment must be adapted to the circumstances of the SRR in which they are used.

5. Droppable Life Rafts.
Life rafts packed for dropping should be available for use when survival craft have not been launched successfully or have been damaged in launching or survival craft have become unserviceable. It should also be dropped when the survivors: are overcrowded in the survival craft in use or survivors are in the water. Life rafts, supplies and equipment may be dropped together in a chain, ideally with life rafts at each end.

6. Medical Personnel.
In formulating any rescue plan, the SMC should consider establishing a forward medical base to enable appropriate treatment by competent medical staff according to the priority. Once the search object has been sighted, the SMC must consider whether to send medical personnel to the scene. Another consideration is 'the' mental trauma that both survivors and rescuers may undergo. Plans and procedures should be developed for post traumatic stress syndrome debriefings.

7. Rescue by Aircraft
In some cases aircraft may be used for rescue. Each aircraft has operational and technical limitations and should not be used on operations for which it is not suitable. Whenever possible, a rescue operation by aircraft should be backed up by a surface SRU, particularly for a large number of survivors.

Fixed wing aircraft may drop equipment to survivors and direct rescue facilities. They can mark the position as long as they can remain on scene, by serving as a radio and radar beacon, showing lights, dropping flares and providing radio signals for direction finding and homing by other rescue facilities.

Helicopters can be used to rescue survivors by winching or by landing on a ship if a suitable location exists. Due to their unique flying capabilities, they should be used whenever possible. They are particularly suitable for rescues in heavy seas or at locations where surface SRUs are unable to operate

8. Rescue by Maritime Facilities
When both maritime rescue facilities and helicopters are dispatched to the scene, it may be advisable to transfer survivors to the helicopters for a more rapid delivery to medical facilities. All surface SRUs should be equipped to lift survivors from the water without any assistance by the survivors themselves, as they may be injured, exhausted or suffering from hypothermia

Rescue boats typically are designated SRUs but may include any craft near the scene of the distress. Designated rescue boats are generally small and may not be able to carry many

survivors. It may be necessary to send a number of boats to the distress scene if they are available. Each boat should carry additional life saving appliances to enable survivors who cannot be rescued immediately to remain afloat while awaiting the arrival of another boat.

As soon as the distress scene is located, an attempt should be made to account for all occupants of the distressed craft. The search must continue until all of the occupants have been found, otherwise accounted for or there is no significant chance of locating additional survivors. Meanwhile, those survivors who have been located must be rescued as soon as possible.

9. Rescue of Persons from Damaged, Capsized or Ditched Craft

The rescue of persons from inside damaged, capsized or ditched craft is typically dangerous and should normally be attempted only with suitable facilities, equipment and specially trained personnel. There is always the risk of the craft sinking or shifting. Diving may be required to reduce this risk and for the rescue operation. Therefore, these operations must be conducted promptly according to a prudent plan. Such operations are generally carried out in following three stages, which are discussed in detail in the succeeding paragraphs:-

(a) Investigation of the situation.
(b) Prevention of sinking.
(c) Lifesaving.

10. Responsibility of Fishing Community.

The contribution of the fishing community in coordinating SAR by MRCC/ MRSC plays a vital role in making the search and rescue mission successful. The MRCC/ MRSC through periodic community interaction and awareness programs with the fishing villages should educate fishermen on the following aspects as a preventive measure:-

(a) The boats are to be equipped with VHF communication sets for reporting distress if any to the other vessels in the area and seek assistance.
(b) The fishing boats are to carry survival equipment like rafts, lifebuoys and life jackets onboard.
(c) The boat should carry distress alerting mechanism to indicate nature of distress at sea along with position.
(d) The fishing boats are to intimate area of operation with likely time schedule to the local fishing authority/ fishermen association prior departure and operate only in that area and period.
(e) The fishing boats are to intimate the appropriate association/ authority regarding change in area of operation, time schedule, un-scheduled arrivals in any harbour.
(f) The boats going out of the visual range of the coastline are to operate in groups of five to ten each. Such groups are to operate in the vicinity of each other.

(g) At least one boat in the group is to carry GPS and charts of the area along with HF communication sets. The frequency of communication for fishing boats for distress notification should be promulgated.
(h) The fishing community should develop own SAR system by deploying boats belonging to the community for first aid response activities till arrival of SRUs on the scene.

11. Responsibilities of Local Fishing Association/ Authority.

The local fishing association/ authority is to carefully evaluate the existence of a distress situation before notifying the same to MRCC/ MRSC as it involves alerting of the SAR facilities and may result in diversion of SAR facilities engaged in other missions. The local fishing association/authorities are to consider the following points before alerting the appropriate MRSC and also during the SAR mission:-

(a) Consultation with other fishing associations nearby to rule out the probability of return of the vessel to those fishing harbour.
(b) If distress situation exists, notify the same to the appropriate MRCC/ MRSC and commence the search using local assets.
(c) Communication maintained with MRCC/ MRSC in order to establish two-way communications round the clock and exchange of developments.
(d) Report to the MRCC/ MRSC at the earliest, when the missing fishing boat reaches the harbour.

12. Major Incident Co-ordination

Regardless of the magnitude and priority of the life-saving efforts involved in responding to a major incident, if any other functions are being carried out concurrently on scene by other than SAR personnel, the overall response involving SAR and the other functions, e.g firefighting, must be well coordinated. If certain basic concepts and terms are recognised and understood by all emergency responders, they will be much better prepared to co-ordinate joint efforts

Standard SAR procedure should typically be followed for the SAR part of the response, but these procedures will be largely independent of other efforts. Companies or authorities handling other aspects of the response will follow command, control and communication procedures developed for their respective organisation and duties.

The SAR system can function in its normal manner or use modified SAR procedure established to account for special demands of mass rescues, but it should be appropriately linked and subjected to a scheme for management of the overall incident response.

For major incidents, crisis management for the overall response may also be needed. The Incident Command System (ICS) is one simple and effective means of meeting this need. ICS can be used where no equivalent means of overall incident management is in place. SAR and transportation authorities are likely to encounter use of the ICS within emergency response communities

13. Landing Sites

Ideally, a single landing site will be established for the mass rescue incident. A single site enables all land support resources to be consolidated at one location. This reduces overhead requirements and facilitates response management. Multiple sites require more people and material – both of which are often in short supply during a crisis.

However, some mass rescue operations may require multiple landing sites due to geographic location and range, number of evacuees, landing site size or arrangement, rescue vessel or aircraft limitations, or other reasons. Each site must be established and managed to meet the functions expected. Considerations include:

(a) Proximity to incident location
(b) Land facilities' survivor support capacity.
(c) Waterside access for rescue vessels.
(d) Safe landing areas for aircraft.
(e) Aircraft refueling facilities, especially for helicopters.
(f) Sufficient aircraft apron parking space.
(g) Ease of transfer from rescue craft to land.
(h) Land transportation access.
(i) Crowd control and foot traffic flow.
(j) Disabled and other special needs requirements.
(k) Sufficient space for assembly of survivors.
(l) Adequate space for medical and other support services.
(m) Sheltering capability.
(n) Site control & security capability.
(o) Secure location for retrieved debris for investigation purposes.

14. Planning and Response in Coordination with Shipping/ Airline Companies

SAR authorities should co-ordinate MRO plans with companies that operate ships and aircraft designed to carry large numbers of persons, such companies should share in preparations to minimize the chances that MROs will be needed, and to ensure success if they become necessary.

For passenger ships, SAR Plans of Co-operation required by the Safety of Life at Sea Convention and developed by SAR authorities and shipping companies are part of MRO and

a useful tool in the early stages of the response to an incident involving a passenger ship, either as casualty or a SAR facility.

15. Care of Survivors

After rescue, survivors may require hospital treatment. This must be provided as quickly as possible. The SMC should consider having ambulance and hospital facilities ready.

Where there are survivors with different medical needs, and in mass rescue operations, a triage system should be used. Triage is the sorting and classification of casualties to determine the order of priority for treatment and transportation. There are many different triage systems already in use.

For example, casualties are often classified into four categories, as follows:-

(a) Priority I : Immediate care
(b) Priority II : Delayed care
(c) Priority III : Minor care
(d) Priority IV : Deceased

Triage of casualties should include the use of casualty identification tags or cards to aid especially in the sorting of the injured and their transportation to medical facilities. Casualty identification tags should be standardized through priority numbering and colour coding to make them suitable in multilingual situations. The following coding is widely used:-

(a) Priority I/ Immediate: a RED tag or card, with Roman numeral I
(b) Priority II/ Delayed: a YELLOW tag or card, with Roman numeral II
(c) Priority III/ Minor: a GREEN tag or card, with Roman numeral III
(d) Priority IV/ Deceased: a BLACK tag or card, with Roman numeral IV

16. Responsibilities of Emergency Support Functionaries

Emergency Support Functions Emergency Support Functions (ESF) are critical services which are performed in post disaster scenario to minimise life loss and address various issues in a post disaster situation. The key ESFs are listed in Table below**.**

ESF	Aim	Responsibilities	Primary Dept./ Agency	Secondary Dept./ Agency
Early Warning, Communication & Dissemination	To activate warning systems and alert responding agencies, departments/	• Fail safe communication plan is prepared with all early warning agencies • Logistic section of the state level IRT coordinates with all	• Central Water Commission- Flood • Indian Meteorological Department – Flood, Heat	• Collector and DM • District Emergency Operations centre • Aapda Mitra

	offices and public at large for necessary actions in safeguarding life, property and assets. To provide safe communication and last mile connectivity	the agencies to provide effective communication support to the field level IRTs for response. • Ensure all communication equipment, especially the satellite phones are in good working condition 24x7 on all days through regular testing. • Plans for communication including telephone and HAM is prepared for smooth coordination with the field level IRTs. • To disseminate early warning signals to the district administration, local authorities, and the public at large in the areas likely to be affected by a disaster so as to reduce loss of life and property • Dissemination of warnings and information up to the last mile. • Establish protocols and responsibilities for coordination with central agencies and various providers • Prepare, update and maintain a District wise list of HAM Operators who could be contacted and deployed at the site of emergency. • Have binding agreements with telecom service providers to restore damaged facilities and setup temporary facilities on emergency	wave& Cyclones • Indian National Centre for Ocean Information Services Tsunami. • Health & Family Welfare Department – Epidemic • Department of Science & Technology	and other Youth and Volunteer Organization-ns • Communication Service Providers • GIL

		basis • Ensure Inter-Operability among different telecom service providers		
Evacuation	To ensure urgent, organized and safe escape of people from an area of imminent or ongoing threat or risk to life and property	• Quick assessment of evacuation needs information such as the number of people and animals to be evacuated and mode of evacuation • Special attention to evacuation of persons with disability, Senior Citizen ,Old age persons, Women, Pregnant Women, Children • Mobilize transport and resources for evacuation • Identify Shelter Homes, Schools, Hostels, Colleges, Dharmashala, Multi purpose halls and any other place as sites for temporary relocation for affected people and animals • Identify requirements of resources for evacuation such as helicopters, aircrafts, high speed boats and ships, Trains and Buses to be provided • Request for central resources, if needed • Coordination with central agencies to mobilise required resources • Earmark resources/ units / battalions of NDRF /SDRF for quick deployment • Prepare handbook/manuals and SOP for evacuation for people	• Revenue Department • CoR • Home Department • Transport Department	• District Administration on • Police • Transport Dept • Aapda Mitra and NCC, NSS and other Youth and Volunteer Organizations

		and animals		
Data Collection & Management	To ensure sound reporting mechanism to meet the information needs of both Central and State governments about the disaster	• GSDMA works with the planning section at state level for making of Incident Action Plan (IAP) and dissemination of information. • Creation of a cell at the District level and place dedicated resources to collect/ update data on all essential services (as per the template given in the IRS guidelines) which will help during the response phase for effective reporting and compilation •	• GSDMA • CoR • Revenue dept.	DM & Collector
Fire fighting	To provide prompt and organized services for controlling and managing of fire incidents to save life, property and environment	• Quick assessment of the situation and deploy the team along with necessary equipment • Assess and make additional requirement of resources from nearby districts, states.	• State Fire & Emergency Services • ERC s • ULBs	• DM & Collector • Police • Fire Stations
Oil and Hazardous Material Response **Drinking Water**	To provide expert and technical support in case of release of any hazardous material Supply of clean	Ensure strict compliance with guidelines • Activation of the On-site & Off- site evacuation of the persons to avoid any casualty To keep in readiness the Antidote for the relevant chemical /	Director Industrial Safety and Health (DISH)	• DM & Collector • Emergency Response Centres • Fire & Emergency Services • Health/UHC • Police • Revenue Dept • Panchayat, Rural Housing and

and Sanitation	drinking water and to prevent the spread of water borne diseases in the disaster affected areas.	hazardous gases. • Provide disaster-affected areas with clean drinking water and to prevent the spread of water • Provide emergency water supplies when there is scarcity of potable water • Respond to the public health needs to prevent and mitigate outbreak of epidemic, water and food contamination as well as other public health related problems in the after math of disaster	• NWR&K Department	Rural Development Department. • UD & UHD • Health & Family Welfare Dept
Search & Rescue	To provide lifesaving assistance in aftermath of disaster	• Various positions of IRTs (State, District and Taluka) are trained and activated for response • Ensure SDRF teams are trained, equipped and ready to move at a short notice to the affected areas • Strategic stationing of state-of the-art equipment for search ,rescue and response with dedicated trained manpower • Activation of the MoU for emergency supply like blankets, tarpaulins, tents, boats, etc. • Nodal officer selected for coordination is in regular touch with MHA /NDMA for additional requirements (including help from other Central Ministries) • Deploy Quick Response Teams (QRT) and Quick Medical	• SDRF/ NDRF • Police • Fire & Emergency Services	Health AapdaMitra and other Youth and Volunteer Organisations • Fire & Emergency Services • Home Guards

		Response Teams (QMRT		
Medical Care	To provide emergency medical and mental health assistance during a disaster event or health and medical emergency	• Health and Family Welfare Dept. works with the logistic section of the state level IRT to provide effective services (Medical Unit) to the field level IRTs for response. • District wise repository of hospitals (both Government and Private), availability of beds, Doctors, paramedics and other trained staff available along with other infrastructure details and update it on a regular basis Include the hospital wise information in the DM Plans at local levels • Tie-up with the companies for easy availability of common medicines during the emergency situations • Hygienic conditions are prevalent at all times in various facilities established as well as hospitals to curb the spread of diseases • Establishment of sound protocols for coordination between state's health Dept. and the central agencies • Ensure strict compliance with minimum standards of relief as decided by the state	Health& Family Welfare	• Civil Hospital • UHC/PHC/ CHC • Red Cross Society • EMRI 108 •Aapda Mitra and other Youth and Volunteer Organizations

Dignified Management of the Dead	To ensure proper identification and recordkeeping of the dead To facilitate in appropriate cremation or burial Timely claim of compensation n and belongings of the dead to minimize the physical, psychosocial, ethical, religious and cultural issues faced by aggrieved families	Adopt SOP in SDMP and DDMP as per GoG guidelines and implement it properly • Establishing Dead Body Management Group in the IRS at state and district levels • Deploy trained squads for detection and recovery of the survivors and the dead as early as possible • The recovery team will use basic personal protective kit and follow adequate precautions • Follow the protocols for the identification of the dead, recording evidence, transport and burial (i.e., disposal as per norms) • If required, establish temporary mortuaries with adequate facilities where it is possible • In special cases, appropriate arrangements and relevant protocol must be followed for victims in certain types of disaster keeping in view the safety of survivors and emergency workers • Inform the affected community by giving wide publicity to the procedure for the management of the dead • Take urgent steps for release of ex-gratia payment • Ensure to the extent possible ethical management of the dead, along with respect for religious and cultural sensitivities • Deal with the psychological impacts	Police	• Revenue • Health • Local Authorities • GFSU

		and psycho-social support • Ensure due documentation such as inventory record of the dead, dead body identification and all other relevant information		
Relief Logistics and Supply Chain Management	To provide water, food, clothing, medicines and other basic supplies to the people at affected areas and relief centers	• Establish a mobilization centre at the airport/railway station for the movement of relief supplies within the state. • Deploy special transportation for the movement of relief supplies within the state • Make arrangements to receive and distribute relief and emergency supplies received from different parts of the state and country • Coordinate transportation (air, rail, road, water) with state and Central ministries/ departments/ agencies • Arrange alternative means of transportation to reach relief supplies to the affected locations	• Revenue Dept. • Food, Civil Supplies & Consumer Affairs Department	• Revenue • Police • Panchayat, Rural Housing and Rural Development Department • All line Dept.
Transportation	To provide transportation services and support for efficient and timely response and recovery to a disaster	• Transport Department works with the logistic section of the state level • IRT to provide effective services(Ground Support Unit) to the field level IRTs for response • Requirement of transport for the transportation of relief material, responders are arranged • Need of the transport of various activated	Port & Transport Department	• RTAGSRTC • Local Transport Agencies/RTs • Railways • Civil Aviation •Municipal Corporations/ ULBs

		section of the IRT as per Incident Action Plan is fulfilled • Indian Railway works with the logistic section of the state level IRT to provide effective services(Ground Support Unit) • Coordinate with central govt. for transportation of relief materials • Within and near Airports: AAI works with the logistic section of the state level IRT to provide effective services (Ground Support Unit) and also provide Nodal Officer for coordination of the relief operations • Restoration of Airport at the earliest involving specialised response force of the central government • Coordination with state and district administration to provide air support • Cater to the needs of transport to affected people, if required		
Temporary Shelter/ Camp Management	To address all basic needs of the affected population and ensure safe, accessible, and secure shelter environment for evacuees.	• Ensure strict compliance with minimum standards of relief of state government • Logistic section of the state level IRT must coordinate with Railways to provide effective services to the field level IRTs for response • Alternate places for establishment of facilities as mentioned in the IRS guidelines such as relief camp,	Revenue Department	• DM & Collector • Panchayat, Rural Housing and Rural Development Department • Food & Civil Supplies • Health • Police • Water Supply • Energy & Petrochemical Dept

		base, camp etc. are identified in advance and included in the local DM Plan • Stockpile tents, tarpaulins and temporary shelter material in regional warehouses/ stores/ EOCs/ ERCs • Depending upon the requirement, coordinate with the relevant Central Ministry to make sure that the tents/ shelters reach the site on time. • Deploy a dedicated team at the local level to receive the tents/ shelters • Maintain logs (manual or computerized) of all material movements and details of distribution to required locations		
Energy	To ensure rapid restoration of power to affected areas particularly to critical facilities on the priority	• Electricity Board and Power Distribution Companies work with the logistic section of the state level IRT to provide effective services to the field level IRTs for response • Pre-disaster arrangements for quick restoration of power supply with alternate mechanisms to critical facilities usually within 6 to 12 hours of placement of order • Mobile power supply units or other arrangements with power generation companies for quick deployment at the site during emergency	Energy & Petrochemicals Dept.	Gujarat Electricity Companies

Public Safety & Security	To ensure safety and security of affected population first responders and their property	• Maintain law and order during emergency situations; • Ensure safety of Women & Children • Protect property in evacuated areas; • Controlled access to damaged areas; • Establish and coordinate traffic control points as needed; • To carry out the crowd control as needed; • Participate in the local warning system; • Assist in the evacuation of prisoners from the jail by providing perimeter security	Home Department	• DM & Collector • Police • Home Guards • Panchayat, Rural Housing and Rural Development Department • WCD • Social Justice & Empowerment Dept.
Media Management	To ensure precise and accurate incident briefing to public and ensure proper rumour and panic management	• Information and Broadcasting Department works with staff as Information and media officer of the state level IRT to provide effective services • Ethical guidelines for coverage of disaster is prepared and shared with all media agencies • Plan is prepared for providing/broadcasting warnings, do's and don'ts etc. to media and ensure its dissemination	Information Department	• DM &Collector • Police •District Information Officer
Disposal of Animal Carcasses	Ensure safe disposal of animal carcasses	• Activate the Animal Carcass Management Group in the IRS • Equip and train the staff in carcass removal/ disposal at pre-identified sites to ensure that no other health hazard is created both for the staff as well as the public • Use of recommended	U D Department Panchayat & RDD	Local Municipality ULBs / Local Sanitary Inspector Gram Panchayat

		safety kits and personal protection by the staff deployed in carcass disposal so that they are not infected • Take measures for dispersal of financial relief as per norms		

Incident Response System-District
Responsible Officer (RO)
District Magistrate -District

<table>
<tr><th>S.N.</th><th>Position of IRT</th><th>Designation (Responsible officer)</th></tr>
<tr><td>1</td><td>Incident Commander</td><td>Resident Additional Collector-District</td></tr>
<tr><td>2</td><td>Deputy Incident Commander</td><td>Dy. Collector,</td></tr>
<tr><td>3</td><td>Information &Media Officer</td><td>Dy. Director Information, District</td></tr>
<tr><td>4</td><td>Liasioning Officer</td><td>SDM</td></tr>
<tr><td>5</td><td>Safety Officer</td><td>Disaster Specific<table><tr><td>SN</td><td>Disaster</td><td>Responsible officer</td></tr><tr><td>1</td><td>Fire</td><td>Chief Fire Officer,</td></tr><tr><td>2</td><td>Flood</td><td>Executive Engineer Irrigation,</td></tr><tr><td>3</td><td>Earthquake</td><td>Executive Engineer R & B (State)</td></tr><tr><td>4</td><td>Cyclone</td><td>CFO</td></tr><tr><td>5</td><td>Chemical and Industrial</td><td>Asst. Director Industrial Safety and Health-DISH Department</td></tr></table></td></tr>
<tr><td>6</td><td>Operations Section Chief</td><td>Disaster Specific<table><tr><td>SN</td><td>Disaster</td><td>Responsible officer</td><td>Remarks</td></tr><tr><td>1</td><td>Fire</td><td>Chief Fire Officer</td><td rowspan="6">Other Depart. will support as per Require of response to Disaster situation</td></tr><tr><td>2</td><td>Flood</td><td>Executive Engineer Irrigation,</td></tr><tr><td>3</td><td>Earthquake</td><td>Executive Engineer R & B (State)</td></tr><tr><td>4</td><td>Cyclone</td><td>CFO-</td></tr><tr><td>5</td><td>Chemical and Industrial</td><td>ADISH Department</td></tr><tr><td>6</td><td>Tsunami</td><td>GMB,Fishries, Salt</td></tr></table></td></tr>
<tr><td>7</td><td>Staging Area Manger</td><td>Near to side of incident:-
1. District Primary Education Officer /DEO
2. Head Master Primary/Secondary,
3. Gram-Sevak, and
4. Talati cum Mantri</td></tr>
<tr><td>8</td><td>Response Branch Director</td><td>SP, Police Department</td></tr>
<tr><td>8.1</td><td>Division Supervisor/Group-in charge</td><td>Dy.SP District Hq.</td></tr>
<tr><td>8.2</td><td>Task Force /Strike Team</td><td>Police Inspector, City and Rural</td></tr>
<tr><td>8.3</td><td>Single Resources</td><td>District Supply Officer</td></tr>
<tr><td></td><td></td><td>Road Group</td></tr>
<tr><td>9</td><td>Transportation Branch Director</td><td>R. T. O.</td></tr>
<tr><td>9.1</td><td>Group in-charge</td><td>Divisional Controller of State Transportation</td></tr>
<tr><td>9.2</td><td>Vehicle Coordinator</td><td>ARTO</td></tr>
<tr><td>9.3</td><td>Loading-in-charge/ Unloading –in-charge</td><td>Depot Manager S.T.</td></tr>
<tr><td colspan="3">Rail Group</td></tr>
<tr><td>9.4</td><td>Group in-charge</td><td>Station Manager, District Railway Station</td></tr>
</table>

9.5	**Vehicle Coordinator**	As appointed by Station Manager, District Railway Station
9.6	**Loading /Unloading – in-charge**	As appointed by Station Manager, District Railway Station
Water Group		
9.7	**Group In Charge**	Executive Engineer, GWSSB
Air Operations Group		
9.8	**Group in-charge-Air operations**	Air Officer Commanding- Air Force
9.9	**Helibase/Helipad-in-charge**	As Appointed by Air Force
9.10	**Loading/Unloading –in-charge**	As Appointed by Air Force
10	**Planning Section Chief**	**Resident Additional Collector**
10.1	**Resource Unit**	Mamlatdar Disaster Management - District and District Project Officer-GSDMA
10.2	**Chief –in-status Recorder**	PRO-Collector Office
10.3	**Situation Unit**	Mamlatdar Disaster Management Cell
10.4	**Display Processor**	Dy.Director Information
10.5	**Field Observer**	Sarpanch, Talati, /NHRM Employee/ VDMC Members
10.6	**Weather Observer**	District Agriculture Officer-District Panchayat
10.7	**Documentation Unit**	Mamlatdar DM,Dy.Director Information, District Project Officer-GSDMA and DEOC staff
10.8	**Demobilization Unit**	Mamlatdar-DM/District Project Officer-GSDMA (Along with DEOC Staff)
10.9	**Technical Specialist**	1. CFO-JMC 2. CDHO, Jilla Panchayat 2. DCF-Forest Department
11	**Logistic/ Finance Section Chief**	**Director Rural Development Officer**
11.1	**Service Branch Director**	District Planning Officer
11.2	**Communication Unit**	General Manager BSNL,PI wireless
11.3	**Medical Unit**	CDHO, Jilla Panchayat, Supritendent-G.G.Hospital
11.4	**Food Unit**	District Supply Officer
11.5	**Support Branch Director**	District Municipal Officer, Collector Office
11.6	**Resource Provisioning Unit**	DSM (District Supply Mamlatdar) Supply Depart.
11.7	**Facilities Unit**	DPEO/DEO, Dy. Ex. Eng .R&B Panchayat
11.8	**Ground Support Unit**	DSO, RTO
11.9	**Finance Branch Director**	District Treasury Officer
11.10	**Time Unit**	Chief Supply Inspector-DSO Office
11.11	**Claim Unit**	Chitnish to Collector /(PRO)
11.12	**Compensation**	1. Dy. DDO (Development) & Team 2. District Treasury Officer, Panchayat
11.13	**Procurement Unit**	Chitnish to Collector, Collector Office,

11.14	**Cost Unit**	1. Resident additional collector 2. District Treasury Officer

1. State Emergency Operation Centre

The State Emergency Operation Centre is functioning (24x7) round the clock for monitoring, observing, analyzing natural as well as manmade incident/disasters and actions being initiated forthwith in coordination with 06 Emergency Operation Centers located in different Islands and with stakeholders/line departments to mitigate the incident so that it will not take shape to hazardous situation or later in turn to a disaster.

Soon after receipt of the information, coordinates with Nodal Officers of the concerned line departments to respond. Mater simultaneously intimated to the State Disaster Management Authority, Union Territory Disaster Management Executive Committee, respective District Emergency Operation Centre, respective Deputy Commissioner being the chairperson of the District Disaster Management Authority. In the event of Maritime Disaster the following actions are proposed to be undertaken by the Administration. Manual for boat Capsize has already been prepared and circulated and uploaded in the website of the Disaster Management for ready references.

State Level Incident Response Teams Notified

The Incident Response Teams under Incident Response System for Gujarat & Nicobar Islands at the Union Territory level to respond any major disaster in GUJARAT Islands. The implementation/response under Incident Response System will be taken at the UT level by the Incident Response Team (IRT) notified as follows: -

	Responsible Officer			Chief Secretary, GUJARAT
	Incident Commander			Pr. Secretary (DM&RR)
	Nodal Officer (Air Operation)			Secretary (Civil Aviation)
	Safety Officer			IGP
	Liaison Officer			Secretary (GAD)
	Information & Media Officer			Secretary (IP&T)
	Operation Section Chief			IGP of the concerned Area
	Staging Area Manager			Secretary (APWD)
	Rescue & Response Branch			Inspector General of Police
	Natural Disaster			Director (Disaster Management)
	Epidemic & Health Hazard			Director (Health Services)
	Manmade Disaster			Dy. Inspector General of Police
	Chemical Disaster/Forest Fire			DISH/Pr. Chief Conservator of Forest
	Oil Spill			Chief Port Administrator, PMB
	Ship Wreck			Director (Shipping Services)
	Air Accident			Director (Civil Aviation)
	Dam Failure			Chief Engineer, PWD
	Transport Branch (Road/Water/Air Unit)			Secretary (Transport)/Secretary (Shipping)/Secretary (Civil Aviation)
	Planning Section Chief			Secretary (Planning)
	Situation Unit			DIGP/DOR
	Resource Unit			Director (Civil Supply)
	Documentation Unit			Secretary (Statistics)/Director (Economics & Statistics)
	Demobilisation Unit			Director (Transport)/Director (Shipping)
	Logistic Section Chief			Secretary (CS&CA)

	Service Branch			Spl. Secretary (IT)
	Communication Unit			Chief General Manager (BSNL)
	Medical Unit			Director (Health)
	Food Unit			Director (CS&CA)
	Support Branch			Secretary (PWD)
	Resource Providing Unit			Chief Engineer (PWD)
	Facility Unit			Managing Director (Electricity)
	Ground Support Unit			Supdt. Engineer (PHED)
	Finance Branch			Secretary (Finance)
	Time Unit			Joint Secretary (Finance)
	Compensation Unit			Joint Secretary (Planning)
	Procurement Unit			Director (Accounts & Budget)
	Cost Unit			Sr. Accounts Officer (Secretariat)