



सत्यमेव जयते

Government of Gujarat

GUJARAT STATE DISASTER MANAGEMENT PLAN 2020-21

VOLUME 2



GUJARAT STATE DISASTER MANAGEMENT AUTHORITY
Block No. 11, 5th Floor, Udyog Bhavan, Gandhinagar

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Abbreviations

AAI	Airport Authority of India
ACWC	Area Cyclone Warning Centre
Addl. DGP	Addl. Director General of Police
AERB	Atomic Energy Regulatory Board
AIR	All India Radio.
AMCDRR	Asian Ministerial Conference on Disaster Risk Reduction
ANSS	Advanced National Seismic System
ASC	Amateur Seismic Center
AWS	Automatic Weather Stations
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Sidha, Homeopathy
BARC	Bhabha Atomic Research Centre
BASE	Building Assessment And Structural Surveillance
BIS	Bureau of Indian Standard
BISAG	Bhaskaracharya Institute for Space Applications and Geo-Informatics
BMTPC	Building Materials and Technology Promotion Council
BPL	Below Poverty Line
BPR	Bottom Pressure Recorder
BRO	Border Road organization
CAPF	Central Armed Police Forces
CBO	Community Based Organizations
CBRI	Central Building Research Institute
CBRN	Chemical, Biological, Radiological and Nuclear
CERT-In	The Indian Computer Emergency Response Team
CCA	Climate Change Adaptation
CCD	Climate Change Department
CCG	Central Crisis Management Group
CDEF	Civil Defense Emergency Force
CDHO	Chief District Health Officer
CDMA	Code Division Multiple Access
CDO	Central Design Organization
CEO	Chief Executive Officer
CFO	Chief Fire Officer
CHC	Community Health Center
CMG	Crisis Management Group
CoH	Commissioner of Health
COR	Commissioner of Relief
CP	Commissioner of Police
CRZ	Coastal Regulation Zone
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
CWC	Central Water Commission
CWCs	Cyclone Warning Centres
CWDS	Cyclone Warning Dissemination System
DAE	Department of Atomic Energy
DC	District Collector
DCF	Deputy Conservator of Forest
DCG	District Crisis Management Group
DCR	District Control Room

DDO	District Development Officer
DEOC	District Emergency Operation Centre
DEOC	District Emergency Operation Centre
DFO	District Forest Officer
DG	Director General
DGHS	Directorate General of the Health Services
DGP	Director General of Police
DIG	Deputy Inspector General
DISH	Director Industrial Safety & Health
DM	District Magistrate
DM	Disaster Management
DMP	Disaster Management Plan
DoR	Director of Relief
DP&S	Directorate of Purchase and Stores
DPIIT	Department of Promotion of Industry and Internal Trade
DPO	District Project Officer
DPR	Detailed Project Report
DRM	Disaster Risk Management
DRMP	Disaster Risk Management Programme
DRR	Disaster Risk Reduction
DST	Department of Science & Technology
EFC	Expenditure Finance Committee
EHRA	Earthquake Hazard and Risk Assessment
EMS	Emergency Medical Services
EMSA	Emergency Medical Services Authority
EOC	Emergency Operation Centre
ERC	Emergency Response Center
ERTs	Emergency Response Teams
ESF	Emergency Support Function
F&E Dept.	Forest and Environment Department
F&ES	Fire and Emergency Services
GACC	Global Anthropogenic Climate Change
GACC	Global Adaptation Climate Change
GAD	General Administration Department
GDCR	General Development Control Regulations
GDP	Gross Domestic Product
GEB	Gujarat Electricity Board
GERI	Gujarat Engineering Research Institute
GIDC	Gujarat Industrial Development Corporation
GIDM	Gujarat Institute of Disaster Management
GIS	Geographic Information System
GMB	Gujarat Maritime Board
GMCSL	Gujarat Medical Corporation Services Limited
GoG	Government of Gujarat
GoI	Government of India
GPCB	Gujarat Pollution Control Board
GSDMA	Gujarat State Disaster Management Authority
GSI	Geological Survey of India
GSM	Global System for Mobile Communications
GSRTC	Gujarat State Roads Transport Corporation
GSWAN	Gujarat state Wide Area Network
GUVNL	Gujarat Urja Vikas Nigam Limited

GWSSB	Gujarat Water Supply & Sewerage board
HAZCHEM	Hazardous Chemicals
HBJ	Hazira-Bijapur-Jagdishpur
HF/VHF	High Frequency/Very High Frequency
HoD	Head of Department
HQ	Headquarter
HRVA	Hazard Risk and Vulnerability Assessment
HRVCA	Hazard Risk Vulnerability and Capacity Assessment
HWB	Heavy Water Board
ICG	Indian Coast Guard
ICMR	Indian Council of Medical Research
IDRN	India Disaster Resource Network
IEC	Information, Education and Communication
IIPH	Indian Institute of Public Health
IMD	India Meteorological Department
INCOIS	Indian National Centre for Ocean Information Services
IND	Improvised Nuclear Device
INSAT	Indian National Satellite System
IOC	Indian Oil Corporation
IRCS	Indian Red Cross Society
IRIS	Incorporated Research Institute for Seismology
IRS	Incident Response System
IRT	Incident Response Team
ISR	Institute of Seismological Research
ISRO	Indian Space Research Organization
ICT	Information and Communication Technology
ITCS	Information Communications Technology System
JSSK	Janani Shishu Suraksha Karyakram
KAPS	Kakrapar Atomic Power Station
LCG	Local Crisis Management Group
LPA	Long Period Averages
MAFW	Ministry of Agriculture and Farmers Welfare
MAH	Major Accident Hazard
MCA	Ministry of Corporate Affairs
MoEF&CC	Ministry of Environment, Forests and Climate Change
MFIN	Microfinance Institutions Network
MFRs	Medical First Responders
MHA	Ministry of Home Affairs
MHFW	Ministry of Health and Family Welfare
MHIPE	Ministry of heavy Industries and Public Enterprises
MHUA	Ministry of Housing and Urban Affairs
MLA	Member of Legislative Assembly
MoA	Ministry of Agriculture
MoC & F	Ministry of Chemicals and Fertilizers
MoC & I	Ministry of Commerce and Industry
MOCA	Ministry of Civil Aviation
MoD	Ministry of Defence
MOES	Ministry of Earth Sciences
MoF	Ministry of Finance
MoLE	Ministry of Labour and Employment
MOM	Ministry of Mines
MoP & NG	Ministry of Petroleum and Natural Gas

MOR	Ministry of Railways
MOSPI	Ministry of Statistics and Program Implementation
MoSRT & H	Ministry of Shipping, Road Transport and Highways
MP	Member of Parliament
MRTH	Ministry of Road Transport & Highways
MSDS	Material Safety Data Sheet
MSK	Medvedev–Sponheuer–Karnik scale
MSZ	Makran Subduction Zone
NBC	National Building Codes
NCC	National Cadet Corps.
NCCR	National Centre for Coastal Research
NCMC	National Crisis Management Committee
NDMA	National Disaster Management Authority
NDMF	National Disaster Mitigation Fund
NDRF	National Disaster Response Force
NDRF	National Disaster Response Fund
NDRMF	National Disaster Risk Mitigation Fund
NEC	National Executive Committee
NEIC	National Earthquake Information Center
NFHS	National Family Health Survey
NGO	Non Government Organization
NGRI	National Geophysical Research Institute
NHAI	National Highway Authority of India
NIC	National Information Center
NIDM	National institute of Disaster Management
NIO	North Indian Ocean
NIOT	National Institute of Ocean Technology
NPCIL	Nuclear Power Corporation of India Ltd
NSRA	Nevada Seismic Research Affiliates
NSS	National Service Scheme
NSSP	National School Safety Programme
NWRWS	Narmada Water Resources Water Supply
NYK	Nehru Yuva Kendra
ONS	Observational Network Stations
PCR	Police Control Room
PESO	Petroleum and Explosive Safety Organization
PFZ	Potential Fishing Zones
PGA	Peak Ground Acceleration
PHC	Primary Health Center
PMNRF	Prime Minister's National Relief Fund
PMO	Prime Minister's Office
PMS	Probable Maximum Surge
PPP	Public private Partnership
PRI	Panchayati Raj Institutions
PS	Principal Secretary
QCI	Quality Council of India
QRMT	Quick Reaction Medical Team
R & B Dept.	Roads & buildings Department
R & R	Rehabilitation & Reconstruction
RD	Revenue Department
RDD	Radiological Dispersal Device
RED	Radiation Exposure Device

RGN	Rain-Gauge Network
RMSA	Rastriya Madhyamik Shiksha Abhiyan
RMSC	Regional Specialised Meteorological Centre
RSBY	Rashtriya Swasthya Bima Yojana
RSO	Radiological Safety Officer
RTA	Road Transport Authority
RTSMN	Real Time Seismic Monitoring Network
RWA	Resident Welfare Associations
SAR	Search and Rescue
SCG	State Crisis Management Group
SCMC	State Crisis Management Committee
SDG	Sustainable Development Goals
SDMA	State Disaster Management Authority
SDMF	State Disaster Mitigation Fund
SDMP	State Disaster Management Plan
SDRF	State Disaster Response Force
SDRF	State Disaster Response Fund
SDRMF	State Disaster Risk Mitigation Fund
SDRN	State Disaster Response Network
SED	Site Emergency Director
SEOC	State Emergency Operation Centre
SFAC	Standing Fire Advisory Committee
SIRD	State Institute of Rural Development
SJ&ED	Social Justice and Empowerment Department
SMS	Short Messaging Service
SOG	Standard Operations Guide
SOP	Standard Operating Procedure
SPIPA	Sardar Patel Institute of Public Administration
SRPF	State Reserve Police Force
SSNNL	Sardar Sarovar Narmada Nigam Limited
SST	Sea Surface Temperature
SWP	Single Wire Protocol
TEOC	Taluka Emergency Operation Centre
UD & UHD	Urban Development & Urban Housing Department
UDA	Urban Development Authority
UDD	Urban Development Department
UFDM	Urban Flood Disaster Management
UHC	Urban Heath Centers
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UNDRR	United Nations Office for Disaster Risk Reduction
UNOEIWG	UN General Assembly Open-Ended Intergovernmental Working Group
UTs	Union Territories
VSAT	Very Small Aperture Terminal
WALMI	Water and Land Management Institute
WAN	Wide Area Network
WASMO	Water and Sanitation Management Organization
WE&CDD	Women and Child Department
WHO	World Health Organization
WRD	Water Resource Department

Chapter 1 : Action Plan for Earthquake

1.1 Introduction

This Actions plan addresses the measures to be taken directly during or immediately after an earthquake in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the affected people.

Indian subcontinent is among the world's most disaster prone areas due to its unique geo-physical and socio economic conditions. In total 59% of the land is prone to the earthquake in which 10.9% is liable to severe earthquakes Medvedev–Sponheuer–Karnik scale(MSK)IX, 17.3% is liable to MSK VIII, 30.4% land is liable to MSK VII.

The Earthquake Vulnerability Atlas of India reveals that 19% of the total area in Gujarat is at a very high risk for earthquake, i.e. seismic zone V. Another 13% area of the State is at a high risk for earthquake, i.e. seismic zone IV. As such, Gujarat State has a long history of earthquakes and in the recent past, it witnessed a major earthquake (6.9 on Richter scale) which had caused widespread loss of human lives and property.

The Chapter 8 in Volume 1 of this SDMP mentioned the roles, functions and responsibilities of Emergency Support Functions (ESFs) that have a key role to play during the Response.

Further, SDMP gives emphasis on well-being of the economically weaker and socially marginalized sections, persons with disability, women, Children, Scheduled Castes, Scheduled Tribes and minorities as they tend to suffer more during disasters. The SDMP forbids all forms of discrimination – be it based on sex, caste, community, descent or religion – in any aspect of disaster risk management.

1.2 Declaration of Earthquake Disaster

The Clause 32 of Gujarat State Disaster Management Act, 2003 provides for the State Government to declare any area where earthquake has occurred as disaster affected area on the recommendations of the State Relief Commissioner or the District Collector. The purpose of declaration of disaster is to organize effective response and mitigating the earthquake effects. Such a declaration provides wide powers and responsibilities to the State Relief Commissioner and the District Collectors in order to handle the incident effectively.

1.3 Institutional Mechanism of the State Government for Response

Gujarat has developed a well-organized administrative structure for earthquake response in the State. Particularly, in the aftermath of 2001 earthquake in the State, the management of earthquake has undergone a quantum change. The Gujarat State Disaster Management Authority has also formulated a well defined policy for the reconstruction and rehabilitation of earthquake in the state. The State government has undertaken long term capacity building initiatives to deal with future earthquakes. The focus of the government has now broadened to include earthquake risk reduction, mitigation and preparedness also, along with response & relief.

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

The Institute of Seismological Research (ISR), under the Department of Science and Technology, is established to carry out seismological research and monitoring activities. In addition, a network of

Seismological Observatories and Strong Motion Accelerographs has been established under the operational control of ISR for constant seismological monitoring and prediction. As a result of this network, it has been possible to locate even micro earthquakes of magnitude < 3 on Richter scale. These are useful to scientists for statistical analysis and knowing the sites of ongoing seismicity.

The institutional mechanism established in the State for management of disasters is given in Chapter 3 of Vol. 1. The composition of the State Emergency Operation Centre (SEOC) along with its staff structure has also been laid down¹.

1.4 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 State 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 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. The State Crisis Management Committee (SCMC) under the chairmanship of the Chief Secretary should be activated immediately on the occurrence of any major earthquake.

Besides these, the SEOC also receives reports on the earthquake from ISR, district and taluka levels. On receipt of the information, the SEOC verifies the authenticity of the reports and will inform the real situation to concerned authorities. The State Government may, by notification published in the official gazette and in any one or more newspapers having widest circulation in the area, declare such area to be disaster affected area under Gujarat State Disaster Management Act, 2003, Section 32 (2) (a)).

1.5 Response Mechanism

1.5.1 Information and Reporting

The agencies which provide information to the SEOC about the occurrence of an earthquake in the State are:

- a. Indian Meteorological Department (IMD), Ahmedabad / New Delhi
- b. Institute of Seismological Research (ISR)
- c. Sardar Sarovar Narmada Nigam Ltd (SSNNL)
- d. National Geophysical Research Institute (NGRI)
- e. District Emergency Operation Centre (DEOC)
- f. Taluka Emergency Operation Centre (TEOC)
- g. Police Control Rooms
- h. Fire Brigade Control Rooms
- i. Any other agency/ individual

The SEOC should be activated for emergency response on the occurrence of any major earthquake. The SEOC should initiate following activities:

¹ Volume 1 SDMP.

- a. State EOC should report the occurrence of a major earthquake to the following:
 - i. Commissioner of Relief
 - ii. ACS (Revenue)
 - iii. Chief Executive Officer, Gujarat State Disaster Management Authority
 - iv. Chief Secretary of the State
 - v. Members of Crisis Management Committee
 - vi. Chief Minister
 - vii. Ministers, Revenue & Disaster Management
 - viii. National Disaster Management Authority EOC at MHA, GoI
 - ix. Vice Chairman, National Disaster Management Authority (NDMA)
 - x. Member Secretary, MHA
- b. State EOC to verify the authenticity of the information from authorized scientific agencies as well as district and Taluka control rooms.
- c. State EOC to alert state first responders/search and rescue machinery for emergency response.
- d. State EOC to contact its regular and emergency staff to report immediately.
- e. All Secretaries of the State Departments to be contacted to remain available in the EOC immediately.
- f. State EOC to remain in constant touch with control rooms at national, district and taluka level.
- g. Overall management of state EOC shall be taken over by the Commissioner of Relief.
- h. Management of media (Press/TV Channels/Government Press Notes) to be carried out by the Secretary (Information & Broadcasting) with special emphasis on rumour control. He shall maintain constant liaison with Commissioner of Relief.

On receipt of information, COR to:

- i. Contact all member of Crisis Management Group to inform them about the venue and time of first meeting (chaired by Chief Secretary) to assess the situation and decide the course of action to be adopted by the State Government
- ii. Issue instructions to all departments to ensure that all state government employees to report for duty immediately in order to execute their responsibilities as mentioned in their departmental Earthquake Management Plan.
- iii. Instruct all line departments to ensure their duty officers to remain available round the clock in state EOC with full updated information of the activities of their departments.
- iv. Prepare and submit daily situation report to Government of India, Chief Secretary, Principal Secretary (Revenue), Chief Executive Officer, Gujarat State Disaster Management Authority etc.
- v. If necessary depute senior state level officers to worst affected talukas for effective implementation and supervision of Relief Operation.
- vi. Mobilize additional manpower from the departments to the affected district / talukas for supporting the Relief Operation. They should be provided Task Force Action Plans of the concerned talukas / district prepared earlier.

1.5.2 Restoration of Critical Services

- a. Establishment of Emergency Communication
- b. Restoration of Transportation (Rail, Road & Air)

- c. Restoration of power and electricity
- d. Supply of safe drinking water
- e. Restoration of essential lifeline infrastructure

1.5.3 Search, Rescue and Medical Assistance

- a. Identification of areas where SAR Teams, SDRF and Aapda Mitra to be deployed
- b. Coordination of SAR teams for their quick deployment in allotted areas
- c. Provision of quick transport of SAR teams to affected areas
- d. The department of Roads and Buildings to evolve a mechanism for clearing access routes and debris in order to facilitate search and rescue operations
- e. Mobilization of specialized equipment and machinery to affected areas
- f. Cordoning of affected areas with control of entry and exit
- g. Traffic Management by establishment of traffic points and check-posts
- h. The Home Department to evolve a mechanism for providing security of properties of government and public in the affected areas.
- i. Setting up of field hospitals in the affected areas and deployment of mobile hospitals
- j. Arrangements to be made for quick transportation of injured victims to the hospitals
- k. Secretary (Health) to evolve a mechanism for speedy treatment of casualties

1.5.4 Emergency Relief

- a. Establishment of Temporary shelters for evacuees
- b. Ensuring provision of essential services
- c. Arrangement for food, clothing, blanket/bedding, drinking water, sanitation and hygiene, lighting arrangements and essential medicines
- d. Establish a mobilisation centre at the airport/railway station for the movement of relief supplies within the state.
- e. Deploy special transportation for the movement of relief supplies within the state
- f. Make arrangements to receive and distribute relief and emergency supplies received from different parts of the state and country
- g. Coordinate transportation (air, rail, road, water) with state and Central ministries/ departments/ agencies
- h. Arrange alternative means of transportation to reach relief supplies to the affected locations if normal transport cannot reach
- i. Deployment of mobile hospitals in affected areas for treatment of victims
- j. Providing counselling services to the earthquake victims and their relatives
- k. 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
- l. Ensure establishment of communication link between the affected people and their relatives outside

**1.5.5 Task & Responsibility Matrix for Emergency Response Phase :
Standard Operating Procedures (SOP)**

A Task and Responsibility Matrix for Emergency Response Phase (first 72 Hours of the incident) is given below:

Standard Operating Procedures (SOP)

Time Frame	S. No.	Task	Responsibility
0 + 15 Minutes	1	Report the occurrence of earthquake to COR, ACS (RD), CEO - GSDMA, Heads of all line departments, Chief Secretary, Minister (DM) and Chief Minister's Office and National Disaster Management EOC at MHA, GoI	In-charge SEOC
0 + 30 Minutes	2	Verify the authenticity of the incident from agencies like IMD, ISR, DEOCs, TEOCs, Police and Fire Brigade control rooms and find magnitude of disaster and immediate impacts	In-charge SEOC
	3	In case of L-2 level event, take overall management of SEOC	COR/ DOR
	4	Deploy Emergency Rescue Vehicles to affected areas for establishing communication link	
	5	Activate ERCs for prompt mobilisation teams and resources to affected areas	
	6	Hold planning meeting of HODs (all line depts.) in SEOC	
	7	Instruct duty officers of line departments to report in SEOC and hold meeting for further plan of action/ instruction	
	8	Request for the services of NDRF and Armed forces, if required	
	9	If required, inform GAD to ensure that all State Govt. employees report for emergency duties within half an hour	
	10	Establish alternate communication link through Satellite Phones, HF/ VHF set, HAM Radio, VSAT, etc. in SEOC, DEOCs, TEOCs	
0 + 1 Hour	11	Mobilise Search & Rescue teams and equipment of Fire Emergency Services, Home Dept., R&B, etc. to affected areas	COR
	12	Deploy medical teams and paramedics to the affected areas	
	13	Deploy rapid assessment team to affected areas	
	14	Make arrangements for aerial survey of the affected areas	
	15	Contact BISAG, NRSC, ISRO and Ministry of Defence for aerial / satellite imageries of the affected areas	
	16	Instruct local administration to evacuate population at risk to safer sites	
	17	Instruct concerned authorities or agencies to shut down critical operations	
	18	Contact Chief Secretary for deciding on time and venue for holding Crisis Management Group (CMG) meeting at the earliest	

Time Frame	S. No.	Task	Responsibility
	19	Inform all CMG members to attend CMG meeting in designated venue to assess situation and review emergency measures	Home Dept., District Collector, Municipal Commissioners
	20	Enforce evacuation from unsafe structures to pre-decided safe evacuation sites	
	21	With help of local authorities, local agencies, volunteers, RWAs, ensure that people do not go back to unsafe structures unless instructed as safe	
	22	Provide security in affected areas and maintain law and order situation to prevent incidents of thefts and stampede	
	23	Establish alternate communication links through HF, VHF, HAM, Satellite Phones, etc.	Dept. of Science & Technology
	24	Issue alert for secondary shocks/ disseminate critical information by SMS through service providers	
	25	Restore essential services like power, water supply, telecommunication of critical infrastructure like hospitals, SEOC, Sachivalya, Raj Bhawan, Control Rooms, AIR, Doordarshan, relief camps and temporary shelters, etc. on priority basis	COR, GUVNL, GWSSB, DOT, Energy & Petrochemicals
	26	Restore essential services or arrange for alternative facilities like power, water supply and telecommunication to the affected area	
	27	Assess the conditions of road, rail and air communication link for quick mobilization of emergency responders and teams and resources to affected areas and take follow up actions	Port & Transport, R&B Dept., COR
	28	Establish media management / information cell for public information, guidance and rumour control	Information Dept.
	29	Instruct district information officers to establish information centre near affected areas to provide guidance to volunteers and aid agencies	
0 + 2 Hours	30	Delegate responsibilities for organizing rescue and relief operations as per outcomes of CMG and planning meet	Chief Secretary/ COR
	31	Depute senior State Level officers to the affected areas	
	32	Inform Secretaries of all depts. to provide necessary logistics support to emergency operation task forces	
	33	Activate Operations Section of IRS for Emergency Response Operation	COR
	34	If required, seek assistance from neighbouring states, Central Govt. or external agencies	
	35	Set up separate desks for each operation task force and NGO coordination desk in the SEOC for coordinating emergency operations	

Time Frame	S. No.	Task	Responsibility
	36	Contact private / public sector agencies in the State to assist in emergency rescue and relief operations	
0 + 3 Hours	37	Make suitable transport arrangement for mobilization of quick response teams to the affected areas	Port & Transport Dept., Civil Aviation Dept.
	38	Maintain constant touch with the control room of MHA, NDMA, ERCs, DEOCs and TEOCs	COR, SEOC
	39	Arrange for press / media release for rumour control and public information and guidance	COR, Information Dept.
	40	Make necessary arrangement for treatment of injured and mass casualty management	Health Dept.
	41	Restore & ensure serviceability of communication towers in affected area through respective service providers	Dept. of Science & Technology, DOT
0 + 6 Hours	42	Establish relief coordination centre at airport, railway station, etc. for arrival of Search & Rescue and Medical Teams coming for humanitarian aid	COR
	43	Arrange for a logistic plan and warehouse for receipt & management of relief material	
	44	Instruct to cordon affected areas and setting up of check posts to control entry and exit	Home Dept.
	45	Ensure mechanism to prevent human trafficking	
	46	Open access routes and manage traffic for mobilization of equipment, machinery and volunteers to the affected areas	Home Dept., Port & Transport Dept., R&B Dept.
	47	If required, establish temporary access routes & disseminate route maps to all EOCs, control rooms and information cells	
	48	Conduct aerial survey to understand scale of damage and impacts	COR/ Head, Quick Assessment Task Force
	49	Establish information centres at the arrival and departure points especially at the airports, railway stations and interstate bus terminus	Information Dept.
0 + 12 Hours	50	Hold review meetings with duty officers in every 12 hours	DOR
	51	Prepare rapid need assessment report for planning of relief operation and mobilization of resources to the affected areas	
	52	Mobilize relief materials i.e. tents, food materials, water, essential medicines, blankets, etc. to the affected districts and talukas	DOR, District Collectors, Municipal Commissioners, Line Deptts
	53	Establish relief centres, temporary shelters and godowns near affected areas & ensure provision of basic facilities like food, water, medical aid, toilets, etc.	

Time Frame	S. No.	Task	Responsibility
	54	Provide food and other relief material to relief camps, community kitchens, etc.	Food & Civil Supply
	55	Provide water tankers to affected areas, relief camps, temporary shelters, community kitchens, etc.	Water Supply Dept
	56	Arrange to shift people from evacuated sites to temporary shelters	Port & Transport Dept.,
	57	Arrange road, rail and air transport at State / District headquarters for dispatch of relief materials to the affected areas	
	58	Set up field hospitals near the affected areas	Health Dept.
	59	Arrange to shift injured persons to field hospitals	
	60	Ensure medical aid to injured cattle	Animal Husbandry Dept.
	61	Provide security to relief camps, godowns, evacuated structures, medical camps, etc.	Home Dept.
0 + 24 Hours	62	Instruct to set up coordination centres at the Resident Commissioner's Office in New Delhi and other Metro Cities as well	COR
	63	Prepare and circulate the situation report	DOR, Dy. Collector (DM) at SEOC
	64	Coordinate with Operation Task Forces mobilized to the affected areas	
	65	Organise media briefing twice a day at pre-determined intervals	COR, Information Dept.
	66	Depute additional officers and supporting staff to affected areas from non-affected areas	COR, Revenue Dept.
	67	Identify and declare unsafe structures in earthquake affected areas	R & B Dept.
0 + 48 Hours	68	Ensure safety and security of personnel deputed in affected areas for emergency response operation	Home Dept.
	69	Arrange for identification, photograph, post mortem and maintenance of records for disposal of dead bodies	
	70	Earmark storage points for medical supplies at affected sites	Health Dept.
	71	Arrange information centre at shelter site for maintaining records of victims and to provide guidance to relatives, NGOs, etc.	COR, DOR
	72	Ensure following procedures before disposal/handing over of dead bodies: <ul style="list-style-type: none"> Photographs of dead bodies are taken Identification of dead bodies is done Post mortem wherever necessary and possible is carried out Handing over dead bodies of persons known/identified to their relatives Disposal of unclaimed and unidentified dead bodies 	Revenue Dept., District Collector, Municipal Commissioners, Health Dept & Local Authorities

Time Frame	S. No.	Task	Responsibility
	73	Ensure mechanism for complaints regarding missing persons and initiate search in shelters, hospitals and police records	Home Dept., COR
	74	Arrange for transportation of dead bodies to their native places if so required	Port & Transport Dept., Health Dept., Animal Husbandry Dept.
	75	Arrange for transportation of injured animal	
0 + 72 Hours	76	Arrange for dignified disposal of unidentified and unclaimed dead bodies	Home Dept.
	77	Arrange for disposal of unidentified and unclaimed animal carcasses	
	78	Arrange for transportation of injured from field hospitals to base hospitals	Health Dept. , Transport Dept.
	79	Activate short and interim relief measures	COR, Line Depts.
	80	Arrange for distribution of cash doles to the victims	COR

1.6 Immediate relief

1.6.1 Short-Term Relief Measures

- a. Provide temporary shelter to affected people
- b. Evacuation site should be safe and easily accessible
- c. Continue to provide essential services to the affected people i.e. food, water, clothing, sanitation and medical assistance
- d. The COR to ensure relief measures are provided in the relief camp are as per the Minimum standard of relief defined by the state government which includes –
 - i. Special emphasis on Hygiene and sanitation aspects should be given in relief camp sites.
 - ii. Separate area should be earmarked within the relief camp for storage of relief materials
 - iii. Adequate manpower and transport facilities for the camp site
 - iv. Arrangements to be made for trauma management
 - v. Mobile medical units to be sent to remote areas with a view to provide medical assistance to the victims/injured
 - vi. Information centre should be established by the administration

1.6.2 Interim Relief Measures

- a. Arrangements to be made for identification and maintenance of the records of dignified disposal of dead bodies in the affected areas.
- b. 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.
- c. 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 in dignified manner.

- d. Unclaimed/unidentified dead bodies to be disposed of at the earliest after keeping their records.
- e. Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration.
- f. Separate Cell to be established at state/district/talukas level to coordinate with the NGOs and outside donor/aid agencies.
- g. Regular meetings of the different stakeholders/departments should be organized at state level for sharing of information, developing strategies for relief operations.
- h. 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.

1.6.3 Assessment of Damage / Loss and Relief Needs

- a. The COR to issue instructions to the district collectors for the damage and loss assessment
- b. Adequate manpower, vehicles, stationery etc should be provided to supplement the efforts for need/ damage and loss assessment
- c. Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries
- d. Arrangements for debris removal and its appropriate disposal
- e. Arrangements for distribution of gratuitous relief and cash doles
- f. Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons
- g. Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property assessment
- h. As reconstruction of houses will take a long period, arrangements to be made to provide interim shelters to the affected
- i. Identification of the site for interim shelter
- j. Allocation of areas to the affected families
- k. Providing essential services at the interim shelter sites such as water, power, drainage / sanitation, PDS shops, etc.
- l. Distribution of shelter materials to individual families

Chapter 2 : Action Plan for Cyclone

2.1 Introduction

Tropical cyclone, generally known as ‘cyclone’, is the term used globally to cover tropical weather systems in which winds equal or exceed ‘gale force’ (minimum of 34 knot, i.e., 62 kmph). These are intense low-pressure areas of the earth-atmosphere coupled system and are extreme weather events of the tropics. Although the North Indian Ocean (NIO) Basin (including the Indian coast) generates only about seven per cent of the World’s cyclones, their impact is comparatively high and devastating, especially when they strike the coasts bordering the North Bay of Bengal. As per broad scale assessment of the population at risk, nearly one third of India’s population is vulnerable to cyclone related hazards. Climate change with the resultant sea-level rise and expected increase in severity of cyclones can significantly increase the vulnerability of the coastal population.

The coastal states and union territories (UTs) in the country, encompassing 84 coastal districts which are affected by tropical cyclones. Four states (Tamil Nadu, Andhra Pradesh, Odisha and West Bengal) and one UT (Puducherry) on the east coast and one state (Gujarat) on the west coast are highly vulnerable to cyclone disasters². The tropical cyclones are classified according to their wind speed which is as per table as shown below.

Gujarat comes in the region of tropical cyclone with the longest coast line of 1600 km in the country which makes it highly vulnerable to Cyclone and associated hazards. The accompanying hazards consist of high speed winds, storm surges, and torrential rainfall. Most of the cyclones that have affected the State are generated in the Arabian Sea. They hit the coastal part of Saurashtra and the southern part of Gujarat. Thus, fourteen coastal districts of Gujarat are at a very high risk of Cyclone. The purpose of this action plan is to develop a quick response at all levels to reduce the effects of cyclone with an effective coordinated disaster risk reduction approach.

Table: Classification used in India for tropical cyclones

S. No.	Type	Wind Speed	
		km per hour (kmph)	Knots
1.	Low Pressure area	Less than 31	Less than 17
2.	Depression	31 to 49	17 to 27
3.	Deep Depression	50 to 61	28 to 33
4.	Cyclonic Storm	62 to 88	34 to 47
5.	Severe Cyclonic Storm	89 to 118	48 to 63
6.	Very Severe Cyclonic Storm	119 to 221	64 to 119
7.	Super Cyclone	More than 221	More than 119

Note: One kmph = 0.54 knot; one knot = 1.852 kmph

2.2 Associated Authority

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

2.3 Disaster Declaration

The Gujarat State Disaster Management Act, 2003 (section 32) provides for the State Government to declare any area where Cyclone has hit as disaster affected area on the recommendations of the State Relief Commissioner or the District Collector. The purpose of declaration of disaster is to organize effective response and mitigating the Cyclone effects. Such a declaration provides wide powers and responsibilities to the State Relief Commissioner and the District Collectors in order to handle the incident effectively.

² NDMP 2019.

2.4 Four Stage Warning System for Tropical Cyclones

a. Pre-Cyclone Watch (Before 72 hours)

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

b. Cyclone Alert (Before 48 hours)

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.

c. Cyclone Warning (Before 24 hours)

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. The probable estimation of its landfall and severity increases as the cyclone approaches closer to the coast.

d. Post Landfall Outlook (Before 12 hours)

It is issued 12 hours before the cyclone landfall, when the cyclone is located within 200 Km from the coast. More accurate and specific information about time /place of landfall and associated bad weather is indicated in the bulletin. In addition, the information regarding expected damage due to cyclone is also included as a warning in this bulletin.

2.5 Warning Dissemination Process

1. Cyclone/flood forecasting is generally the responsibility of the India 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 in India to communicate cyclone warnings to community and important officials in areas likely to be affected directly. There are 19 Cyclone Warning Dissemination System (CWDS) stations in Gujarat.
2. After getting information from IMD, warning dissemination is responsibility of the State 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, District administration and DG Police. Warning messages are transmitted to all districts and talukas. District Collectors are provided with satellite phones and Ham radios to maintain effective communication, even if terrestrial and cell-phone communication fails.
4. The state EOC and control rooms of the other line departments at the State level as well as district level also get the warnings. The control rooms are activated on receiving the warnings.

2.6 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/GSDMA by the fastest means. The Commissioner of Relief (COR) will activate all the Departments for emergency response including the State EOC, District EOC and ERCs. 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 State EOC, ERCs and other control rooms at the state level as well as district control rooms should be activated with full strength. The state Government may publish a notification in the official gazette, declaring such area to be disaster-affected area under GSDMA Act (Section 32 (2) (a)).

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.

2.7 Roles and Responsibility :

Standard Operating Procedure (SOP)

Time Frame	Task	Activity	Responsibility
Time = 0 – 72 Hrs.	Warning Receipt and Dissemination	<ol style="list-style-type: none"> 1. Inform ACS / PS (Revenue), CEO (GSDMA), Crisis Management Group, Hon. CM, Hon. Minister (DM), NDMA, Ministers and Secretaries of all line depts. as per the warning of IMD 2. Inform & instruct relevant District Collectors to activate District Control Room at full strength 3. Alert state response teams for deployment 4. Remain in constant touch with control rooms at National & State Level. 5. Instruct and alert heads of departments of the key line departments to activate their departmental plan and SOPs for Cyclone response 	CoR
	Interdepartmental Coordination	<ol style="list-style-type: none"> 6. Instruct all State Government officers and employees in the State to report to their respective Head for emergency duties (Only if the warning is of a level 2 disaster or as per the decision taken in the meeting of the Crisis Management Group headed by Chief Secretary) 7. Alert the District Collectors of districts not likely to be affected to be prepared for providing the following to the districts likely to be affected: <ul style="list-style-type: none"> o Additional manpower o Additional resources <ul style="list-style-type: none"> - Vehicles, Machinery & Equipment - Relief material 	COR/ DOR
	Establishment of Lines of Communication	<ol style="list-style-type: none"> 8. Activate alternative communication equipments i.e. satellite phones, HF/VHF sets, Ham radio, VSAT in SEOC, DEOCs, TEOCs and ERCs 9. Establish communication links with ERCs and Search & Rescue Teams in all Municipal Corporations and alert them to be in stage of readiness 10. Establish communication links with villages likely to be affected as per the contact details available in SDRN 	COR/ DOR

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Time Frame	Task	Activity	Responsibility
Time = 0 – 48 Hrs	Review of situation and reporting	11. Establish contact with IMD, CWC, ACWC, ISRO and the defense ministry of GoI for aerial / satellites imageries of the latest Cyclone threat 12. Get the latest weather report from IMD/other international websites to know the exact location of Cyclone and the likely site where the landfall will take place 13. After reviewing the weather report and satellite images issue instructions and orders for emergency response to areas likely to be affected	Revenue Dept./ COR
	Management of EOC, ERCs and Cyclone Response	14. Take over full command of SEOC and ERCs 15. Instruct line departments to depute representatives at the State and District EOCs 16. Hold a meeting with leaders of task forces and entrust them their tasks 17. Arrange emergency meeting with State Crisis Management Group to devise a plan of action 18. Arrange dissemination of information through various means of communication such as Radio, TV, Cable Network, SMS about Cyclone Warning to districts/areas which are likely to be hit by Cyclone. 19. Alert teams to remain in readiness-Evacuation, Emergency Medical Services, Search & Rescue, Fire & Emergency Services, NDRF, Police, Home Guards, SRPF, Army, Air Force	COR
		20. Impose restriction on all transport activities heading towards coastal areas that are likely to be affected by Cyclone	Port & Transport Dept.
		21. Impose restriction to or alert all vessels in high sea through display of signals on respective ports, AIR broadcasts, coastal weather bulletins, etc.	Gujarat Maritime Board/ Coastal Radio Station/ Port Authorities
	Cyclone Response to Coastal Areas (Likely to be Affected)	22. Based on the warning issued by IMD, pin point the districts and villages likely to be affected by cyclone and start the procedure for identifying safe places/shelters for evacuation in those villages 23. Prepare route maps for safe place and evacuation shelters 24. Village wise data of safe shelters for evacuation available on SDRN should be referred and the District Collectors/Village level officers should be contacted to know the status of the shelters with the capacity of the shelter and other available facilities at the site 25. Make transport arrangement for mobilization of all emergency response teams 26. Make logistic arrangements for response teams	Revenue Dept., Transport Dept. and Dist. Collectors, Municipal Commissioner

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Time Frame	Task	Activity	Responsibility
		27. Ensure arrangements are in place to evacuate fishermen and salt workers if needed	Commissioner of Fisheries, Industries Dept.
		28. Ensure safety of tourists visiting beaches along the coastline	Tourism Dept.
		29. Cordoning off coastal areas for restricting entries of rail or road traffic	Home Dept., Dist. Collectors,
		30. Ensure law and order is maintained in areas likely to be affected	
		31. Ensure that all critical activities (mainly industrial production) in areas likely to be affected are shutdown	Line Depts., Industries and Mines Dept.
		32. Ensure that the schools and colleges are closed in areas likely to be affected by Cyclone and associated hazards	Education Dept.
		33. Ensure availability & serviceability of cyclone shelters issued in schools	
		34. Ensure dissemination of information to remote areas by local means	Dist. Collector, Information Dept.
		35. Ensure that local helplines are opened and effectively managed for public information, guidance and rumor control	
		36. Ensure that the information to public and media (AIR/ Doordarshan/ print/ FM) about the progress of Cyclone at periodic intervals is released	
		37. Activate Departmental Disaster Management Plan and Departmental SOPs for Management of casualties	Health Dept.
		38. Ensure availability of QRT & essential medicines	
		39. Issue alert/ warning through mass SMS by establishing liaison with telecom service providers	Dept. of Science & Technology
		40. Ensure safety & serviceability of critical communication towers through respective service providers	
		41. Ensure establishment of alternate communication links like HF, VHF, HAM, Satellite Phones, etc.	
		42. Ensure availability of safe drinking water	Dept. of Water Supply
		43. Ensure safety of dams & dewatering in case of heavy rains	Irrigation Dept.

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Time Frame	Task	Activity	Responsibility
Time = 0 - 24 Hrs	Review of Situation and Reporting	<p>44. Establish contact with IMD, CWC, ISRO and the defense ministry of GoI for aerial / satellites imageries of the latest Cyclone threat</p> <p>45. After reviewing the weather report and satellite images, issue instructions and orders for emergency response to areas likely to be affected areas</p> <p>46. Review and monitor – evacuation from to be affected areas; positioning of search & rescue teams, mobile communication units, quick medical response teams; dissemination of information to vulnerable areas; preparedness measures to be taken by various authorities</p> <p>47. Keep in touch with National, District and Taluka Control Rooms</p> <p>48. Release information at appropriate time to media and public regarding response measures organized by the Government</p>	Revenue Dept./ COR Information Dept.
	Emergency Response Management	<p>49. If reports regarding striking of cyclone are confirmed by IMD and other sources, start the emergency response and relief operations</p> <p>50. Divert the emergency services to areas likely to be affected as per the warning issued by IMD</p> <p>51. Inform the public residing in areas likely to be affected to evacuate through various means such as SMS, AIR, FM Radio, Doordarshan, etc.</p> <p>52. Start evacuation from the likely affected areas through Police support, if necessary</p>	Revenue Dept., COR, Dist. Collector, Home Dept.
		53. Disconnect power supply at the time of striking of cyclone.	Energy and Petrochemical
		54. To confirm & account for the exact number of fishermen in the sea and fishermen that have already reached the shore	GMB/Coast Guard, Commissioner of Fisheries
	Emergency Relief Management	<p>55. Ensure that the Relief Management work planned in the areas likely to be affected by the Cyclone is well organized</p> <p>56. Inform the following agencies to be in a state of readiness for assisting the Cyclone response measures (if required):</p> <ul style="list-style-type: none"> ○ Public sector agencies ○ Private sector agencies ○ NGOs, CBOs ○ Volunteer Organizations <p>57. Request for help (if needed) to MHA/National Disaster Management Authority</p>	COR/ Revenue Dept.

Time Frame	Task	Activity	Responsibility
		58. Ensure that the arrangement for basic amenities(shown below) at evacuation/relief centres are made by the respective departments: <ul style="list-style-type: none"> ○ Drinking water ○ Food ○ Clothing ○ Sanitation and hygiene, ○ Lighting ○ Medicines and other Health Care 	COR, Food & Civil Supply Dept., Revenue Dept. & Dist. Collectors, Water Supply Dept., GEB, Health Dept.
		59. Make necessary arrangements for public information/guidance, public opinion and rumor control	Information Dept.
		60. Impose restrictions for transportation in threatened areas	Transport Dept. and Dist. Collector, Home Dept.
Time = 0 Hrs	Disaster Declaration	61. When Cyclone makes a landfall, Cyclone affected Dist. Collectors should send a communication to the State Govt. to declare the area as disaster affected, if necessary, (depending upon the nature and intensity of impact)	COR, Dist. Collector
	Preliminary Assessment, Deployment of Emergency Response Teams and Information Dissemination	62. Send teams to the affected areas to take stock of the effects of Cyclone and associated rain. 63. Send sector wise situation reports to: <ul style="list-style-type: none"> ○ State EOC/COR ○ GSDMA 	District Collector
		64. Deployment of following teams to Cyclone affected areas: <ul style="list-style-type: none"> ○ Emergency Communication Teams ○ Emergency Medical Services Teams ○ Search and Rescue Teams (With Equipment) ○ Preliminary damage Assessment Teams ○ Need Assessment Teams 	COR, Dist. Collector, Municipal Commissioner
		65. Establish communication link with affected districts by activating alternate communication equipments such as Satellite Phones, HF/VHF Sets, Ham Radio, V Set etc., in State/District EOCs and Taluka Control Rooms 66. Arrange dissemination of information about occurrence of Cyclone and areas that are affected by it to media & public.	COR, Dist. Collector, Information Dept.

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Time Frame	Task	Activity	Responsibility
Time = 0+ 24 Hrs	Mobilization and Deployment	<p>67. Remain in constant touch with IMD for updates on weather forecast for the coming hours and plan accordingly</p> <p>68. Immediate mobilization of following units/teams to areas affected by Cyclone and associated rains</p> <ul style="list-style-type: none"> ○ S & R Teams of Fire and Emergency Services ○ Quick Medical Response Teams ○ Quick Damage & Loss Assessment Teams ○ Quick Need Assessment Teams ○ Road Clearance Teams ○ Teams for disposal of dead bodies ○ Teams for disposal of carcasses ○ Teams for debris clearance (if any) ○ Teams for maintaining Law & Order in the affected areas ○ Arrange for S & R teams of Air Force (If required) 	COR, Dist. Collector, Municipal Commissioner, Key line Dept.
	Clearance of Access Roads to Reach at The Sites of Affected Areas	<p>69. To survey the access roads/routes leading to the affected areas and manage traffic for mobilization of equipments, machinery and volunteers.</p> <p>70. Identify alternate roads/routes for evacuation of affected people</p> <p>71. Undertake repairing/restoration of damaged roads leading to the affected areas.</p> <p>72. Identify and declare unsafe buildings/structures in Cyclone affected areas.</p> <p>73. Evacuate people from unsafe buildings/structures and shift them to relief camps/sites</p> <p>74. Divert/stop transport activities (Rail + Road) heading towards Cyclone affected areas</p>	R & B Dept. , Transport Dept., Railways, COR
	Necessary Arrangements at Evacuation/ Relief Centres	<p>75. To ensure that necessary arrangements at evacuation/relief centers is made with sufficient availability of:</p> <ul style="list-style-type: none"> a. Food, b. Water, c. Blankets/Clothing d. Medicines e. Lighting f. Sanitation and hygiene etc. <p>76. To ensure necessary security arrangements for the evacuees and the personnel (Emergency responders/relief teams) who are working at Relief Centers and involved in distribution of Relief Materials</p> <p>77. To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well</p> <p>78. Arrange for a logistic plan and warehouse for receipt and management of relief material</p>	Revenue Dept., Civil Supply Dept., Collectors, Municipal Commissioner, Water Supply Dept., Health Dept., GEB, Power & Energy Dept., GWSSB & Local Authorities, Home Dept.

Time Frame	Task	Activity	Responsibility
	Safety of Fishermen and Salt Workers	79. Take immediate actions for safety of fishermen, salt workers and visitors at cyclone affected coastal areas 80. Ensure that all the fishermen and salt workers have returned from the sea or those who are in the sea are rescued and evacuated to safer places	COR/DOR, Port and Fisheries Dept., Tourism Dept., Industries Dept.
	Immediate Health and Minimization of Disease Outbreak	81. To establish camp hospitals near the affected areas 82. To make transportation arrangements to shift seriously injured persons to nearest-camp Hospitals, Taluka and District Hospitals, Regional and State Hospitals 83. Ensure that the Hospitals are well prepared to deal with seriously injured persons 84. Ensure that the required medical assistance/aid and medicines are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained 85. Take sanitation and epidemic control measures for preventing any water borne disease 86. Keep adequate stock of essential medicines, first-aid etc. at taluka/district hospitals 87. Take steps to purify drinking water sources 88. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance	COR/ DOR, Health Dept.
		89. Assess need for fodder if required 90. Keep teams ready for carcass disposal (if required)	Animal Husbandry Dept.
	Information to Public and Media	91. Establish Media/Press Centre for media management and information dissemination 92. Ensure that the information to media/general public about the response of the State Government is released in an organized manner 93. Organize media briefing twice a day at pre-determined intervals	Information Dept., COR

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Time Frame	Task	Activity	Responsibility
	Other Important Work Related to Immediate Response	<p>94. Prepare quick need assessment report for planning of relief operation</p> <p>95. Additional assistance may be asked for emergency response/relief from GoI-NDMA (If needed)</p> <p>96. Prepare situation report and circulate it twice a day in the morning and evening to key Government functionaries</p> <p>97. Maintain constant touch with National, District and Taluka EOCs and other control rooms</p> <p>98. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly</p> <p>99. Conduct aerial survey of affected areas for taking a stalk of the situation</p>	
		<p>100. Prepare quick need assessment report for planning of relief operation</p> <p>101. Additional assistance may be asked for emergency response/relief from GoI-NDMA (If needed)</p> <p>102. Prepare situation report and circulate it twice a day in the morning and evening to key Government functionaries</p> <p>103. Maintain constant touch with National, District and Taluka EOCs and other control rooms</p> <p>104. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly</p> <p>105. Conduct aerial survey of affected areas for taking a stalk of the situation</p>	COR
		<p>106. Activate evacuation & relief centers according to needs/situation</p> <p>107. Maintain record of persons admitted at evacuation/relief centres</p>	Revenue Dept. Collector, COR
Time = 0 + 24 to 48 Hrs	Review of Situation and Reporting	108. Establish contact with IMD, CWC, ACWC, ISRO and the defense ministry of GoI for aerial / satellites imageries about further weather condition and plan accordingly	COR

Time Frame	Task	Activity	Responsibility
	Restoration of Critical Infrastructure/ Essential Services	<p>109. Ensure that the essential services/critical infrastructure of the affected areas have been restored or alternative arrangement is made for ensuring safety of people and smooth management of emergency response.</p> <p>110. Ensure that key administrative and lifeline buildings are brought back to operation quickly.</p> <p>111. Designate and deploy senior officers (as per the need) to worst affected area/s to oversee rescue/relief operation.</p> <p>112. Ensure following primary necessities are restored</p> <ul style="list-style-type: none"> ○ Power ○ Water ○ Telecommunication ○ Roads ○ Bridges 	COR, Line Depts., Dist. Collectors, Municipal Commissioner
	Disposal of Dead Bodies	<p>113. Ensure following procedure is followed before disposal/handing over of dead bodies:</p> <ul style="list-style-type: none"> a. Photographs of the dead bodies are taken, b. Identification of the dead bodies is done, c. Post Mortem where ever necessary and possible is carried out, d. Handing over dead bodies of persons known/identified to their relatives, e. Disposal of unclaimed and unidentified dead bodies. 	Revenue Dept., Dist. Collector, Municipal Commissioner, Home Dept., Health Dept., Local Authorities
		<p>114. Ensure medical aid to injured cattle</p> <p>115. Disposal of animal carcasses with the help of local bodies/health dept.</p>	Animal Husbandry Dept.
	Public Information and Media Management	<p>116. Ensure that the information about progress of rescue and relief is provided to media/public in an organized manner at least twice a day</p> <p>117. Establish help lines for facilitating communication between the victims and their relatives residing outside the affected area/s</p> <p>118. Establish Information Centers at strategic locations for providing information about persons evacuated to the relief centres/hospitals</p>	COR, Information Dept., Dist. Collector, Municipal Commissioner
	Miscellaneous Rescue and Relief Works	<p>119. Assess the situation and take appropriate action to accelerate the Search & Rescue Operations</p>	COR, Districts Collector, Municipal Commissioner
		<p>120. Depute additional officers and supporting staff to Cyclone affected areas from non-affected areas (if required) to accelerate the rescue and relief operations</p>	

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Time Frame	Task	Activity	Responsibility
		121. Ensure that the relief assistance received from outside is centrally received, stored and sent for distribution to Cyclone affected areas according to their need and proper accounts are maintained about both receipt and distribution	COR, Civil Supply Dept.
		122. District Collector to oversee the functioning of relief centres and ensure adequate supply of relief materials	Revenue Dept, Civil Supply Dept.,
Time = 0 + 48 to 96 Hrs	Continuous Rescue and Relief Works	123. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly	COR, Dist. Collectors, Civil Supply Dept.
		124. Arrange for procurement of additional relief material required for relief operations (on the basis of need assessment)	
		125. Mobilize additional relief material required for relief operations	
		126. Maintain constant touch with State & Districts EOCs	
		127. Arrangement for transportation of injured from field hospital to base hospital	Revenue Dept., Health Dept. , Transport Dept., Line Deptts.
		128. Arrangement for transport of dead bodies to their native places	
		129. Ensure maintenance of record, timely reporting and information management	
		130. Ensure maintenance of record and information database	
Time = 0 + 96 to 168 Hrs	Continuous Rescue and Relief Works	131. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly	COR
		132. Review the restoration of all the public and essential buildings/ structures in Cyclone affected areas	
		133. Review and follow-up all necessary arrangements for emergency response & relief in the affected area/s	
		134. On receiving the message from IMD about degradation of Cyclone, inform the concern dist. Collector	COR, IMD
		135. Organize a quick rapid visual survey of the affected areas (through a technical team of engineers) to ascertain the safety of the structures and decide on giving the go-ahead to people to move back to their respective houses	COR, Dist. Collectors, Municipal Commissioner, R & B Dept.
		136. After receiving the message of de-warning, ensure that people are moved back safely to their houses	COR, Collector, Police Dept.
		137. Ensure relief disbursement, allotment of funds and grants to line department and district collectors for organizing emergency response, relief and evacuation arrangements	Revenue Dept.

2.8 Immediate Relief

2.8.1 Short-term Relief Measures

a. Search, Rescue and Medical Assistance

- i. Identification of areas where SAR Teams are to be deployed
- ii. Coordination of SAR teams for their quick deployment in allotted areas
- iii. Provision of quick transport of SAR teams to affected areas
- iv. The department of Roads and Buildings to evolve a mechanism for clearing access routes in order to facilitate search and rescue operations
- v. Mobilization of specialized equipment and machinery to affected areas
- vi. Cordoning of affected areas with control of entry and exit
- vii. Traffic Management by establishment of traffic points and check-posts
- viii. The Home Department to evolve a mechanism for providing security of properties of government and public in the affected areas

b. Emergency Relief

- i. Establishment of Temporary shelters for evacuees
- ii. Ensuring Arrangement for food, clothing, blanket/bedding, drinking water, sanitation and hygiene, lighting arrangements and essential medicines
- iii. Ensure deployment of mobile hospitals in affected areas for treatment of victims
- iv. Provide counselling services to the cyclone victims and their relatives
- v. Ensure establishment of communication link between the affected people and their relatives outside

c. The COR to ensure the following in the relief camps:

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

2.8.2 Interim Relief Measures

- a. 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)**
- b. 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.)**
- c. 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.)**
- d. 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)**
- e. Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration **(GAD)**
- f. Separate Cell to be established at state/district/taluka level to coordinate with the NGOs and outside donor/aid agencies **(Revenue Dept.)**
- g. Regular meetings of the different stakeholders/departments should be organized at state level for sharing of information, developing strategies for relief operations. **(Commissioner of Relief & Collectors at District Level)**
- h. 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

2.8.3 Assessment of Damage/Loss and Relief Needs

- a. The Commissioner of Relief to issue instructions to the District Collectors to provide ‘the need assessment’ report. The Commissioner of Relief should consolidate the same and to prepare “States Need Assessment Report”
- b. The Commissioner of Relief to issue instructions to the District Collectors to provide the damage and loss assessment report. The Commissioner of Relief to consolidate the same and to prepare “state’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
- c. Adequate manpower, vehicles, stationery etc should be provided to supplement the efforts for need/loss assessment. **(Commissioner of Relief & Revenue Dept.)**
- d. The relief need assessment report should be provided by the Collectors **(Commissioner of Relief & Collectors)**
- e. Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries **(R & B Dept., Revenue Dept and Local Bodies)**
- f. Arrangements for distribution of gratuitous relief and cash doles **(Revenue Dept., Panchayat& Rural Housing Dept., UD&UHD Dept. and Collectors)**
- g. Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons **(Revenue Dept.)**
- h. Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property damage assessment **(Revenue Dept and Local authorities)**
- i. 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., GEB, R & B Dept. etc)**
 - I. Identification of the site for interim shelter
 - II. Allocation of areas to affected families
 - III. Providing appropriate shelters to the affected families
 - IV. Providing essential services as under in the interim shelter sites like water, transportation, power, road, drainage/ sanitation, school, PDS, health, protection, distribution of shelter materials to individual families, etc.

Chapter 3: Action Plan for Tsunami

3.1 Introduction

This plan will address the response measures to be taken up to reduce the effects of tsunami waves with an effective coordinated way. Tsunamis are a series of waves usually generated by movement of the seafloor. These movements are caused by different types of geophysical phenomena such as earthquakes, landslides and volcanic eruptions. Tsunamis move at a speed equal to the square root of the product of gravity and the depth of the water. The tsunami waves behave very differently in deep water than in shallow water as their speed is related to the water depth. Tsunami waves form only a small hump, barely noticeable and harmless, which generally travels at a very high speed of 500 to 1,000 km/h. The tsunami's speed diminishes as it travels into shallower water to only tens of kilometers an hour, consequently increasing the wave height. Because of this shoaling effect, a tsunami, imperceptible at sea, may grow to be several meters or more in height near the coast forming the large destructive waves.

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.

The Chapter 8 in Volume 1 of this SDMP mentioned the roles, functions and responsibilities of Emergency Support Functions (ESFs) that have a key role to play during the Response.

Further, SDMP gives emphasis on well-being of the economically weaker and socially marginalized sections, persons with disability, women, Children, Scheduled Castes, Scheduled Tribes and minorities as they tend to suffer more during disasters. The SDMP forbids all forms of discrimination – be it based on sex, caste, community, descent or religion – in any aspect of disaster risk management.

3.2 Associated Authority

The nodal Department for controlling, monitoring and directing measures for organizing response, relief and recovery is the Revenue Department (through Commissionerate of Relief and GSDMA, respectively) of the State. All other concerned line Departments should extend full cooperation in all matters pertaining to the management of the Tsunami disaster whenever it occurs.

3.3 Disaster Declaration

The Gujarat State Disaster Management Act, 2003 (Section 32) provides for the State Government to declare any area where Tsunami have occurred or likely to occur as disaster affected area on the recommendations of the State Relief Commissioner or the District Collector. The purpose of declaration of disaster is to organize effective response in reduction of the Tsunami effects. Such a declaration provides wide powers and responsibilities to the State Relief Commissioner and the District Collectors in order to handle the incident effectively.

3.4 Early Warning

Early warning helps to detect tsunamigenic earthquakes and to monitor tsunamis and to provide timely advisories to vulnerable community through proper communication with help of real time database, vulnerability study and Decision Support System.

Decision Support system is the set of rules to be followed for issue of tsunami bulletins. These rules are appropriately coded in the form of software that automatically generates bulletins by accessing the real-time data from the observing network as well as the model scenario database.



The Tsunami Early Warning Centre (at INCOIS) continuously monitors the seismic activity in the tsunamigenic source regions of the Indian Ocean through the network of national and international seismic stations. This network enables us to detect any tsunamigenic 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 SOP. Thus Early Warning Centre provides 24*7 timely advisories as a part for prevention of a disaster.

Early warning centre helps in:

1. Continuous monitoring of Seismic and sea-level data
2. Use of community level inundation maps which helps in assessing the population and infrastructure at risk as part of early warning

Tsunami Alert, Watch and Advisory Bulletins received at the SEOCs and DEOCs need to be disseminated through the fastest means to the people in the coastal areas likely to be affected.

3.4.1 Warning/ Alert / Watch

Based on earthquake parameters, region's proximity to the earthquake zone (Travel Times) and expected run-up from pre-run model scenarios, warnings to far source regions are issued only after confirmation of tsunami triggering based on real-time water-level observations and correction of scenarios. This reduces possibility of false warnings.

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

3.4.2 Types of TWC Tsunami Bulletin Messages

a. Earthquake Information Bulletin (T+20 Min)

It contains information about origin time, latitude and longitude of the epicenter, name of geographical area, magnitude and depth of an earthquake. This message also contains preliminary evaluation of tsunami potential based on the magnitude. (e.g. earthquake occurring on land or earthquake with < M 6.5 or earthquake occurring > 100 Km depth or earthquake occurring in very shallow water column, etc. no tsunami is expected; Bulletin is provided to Ministry of Home Affairs (MHA).

b. Tsunami Warning (T+30 Min) (RED)

It contains information about the earthquake and a tsunami evaluation message indicating that tsunami is expected (e.g. For earthquakes with $> M 6.5$ occurring in the Ocean within a depth of < 100 Km, a tsunami warning will be issued for those areas falling within 60 minutes travel time from the earthquake source and if expected run up is > 2 m). This is the highest level wherein immediate actions are required to move public to higher grounds. Message also contains information on the travel times and tsunami grade (based on run-up estimates) at various coastal locations from pre-run model outputs. Information provided to Ministry of Home Affairs (MHA) and public.

c. Tsunami Alert (T+30 Min) (ORANGE)

It contains information about the earthquake and a tsunami evaluation message indicating that tsunami is expected (e.g. For earthquakes with $> M 6.5$ occurring in the Ocean within a depth of < 100 Km, a tsunami alert will be issued for those areas falling within 60 minutes travel time from the earthquake source and if expected run up is between 0.5 to 2 m as well as for those areas falling above 60 minutes travel time from the earthquake source and if expected run up is > 2 m). This is the second highest level wherein immediate public evacuation is not required. Public should avoid beaches since strong current are expected. Local officials should be prepared for evacuation if it is upgraded to warning status. Message also contains information on the travel times and tsunami grade (based on run-up estimates) at various coastal locations from pre-run model outputs. Information provided to Ministry of Home Affairs (MHA) and public.

d. Tsunami Watch (T+30 Min) (YELLOW)

It contains information about the earthquake and a tsunami evaluation message indicating that tsunami is expected (e. g. For earthquakes with $> M6.5$ occurring in the Ocean within a depth of < 100 Km, a tsunami watch will be issued for those areas falling within 60 minutes travel time from the earthquake source and if expected run up is < 0.5 m and for those areas falling above 60 minutes travel time from the earthquake source and if expected run up is 0.5 to 2 m). This is the third highest level wherein immediate public evacuation is not required, Local officials should be prepared for evacuation if it is upgraded to warning status.

Message also contains information on the travel times and tsunami grade (based on run-up estimates) at various coastal locations from Pre-run model outputs. Information provided to Ministry of Home Affairs (MHA).

e. Tsunami Cancellation (GREEN)

It will be issued if the tsunami warning was issued on the basis of erroneous data or if the warning center determines from subsequent information that only an insignificant wave has been generated. In addition, tsunami warning may be canceled on a selective basis when a significant wave that has been generated clearly poses no threat to one or more of the areas the warning center warns, either because of intervening continents or islands which screen them or because the orientation of the generating area causes the tsunami to be directed away from these areas. To maintain credibility the warning center will use the terminology “non-destructive tsunami” in the cancellation message whenever applicable.

f. Tsunami All Clear (GREEN)

This bulletin indicates that the ‘Tsunami Threat’ is passed and no more dangerous waves are expected.

3.5 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 State EOC (SEOC). 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 SEOC and other control rooms at the state level as well as District Emergency Operation Centres (DEOCs) shall be activated with full strength. The State Government may publish a notification in the official gazette, declaring such area to be disaster-affected area under GSDMA Act (Section 32 (2) (a)).

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.

3.6 Roles and Responsibility :

Following are the key emergency response measures when occurrence of tsunami generating earthquake under the ocean is reported:

Standard Operating Procedures (SOP)

Time Frame	Task	Activity	Responsibility
0 to (-) 60 Minutes	Warning Receipt and Dissemination - Monitoring seismic activity, provide warnings, based on seismic models and issue periodic bulletins	<ol style="list-style-type: none">1. Report the occurrence of Tsunami generating earthquake to following officials:<ul style="list-style-type: none">- Hon. Chief Minister- Hon. Minister – Disaster Management- National Disaster Management Authority, GoI.- COR/DOR- Principal Secretary (Revenue)- Chief Executive Officer, GSDMA- Chief Secretary of the State- Members of Crisis Management Group- All concerned District Collectors as well as Control Room DEOCs of the district/s likely to be affected as per preliminary warning of IMD and INCOIS.- Ministers and Secretaries of all line departments2. Instruct Collectors (of the districts likely to be affected) to activate DEOCs at full strength3. Alert all response teams in the State for deployment	INCOIS, ISR, IMD, COR

Time Frame	Task	Activity	Responsibility
		4. Remain in constant touch with control rooms at National & State Level 5. Instruct and alert all secretary / heads of departments of the key line departments to activate their departmental plan and SOPs for Tsunami response	
	Interdepartmental Coordination	6. Instruct all State government officers and employees in the State to report to their respective Head for emergency duties (Only if the warning is of a level 2 disaster or as per the decision taken in the meeting of the Crisis Management Group headed by Chief Secretary) 7. Alert the District Collectors of districts not likely to be affected to be prepared for providing: <ul style="list-style-type: none"> ○ Additional manpower ○ Additional resources <ul style="list-style-type: none"> - Vehicles, Machinery & Equipment - Relief material to the districts likely to be affected 	CoR, GAD
	Establishment of Lines of Communication	8. Activate alternative communication equipments i.e. satellite phones, HF/VHF sets, Ham radio, VSAT in State EOC and ERCs, District and Taluka control rooms 9. Establish communication links with ERCs and Search & Rescue Teams in all Municipal Corporations/Districts and alert them to be in stage of readiness. 10. Establish communication links with villages likely to be affected as per the contact details available in SDRN.	CoR
0 to (-) 50 Minutes	Review of situation and reporting	11. Establish contact with IMD, INCOIS, ISRO and the Defence Ministry of GoI for aerial / satellites imageries. 12. After reviewing the satellite images, issue instructions and orders for emergency response to areas likely to be affected.	CoR
		13. Take over full command of State EOC and ERCs.	CoR

Time Frame	Task	Activity	Responsibility
	Management of EOC, ERCs and Tsunami Response	14. Instruct line departments to depute representatives at the State and District EOCs. 15. Hold a meeting with leaders of emergency support functions (as detailed in Vol. 1 of the plan) and entrust them their tasks. 16. Ensure that Tsunami information is disseminated to all who are at danger. 17. Arrange emergency meeting with State Crisis Management Group to devise a plan of action.	
		18. Arrange dissemination of information through various means of communication such as Radio, TV, Cable Network, SMS about Tsunami to districts/areas which are likely to be hit.	COR
		19. Impose restriction on all transport activities heading towards coastal areas that are likely to be affected by Tsunami.	Secretary Transport
		20. Mobilize following teams: <ul style="list-style-type: none"> ○ Evacuation ○ Emergency Medical Services ○ Search and Rescue 21. Mobilize following emergency response forces: <ul style="list-style-type: none"> ○ Fire & Emergency Services ○ NDRF/ SDRF ○ Village Disaster Management Teams ○ Police, Home Guards, Civil Defence ○ State Reserve Police Force ○ Army (if required) ○ Air Force (if required) 	COR
	Tsunami Response to Coastal Areas (Likely to be Affected)	22. Based on the warning issued by IMD/ INCOIS, pin point the districts and villages likely to be affected by Tsunami and start the procedure for identifying safe places/shelters for evacuation in those villages. 23. Village wise data of safe sheltering for evacuation available on SDRN should be referred and the District Collectors/Village level officers should be contacted to know the status of the shelters with the capacity of the shelter and other available facilities at the site.	COR, Transport Dept., Dist. Collector, Municipal Commissioner

Time Frame	Task	Activity	Responsibility
		24. Make transport arrangement for mobilization of all emergency response teams.	
		25. Ensure arrangements are in place to evacuate fishermen and salt workers if needed.	Ports & Fisheries Dept., GMB, Revenue Dept.,
		26. Ensure safety of tourists visiting beaches along the coastline.	Tourism Dept.
		27. Cordon off coastal areas for restricting entries of rail or road traffic. 28. Ensure law and order is maintained in areas likely to be affected.	Home Dept., Dist. Collector, Municipal Commissioner
		29. Ensure that all critical activities (mainly industrial production) in areas likely to be affected are shutdown.	Line Depts. (GEB, E&F Depart., Industries&Min es etc.)
		30. Ensure dissemination of information to remote areas by means. 31. Ensure that local help lines are opened and effectively managed for public information, guidance and rumor control. 32. Ensure that the information to public and media about the progress of Tsunami waves at periodic intervals is released.	Dist. Collector, Municipal Commissioner, Information Dept.
		33. Health Department to activate their Departmental Tsunami Disaster Management Plan and SOPs for Management of casualties	Health Dept.

Time Frame	Task	Activity	Responsibility
0 to (-) 15 Minutes	Review and Reporting	<p>34. Review and monitor following activities:</p> <ul style="list-style-type: none"> ○ Evacuation of people from coastal areas likely to be affected ○ Positioning of Search and Rescue Teams ○ Positioning of mobile communication units ○ Positioning of quick medical response teams ○ Mobilization of restoration teams of respective departments ○ Requirement of armed forces in rescue and relief operations ○ Dissemination of information to the vulnerable areas ○ All preparedness measures to be taken by various authorities <p>35. Keep in touch with National, District and Taluka EOCs/Control Rooms</p> <p>36. Release information at appropriate time to media and public regarding response measures organized by the Government</p>	COR, Information Dept.
	Emergency Relief Management	37. Ensure that the Relief Management work in the likely affected areas / districts are well organized.	COR
		<p>38. Ensure that the arrangement for basic following amenities at evacuation/relief centres are made available:</p> <ul style="list-style-type: none"> ○ Drinking water ○ Food ○ Clothing ○ Sanitation and hygiene ○ Lighting ○ Medicines and Health Care 	COR, Civil Supply Dept., Revenue Dept. & Dist. Collector, Municipal Commissioner, Water Supply Dept., GEB, Health Dept.
		<p>39. Inform following agencies to be in a state of readiness for assisting in the Tsunami response measures (if required):</p> <ul style="list-style-type: none"> ○ Public sector agencies ○ Private sector agencies ○ NGOs ○ CBOs ○ Volunteer Organizations 	COR

Time Frame	Task	Activity	Responsibility
		40. Request for assistance (if needed) to MHA/National Disaster Management Authority	COR
		41. Make necessary arrangements for public information/guidance, public opinion and rumour control.	Information Dept.
Time = 0 Hrs	Disaster Declaration	42. Record the reports in detail with time, source of reports etc. and declare the area as disaster affected, if necessary, (depending upon the nature and intensity of impact)	COR, Dist. Collector,
	Preliminary Assessment, Deployment of Emergency Response Teams and Dissemination of Information	43. Dist. Collector/s and Municipal Commissioners should send teams to the affected areas to take stalk of the effects of Tsunami. 44. District Collector/s and Municipal Commissioners should send sector wise situation reports to: <ul style="list-style-type: none"> ○ State EOC /COR ○ GSDMA 	Dist. Collector, Municipal Commissioner
		45. Deployment of following teams to Tsunami affected areas: <ul style="list-style-type: none"> ○ Emergency Communication Teams ○ Emergency Medical Services Teams ○ Search and Rescue Teams (With Equipment) ○ Preliminary damage and needs Assessment Teams 	COR, Dist. Collector, Municipal Commissioner
		46. Establish communication link with affected districts and towns by activating alternate communication equipments such as Satellite Phones, HF/VHF Sets, Ham Radio, V Set etc., in State/District EOCs and Taluka Control Rooms. 47. Arrange dissemination of information about occurrence of Tsunami and areas that are affected by it to Media & Public	COR, Dist. Collector, Municipal Commissioner, Information Dept.
Time = 0 + 24 Hrs	Mobilization and Deployment	48. Immediate mobilization of following units/teams to areas affected by Tsunami <ul style="list-style-type: none"> ○ S & R Teams of Fire and Emergency Services ○ SDRF 	COR, Municipal Commissioner, Home Dept., Concern line Dept., DSP.

Time Frame	Task	Activity	Responsibility
		<ul style="list-style-type: none"> ○ Quick Medical Response Teams ○ Quick Damage & Loss Assessment Teams ○ Quick Need Assessment Teams ○ Road Clearance Teams ○ Teams for dignified management of the the dead ○ Teams for disposal of carcasses ○ Teams for debris clearance (if any) ○ Teams for maintaining Law & Order in the affected areas ○ Arrange for S & R teams of Air Force (If required) 	
	Measures for quick and organized response	49. State EOC, ERCs, the Collectors/ Municipal Commissioners of the affected district should ensure that the following response activities are carried out immediately:	COR, Collector, DSP, Municipal Commissioner, Line Dept.
	a. Clearance of access roads to the affected areas	50. To survey the access roads/routes leading to the affected areas and manage traffic for mobilization of equipments, machinery and volunteers. 51. Identify alternate roads/routes for evacuation. 52. Undertake repairing/restoration of damaged roads leading to the affected areas. 53. Identify and declare unsafe buildings/structures in Tsunami affected areas. 54. Evacuate people from unsafe buildings/ structures and shift them to relief camps/sites.	R & B Dept. , Transport Dept., Dist. Collector, Municipal Commissioner, Railways, COR
	b. Necessary Arrangements at evacuation/relief centres	55. To ensure that necessary arrangements at evacuation/relief centers is made with sufficient availability of: <ul style="list-style-type: none"> a. Food, b. Water, c. Blankets/Clothing d. Medicines e. Lighting f. Sanitation and hygiene etc. 	Revenue Dept., Civil Supply Dept., Collector, DSP, Municipal Commissioner, Water Supply Dept., Health

Time Frame	Task	Activity	Responsibility
		56. 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. 57. To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well.	Dept., GEB, Power & Energy Dept., GWSSB & Local Authorities, Home Dept.
	c. Safety of fishermen and salt workers	58. Immediate actions to be taken for safety of fishermen, salt workers and visitors at Tsunami affected coastal areas. 59. Ensure that all the fishermen and salt workers have returned from the sea or those who are in the sea are rescued and evacuated to safer places.	COR, Port and Fisheries Dept., GMB, Tourism Dept., Industries & Mines Dept.
	d. Ensure immediate health and minimization of outbreak of disease	60. To establish camp hospitals near the affected areas. 61. To make transportation arrangements to shift seriously injured persons to nearest- a. Camp Hospitals, b. Taluka and District Hospitals, c. Regional and State Hospitals 62. Ensure that the Hospitals are well prepared to deal with seriously injured persons. 63. To ensure that the required medical assistance/aid and medicines are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained. 64. Take sanitation and epidemic control measures for preventing any water borne disease. 65. Keep adequate stock of essential medicines, first-aid etc. at taluka/district hospitals 66. Take steps to purify drinking water sources 67. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance.	Health Dept., Transport Dept.

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Time Frame	Task	Activity	Responsibility
		68. Assess need for fodder if required. 69. Keep teams ready for carcass disposal (if required).	Animal Husbandry Dept.
	e. Information to public and media	70. Establish Media/Press Centre for media management and information dissemination 71. Ensure that the information to media/general public about the response of the State Government is released in an organized manner. 72. Organize media briefing twice a day at pre-determined intervals.	Information Dept., COR
	f. Other important work related to immediate response	73. Prepare quick need assessment report for planning of relief operation. 74. Additional assistance may be asked for emergency response/relief from GoI-NDMA (If needed). 75. Maintain constant touch with National, District and Taluka EOCs and other control rooms. 76. Conduct Aerial survey of affected areas for taking a stalk of the situation.	COR
Time = 0 + 24 to 48 Hrs	Restoration of critical infrastructure/essential services	77. Ensure that the essential services/critical infrastructure of the affected areas have been restored or alternative arrangement is made for ensuring safety of people and smooth management of emergency response. 78. Ensure that key administrative and lifeline buildings are brought back to operation quickly 79. Ensure following primary necessities are restored 1. Power 2. Water 3. Telecommunication 4. Roads 5. Bridges	COR, Line Depts., Dist. Collector, Municipal Commissioner
	Dignified Management of Dead	80. Ensure following procedure is followed before disposal/handing over of dead bodies: 6. Photographs of the dead bodies are taken, 7. Identification of the dead bodies is done,	Collector, DSP, Muni. Commissioner, Home Dept., Health Dept., Local Authorities

Time Frame	Task	Activity	Responsibility
		8. Post Mortem where ever necessary and possible is carried out, 9. Handing over dead bodies of persons known/identified to their relatives, 10. Disposal of unclaimed and unidentified dead bodies.	
		81. Animal Husbandry Department to ensure medical aid to cattle which are injured 82. Disposal of animal carcasses with the help of local bodies/health dept.	Animal Husbandry Dept, Local Authorities, health dept.
	Public Information and Media Management	83. Ensure that information about progress of rescue and relief is provided to media/public in an organized manner at least twice a day. 84. Establish Help Lines for facilitating communication between the victims and their relatives residing outside the affected area/s. 85. Establish Help Lines / Information Centers at strategic locations for providing information about persons evacuated to the relief centres/hospitals.	COR, Information Dept. and Dist. Collector, Municipal Commissioner
	Miscellaneous rescue and relief works	86. Assess the situation and take appropriate action to accelerate the Search & Rescue Operations. 87. Depute additional officers and supporting staff to Tsunami affected areas from non-affected areas (if required) to accelerate the rescue and relief operations.	COR, Districts Collector, DSP, Municipal Commissioner
		88. 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.	COR, Civil Supply Dept.

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Time Frame	Task	Activity	Responsibility
		89. District Collector may oversee the functioning of relief centres and ensure adequate availability & supply of relief materials.	Revenue Dept, Civil Supply Dept.
Time = 0 + 48 to 96 Hrs		90. Arrange for procurement of additional relief material required for relief operations (on the basis of need assessment). 91. Mobilize additional relief material required for relief operations. 92. Maintain constant touch with State & Districts EOCs.	COR, Dist. Collector, Municipal Commissioner, Civil Supply Dept.
		93. Arrangement for transportation of injured from field hospital to base hospital 94. Arrangement for transport of dead bodies to their native places.	Revenue Dept., Health Dept., Transport Dept
		95. Ensure maintenance of record, timely reporting and information management. 96. Ensure maintenance of record and information database	Line Depts., Dist. Collector, COR
		97. Review the restoration of all the public and essential in Tsunami affected areas 98. Review and follow-up all necessary arrangements for emergency response & relief in the affected area/s.	COR
Time = 0 + 96 to 168 Hrs		99. After receiving the message of de-warning, ensure that people are moved back safely to their houses.	COR, Collector, DSP
		100. 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.	COR, Dist. Collectors, Municipal Commissioner , R&B
		101. Ensure relief disbursement, allotment of funds and grants to line department and district collectors for organizing emergency response, relief and evacuation arrangements.	Revenue Dept.

3.7 Relief Measures

3.7.1 Short Term Relief Measures

Ensure that all the following identified measures addresses the Minimum standard of relief defined by the state government.

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

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

- i. Special emphasis on Hygiene and sanitation aspects should be given in relief camp sites. (Health Dept.)
- ii. Separate area should be earmarked within the relief camp for storage of relief materials. (Civil Supply & R & B Dept.)
- iii. Adequate manpower and transport facilities for the camp site. (Transport Department)
- iv. Arrangements to be made for trauma management. (Health Department)
- v. Mobile medical units to be sent to remote areas with a view to provide medical assistance to the victims/injured. (Health Dept.)
- vi. Information centre should be established by the administration. (I&B Department)

3.7.2 Interim Relief Measures

- a. 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).
- b. 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.)
- c. 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.)
- d. 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)
- e. Additional manpower to be deployed in the affected areas for supplementing the efforts of the local administration. (GAD).
- f. Separate Cell to be established at state/ district/ taluka level to coordinate with the NGOs and outside donor/aid agencies. (Revenue Dept.)
- g. Regular meetings of the different stakeholders/departments should be organized at state level for sharing of information, developing strategies for relief operations. (Commissioner of Relief & Collectors at District Level).
- h. 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. (I& B Dept.)

3.7.3 Assessment of Damage/Loss and Relief Needs

- a. The Commissioner of Relief to issue instructions to the District Collectors to provide ‘the need assessment’ report. The Commissioner of Relief should consolidate the same and to prepare “States Need Assessment Report”.
- b. The Commissioner of Relief to issue instructions to the District Collectors to provide the damage and loss assessment report. The Commissioner of Relief to consolidate the same and to prepare “Relief Memorandum” (if necessary) which will be useful in planning and implementing the relief operation after the disaster for the victims of the disaster.
- c. Adequate manpower, vehicles, stationery, etc. should be provided to supplement the efforts for need/ loss assessment. (Commissioner of Relief & Revenue Dept.)
- d. The Relief Memorandum should be provided by the Collectors. (Commissioner of Relief & Collectors)
- e. The damage assessment Performa is also attached in the annexure 3. (COR & Collectors)
- f. Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries. (R & B Dept., Revenue Dept and Local Bodies)
- g. Arrangements for distribution of gratuitous relief and cash doles. (Revenue Dept., Panchayat & Rural Housing Dept., UD&UHD Dept. and Collectors)
- h. Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons. (Revenue Dept.)
- i. Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property damage assessment. (Revenue Dept and Local authorities)
- j. 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., GEB, R & B Dept. etc)
 - i. Identification of the site for interim shelter
 - ii. Allocation of areas to affected families
 - iii. Providing appropriate shelters to the affected families
 - iv. Providing essential services as under in the interim shelter sites like water, transportation, power, road, drainage/ sanitation, school, PDS, health, protection, distribution of shelter materials to individual families, etc.

Chapter 4 : Action Plan for Flood

4.1 Introduction

Floods are among the most recurrent phenomena and destructive natural hazard causing extensive damage to infrastructure, public and private services, environment and economy. With the growing incidences of climate change across the globe, the frequency and intensity of floods has grown in the State over the years. This may be attributed to unplanned development and increased encroachment of flood plains. The rivers bring heavy sediment load from the catchments. These, coupled with inadequate carrying capacity of the rivers are responsible for causing floods, drainage congestion and erosion of river-banks. Hence, apart from an effective disaster response system, it becomes of utmost importance to have a good flood prevention and mitigation strategy to achieve the objectives of vulnerability reduction.

4.2 Declaration of disaster

The Gujarat State Disaster Management Act, 2003 (Section 32) provides for the State Government to declare any area where flood have occurred or likely to occur as disaster affected area on the recommendations of the State Relief Commissioner or the District Collector. The purpose of the declaration is to organize effective response in mitigating the flood effects.

4.3 Flood Forecasting and Warning

India receives 80 per cent of its annual rainfall during the southwest monsoon season of June to September. Rainfall over the country during this season shows a wide range of spatial variation due to orographic influences and preferential occurrence of rain-bearing systems in certain regions. India has a very extensive raingauge network and rainfall monitoring over the country. The real-time monitoring and statistical analysis of district-wise daily rainfall is one of the important functions of the Hydrometeorological Division of IMD. Based on the real time daily rainfall data, weekly district-wise, sub-divisionwise and state-wise rainfall distribution summaries are prepared regularly by the Rainfall Monitoring Unit. Maps showing weekly and cumulative rainfall figures in 36 meteorological sub-divisions of the country are prepared. This information is very important to many user agencies, particularly for agricultural planning.

Flood Meteorological Offices (FMOs) have been set up by IMD at ten locations including Ahmedabad in Gujarat. During the flood season, FMOs provide valuable meteorological support to the Central Water Commission (CWC) for issuing flood warnings in respect of the Narmada, Tapi, Mahi, Sabarmati, Banas and Deman Ganga rivers.

Further, a nationwide flood forecasting and warning system covering major inter-state rivers has been established by the Central Water Commission (CWC). The system under CWC is often supplemented by the states that make arrangements for advance warning at other stations strategically important to them. The CWC also extends FF services to such stations at the request of the states concerned. With reliable advance information/warning about impending floods, loss of life and property can be reduced to a considerable extent. People, cattle and valuable assets can be shifted in advance to safer places.

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 and the same must be disseminated properly.
- Interpretation of the predictions and other flood information to determine flood impacts on vulnerable communities
- If predictions fail, the reasons of prediction failure should be communicated to communities in order to establish trust.
- For a flood warning system to work effectively, all these components must be integrated with each other rather than operating in isolation.

4.4 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 a flood in their area. 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/through SMS/ Social Media)
- Flood warning activities can either be issuing a flood warning message to the target area, raising alert levels through warning signals such as a siren, hitting a gong, steel pipes, church bells, etc
- Dedicated automatic telephone warnings to at-risk properties
- Information about flood and flood condition in communities upstream/downstream from village to village.
- 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.
- Through use of technology like mass mobile messaging, SMS, YouTube & other social media website

4.5 Involvement of Communities in Data Collection and Local Flood Warning Systems

If communities become involved in data collection for flood forecasting, and the importance of their role is understood, a sense of ownership is developed. Individuals can be appointed for the following tasks:

- a) Taking care of installations/ equipment
- b) Trained as gauge readers for manual instruments (rain gauges, water level recorders)
- c) Radio operators to report real-time observations
- d) Monitoring of hydrological data on a regular basis, daily basis, even without inclement weather condition should be observed.
- e) The involvement of members of the community also helps to prevent vandalism and damage to installations going unreported.

4.6 Procedure for Disseminating Warnings to Remote Areas

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:

- a) Community stations, FM Radio should be supplied with clear and accurate information
- b) Mass messaging and use of mobile phone operators in information dissemination
- c) Doordarshan and the local cable channels (TV channels & radio Channels including FM radio), Press Bulletin, Fax/Telephone, Social Media
- d) Power failures occur during times of inclement weather particularly during passage of a tropical cyclone/floods over the community and portable transistor radios may prove to be the best form of information in receiving flood warnings
- e) Use of appointed community wardens with direct two-way radio or mobile telephone access to warning agencies and emergency authorities
- f) 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;
- g) Use of high end technology like mass mobile messaging, SMS, use of social media etc., satellite based disaster warning systems like satellite phones, Early Warning Dissemination System

4.7 Trigger Mechanism: Plan Activation

The flood response system will be activated on the occurrence of a heavy rain. The Commissioner of Relief (COR) will activate all the Departments for emergency response including the State EOC. He will issue instructions to include the following details:

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

The state EOC and other control rooms at the state level as well as district control rooms should be activated with full strength. The State Government may publish a notification in the official gazette, declaring such area to be disaster-affected area under GSDMA Act (Section 32 (2) (a)). Once the situation is totally controlled and normalcy is restored, CoR declares End of Emergency Response and issues instructions to withdraw the staff deployed in emergency duties.

4.8 Roles and Responsibility

Following are the key emergency response measures in case of occurrence of floods:

Standard Operating Procedures (SOP)

Time Frame	Task	Activity	Responsibility
0-48 hours	Warning Receipt and Dissemination Monitoring rainfall activity, provide warnings, based on hydraulic models and disseminate information	<ol style="list-style-type: none"> Report the occurrence of heavy rainfall to following officials: <ul style="list-style-type: none"> - Hon. Chief Minister - Hon. Minister – Disaster Management - MHA & National Disaster Management Authority, GoI. - COR/DOR - Principal Secretary (Revenue) - Chief Executive Officer, GSDMA - Chief Secretary of the State - Members of Crisis Management Group - All concerned District Collectors as well as DEOCs of the district/s likely to be affected as per preliminary warning of IMD and CWC. - Ministers and Secretaries of all line departments 	IMD, CWC, COR, Water Resources Department
		<ol style="list-style-type: none"> - Instruct Collectors (of the districts likely to be affected) to activate DEOCs at full strength Alert all response teams in the State for deployment Remain in constant touch with Emergency Operation Centre at National & State Level <p>Instruct and alert all secretary / heads of departments of the key line departments to activate their departmental plan and SOPs for Flood response</p>	

Time Frame	Task	Activity	Responsibility
	Interdepartmental Coordination	5. Instruct all State government officers and employees in the State to report to their respective Head for emergency duties 6. Alert the District Collectors of districts not likely to be affected to be prepared for providing: <ul style="list-style-type: none"> ○ Additional manpower ○ Additional resources <ul style="list-style-type: none"> - Vehicles, Machinery & Equipment - Relief material to the districts likely to be affected 	CoR, GAD
	Establishment of Lines of Communication	7. Activate alternative communication equipments i.e. satellite phones, HF/VHF sets, Ham radio, VSAT in State EOC and ERCs, District and Taluka control rooms 8. Establish communication links with ERCs and Search & Rescue Teams in all Municipal Corporations/ Districts and alert them to be in stage of readiness. 9. Establish communication links with villages likely to be affected as per the contact details available in SDRN and Village Disaster Management Plans (VDMP).	CoR
0 to (-) 24 Hours	Review of situation and reporting	10. Establish contact with IMD, CWC, BISAG and the Defence Ministry of GoI for aerial / satellites imageries. 11. After reviewing the satellite images, issue instructions and orders for emergency response to areas likely to be affected.	CoR
	Management of EOC, ERCs for Flood Response	12. Take over full command of State EOC and ERCs. 13. Instruct line departments to depute representatives at the State and District EOCs. 14. Hold a meeting with leaders of emergency support functions (as detailed in Vol. 1 of the plan) and entrust them their tasks. 15. Ensure that flood information is disseminated to all who are at danger. 16. Arrange emergency meeting with State Crisis Management Group to devise a plan of action.	CoR

Time Frame	Task	Activity	Responsibility
		17. Arrange dissemination of information through various means of communication such as social media, Radio, TV, Cable Network, SMS about floods to districts/areas which are likely to be hit.	COR
		18. Impose restriction on all transport activities heading towards likely affected areas.	Secretary Transport
		19. Mobilize following teams: <ul style="list-style-type: none"> ○ Evacuation ○ Emergency Medical Services ○ Search and Rescue 20. Mobilize following emergency response forces: <ul style="list-style-type: none"> ○ Fire & Emergency Services ○ NDRF/ SDRF ○ Village Disaster Management Teams ○ Police, Home Guards, Civil Defence, Aapda Mitra ○ State Reserve Police Force ○ Arm Forces (if required) ○ Air Force (if required) 	COR
	Flood Response to the Areas (Likely to be Affected)	21. Based on the warning issued by IMD/ CWC, pin point the districts and villages likely to be affected by floods and start the procedure for identifying safe places/shelters for evacuation in those villages.	COR, Transport Dept., Dist. Collector, Municipal Commissioner
		22. Village wise data of safe sheltering for evacuation available on SDRN/ VDMPs should be referred and the District Collectors/Village level officers should be contacted to know the status of the shelters with the capacity of the shelter and other available facilities at the site.	
		23. Make transport arrangement for mobilization of all emergency response teams.	
		24. Ensure arrangements are in place to evacuate most vulnerables i.e. person with disability, pregnant women, etc.if needed.	Revenue Dept., WCD, Social Justice Department
		25. Ensure safety of tourists visiting flood affected places.	Tourism Dept.
		26. Cordon off likely affected areas for restricting entries of rail or road traffic.	Home Dept., Dist. Collector, Municipal Commissioner
		27. Ensure law and order is maintained in areas likely to be affected.	

Time Frame	Task	Activity	Responsibility
		28. Ensure that all critical activities (mainly industrial production) in areas likely to be affected are shutdown.	Line Depts. (GEB, E&F Depart., Industries & Mines etc.)
		29. Ensure dissemination of information to remote areas by all means. 30. Ensure that local help lines are opened and effectively managed for public information, guidance and rumour control. 31. Ensure that the information to public and media about the progress of heavy rainat periodic intervals is released.	Dist. Collector, Municipal Commissioner, Information Dept.
		32. Health Department to activate their Departmental flood Disaster Management Plan and SOPs for Management of casualties	Health Dept.
0 to (-) 12 hours	Review and Reporting	33. Review and monitor following activities: <ul style="list-style-type: none"> ○ Evacuation of people from likely to be affected areas ○ Positioning of Search and Rescue Teams ○ Positioning of mobile communication units ○ Positioning of quick medical response teams ○ Mobilization of restoration teams of respective departments ○ Requirement of armed forces in rescue and relief operations ○ Dissemination of information to the vulnerable areas ○ All preparedness measures to be taken by various authorities 34. Keep in touch with National, District and Taluka EOCs/Control Rooms 35. Release information at appropriate time to media and public regarding response measures organized by the Government	COR, Information Dept.
	Emergency Relief Management	36. Ensure that the Relief Management work in the likely affected areas / districts are well organized.	COR

Time Frame	Task	Activity	Responsibility
		37. Ensure that the arrangement for basic following amenities at evacuation/relief centres are made available: <ul style="list-style-type: none"> ○ Drinking water ○ Food ○ Clothing ○ Sanitation and hygiene ○ Lighting ○ Medicines and Health Care 	COR, Civil Supply Dept., Revenue Dept. & Dist. Collector, Municipal Commissioner, Water Supply Dept., GEB, Health Dept.
		38. Inform following agencies to be in a state of readiness for assisting in the flood response measures (if required): <ul style="list-style-type: none"> ○ Public sector agencies ○ Private sector agencies ○ NGOs ○ CBOs ○ Volunteer/ religious Organizations 	COR
		39. Request for assistance (if needed) to MHA/National Disaster Management Authority	COR
		40. Make necessary arrangements for public information/guidance, public opinion and rumour control.	Information Dept.
0 to (+)24 hours	Disaster Declaration	41. Record the reports in detail with time, source of reports etc. and declare the area as disaster affected, if necessary, (depending upon the nature and intensity of impact)	COR, Dist. Collector,
	Preliminary Assessment, Deployment of Emergency Response Teams and Dissemination of Information	42. Dist. Collector/s and Municipal Commissioners should send teams to the affected areas to take stalk of the effects of Floods. 43. District Collector/s and Municipal Commissioners should send sector wise situation reports to: <ul style="list-style-type: none"> ○ State EOC/COR ○ GSDMA 	Dist. Collector, Municipal Commissioner
		44. Deployment of following teams to Flood affected areas: <ul style="list-style-type: none"> ○ Emergency Communication Teams ○ Emergency Medical Services Teams ○ Search and Rescue Teams (With Equipment) ○ Preliminary damage and needsassessment teams 	COR, Dist. Collector, Municipal Commissioner

Time Frame	Task	Activity	Responsibility
		<p>45. Establish communication link with affected districts and towns by activating alternate communication equipments such as Satellite Phones, HF/VHF Sets, Ham Radio, V Set etc., in State/District EOCs and Taluka Control Rooms.</p> <p>46. Arrange dissemination of information about occurrence of flood and areas that are affected by it to Media & Public</p>	COR, Dist. Collector, Municipal Commissioner, Information Dept.
	Mobilization and Deployment	<p>47. Immediate mobilization of following units/teams to areas affected by flood</p> <ul style="list-style-type: none"> ○ S & R Teams of Fire and Emergency Services ○ SDRF ○ Quick Medical Response Teams ○ Quick Damage & Loss Assessment Teams ○ Quick Need Assessment Teams ○ Road Clearance Teams ○ Teams for dignified management of the the dead ○ Teams for disposal of carcasses ○ Teams for debris clearance (if any) ○ Teams for maintaining Law & Order in the affected areas ○ Arrange for S & R teams of Air Force (If required) 	COR, Municipal Commissioner, Home Dept., Concern line Dept., DSP.
	Measures for quick and organized response	<p>48. State EOC, ERCs, the Collectors/ Municipal Commissioners of the affected District(s)/ Municipal Corporation (s) should ensure that the following response activities are carried out immediately:</p>	COR, Collector, DSP, Municipal Commissioner, Line Dept.
	g. Clearance of access roads to reach at the sites of affected areas	<p>49. To survey the access roads/routes leading to the affected areas and manage traffic for mobilization of equipments, machinery and volunteers.</p> <p>50. Identify alternate roads/routes for evacuation.</p> <p>51. Undertake repairing/restoration of damaged roads leading to the affected areas.</p> <p>52. Identify and declare unsafe buildings/structures in Flood affected areas.</p> <p>53. Evacuate people from unsafe buildings/structures and shift them to relief camps/sites.</p>	R & B Dept. , Transport Dept., Dist. Collector, Municipal Commissioner, Railways, COR

Time Frame	Task	Activity	Responsibility
	h. Necessary Arrangements at evacuation/relief centres as per the Minimum Standard of Relief	54. To ensure that necessary arrangements at evacuation/relief centers is made with sufficient availability of: <ul style="list-style-type: none"> g. Food, h. Water, i. Blankets/Clothing j. Medicines k. Lighting l. Sanitation and hygiene etc. 55. 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. 56. To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well.	Revenue Dept., Civil Supply Dept., Collector, DSP, Municipal Commissioner, Water Supply Dept., Health Dept., GEB, Power & Energy Dept., GWSSB & Local Authorities, Home Dept.
	i. Ensure immediate health and minimization of outbreak of disease	57. To establish camp hospitals near the affected areas. 58. To make transportation arrangements to shift seriously injured persons to nearest- <ul style="list-style-type: none"> d. Camp Hospitals, e. Taluka and District Hospitals, f. Regional and State Hospitals 59. Ensure that the Hospitals are well prepared to deal with seriously injured persons. 60. To ensure that the required medical assistance/aid and medicines are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained. 61. Take sanitation and epidemic control measures for preventing any water borne disease. 62. Keep adequate stock of essential medicines, first-aid etc. at taluka/district hospitals 63. Take steps to purify drinking water sources 64. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance.	Health Dept., Transport Dept.
		65. Assess need for fodder if required. 66. Keep ready teams for carcass disposal (if required).	Animal Husbandry Dept.

Time Frame	Task	Activity	Responsibility
	j. Information to public and media	67. Establish Media/Press Centre for media management and information dissemination 68. Ensure that the information to media/general public about the response of the State Government is released in an organized manner. 69. Organize media briefing twice a day at pre-determined intervals.	Information Dept., COR
	k. Other important work related to immediate response	70. Prepare quick need assessment report for planning of relief operation. 71. Additional assistance may be asked for emergency response/relief from GoI-NDMA (If needed). 72. Maintain constant touch with National, District and Taluka EOCs and other control rooms. 73. Conduct Aerial survey of affected areas for taking a stalk of the situation.	COR
Time = 0 + 24 to 48 Hrs	Restoration of critical infrastructure/essential services	74. Ensure that the essential services/critical infrastructure of the affected areas have been restored or alternative arrangement is made for ensuring safety of people and smooth management of emergency response. 75. Ensure that key administrative and lifeline buildings are brought back to operation quickly 76. Ensure following primary necessities are restored 11. Power 12. Water 13. Telecommunication 14. Roads 15. Bridges	COR, Line Depts., Dist. Collector, Municipal Commissioner
	Dignified Management of Dead	77. Ensure following procedure is followed before disposal/handing over of dead bodies: 16. Photographs of the dead bodies are taken, 17. Identification of the dead bodies is done, 18. Post Mortem where ever necessary and possible is carried out, 19. Handing over dead bodies of persons known/identified to their relatives, 20. Disposal of unclaimed and unidentified dead bodies.	Collector, DSP, Municipal Commissioner, Home Dept., Health Dept., Local Authorities

Time Frame	Task	Activity	Responsibility
		78. Animal Husbandry Department to ensure medical aid to cattle which are injured 79. Disposal of animal carcasses with the help of local bodies/health dept.	Animal Husbandry Dept, Local Authorities, health dept.
	Public Information and Media Management	80. Ensure that information about progress of rescue and relief is provided to media/public in an organized manner at least twice a day. 81. Establish Help Lines for facilitating communication between the victims and their relatives residing outside the affected area/s. 82. Establish Help Lines / Information Centers at strategic locations for providing information about persons evacuated to the relief centres/hospitals.	COR, Information Dept. and Dist. Collector, Municipal Commissioner
	Miscellaneous rescue and relief works	83. Assess the situation and take appropriate action to accelerate the Search & Rescue Operations. 84. Depute additional officers and supporting staff to flood affected areas from non-affected areas (if required) to accelerate the rescue and relief operations.	COR, Districts Collector, DSP, Municipal Commissioner
		85. Ensure that the relief assistance received from outside is centrally received, stored and sent for distribution to flood affected areas according to their need and proper accounts are maintained about both receipt and distribution.	COR, Civil Supply Dept.
		86. District Collector may oversee the functioning of relief centres and ensure adequate availability & supply of relief materials.	Revenue Dept, Civil Supply Dept.
Time = 0 + 48 to 96 Hrs		87. Arrange for procurement of additional relief material required for relief operations (on the basis of need assessment). 88. Mobilize additional relief material required for relief operations. 89. Maintain constant touch with State & Districts EOCs.	COR, Dist. Collector, Municipal Commissioner, Civil Supply Dept.
		90. Arrangement for transportation of injured from field hospital to base hospital 91. Arrangement for transport of dead bodies to their native places.	Revenue Dept., Health & Transport Dept
		92. Ensure maintenance of record, timely reporting and information management. 93. Ensure maintenance of record and information database	Line Depts., Dist. Collector, COR

Time Frame	Task	Activity	Responsibility
Time = 0 + 96 to 168 Hrs		94. Review the restoration of all the public and essential in flood affected areas 95. Review and follow-up all necessary arrangements for emergency response & relief in the affected area/s.	COR
		96. After receiving the message of de-warning, ensure that people are moved back safely to their houses.	COR, Collector, DSP
		97. 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.	COR, Dist. Collectors, Municipal Commissioner, R&B
		98. Ensure relief disbursement, allotment of funds and grants to line department and district collectors for organizing emergency response, relief and evacuation arrangements.	Revenue Dept.

4.9 Relief Measures

Short Term Measures	Action Taken
Setting up of Shelter/relief camps as per the Minimum Standards of Relief adopted by GoG	<ul style="list-style-type: none"> Disaster affected households shall be provided with necessary tools, equipment and materials for repair, reconstruction and maintenance for safe use of their shelter. Adequate numbers of buildings or open space should be identified where relief camps can be set up during emergency The temporary relief camps should have adequate provision of drinking water and bathing, sanitation and essential health-care facilities.
Distribution of food	<ul style="list-style-type: none"> Free distribution of foods shall be made to avoid hunger and malnutrition. Wherever possible, ration should be stored and dry rations should be distributed for home cooking.
Water	<ul style="list-style-type: none"> 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.
Clothing	<ul style="list-style-type: none"> The people affected by the disaster shall be provided with sufficient clothing, blankets, etc. to ensure their safety and well-being.

Short Term Measures	Action Taken
Health, Sanitation and Hygiene	<ul style="list-style-type: none"> • 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 & food supplies. • There should be adequate supply of medicines, disinfectants, fumigants, personal protective equipments, diagnostic kits, portable oxygen cylinders, ventilators etc. to check outbreak of epidemics. It should be ensured that the medicines have not reached expiry date. • Sanitation services are crucial to prevent an outbreak of epidemics in post disaster phase.
Impact of floods on vulnerable section of society	<ul style="list-style-type: none"> • Children, pregnant women, elderly people, malnourished people, person with disability and people who are ill or immune-compromised, are particularly vulnerable when a disaster strikes, and take a relatively high share of the disease burden associated with emergencies. • The most vulnerable members of the community are the elderly and the youngest as they require special assistance

4.10 Interim Relief Measure

- Arrangements to be made for quick identification and maintenance of the records of disposal of dead bodies in the affected areas (Home 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.) Hence, Aapda Mitras assists in basic search & rescue operations and also provides help to the district administration for effective disaster response.
- 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 of 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). Hence for immediate disaster response youth volunteers like NCC, NYKS, Scouts and Guides, NSS, SDRF, Aapda Mitra, Community, CBO's, NGO's, Volunteers will be augmented and deployed for assisting the district administration.
- Separate Cell to be established at state/district/ taluka level to coordinate with the NGOs and outside donor/aid agencies. (Revenue Dept.)
- 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. (I. & B. Dept.)
- Regular meetings of stakeholders/departments should be recognised at state level for sharing information, developing strategies for relief operations.(CoR & Collector at district level)
- Ensure promoting private participation in disaster management as they can contribute by providing volunteers or expertise. Also by providing aid in implementation of Risk Transfer arrangements including multi- hazard insurance for life and property. A wide range of corporate and nonprofits organizations assist in disaster-relief activities hence enhancing the capacity of society.

4.11 Assessment of Damage/Loss and Relief Needs

- a)** The Commissioner of Relief to issue instructions to the District Collectors to provide the 'Need Assessment Report'. The Commissioner of Relief should consolidate the same and to prepare 'State's Need Assessment Report'.
- b)** The Commissioner of Relief to issue instructions to the District Collectors to provide the 'Damage and Loss Assessment Report'. The Commissioner of Relief 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.
- c)** Adequate manpower, vehicles, stationery etc. should be provided to supplement the efforts for need/loss assessment. (Commissioner of Relief & Revenue Dept.)
- d)** The relief need assessment report should be provided by the Collectors. (Commissioner of Relief & Collectors)
- e)** Identification and demolition of dangerous structures in the affected areas to minimize further loss of life and injuries. (R & B Dept., Revenue Dept and Urban Local Bodies)
- f)** Arrangements for distribution of gratuitous relief and cash doles. (Revenue Dept., Panchayat & Rural Housing Dept., UD & UHDept. and Collectors)
- g)** Arrangements to be made for survey of human loss and distribution of ex-gratia relief to the families of deceased persons. (Revenue Dept.)
- h)** Teams to be formed and dispatched to the affected areas for detailed assessment of houses and property damage assessment. (Revenue Dept. and Local authorities)

Chapter 5 : Action Plan For Urban Flood

5.1 Introduction

The submergence of usually dry area by a large amount of water that comes from sudden excessive rainfall, an overflowing river or lake, melting snow or an exceptionally high tide are defined as urban floods.

Urban flooding is significantly different from rural flooding as urbanization leads to developed catchments which increases the flood peaks from 1.8 to 8 times and flood volumes by up to 6 times. Consequently, flooding occurs very quickly due to faster flow times, sometimes in a matter of minutes. Urban flooding is caused by the combination of meteorological, hydrological, and human factors. Due to land-use changes, flooding in urban areas can happen very rapidly with large flow. The challenges of Urban Floods Disaster Management tend to be considerably different from that of flooding in other areas.

There has been an increasing trend of urban flood disasters in Gujarat over the past several years whereby major cities in Gujarat have been severely affected. The most notable amongst them are Ahmedabad in 2001, Surat in 2006, and Vadodara in 2019.

Apart from heavy rainfall during monsoons. There are other weather systems also that bring in a lot of rain. Sudden release or failure to release water from dams can also have severe impact. In addition, the urban heat island effect has resulted in an increase in rainfall over urban areas. Global climate change is resulting in changed weather patterns and increased episodes of high intensity rainfall events occurring in shorter periods of time. Cities/towns located on the coast, on river banks, upstream/ downstream of dams, inland cities and in hilly areas can all be affected.

Unplanned development and encroachments of sprawling habitations alongside rivers and watercourses have meddled with the natural streams and watercourses resulting into increasing episodes of urban flood.

5.2 Urbanization and Flood Risk

Clogging of storm-water drains because of silting, accumulation of non-biodegradable wastes and construction debris along with reduced infiltration due paving of surfaces which decreases ground absorption and increases the speed and amount of surface flow. Flash flood Water of Heavy rainfall concentrates and flows quickly through urban paved area and impounded in to low lying area raising the water level

Rapid urbanization combined with a **lack of efficient waste disposal systems** has left several water bodies in the cities in poor condition. Further, **Blocked waterways and reduced width and depth** of canals, along with construction reduce the permeability of the ground.

5.3 Issues in urban flood

Encroachments are major problem in many cities and towns. Habitations started growing into towns and cities alongside rivers and watercourses. As a result of this, the flow of water has increased in proportion to the urbanization of the watersheds. Ideally, the natural drains should have been widened (similar to road widening for increased traffic) to accommodate the higher flows of stormwater. But on the contrary, there have been large scale encroachments on the natural drains and the river flood plains. Consequently the capacity of the natural drains has decreased, resulting in flooding. Improper disposal of solid waste, including domestic, commercial and industrial waste and dumping of construction debris into the drains also contributes significantly to reducing their capacities. It is imperative to take better operations and maintenance actions

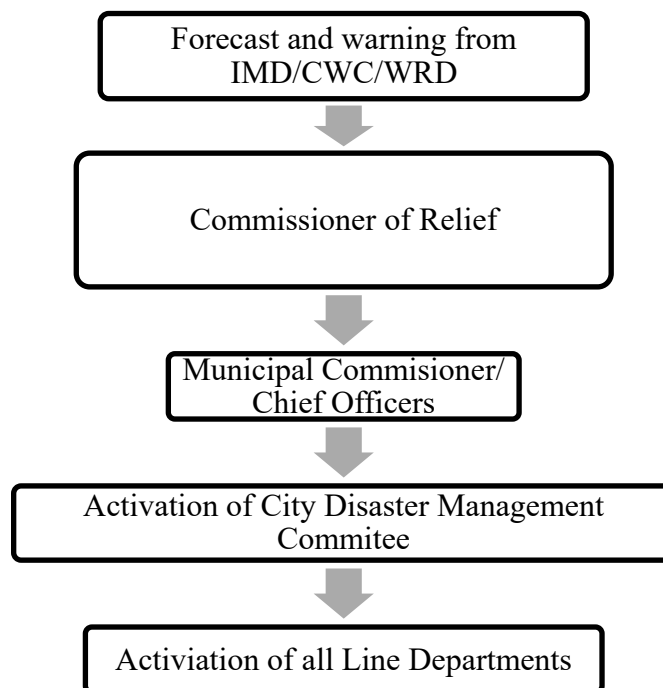
Increasing trend of urban flooding is a universal phenomenon and poses a great challenge to urban planners the world over. Problems associated with urban floods range from relatively localised incidents to major incidents, resulting in cities being inundated from hours to several days. Therefore, the impact can also be widespread, including temporary relocation of people, damage to civic amenities, deterioration of water quality and risk of epidemics.

5.4 Flood Forecasting and Warning

Flood forecasting and warning (FF and W) is an important measure for minimising loss of lives and properties and assists the authorities concerned, for prompt and effective response during and after floods. Urban Flood forecasting requires more understanding of land use land change pattern, meteorological and hydrological conditions. Flood warning systems need to be communicated to the communities at risk by converting forecast information into practice and by sending warning dissemination to people.

- Information regarding heavy rainfall or water release from IMD or irrigation respectively is conveyed to the concerned department / official / control rooms / community members using telecommunication, wireless message, by fax or in written by DEOC at district/corporation level.
- While in the city the route has to be finalized for early warning, accordingly early warning task force leading by fire brigade personnel, spreads the message of alert in respective low lying areas
- Preparation of warning messages, describing what is happening, predictions of what will happen and expected impact and the same must be disseminated properly.
- Interpretation of the predictions and other flood information to determine flood impacts on vulnerable communities

When early warning is declared the head of departments, nodal officers and administrative heads will enforce their own DM plan in action and response activities will be carried out accordingly.



Flow chart for Early Warning and Plan Activation

5.5 Trigger Mechanism: Plan Activation

The response system will be activated on the occurrence of a heavy rain. The Commissioner of Relief (COR) will activate all the Departments for emergency response including the State EOC. He will issue instructions to include the following detail

- 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

The state EOC and other control rooms at the state level as well as district control rooms will be activated with full strength. The State Government will publish a notification in the official gazette, declaring such area to be disaster-affected area under GSDMA Act (Section 32 (2) (a)). 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 roles and responsibilities are mentioned as below

Standard Operating Procedures (SOP)

Time Frame	Task	Activity	Responsibility
Time = 0 – 72 Hrs.	Warning Receipt and Dissemination	<ol style="list-style-type: none"> 1. Inform COR/ DOR, PS (Revenue), CEO (GSDMA), Crisis Management Group, Hon. CM, Hon. Minister (DM), NDMA, Ministers and Secretaries of all line depts. as per the warning of IMD 2. Inform & instruct relevant Municipal commissioner/ Chief Officer to activate control room at full strength 3. DEOC to be activated for additional support 4. Alert state response teams for deployment 5. Remain in constant touch with control rooms at National & State Level. 6. Instruct and alert heads of departments of the key line departments to activate their departmental plan and SOPs for Urban flood response 	IMD, CWC, NWRWSK Dept. In-charge, SEOC
	Interdepartmental Coordination	<ol style="list-style-type: none"> 7. Instruct all State Government officers and employees in the State to report to their respective Head for emergency duties (Only if the warning is of a level 2 disaster or as per the decision taken in the meeting of the Crisis Management Group headed by Chief Secretary) – Activate IRS 	CoR/ DoR Municipal Commissioner, UD & UHD Line Dept.

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Time Frame	Task	Activity	Responsibility
		<p>8. Alert the Municipal Commissioner and Chief Officers of the safer areas to be prepared for providing the following to the district nearby likely affected towns/ cities:</p> <ul style="list-style-type: none"> • Additional manpower • Additional resources • Machinery & Equipment • Relief material 	
	Establishment of Lines of Communication	<p>9. Activate alternative communication equipments i.e. satellite phones, HF/VHF sets, Ham radio, VSAT in SEOC, DEOCs, TEOCs and ERCs</p> <p>10. Establish communication links with ERCs and Search & Rescue Teams in all Municipal Corporations and alert them to be in stage of readiness</p> <p>11. Establish communication links with villages likely to be affected as per the contact details available in SDRN</p>	CoR/ DoR Municipal Commissioner, Commissioner UD &UHD
Time = 0 – 48 Hrs	Review of situation and reporting	<p>12. Get the latest weather report from IMD for rainfall data</p> <p>13. After reviewing the weather report issue instructions and orders for emergency response to areas likely to be affected</p>	IMD, CWC Revenue Dept./ CoR
	Management of EOC, ERCs and Urban FloodResponse	<p>14. Take over full command of SEOC and ERCs</p> <p>15. Instruct line departments to depute representatives at the State and District EOCs</p> <p>16. Hold a meeting with leaders of task forces and entrust them their tasks</p> <p>17. Arrange emergency meeting with State Crisis Management Group to devise a plan of action</p> <p>18. Arrange dissemination of information through various means of communication such as Radio, TV, Cable Network, and SMS about Cyclone Warning to districts/areas which are likely to be hit by Cyclonic Storm.</p> <p>19. Alert teams to remain in readiness-Evacuation, Emergency Medical Services, Search & Rescue, Fire &</p>	CoR Municipal Commissioner UD &UHD Information Dept Line Dept.

Time Frame	Task	Activity	Responsibility
	Urban Flood Response(Likely to be Affected)	Emergency Services, NDRF, Police, Home Guards, SRPF, Army, Air Force	
		20. Impose restriction on all transport activities heading towards flood affected areas.	Port & Transport Dept. Home Dept
		21. Based on the warning issued by IMD, CWC demarcate the cities and towns likely to be affected by floods and start the procedure for identifying safe places/shelters for evacuation Prepare route maps for safe place and evacuation shelters	IMD Municipal Commissioner UD &UHD Revenue Dept., Transport Dept. and Dist. Collectors,
		22. City/ town wise data of safe shelters for evacuation available on SDRN should be referred and the municipal commissioner /chief officer should be contacted to know the status of the shelters with the capacity of the shelter and other available facilities at the site	
		23. Make transport arrangement for mobilization of all emergency response teams	
		24. Make logistic arrangements for response teams	
		25. Cordoning off flooded areas for restricting entries of rail or road traffic	Municipal Commissioner UD & UHD Home Dept., Dist. Collectors,
		26. Ensure law and order is maintained in areas likely to be affected	
		27. Ensure that all critical activities (mainly industries) in areas likely to be affected are shutdown	Line Depts.
		28. Ensure that the schools and colleges are closed in areas likely to be affected by floods	Education Dept. Municipal Commissioner
		29. Ensure availability & serviceability of flood shelters issued in schools/universities/institutions)	
		30. Ensure dissemination of information to affected area	Municipal Commissioner UD &UHD Information Dept.
		31. Ensure that local helplines are opened and effectively managed for public information, guidance and rumour control	

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Time Frame	Task	Activity	Responsibility
		32. Ensure that the information to public and media (AIR/ Doordarshan/ print/ FM) about the status of urban flood at periodic intervals is released	
		33. Activate Departmental Disaster Management Plan and Departmental SOPs for Management of casualties	Health Dept.
		34. Ensure availability of QRT & essential medicines	
		35. Issue alert/ warning through SMS by establishing liaison with service providers	Telecom Service Provider
		36. Ensure safety & serviceability of critical communication towers through respective service providers	Municipal Commissioner UD &UHD
		37. Ensure establishment of alternate communication links like HF, VHF, HAM, Satellite Phones, etc.	
Time = 0 - 24 Hrs	Review of Situation and Reporting	38. Establish contact with IMD, in order to receive latest update on rainfall data 39. After reviewing the weather report issue instructions and orders for emergency response to areas likely to be affected areas 40. Review and monitor – evacuation from to be affected areas; positioning of search & rescue teams, mobile communication units, quick medical response teams; dissemination of information to vulnerable areas; preparedness measures to be taken by various authorities 41. Keep in touch with all the EOCs/ Control rooms 42. Release information at appropriate time to media and public regarding response measures organized by the Government	Revenue Dept./ COR Information Dept.

Time Frame	Task	Activity	Responsibility
	Emergency Response Management	43. If reports regarding heavy rainfall are confirmed by IMD and other sources, start the emergency response and relief operations	Revenue Dept., COR, Municipal Commissioner Home Dept. Information Dept. Dist. Collector
		44. Divert the emergency services to areas likely to be affected in the city as per the warning issued by IMD	
		45. Inform the public residing in areas likely to be affected to evacuate through various means such as SMS, AIR, FM Radio, Doordarshan, etc.	
		46. Start evacuation from the likely affected areas through Police support, if necessary	
		47. Disconnect power supply at the time of urban floods	Dept. of Power supply/ power company
	Emergency Relief Management	48. Ensure that the Relief Management work planned in the areas likely to be affected by the floods are well organized	COR/ Revenue Dept.
		49. Inform following agencies to be in a state of readiness for assisting in the urban floods response measures (if required): <ul style="list-style-type: none"> • Public sector agencies • Private sector agencies • NGOs, CBOs • Volunteer Organizations 	
		50. Request for help (if needed) to MHA/National Disaster Management Authority	
		51. Ensure that the arrangement for basic amenities(shown below) at evacuation/relief centres are made by the respective departments following the minimum standards of relief: <ul style="list-style-type: none"> • Drinking water • Food • Clothing • Sanitation and hygiene, • Lighting • Medicines and other Health Care 	COR, Food & Civil Supply Dept., Municipal Commissioner Revenue Dept. Water Supply Dept., GEB, Health Dept.
		52. Make necessary arrangements for public information/guidance, public opinion and rumour control	Information Dept. Municipal Commissioner

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Time Frame	Task	Activity	Responsibility
		53. Impose restrictions for transportation in threatened areas	Transport Dept. Municipal Commissioner Dist. Collector, Home Dept.
Time = 0 Hrs	Disaster Declaration	When flood starts affecting city/ town the Municipal Commissioner should send a communication to the State Govt. to declare the area as disaster affected, if necessary, (depending upon the nature and intensity of impact)	COR, Municipal Commission
	Preliminary Assessment, Deployment of Emergency Response Teams and Information Dissemination	54. Send teams to the affected areas to take stock of the effects of floods due to heavy rain. 55. Send sector wise situation reports to: <ul style="list-style-type: none"> • State EOC/COR • GSDMA • Respective DEOC 	Municipal Commissioner
		56. Deployment of following teams to flood affected areas: <ul style="list-style-type: none"> • Emergency Communication Teams • Emergency Medical Services Teams • Search and Rescue Teams (With Equipment) • Preliminary damage Assessment Teams • Need Assessment Teams 	COR, Municipal Commissioner Dist. Collector,
		57. Establish communication link with affected cities/ town by activating alternate communication equipments such as Satellite Phones, HF/VHF Sets, Ham Radio, V Set etc., in State/District EOCs and Taluka Control Rooms 58. Arrange dissemination of information about occurrence of urban floods and areas that are affected by it to media & public.	COR, Municipal Commissioner Information Dept.

Time Frame	Task	Activity	Responsibility
Time = 0+ 24 Hrs	Mobilization and Deployment	59. Remain in constant touch with IMD for updates on weather forecast for the coming hours and plan accordingly 60. Immediate mobilization of following units/teams to areas affected by floods <ul style="list-style-type: none"> • S & R Teams of Fire and Emergency Services • Quick Medical Response Teams • Quick Damage & Loss Assessment Teams • Quick Need Assessment Teams • Road Clearance Teams • Teams for disposal of dead bodies • Teams for disposal of carcasses • Teams for dewatering • Teams for maintaining Law & Order in the affected areas • Team for restoration of water and power supply • Arrange for S & R teams of Air Force (If required) 	IMD COR, Municipal Commissioner UD &UHD Dist. Collector, Key line Dept.
	Clearance of Access Roads to Reach at The Sites of Affected Areas	61. To survey the access roads/routes leading to the affected areas and manage traffic for mobilization of equipments, machinery and volunteers. 62. Identify alternate roads/routes for evacuation of affected people 63. Undertake repairing/restoration of damaged roads leading to the affected areas. 64. Identify and declare unsafe buildings/structures in urban floods affected areas. 65. Evacuate people from unsafe buildings/structures and shift them to relief camps/sites 66. Divert/stop transport activities (Rail + Road) heading towards flood affected areas	R & B Dept. , Transport Dept., Municipal Commissioner UD & UHD
	Necessary Arrangements at Evacuation/ Relief Centres	67. To ensure that necessary arrangements at evacuation/relief centers is made sufficient availability as per the Minimum Standards of Relief by GoG 68. To ensure necessary security arrangements for the personnel (Emergency responders/relief teams) who are working at Relief Centers and involved in distribution of Relief Materials	Revenue Dept., Civil Supply Dept., Municipal Commissioner Co llectors, Water Supply Dept., Health Dept., GEB,

Time Frame	Task	Activity	Responsibility
		69. To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well 70. Arrange for a logistic plan and warehouse for receipt and management of relief material	Energy & Petro. Dept., GWSSB & Local Authorities, Home Dept.
	Immediate Health and Minimization of Disease Outbreak	71. To establish relief camp hospitals near the affected areas 72. To make transportation arrangements to shift stranded persons to nearest-camp Hospitals, City, Taluka and District Hospitals, Regional and State Hospitals 73. Ensure that the Hospitals are well prepared to deal with emergencies like outbreak of water borne diseases 74. Ensure that the required medical assistance/aid and medicines are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained 75. Take sanitation and epidemic control measures for preventing any water borne disease 76. Keep adequate stock of essential medicines, first-aid etc. at taluka/district hospitals 77. Take steps to purify drinking water sources 78. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the city/taluka/district level for immediate medical assistance	CoR/ DoR, Health dept Municipal Commissioner Collector Port & Transport Dept, Tourism Dept.,
		79. Assess need for fodder if required 80. Keep ready teams for carcass disposal (if required)	Animal Husbandry Dept.
	Information to Public and Media	81. Establish Media/Press Centre for media management and information dissemination 82. Ensure that the information to media/general public about the response of the State Government is released in an organized manner 83. Organize media briefing twice a day at pre-determined intervals	Information Dept., CoR Municipal Commissioner

Time Frame	Task	Activity	Responsibility
	Other Important Work Related to Immediate Response	84. Prepare quick need assessment report for planning of relief operation 85. Additional assistance may be asked for emergency response/relief from GoI-NDMA (If needed) 86. Prepare situation report and circulate it twice a day in the morning and evening to key Government functionaries 87. Maintain constant touch with National, District, City and Taluka EOCs and other control rooms 88. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly 89. Conduct aerial survey of affected areas for taking a stalk of the situation	CoR Municipal commissioner District collector
		90. Activate evacuation & relief centers according to needs/situation 91. Maintain record of persons admitted at evacuation/relief centres	Revenue Dept. COR Municipal Commissioner Collector
Time = 0 + 24 to 48 Hrs	Review of Situation and Reporting	92. Establish contact with IMD, CWC, for constant updates regarding rainfall data /weather condition and plan accordingly	COR Municipal Commissioner Collector
	Restoration of Critical Infrastructure/ Essential Services	93. Ensure that the essential services/critical infrastructure of the affected areas have been restored or alternative arrangement is made for ensuring safety of people and smooth management of emergency response. 94. Ensure that key administrative and lifeline buildings are brought back to operation quickly. 95. Designate and deploy senior officers (as per the need) to worst affected area/s to oversee rescue/relief operation. 96. Ensure following primary necessities are restored <ul style="list-style-type: none"> • Power supply • Water supply • Communication g. Roads Bridges	CoR, Line Depts., Municipal Commissioner Dist. Collectors, Line dept. Eneregy& Petro.Dept. Power Supply Water Supply Ports and Transport

Time Frame	Task	Activity	Responsibility
	Dignified Management of the Dead	97. Ensure following procedure is followed before disposal/handing over of dead bodies: f. Photographs of the dead bodies are taken, g. Identification of the dead bodies is done, h. Post Mortem where ever necessary and possible is carried out, i. Handing over dead bodies of persons known/identified to their relatives, j. Disposal of unclaimed and unidentified dead bodies.	Revenue Dept., Municipal Commissione Dist. Collector, Home Dept., Health Dept., Local Authorities
		98. Ensure medical aid to injured cattle 99. Disposal of animal carcasses with the help of local bodies/health dept.	Animal Husbandry Dept.
	Public Information and Media Management	100. Ensure that the information about progress of rescue and relief is provided to media/public in an organized manner at least twice a day 101. Establish help lines for facilitating communication between the victims and their relatives residing outside the affected area/s 102. Establish Information Centers at strategic locations for providing information about persons evacuated to the relief centres/hospitals	COR, Information Dept., Municipal Commissioner Dist. Collector
	Miscellaneous Rescue and Relief Works	103. Assess the situation and take appropriate action to accelerate the Search & Rescue Operations 104. Depute additional officers and supporting staff to affected areas from non-affected areas (if required) to accelerate the rescue and relief operations	COR, Municipal CommissioneDis tricts Collector
		105. Ensure that the relief assistance received from outside is centrally received, stored and sent for distribution to flood affected areas according to their need and proper accounts are maintained about both receipt and distribution	COR, Civil Supply Dept.

Time Frame	Task	Activity	Responsibility
Time = 0 + 48 to 96 Hrs	Continuous Rescue and Relief Works	106. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly 107. Arrange for procurement of additional relief material required for relief operations (on the basis of need assessment) 108. Mobilize additional relief material required for relief operations 109. Maintain constant touch with State & Districts EOCs	COR, Municipal Commissioner Civil Supply Dept.
		110. Arrangement for transportation of injured from field hospital to base hospital 111. Arrangement for transport of dead bodies to their native places 112. Ensure maintenance of record, timely reporting and information management 113. Ensure maintenance of record and information database	Revenue Dept, Health Dept. , Transport Dept., Line Depts. Home Dept.
Time = 0 + 96 to 168 Hrs	Continuous Rescue and Relief Works	114. Remain in constant touch with IMD for updates on weather forecast for the coming days and plan accordingly 115. Review the restoration of all the public and essential buildings/ structures in flood affected areas 116. Review and follow-up all necessary arrangements for emergency response & relief in the affected area/s	COR
		117. On receiving the message from IMD about rainfall and inform the concern municipal commissioner/Collector	COR, IMD
		118. Organize a quick rapid visual survey of the affected areas (through a technical team of engineers or drones) to ascertain the safety of the structures decide on giving the go-ahead to people to move back to their respective houses	COR, Municipal Commissioner Dist. Collectors, , R & B Dept.
		119. After receiving the message of de-warning, ensure that people are moved back safely to their houses	COR, Municipal Commissioner Collector, Home Dept.

Chapter 6 : Action Plan for Industrial & Chemical Disasters

6.1 Introduction

6.1.1 Background

Gujarat, the hub of chemical industry in India, accounts for 62 % of India's petrochemical production, 35% of other chemicals production and 18% of India's chemical exports. Gujarat's chemical & petrochemicals industry comprises of about 500 large and medium scale industrial units, about 16,000 small scale industrial units and other factory units. Over 6500 chemicals & petrochemicals are produced in the state, largest supplier of bio fertilizers, seeds, urea and other fertilizers. Gujarat has also taken lead to promote environment friendly practices through Effluent Treatment Plant; currently 28 such plants are operational.

The chemical and petrochemical industries present in Gujarat include refineries, chemical and LNG terminal, petrochemical complexes, chlor alkali plants, soda ash plants, chemical fertilizer plants and agro chemicals. There is also a Petroleum, Chemical & Petrochemical Investment Region (PCPIR) which is spread over 453 sq km in the coastal belt of Gulf of Khambhat in Bharuch district in the vicinity of other existing GIDC chemical estates, viz. Jhagadia, Ankleshwar, Panoli and onsite port terminal & LNG terminal at Dahej. Most prominent Indian and multinational organizations of chemical and petrochemical sector which are present in Gujarat state are Tata chemicals, Oil and Natural Gas Company limited (ONGC), Reliance industries, Indian Oil Corporation Limited (IOCL), Indian Petrochemical Corporation Limited (IPCL), Torrent Pharma, Zydus Cadila, ROSNEFT, Adani, Essar, IFFCO, Novartis and others.

The growth of chemical industries has led to an increase in the risk of occurrence of incidents associated with hazardous chemicals (HAZCHEM) and hazardous materials (HAZMAT). These events occur due to mishaps or failures in industry and negligence in following international codes and standards for chemical handling which affects the industrial functioning, and productivity. While the common causes for chemical accidents are deficiencies in safety management systems or human errors, natural calamities or sabotage may also trigger such accidents. Chemical/ industrial accidents are significant and have long term impact on the community and environment. It leads to injuries, pain, suffering, loss of lives, damage to property and environment.

6.1.2 Sources of Chemical Disasters

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 including tank farms in ports and docks and fuel depots
3. Transportation (road, rail, air, water, and pipelines)

6.2.1 Causative Factors Leading to Chemical Disasters

Chemical disasters, in general, may result from:

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

6.2.2 Initiators of Chemical Accidents

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

a. Process and Safety System Failure

1. Technical errors: design defects, fatigue, metal failure, corrosion, etc.
2. Human errors: neglecting safety instructions, deviating from specified procedures, etc.
3. Lack of information: absence of emergency warning procedures, nondisclosure of line of treatment, etc.
4. Organisational 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.

b. Natural Calamities

The Gujarat state is highly prone to natural disasters, which can also trigger chemical disasters. The release of acrylonitrile at Kandla Port, during an earthquake in 2001, is one of the examples.

c. Terrorist Attacks/Sabotage

Vulnerability to chemical disasters is further compounded by likely terrorist and warfare activities which include sabotage and attack on HAZCHEM installations and transportation vehicles.

6.3 Authority

Enforcement and monitoring of chemical safety and emergency management involves various central ministries/departments viz. MHA, MoEF, MoLE, MoA, MoP& NG, MoC&F, MoSRT&H, MoC&I, DEA, MoF etc. The MoLE, MoEF and MoSRT&H are responsible for enacting regulations.

a. State Level

At the State level, the State Crisis Group (SCG) is an apex body to deal with major chemical accidents and to provide expert guidance for handling them. SCG, under the Chairmanship of Chief Secretary consists of Secretary – Labour & Employment, Relief Commissioner, CEO – GSDMA, Secretary – Forest & Environment, Chairman – GPCB, PS – Industries & Mines, Secretary – Home, Director General – Police, Secretary – Health & Family Welfare, Secretary – Water Supply, Director – Industrial Safety & Health and Professional Head of the Fire Service Department, Home.

b. District Level

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

6.4 Flow of Information (Communication)

A procedure has to be laid out to communicate the accident / attack to the DEOC by giving details such as location of incident, chemical(s) involved, severity of incident, casualties (if any), etc. The person in-charge at DEOC 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 DCG. The District Collector, in turn, would inform the Gujarat State Disaster Management Authority (GSDMA) and the SCG 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 SCG or the GSDMA would then inform the Central Crisis Group (CCG) 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.

6.5 Regulatory Framework

This plan derives its authority from the following acts and rules:

a. Acts

- i. The Factories Act, 1948, as amended in 1976 and 1987
- ii. The Environment (Protection) Act, 1986
- iii. The Disaster Management Act, 2005
- iv. The Public Liability Insurance Act, 1991 as amended in 1992
- v. The National Environment Tribunal Act, 1995
- vi. The Gujarat State Disaster Management Authority Act, 2003
- vii. The Explosive Act, 1884
- viii. The Petroleum Act, 1934
- ix. The Electricity Act, 2003
- x. Dock Workers (Safety, Health & Welfare) Act, 1986

b. Rules

- i. The Gujarat Factories Rules 1963 under the Factories Act, 1948 as amended in 1995
- ii. The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in 1994, 2000 and 2004
- iii. The Public Liability Insurance Rules, 1991 as amended in 1992
- iv. The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
- v. Explosive Rules, 2008
- vi. Central Motor Vehicles Rules, 1989
- vii. Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008.

6.6 Trigger Mechanism for Industrial (Chemical) Disasters

The occupier / manager of the establishment responsible for releasing or discharging a hazardous chemical will notify incident the appropriate local control room and DEOC. Industry can additionally report to local control rooms of mutual aid partners, GVK 108, and local fire and police departments, as per the local emergency response plans.

On getting the first hand information about an emergency/disaster, the in-charge of the DEOC should immediately inform the District Collector and the first three responders i.e. Police, Fire & Emergency Services and Medical Services. District Collector alongwith Dy. DISH and two experts will join him.

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 SEOC, the GSDMA and the Chairman of the SCG about the incident.

The SEOC will then issue alert or direct all the Emergency Responder Agencies at the State and District level for providing their services immediately. The SEOC will immediately take decision to deploy SRTs 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 disaster is known.

The SCG, 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 SCG 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.

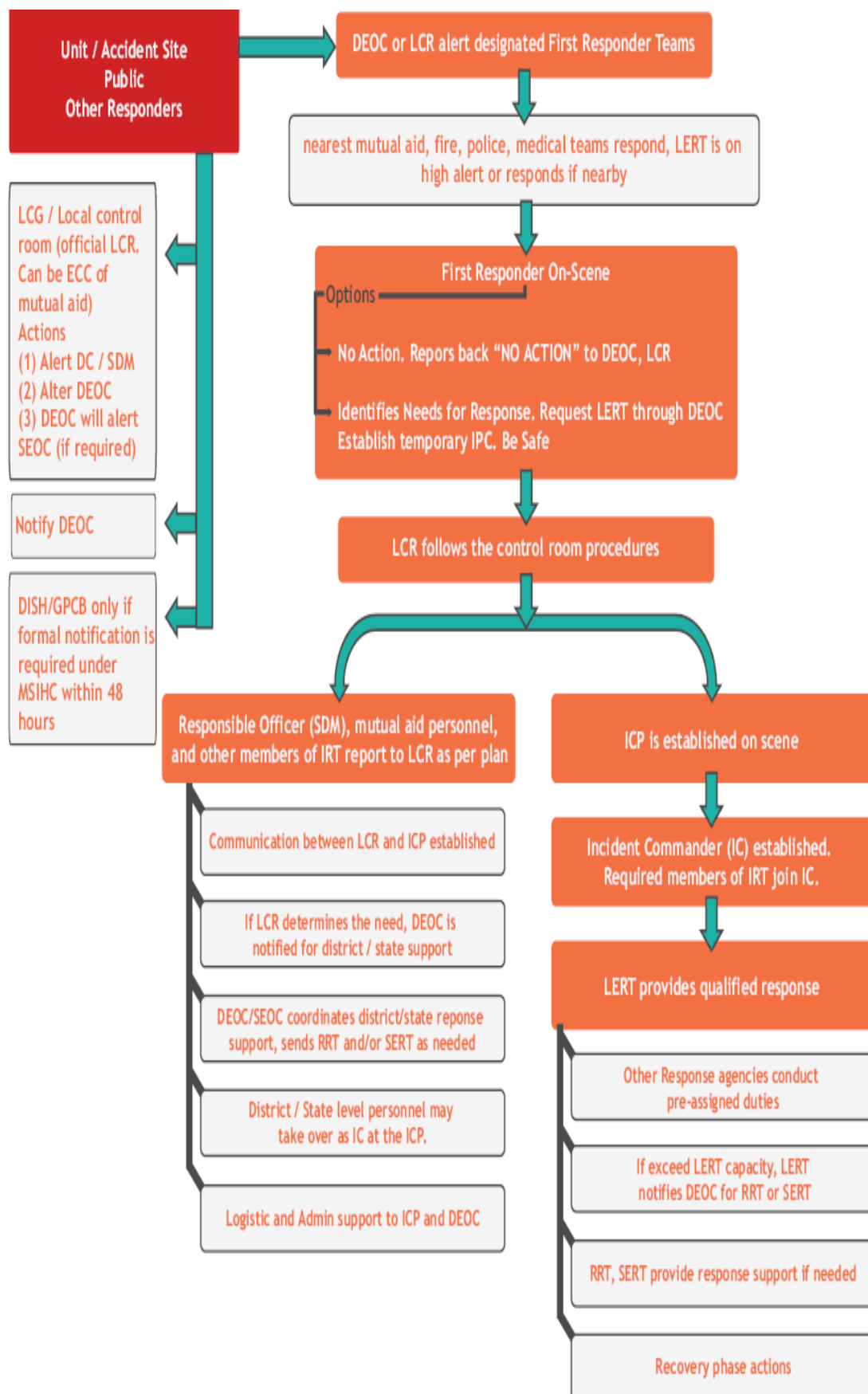
6.7 Response for Industrial (Chemical) Disasters

Response measures are those which are taken instantly prior to, and following, a Industrial & Chemical 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 it.

SCG will ensure that the functions and responsibilities of the chemical facility operators and response organisations are clearly defined and understood by all stakeholders. The CCG and the SCG/DISH will also determine the actions that need to be performed by each organisation during an emergency and whether it has the necessary resources and capabilities needed for the purpose.

For the fastest response, it is very important that the person who is receiving the information shall immediately pass on to the first responders, District 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.

Detailed emergency response process and roles and responsibility of different departments are as under:



Standard Operating Procedures (SOP)

Sr. No.	Task	Activity	Responsibility
1.	Disaster Declaration and Plan Activation	<ol style="list-style-type: none"> 1. Declare an off-site emergency in consultation with SCG and activate an off-site emergency plan 2. Activate DCG 3. Establish immediate communication with LCG, DCG, DEOC, SEOC, GSDMA and CCG 	Collector
2.	Mobilization & Deployment	<ol style="list-style-type: none"> 4. Arrange an immediate deployment of various ERTs in affected sector(s). (Police, Fire, S&R, Medical, etc.) 5. Based on the emergency monitoring teams from off-site areas initiate counter measures (such as sheltering and medical help) 6. Arrange an evacuation of the affected/ likely to be affected workers and population to safer places 7. Activate systems of the State 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 8. Deploy QRMTs/ MFRs consisting of physicians, triage officer, nurses and paramedical staff 9. To ensure that necessary arrangements at evacuation/ relief centers is made with sufficient availability of: <ol style="list-style-type: none"> a. Food, b. Water, c. Blankets/Clothing d. Medicines e. Lighting f. Sanitation and Hygiene, etc. 10. To ensure necessary security arrangements for the personnel (Emergency responders/relief teams) who are working at relief centers and involved in distribution of relief materials 11. To ensure that law and order is maintained at evacuation/relief centers and in the affected areas 	Collector, Municipal Commissioner, DISH, DCG, Home Dept., Health Dept., Industry/ Industrial Association COR, Civil Supply Dept., Collectors, Municipal Commissioner, DISH, Water Supply Dept., Health Dept., GEB, Energy & Petrochemical Dept, GWSSB & Local Authorities, Home Dept.
3.	Addressing Health Related Issues	<ol style="list-style-type: none"> 12. 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 13. Ensure that the hospitals are well prepared to deal with seriously injured persons 14. Keep adequate stock of essential medicines, antidotes, first-aid etc. at taluka/district hospitals. 15. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance 	Health Dept.
4.	Information to public and media	<ol style="list-style-type: none"> 16. Make an arrangement for providing useful, timely, correct, consistent, and appropriate information to the public and media in the event of a chemical disaster. 	Collector, Municipal Commissioner

Sr. No.	Task	Activity	Responsibility
		17. Ensure that the information to media/general public about the coordinated response is released in an organized manner.	DISH, COR, Commissioner of Info.,
5.	Disposal of Dead bodies	18. Ensure following procedure is followed before disposal/handing over of dead bodies: 19. Photographs of the dead bodies are taken, 20. Identification of the dead bodies is done, 21. Post Mortem wherever necessary and possible is carried out, 22. Handing over dead bodies of persons known/identified to their relatives 23. Disposal of unclaimed and unidentified dead bodies 24. Animal Husbandry Department to ensure medical aid to cattle that are injured. 25. Disposal of animal carcasses with the help of local bodies/health dept.	Collector, Municipal Commissioner, Revenue Dept., Health Dept., Home Dept., Local Authorities, Industry, Industry/Industrial Association Animal Husbandry Depts., Local Authorities, health dept.
Roles and Responsibility of Some of The First Responders during Chemical Attack/ Emergency			
1	Police	1. Control and divert the traffic near the affected areas 2. Ensure law and order at the incident site during chemical emergency/ disaster and at evacuation centres too. 3. Provide security in evacuated areas 4. Give warning, carry out SAR operation and carry out relief & rehabilitation operation too In case of Chemical attack: 5. Secretary, Home and Director General of Police (DGP) will direct the participation of Police in the emergency response. 6. Secretary, Home and DG, Police will constitute an integrated command. 7. Secretary, Home and DGP will report to the SCR immediately upon the receipt of information about the disaster. 8. DGP will establish contact with the District Police Control Room immediately. He will get a situation estimate and assess the operational requirements for the police. 9. DGP will issue an alert to the DIG and the surrounding districts. He will direct all the police officials and forces in adjacent Districts to be deployed if necessary. The DG will ensure that the police forces required for traffic management, evacuation and law and order are available with the District Administration. 10. DGP will review the dissemination of warning and the need for evacuation. He will help the Fire & Emergency Services and the Deputy Director, Industrial Safety and Health with Police Wireless sets so that there is continuous communication	Home Dept.

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Sr. No.	Task	Activity	Responsibility
		<p>among the first responders in the emergency situation.</p> <p>11. DGP will ensure that the police force will not enter the area under disaster without the permission of the Fire & Emergency Services and Health officials.</p> <p>12. In case of big explosion and fire, the DGP will assess the situation and suggest a Plan of Action based on his assessment of the immediate causation.</p> <p>13. The DGP will order deployment of the police force for evacuation of the people from the zone of the danger.</p> <p>14. The DGP will send instructions for the cordoning off of the area. People should not be allowed access anywhere close to the site of the disaster.</p> <p>15. The DGP will review the traffic management in the area. The primary aim would be to ensure the transportation of the injured to the hospital, easy access for emergency responders and safe evacuation of the people from the danger zone.</p> <p>16. The DGP will also issue directives that all the Private and Public Transport (trains and buses) be diverted from the disaster area.</p> <p>17. The DGP will contact the DIG and ask him to organize the deployment of police force from other Districts, based on the need assessment. The DGP will also contact the Central Industrial Security Forces and other paramilitary forces to seek their deployment, if needed.</p> <p>18. The DGP 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.</p>	
2	Fire and Search & Rescue	<p>19. Reach at the site soonest possible and assess the situation (information about the chemical leak/spill, the action taken and current status)</p> <p>20. In case of fire, start fire fighting with suitable medium and also take care of surrounding storages/ tanks to be over heated so that reduce the chances of 'domino effect'.</p> <p>21. In case of chemical leak, try to terminate the release/ stopping of leak with the use of proper PPE</p> <p>22. 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</p> <p>23. Secretary, Industries will coordinate redeployment of GIDC Fire Tenders from other places, as required</p>	Fire and Emergency Services (F&ES), Municipal Corporation, GIDC

Sr. No.	Task	Activity	Responsibility
		<p>24. Secretary, Industries will also coordinate with the Private and Public Sector industries for deployment of their Fire Brigades to the site of the disaster.</p> <p>25. The SCG, in consultation with the District Collector and other local officials will ensure that CFO, Fire & Emergency Services, Dy. Director - Industrial Safety and Health, Officer in charge Police and Health Personnel all work closely with full coordination</p> <p>26. Ahmedabad, Vadodara, Valsad, Surat, Rajkot and Jamnagar are the main providers of Fire Services in the state. The DEOC will decide upon the deployment of Fire Services, based on distance and accessibility.</p> <p>27. To search and evacuate the affected population from the site of the incident.</p>	
3.	Medical Services	<p>28. The Secretary - Health, Commissioner of Health, and emergency medicine experts will provide the necessary expertise and specialized services to the SCG</p> <p>29. The SCG 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>30. Based on the information upon the level and extent of contamination, the SCG 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>31. The SCG 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>32. The SCG will alert major hospitals in the area and ask them to be in readiness for receiving patients</p> <p>33. In case the nature of contamination requires much greater intervention, the SCG will inform the CCG 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>34. The SCG 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</p>	Dept. of Health and Family Welfare

Sr. No.	Task	Activity	Responsibility
		<p>help through the deployment of doctors, paramedics, and provision of blood and medicines, as required</p> <p>35. The SCG 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>36. The SCG will collect information on the number of deaths and persons injured; the nature of injuries and the likely long-term consequences</p> <p>37. The SCG 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 SCG must also make financial provision for spending on long-term treatment.</p> <p>38. Psychosocial care for the victims of disaster by the team of experts.</p>	

6.8 Post Disaster Responsibilities

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.

6.7.1 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 GPCB, Fire & Emergency Services and the Health Department may be used by the Search & Detection Team in carrying out the activities if required.

6.7.2 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 for cases where the structure may still be contaminated by hazardous residues.

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

6.7.3 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 rumours 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.

6.7.4 Post Incident Testing for Contamination

De-contamination Team would be responsible to decontaminate the affected area, population, members of 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 and safely disposed.

Technical personnel from the GPCB, 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.

6.7.5 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.

6.7.6 Counselling and Rehabilitation of Victims

The psychological impact of a chemical disaster manifests as psychosocial trauma including psychological reactions, post-traumatic stress disorder and other psychological ailments in displaced disaster victims which need to be addressed. Counseling by psychologists and psychiatrists for those suffering from mental trauma is an essential element of medical rehabilitation.

6.7.7 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.

6.7.8 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 need 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.

6.7.9 Responsibility of the Other Statutory Authority

The designated authority under various statutes like Indian Boiler Act, Factory Act, E.P. Act, Explosive Act, Static and Mobile Pressure Vessel Act, etc. shall perform post emergency activities prescribed and also as directed by District Collector under Gujarat State Disaster Management Act, 2003.

a. Immediate Financial Relief to Victims

Under the Public Liability Insurance Act, 1991, MoEF has published the list of chemicals and threshold quantities beyond which the occupier or owner must take third-party PLI for providing relief to accident victims as per the direction of the collector. The Act also provides for an Environment Relief Fund (ERF) and enables payment of relief over and above the insured amount. The occupier or owner should pay an amount equal to the PLI premium to the ERF and deposit the same with the insurer. At state level GPCB is responsible to ensure compliance with PLI Act and at district level the collector and regional officer of GPCB are responsible. This act provides for immediate access to relief funds so that the compliance with Act should be verified and strengthened. It is already recommended that the maximum liability under the Act (currently Rs 5 cores) should be substantially enhanced.

b. Restoration and Regeneration of Ecosystem

The potential of chemical accidents to cause severe environmental damage has been realized on a number of occasions such as at Seveso, Bhopal, Mexico City (LPG disaster), Chernobyl, and Alaska (Exxon Valdez). For the remediation of the affected environment, it is essential to assess the environmental impacts which include determining the quantitative and qualitative nature of impact and ascertaining the components of the environment most at risk from chemical accidents. This assessment is dependent on certain factors such as the chemicals involved, pollutant concentrations in the environment, environment media polluted by the accident, topography, and meteorology. After assessing the impact, the government can choose the appropriate recovery strategy.

Chapter 7 : Action plan for Biological and Public Health Emergency

7.1 Introduction:

Biological emergency is one caused due to natural outbreaks of epidemics or intentional use of biological agents (viruses and microorganisms) or toxins through dissemination of such agents in ways to harm human population, food crops and livestock to cause outbreaks of diseases. This may happen through natural, accidental, or deliberate release of microorganisms into food, water, air, soil or into plants, crops, or livestock. Apart from the natural transnational movement of the pathogenic organisms, their intentional use as weapons of biological warfare and bioterrorism are anthropogenic hazards in the recent times

Handling exotic pathogens warrants suitable infrastructure, notably, high containment laboratories of bio-safety levels 3 and 4; recruitment of highly committed, dedicated and trained professionals; continuous availability of diagnostic reagents; enhancement of skills at various echelons of health professionals in early identification of such infections, investigation of outbreaks and institution of specific control measures. Natural outbreaks of disease may become epidemics and assume disastrous proportion if not contained in the initial stages. Epidemics can result in heavy mortalities in a short time, with a drop in the overall economic activity

As large number of people now travels within and across national/international boundaries, the likelihood of fast global spread of epidemics has increased dramatically making localized outbreaks turn into national epidemics and global pandemics. As our society is in a state of flux, novel pathogens emerge to pose challenges not only at the point of primary contact but also in far removed locations. The increased interaction between humans and animals has increased the possibilities of zoonotic diseases emerging in epidemic form³.

7.2 Disaster Declaration:

The Gujarat State Disaster Management Act, 2003 (Section 32) provides for the State Government to declare any area where disaster have occurred or likely to occur as disaster affected area on the recommendations of the State Relief Commissioner or the District Collector. The purpose of the declaration is to organize effective response in mitigating the ill impacts.

7.3 Disaster warning:

Preparation of warning messages, describing what is happening, predictions or future probabilities of what will happen and expected impact and the outcome must be disseminated properly for better preparedness.

The parameters for preparedness include planning, capacity building, well established medical facilities, trained doctors and paramedical staff, workshop for rescue, rescue maps and flowchart indications in buildings. These preparedness parameters help in reducing the morbidity and mortality. Highly vulnerable groups such as elderly, young children, persons with disability, outdoor workers and slum residents should be provided specific messages in timely manner.

7.4 Response Mechanism

Response measures are those which are taken instantly prior to and following epidemic/ medical emergency/ 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 it.

³ National Disaster Management Plan, 2019

State Executive Committee (SEC) will ensure that the functions and responsibilities of the epidemic facility operators and response organizations are clearly defined and understood by all stakeholders. The SEC will also determine the actions that need to be performed by each organization during an emergency and whether it has the necessary resources and capabilities needed for the purpose. The advice of State Crisis Management Committee (SCMC) will also be sought in this matter.

7.5 Trigger Mechanism: Plan Activation

The response system will be activated on the occurrence of an eminent disaster/epidemic. Commissioner of Relief (CoR) will activate all the Departments for emergency response including the State EOC. 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
- Activation of all concerned line departments

The state EOC and other control rooms like Police, Health and other relevant control rooms at the state level as well as district control rooms should be activated with full strength. The State Government may publish a notification in the official gazette, declaring such area to be disaster-affected area under GSDMA Act (Section 32 (2) (a)). Once the situation is totally controlled and normalcy is restored, CoR declares End of Emergency Response and issues instructions to withdraw the staff deployed in emergency duties. The SOP for the same is as below:

Standard Operating Procedure (SOP) for Biological and Health Emergency

Sr. No	Task	Activity	Responsibility
1	Warning Receipt and Dissemination	<ol style="list-style-type: none">1. Inform COR, ACS/PS(Revenue), CEO (GSDMA), Crisis Management Group, Hon. CM, Hon. Minister (DM), NDMA, Ministers and Secretaries of all line depts. as per the warning of MoH&FW and Health Dept.2. Inform & instruct District Collectors to activate District Control Room at full strength3. Remain in constant touch with control rooms at National & State Level.4. Instruct and alert Secretary of departments of the key line departments to activate their departmental plan and SOPs for immediate response	Health & Family Welfare dept In charge - SEOC

Sr. No	Task	Activity	Responsibility
2	Disaster Declaration and Plan Activation	5. Declare an emergency in consultation with State Crisis Group (SCG) and activate an emergency plan 6. Activate District Crisis Group (DCG) 7. Establish immediate communication with Local Crisis Group (LCG), District Crisis Group (DCG), District Emergency Operation Centre (DEOC), State Emergency Operation Centre (SEOC), GSDMA and Central Crisis Group	CoR Health & Family Welfare dept Collector
3	Interdepartmental Coordination	8. Instruct all State Government officers and employees in the State to report to their respective Head for emergency duties (Only if the warning is of a level 2 disaster or as per the decision taken in the meeting of the Crisis Management Group headed by Chief Secretary) 9. Alert the District Collectors of districts not largely affected to be prepared for providing the following to the districts likely to be affected: <ul style="list-style-type: none"> • Additional manpower • Additional resources • Machinery & Equipment Relief material/Kits 	CoR GAD, Health& Family Welfare dept Line depts. Collectors
4	Establishment of Lines of Communication	10. Establish communication links with areas likely to be affected as per the contact details available in SDRN and hospitals	COR/ DOR Collectors, Municipal Commissioner

Sr. No	Task	Activity	Responsibility
5	Transportation	<p>11. If required, impose restriction on all transport activities to avoid contagious effect.</p> <p>12. Setting up arrangements for the movement of citizens stranded-</p> <ul style="list-style-type: none"> • Abroad • Inter/intra state • Inter/intra district <p>13. Activate systems of the State 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.</p>	<ul style="list-style-type: none"> • Collector • Municipal Commissioner • Health Dept • Home Dept • MoEA • GAD • Port & Transport Dept. • Airline authorities • Railways • GSRTC
6	Mobilisation and Deployment	<p>14. Deploy QRMTs/ MFRs consisting of physicians, triage officer, nurses and paramedical staff</p> <p>15. To ensure that necessary arrangements at evacuation/ relief centres is made with sufficient availability of:</p> <ul style="list-style-type: none"> i) Food, ii) Water, iii) Blankets/Clothing iv) Medicines v) Quarantine facilities vi) Isolation facilities vii) Lighting viii) Sanitation and Hygiene, etc. <p>16. To ensure necessary security arrangements for the personnel (Emergency responders/relief teams) who are working at relief centres and involved in distribution of relief materials</p> <p>17. To ensure that law and order is maintained at evacuation/relief centres and in the affected areas as well</p>	<ul style="list-style-type: none"> • COR, Collectors, Municipal Commissioner • DSP • Civil Supply Dept., , • DISH, • Water Supply Dept., • Health Dept., • GEB, • Energy and Petrochemical Department • GWSSB & Local Authorities, • Home Dept.

Sr. No	Task	Activity	Responsibility
		18. Immediate mobilization of following units/teams <ul style="list-style-type: none"> • Quick Medical Response Teams • Quick Need Assessment Teams • Teams for disposal of dead bodies • Teams for maintaining Law & Order in the affected areas • Quick First Aid Team 	
7	Addressing Health Related Issues	19. Ensure that the required medical assistance/ aid and medicines/ antidotes are provided to the affected people at site as well as at evacuation/ relief centre / quarantine / isolation centres in the affected area and necessary records are maintained 20. Ensure that the hospitals are well prepared to deal with seriously affected persons 21. Keep adequate stock of essential medicines, vaccines, first-aid etc. at taluka/district hospitals. 22. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance	<ul style="list-style-type: none"> • Collectors, • Municipal Commissioner • Health Dept.
8	Response of Line Dept	23. Activate Departmental Disaster Management Plan and Departmental SOPs for Management of casualties 24. Ensure availability of QRT & essential medicines 25. Issue alert/ warning through mass media by establishing liaison with service providers 26. Ensure safety & serviceability of critical communication towers through respective service providers	<ul style="list-style-type: none"> • Collectors, Municipal Commissioner • Health Dept. • Telecom service providers • DST
9	Review of Situation and Reporting	27. Review and monitor –mobile communication units, quick medical response teams; dissemination of information to vulnerable/hotspots/containment zone areas; preparedness measures to be taken by various authorities	<ul style="list-style-type: none"> • Revenue Dept./ COR • Secretary, Health Dept

Sr. No	Task	Activity	Responsibility
		28. Keep in touch with National, District and Taluka Control Rooms 29. Release information at appropriate time to media and public regarding response measures organized by the Government	<ul style="list-style-type: none"> • Collector • Municipal commissioner • Information Dept. • PIB
10	Emergency Relief Management	30. Ensure that the Relief Management work planned in the areas affected are well organized 31. Inform following agencies to be in a state of readiness for assisting in the response measures (if required): <ul style="list-style-type: none"> • Public sector agencies • Private sector agencies • NGOs, CBOs • Volunteer Organizations 32. Request for help (if needed) to MHA/National Disaster Management Authority	COR/ Revenue Dept. <ul style="list-style-type: none"> • Collector
		33. Ensure that the arrangement for basic amenities at evacuation/relief centres are made by the respective departments: <ul style="list-style-type: none"> • Drinking water • Food • Clothing • Sanitation and hygiene, • Lighting • Medicines and other Health Care 	<ul style="list-style-type: none"> • COR • Collector • Municipal commissioner • Food & Civil Supply Dept., • Revenue Dept. • Water Supply Dept., • GEB, • Health Dept.
		34. Make necessary arrangements for public information/guidance, public opinion and rumour control	<ul style="list-style-type: none"> • Collector • Municipal commissioner • Information Dept.
		35. Impose restrictions for transportation in majorly affected areas	Transport Dept. and Dist. Collector, Home Dept.

Sr. No	Task	Activity	Responsibility
12	Preliminary Assessment, Deployment of Emergency Response Teams and Information Dissemination	36. Send sector wise situation reports to: <ul style="list-style-type: none"> • State EOC/COR • GSDMA 	District Collector
		37. Deployment of following teams Emergency Communication Teams <ul style="list-style-type: none"> • Emergency Medical Services Teams • Medical response team 	CoR, Dist. Collector, Municipal Commissioner Health dept
15	Immediate Health and Minimization of Disease Outbreak	38. To establish camp hospitals 39. To make transportation arrangements to shift seriously affected persons to nearest-camp Hospitals, Taluka and District Hospitals, Regional and State Hospitals immediately. 40. Ensure that the Hospitals are well prepared to deal with affected persons 41. Ensure that the required medical assistance/aid and medicines are provided to the affected people at site as well as at evacuation/relief centers in the affected area and necessary records are maintained 42. Take sanitation and epidemic control measures for preventing any water borne disease 43. Keep adequate stock of essential medicines, first-aid etc. at taluka/district hospitals 44. Take steps to purify drinking water sources 45. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance	Health Dept., Dist. Collector, Municipal Commissioner 108 GVK EMRI Services Port & Transport Dept,
16	Information to Public and Media	46. Establish Media/Press Centre for media management and information dissemination 47. Ensure that the information to media/general public about the response of the State Government is released in an organized manner 48. Organize media briefing twice a day at pre-determined intervals	Health Dept., Information Dept., COR

Sr. No	Task	Activity	Responsibility
17	Other Important Work Related to Immediate Response	49. Prepare quick need assessment report for planning of relief operation 50. Additional assistance may be asked for emergency response/relief from GoI-NDMA (If needed) 51. Prepare situation report and circulate it twice a day in the morning and evening to key Government functionaries 52. Maintain constant touch with National, District and Taluka EOCs and other control rooms 53. Remain in constant touch with Health Dept for updates on current for the coming days and plan accordingly	CoR • Health Dept
		54. Activate evacuation & relief centres according to needs/situation 55. Maintain record of persons admitted at evacuation/relief centres	Revenue Dept. Collector, CoR
18	Dignified Management of Dead	56. Ensure following procedure is followed before disposal/handing over of dead bodies: <ul style="list-style-type: none"> • Photographs of the dead bodies are taken, • Identification of the dead bodies is done, • Post Mortem where ever necessary and possible is carried out, • Handing over dead bodies of persons known/identified to their relatives, • Disposal of unclaimed and unidentified dead bodies. 	Dist. Collector, Municipal Commissioner, DSP Health Dept., Local Authorities
19	Public Information and Media Management	57. Ensure that the information about progress of epidemic spread/ contain is provided to media/public in an organized manner at least twice a day 58. Establish help lines for facilitating communication between the victims and their relatives residing outside the affected area/s 59. Establish Information Centres at strategic locations for providing information about persons evacuated to the relief centres/hospitals	Health Dept, COR, Dist. Collector, Municipal Commissioner, Information Dept

Sr. No	Task	Activity	Responsibility
20	Miscellaneous Rescue and Relief Works	60. Assess the situation and take appropriate action to accelerate the relief providing services.	COR, Districts Collector, Municipal Commissioner Revenue Dept, UDD, Health Dept.
		61. Depute additional officers and supporting staff to enhance the diagnostic facility, treatment and discharge of affected person.	
		62. Ensure that the relief assistance received from outside is centrally received, stored and sent for distribution proper accounts are maintained about both receipt and distribution	CoR, Collector, Municipal Commissioner
		63. District Collector/Municipal Commissioner may oversee the functioning of relief centres and ensure adequate supply of relief materials (medical logistics)	Collector, Municipal Commissioner Revenue Dept, Civil Supply Dept., Health Dept.
21	Continuous Rescue and Relief Works	64. Arrange for procurement of additional medical supplies and relief material required for relief operations (on the basis of need assessment of Medical Logistics)	COR, Dist. Collectors, Civil Supply Dept., Health Dept.
		65. Mobilize additional medical supplies and relief material required for relief operations	
		66. Maintain constant touch with State & Districts EOCs	
		67. Arrangement for transportation of affected persons from field hospital to base hospital	Revenue Dept, Health Dept. , Transport Dept., Line Depts.
		68. Arrangement for transport of dead bodies to their native places	
		69. Ensure maintenance of record, timely reporting and information management	
22	Continuous Monitoring	70. Ensure data collection from each district regarding the number of patients admitted/dead from both Government hospital/private hospitals.	Health Dept. Collector, Municipal Commissioner COR
		71. Ensure that continuous monitoring is carried out.	
		72. Prepare data analytics and documentation on daily basis.	

Sr. No	Task	Activity	Responsibility
24	Setting up of testing facility and laboratories	73. Arrangement of laboratories for the purpose of increased testing 74. Identifying, supply chain and inventory management of other reagents for protection, detection, and medical management.	Health dept. ICMR
25	Diagnostic Kits, Biomedical Equipments & PPE	75. Arrangement of Rapid Diagnostic Kits 76. Ensure that stockpiling of medicines, personal protective equipments like gloves, masks, Head Gears etc. are stocked up. 77. Arrangement of diagnostic kits, ventilators, oxygen cylinders , antibiotics, vaccines, biomedical equipments etc 78. Ensure adequate medical logistics in case of surge capacity.	Health dept.
26	Biosafety and biosecurity measures and environmental measures	79. Ensure Strict compliance with Bio safety and bio security provisions in hospitals 80. Ensure Environmental monitoring to prevent further spread of diseases. 81. Monitoring of water supply and sewage systems to prevent the dispersal of biological agents that can cause epidemics 82. Ensure regular surveillance	Health dept. Collectors Municipal Commissioner Dept. of Drinking Water and Sanitation
27	Assessment of Situation	83. Regular and periodic monitoring of the situation 84. Ensure updates from research & academic institutions/universities working in the field of medicine for better decision making. 85. Ensure continuous updates and consultation with National/international organisations like ICMR, IMA, AIIMS, NIE, IIPH, WHO, UNICEF	Health dept. Collectors, MC
28	Other alternate Medicines and stockpiling medical facilities	86. Ensure that alternative medicines like homeopathy, herbal and Ayurvedic are used, if required.	Health dept. Office of Director, AYUSH Revenue dept.
29	Concurrent study	87. To study and research of the pandemics and of biological agents, vaccines and other relevant drugs. 88. Research on biological hazard and its impact in the state/country.	Health dept. Research institute of National and State level

Chapter 8: Action Plan for Nuclear and Radiological Disasters

8.1 Introduction

The growth in the application of nuclear science and technology in the fields of power generation, medicine, industry, agriculture, research and defence has led to an increase in the risk of occurrence of Nuclear and Radiological emergencies.

Any radiation incident resulting in or having a potential to result in exposure and/or contamination of the workers or the public in excess of the respective permissible limits can lead to a nuclear/radiological emergency.

As on date, twenty one power reactors and eight research reactors are in operation in India, five power reactors are under construction, and plans exist to set up thorium-based reactors to meet the ever-increasing energy needs. Further, India is also one amongst the seven declared nuclear weapon states which uses nuclear technology for strategic purposes.

However, nuclear emergencies can still arise due to factors beyond the control of the operating agencies; e.g., human error, system failure, sabotage, earthquake, cyclone, flood, etc. Such failures, even though of very low probability, may lead to an on-site or off-site emergency. To combat this, proper emergency preparedness plans must be in place so that there is minimum loss of life, livelihood, property and impact on the environment.

Kakrapar Gujarat Site

Kakrapar Gujarat site is located in Mandavi Taluka of Surat district. It is situated on the southern bank of Moticher Lake, which is about 85 km by road from Surat city of Gujarat State. There are two operating 220 MW pressurized Heavy Water reactors. KAPS-1 went critical on 3rd September 1992 and began commercial electricity production few months later on 6th May 1993. KAPS-2 went critical on 8th January 1995 and began commercial production in 1st September 1995 and are operating. Two more units of 700 MWe (PHWRs) are being installed and its first unit as KAPS-3 is under commissioning stage and KAPS-4 is under construction. In addition, there are two heavy water plants in Gujarat (at Vadodara and Hazira).

8.2 Scope of the Action Plan

The scope of this document is from receiving of emergency intimation to the immediate response action.

8.3 Nuclear and Radiological Emergency/Disaster Scenarios

- a. An accident taking place in any nuclear facility of the nuclear fuel cycle including the nuclear reactor, or in a facility using radioactive sources, leading to a large-scale release of radioactivity in the environment.
- b. An accident in a nuclear fuel cycle facility where an uncontrolled nuclear chain reaction takes place inadvertently leading to bursts of neutrons and gamma radiation (as had happened at Tokaimura, Japan).
- c. An accident during the transportation of radioactive material.
- d. The malevolent use of radioactive material as Radiological Dispersal Device (RDD) by terrorists for dispersing radioactive material in the environment.
- e. A large-scale nuclear disaster resulting from a nuclear weapon attack (as had happened at Hiroshima and Nagasaki in Japan) which lead to large loss of lives and destruction of large areas and properties.

8.4 Authority

- a. The Department of Atomic Energy (DAE) has been identified as the nodal agency in the country for providing the necessary technical inputs to the national or local authorities for responding to any nuclear or radiological emergency in the public domain.
- b. The Ministry of Home Affairs (MHA) is the nodal ministry in such emergencies. The Department of Atomic Energy (DAE) and the Ministry of Home Affairs (MHA) are identified to coordinate and take response measures in the country in case of nuclear/radiological emergencies in public domain. DAE renders necessary technical support/expertise during such nuclear/radiological emergencies and coordinate activities with the other supporting ministries/departments. For this purpose, a Crisis Management Group (CMG) has been established in DAE in year 1987 and functioning as the apex advisory body.
- c. In the event of any radiological or nuclear emergency in the public domain, the CMG is immediately activated and will co-ordinate between the local authority in the affected area(s) and the National Crisis Management Committee (NCMC). The CMG comprises of senior officials drawn from various units of DAE like the Nuclear Power Corporation of India Ltd. (NPCIL), Bhabha Atomic Research Centre (BARC), Heavy Water Board (HWB) and the Directorate of Purchase and Stores (DP&S). It also includes a senior official from the regulatory authority, the Atomic Energy Regulatory Board (AERB). Director (or Associate Director), Health Safety and Environment Group, BARC, who is a member of CMG-DAE and an expert in Radiation Emergency Response; is designated as the Emergency Response Director (ERD) of DAE. Each member is backed by an alternate member, so that the CMG can be activated at a very short notice. Several resource agencies from BARC also back up the CMG. They can provide advice and assistance in the areas of radiation measurement and protection and medical assistance to radiation affected personnel.
- d. For an effective response to any major nuclear emergency, an immediate communication 25 Emergency Response Centres (ERCs) have been established across the country, by BARC and DAE. For Gujarat, Kakrapar is the ERC.
- e. In case of Gujarat, the ERC at Gujarat and other national resources such as the Armed Forces etc. shall deal with the situation. The role of the State Government and its agencies such as the Gujarat State Disaster Management Authority (GSDMA) will only be supportive and be at the directions of the CMG.

8.5 Regulatory Body

- a. AERB is the nuclear regulatory authority in India which, as per the legal framework of Atomic Energy Act, 1962, has the mandate for issuance of licenses to nuclear and radiation facilities upon ensuring compliance with the applicable standards and codes.
- b. It is emphasised that the AERB, which oversees nuclear and radiological safety in the country, has the powers to not only licence the operation of a facility but also the power to order partial or full shutdown of any facility that violates its guidelines.
- c. The AERB has been playing a very crucial role in the prevention of nuclear/radiological accidents by ensuring that proper safety design features and operating procedures in all nuclear and radiation facilities are in place.

8.6 Trigger Mechanism

The trigger mechanism prescribes the manner in which the disaster response system shall be automatically activated after receiving early warning signals of a disaster happening or likely to happen or on receipt of information of an incident.

As a basic regulatory requirement, emergency preparedness exists at KAPS to respond to any on-site emergency in their areas. But to handle radiological emergencies arising from a transport accident or from movement/ handling of “orphan sources” (radioactive sources that have lost regulatory control) or due to malevolent acts like explosion of a Radiological Dispersal Device (RDD), Radiation Exposure Device (RED) or Improvised Nuclear Device (IND) any time or anywhere in the State, a network of 25 number of Emergency Response Centres (ERCs) has been established by Bhabha Atomic Research Center (BARC) (for Gujarat the ERC is Kakrapar) and Department of Atomic Energy (DAE). This network is basically meant for responding to such emergencies and also for providing timely advice and guidance to the first responder at the State and National level. The Kakrapar ERC is equipped with radiation monitoring instruments, protective gear and other supporting infrastructures. Various units of Nuclear Emergency Response Teams (ERTs), consisting of personnel from different DAE units are also being raised. The centralised agency called the management activities not only by activating these ERC and ERTs but also by mobilising the resources from all DAE facilities at the time of crisis.

8.7 Line of Communication and Responsibility for the State

Nuclear disaster is a situation where chances of receiving any early warning are very low. In such a situation where no early warning signals are available, the primary objective of the trigger mechanism is to mount immediate isolation. The following procedure shall be followed in such situations:

- a. For metropolitan areas, the Incident Commander for all nuclear hazards shall be the Commissioner of Police (CP). For other areas it will be the Collector & District Magistrate (DM) who is designated as Responsible Officer/ Incident commander (RO/IC).
- b. The field functionary at ground zero shall inform the District Emergency Operation Centre (DEOC), the Commissioner of Police in a metropolitan area and the District Magistrate of the incident. DEOC / District Magistrate/ Commissioner of Police shall inform the State Emergency Operation Center (SEOC), Emergency Response Centers (ERCs), the Commissioner of Relief (COR) and GSDMA.
- c. Immediately thereafter, personnel from the AERC (Additional Emergency Response Centre) will determine the source of the radioactive emission and its strength (**Annexure 5, IAEA-EPR-FIRST RESPONDERS 2006**) and report the same to the Commissioner of Police. In non-Metropolitan Area, the District Collector will inform the GSDMA, Emergency Response Centers for carrying out the function.
- d. The COR or GSDMA shall convene an immediate meeting of the Crisis Management Group under the chair of Chief Secretary.
- e. COR shall inform National Emergency Operation Center and if required coordinate with Bhabha Atomic Research Center (BARC) for specialised support team from the 25 ERCs.
- f. The Commissioner of Police in a metropolitan area and the District Collector in others shall review the situation and activate coordination, command and control.
- g. Commissioner of Health (CoH) shall place medical and para-medical teams if required at the disposal of the Incident Commander.
- h. The Fire Brigade as well as personnel/ vehicles/ equipments from GSDMA's Emergency Response Centers (ERCs) will report to the Incident Commander.
- i. Commissioner of Relief (COR) shall also coordinate immediate evacuation of potentially affected civilians with the CP, Municipal Commissioner and Collector.
- j. Team for Rapid Assessment of damage shall be deployed.
- k. Chemical Biological Nuclear and Radiological team (CBRN) shall be formed and deployed to ground zero by the incident commander, i.e. Commissioner of Police in metropolitan areas and by the District Collector in other areas.

8.7.1 Response Mechanism

Response measures are those which are taken instantly prior to and following a Nuclear & Radiological emergency 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.

National Executive Committee (NEC) will ensure that the functions and responsibilities of the nuclear facility operators and response organisations are clearly defined and understood by all stakeholders. The MHA and the NEC will also determine the actions that need to be performed by each organisation during an emergency and whether it has the necessary resources and capabilities needed for the purpose. The advice of National Crisis Management Committee (NCMC) will also be sought in this matter.

8.7.2 Emergency at Nuclear Facility

In plant emergency, the consequences of the accident are expected to be limited to the plant facility only.

The Site Emergency, wherein the consequences of an accident are not expected to cross the site boundary, that is, the Exclusion Zone - which means that even under this condition, there is no radiological emergency in the public domain.

The off-site Emergency which assumes the highly unlikely possibility of radiological releases in the public domain and detailed response plans have been drawn up even for this hypothetical scenario at each site. The initial safe distances suggested in **Radiological Emergencies (IAEA 2006)** are given in **Annexure 5**. The local District Administration, the Crisis Management Group, DAE and the NCMC get involved in this type of Emergency.

Standard Operating Procedure (SOP) for Nuclear and Radiological Disasters

Emergency	Activity	Responsibility
Off-Site Emergency	1. Site Director declares Off-site Emergency and Collector & DM (RO/IC) notify Off-site Emergency. 2. Activate an offsite emergency control centre. 3. Establish immediate communication with ERC, State Government and the CMG, DAE. 4. Arrange an immediate deployment of various Emergency Response Teams in affected sector(s). 5. Based on the plant conditions, progression of the accident, Protective actions recommendation (PAR) are done by Site Emergency Director (SED). Refer Appendix-1 .	Collector
	6. Arrange an evacuation of the public to safer places. 7. Activate systems of the State 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. 8. Deploy QRMTs/MFRs consisting of physicians, triage officer, RSO, nurses and paramedical staff.	Collector, Municipal Commissioner, Home Dept., Health Dept.,
	9. To ensure that necessary arrangements at evacuation/ relief centres is made with sufficient availability of: a. Food,	COR, Civil Supply Dept., Collectors, Municipal

Emergency	Activity	Responsibility
	b. Water, c. Blankets/Clothing d. Medicines e. Lighting f. Sanitation and hygiene etc. 10. To ensure necessary security arrangements for the personnel (emergency responders/ relief teams) who are working at relief centres and involved in distribution of relief materials. 11. To ensure that law & order is maintained at evacuated, relief centres and affected areas	Commissioner, Water Supply Dept., Health Dept., GEB, Energy & Petrochemicals Dept., GWSSB & Local Authorities, Home Dept.
	12. Make an arrangement for providing useful, timely, correct, consistent, and appropriate information to the public in the event of a nuclear or radiological emergency. 13. Ensure that the information to media/ general public about the coordinated response is released in an organized manner.	Collector, COR, Info. Dept., Municipal Commissioner
	14. Immediately activate and co-ordinate between the local authority in the affected area and the NCMC.	CMG
	15. Recognise the existence of an abnormal situation. 16. Identify and characterise the source and its origin. 17. Initiate a quick and reliable monitoring methodology to detect the onset of an accident/emergency condition and assess its magnitude. 18. Communicate the situation to fire fighting and medical services, police, civil defence, transport, and other agencies. 19. Estimate the dose via the relevant pathways (Dose Limits for exposures to ionising radiations for occupational workers given in Annexure 7)	ERC, DEA, AERB, CMG, Dist. Collector, CP, Municipal Commissioner
Nuclear/ Radiation emergency	20. Support decision making on protective measures for the population and the environment. 21. If required, distribute Iodine Thyroid Blocking (ITB) tablets at the earliest. 22. Respond quickly to the situation and mobilise resources at short notice. 23. Initiate protective actions at the earliest (for relief and rescue operations). 24. Make sure immediate measures need to be taken as the situation develops. 25. Ensure that the actions taken by the various agencies are well coordinated.	Dist. Collector, Municipal Commissioner, Health dept., ERC, COR,
	26. Send prior information (in respect of dos and don'ts) to those likely to be affected by the accident/emergency. These include:	COR, Home Dept., State EOC, Civil Supply Dept., Animal and

Emergency	Activity	Responsibility
	<p>27. Evacuation/ temporary relocation of the affected population, if required.</p> <p>28. Withdrawal and substitution of supplies of food and drinking water (based on actual measurement of contamination found in food and drinking water).</p> <p>29. Animal Husbandry and Agriculture Department personnel to ensure radiological protection following a nuclear emergency.</p> <p>30. Initiation of the recovery phase at an appropriate time.</p>	Husbandry dept., Information dept.
‘Criticality’ Accidents	<p>31. Critical Situation in a nuclear facility is a situation of national emergency. In case of Gujarat, the ERC at Gujarat and other national resources such as the Armed Forces etc. shall deal with the situation. The role of the State Government and its agencies such as the Gujarat State Disaster Management Authority will only be supportive and be at the directions of the Crisis Management Group set up by the Union /Central Government.</p>	ERC, CMG, NEC, DAE
Transportation of Radioactive Materials	<p>32. On discovery of any such accident, the District Magistrate in a district or the Commissioner of Police in a metropolitan area, shall inform the following –</p> <ul style="list-style-type: none"> ○ ERC at Kakrapar ○ SEOC at Gandhinagar ○ Commissioner of Relief 	DM or CP
Radiological Dispersal Device Emergency	<p>33. Mobilise and operate incident command</p> <p>34. Oversee victims triage</p> <p>35. Make sure that the site is cordoned and the perimeters are controlled and managed</p> <p>36. Ensure notification and activation of special teams</p> <p>37. Ensure traffic and access control</p> <p>38. Ensure protection to at risk and vulnerable population</p> <p>39. Gender issues must be kept in mind</p> <p>40. Provide resources support and requests for assistance</p> <p>41. Ensure public works coordination</p> <p>42. Ensure public information, outreach, and communication activities.</p> <p>43. Seal off the inner zone of 400m radius from the blast point as ‘no entry area’ except for emergency measures.</p> <p>44. Perform life-saving rescue and emergency first aid for seriously injured.</p> <p>45. Remove injured persons as far away as practical from the incident scene, especially in case of fire.</p> <p>46. If medical attention is needed, assist in arrangements for medical assistance.</p>	CMG, Dist. Collector, DM, Municipal Commissioner, CP, ERC, EOC, COR, Info. Dept., Home Dept., local authority, Health Dept. Civil supply Dept.,

Emergency	Activity	Responsibility
	<p>47. The medical personnel will be informed that radioactive contamination might exist on the victims and/or their clothing.</p> <p>48. Identify all those who may have been exposed to a possible release of radioactive material.</p> <p>49. Identify those involved with the incident or potentially contaminated by the incident at the scene, except those requiring emergency medical evacuation.</p> <p>50. All individuals will be monitored and decontaminated, if necessary, and cleared after further medical treatment and discharged.</p> <p>51. Record names, addresses, destinations, and telephone numbers of those individuals who cannot be persuaded to stay at the incident scene.</p> <p>52. Prohibit eating, drinking and smoking in the incident area</p> <p>53. Use a handy evaluation tool when demonstrating counter measures.</p> <p>54. Advice to the local public following a Radiological Dispersal Device Explosion</p> <p>The public living in approximately twice the radius of the inner cordoned area are advised the following:</p> <ul style="list-style-type: none"> • If present in the inner zone, to get monitored at the earliest • Avoid inadvertent ingestion • Move away from the immediate area, at least several tens of metres from the explosion site and get inside a closed building. This will reduce exposure to both radiation and radioactive airborne dust • Not to eat food until certified free from contamination • Avoid any smoke/dust • Turn on local radio/ TV channels for advice from emergency response centres/ health authorities • Remove contaminated clothes and place these in a sealed plastic bag • Take a shower to wash off dust and dirt. This will reduce total radiation exposure • If radioactive material was released, local news broadcasts will advise people where to report for radiation monitoring and for blood and other tests to determine whether they were in fact exposed and steps to be taken to protect their health 	

Emergency	Activity	Responsibility
Loss or Theft of Radioisotopes/ Radioactive Material	<p>55. It is the user's responsibility to maintain an inventory of all sources at all times so in case of loss or theft of a radioactive source, the matter needs to be reported to the police, CMG and AERB immediately.</p> <p>56. Theft of sources should be dealt jointly by law and order enforcement agencies and radiation protection experts.</p>	Home Dept., Dist. Collector

Appendix-1

Protective actions recommendations:

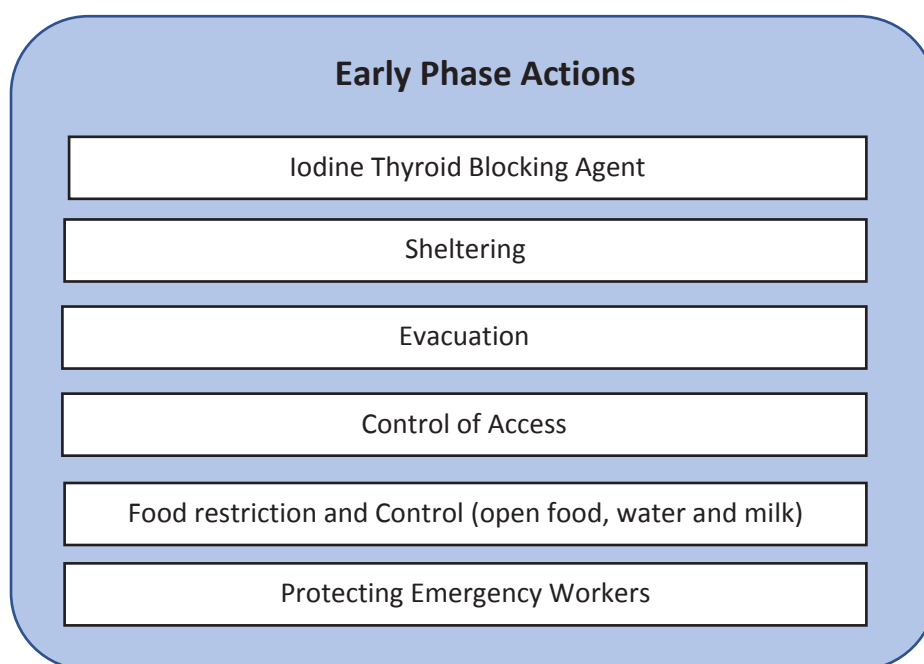
A severe accident at a nuclear power plant where failure of containment barriers leads to a major release of the core inventory will require the implementation of protection strategy (combination of protective actions) to reduce the dose to the public.

The protective actions off the site that may be taken in response to an emergency arising from a severe accident at a nuclear power plant are mainly:

Early phase protective actions (including precautionary and urgent actions) and other response actions that need to be taken promptly (normally within hours) in order to be effective. Their effectiveness will be markedly reduced if they are delayed.

Intermediate phase protective actions and other response actions can be implemented within days to weeks and still be effective.

The most common protective actions in the early phase include:



Other response actions include any response action other than a protective action. The most common other response actions are: medical examination, consultation and treatment; registration and longer term medical follow-up; providing psychological counselling; and public information and other actions for mitigating non-radiological consequences and for public reassurance.

Protective actions promptly taken (within hours to days) in the early phase to avoid or to minimize severe deterministic effects are termed as **urgent protective actions**. This includes precautionary action taken before or shortly after any exposure occurs. Protective actions and other response actions taken (within days to weeks) to reduce the risk of stochastic effects are termed as **early protective actions**.

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During the early phase, protective action recommendations (PARs) are made by the plant management (Site Emergency Director) to district administration for implementation of the early phase protection strategy. In the early phase the initial protective action recommendations are developed considering the plant condition, projected dose, time period between an initiating event and arrival of a plume at a place in the public domain and the duration of release, in relation to the time needed to implement competing protective actions (i.e., evacuation and sheltering).-

Assessment of accident scenario will be continued once the initial protective actions have been recommended. The subsequent assessments would be encompassing additional information on facility conditions, radiation monitoring data, effluent release data and environmental data. The results of these continuing radiological assessments, including dose projections, should be used as the basis for refining the initial protective actions.

PARs for the intermediate phase cover exposure pathways like ingestion of food and water, long-term radiation exposure (i.e., longer than seven days), radiation exposure due to deposited radioactive materials, or long-term inhalation of re-suspended materials resulting in chronic exposures.

Chapter 9 : Action Plan for Fire

9.1 Introduction

Fires can start due to human activities or from natural causes. Forest fires can start from either natural causes or human activity or from a combination of both. The most common fires are the residential and non-residential structural fires caused usually by human activities. Most industrial and chemical fires are triggered by human activity. They are sometime caused by human errors, faulty designs, or mechanical failures. Fire can also be the secondary effect of a disaster like earthquake. Secondary fires after a disaster like earthquakes constitute a substantial and heavy risk. Damage to natural gas systems during an earthquake can lead to major fires and explosions. Damages to electrical systems during a disaster can ignite major fires. Varying risk scenarios need different types of equipment. The risk varies with geographical location such as hilly area, coastal-area, desert-area, and with different types of residential (medium/ low-rise/ high-rise) buildings, industrial, commercial area, or a combination of these. There is a considerable need for skill upgradation of the staff and modernization of the entire fire service system.¹

9.2 Types of Fire

Fires are classified in the following categories:

- **Class A Fires:** Involving combustible materials of organic nature, such as wood, paper, rubber and many plastics etc. where the cooling effect of water is essential for extinction of fires.
- **Class B Fires:** Involving flammable liquids, petroleum products or the like, where a blanketing effect is essential
- **Class C Fires:** Involving flammable gases under pressure including liquefied gases, where it is necessary to inhibit the burning gas at fast rate with an inert gas, powder or vapourising liquid for extinguishers
- **Class D Fires:** Involving combustible metals, such as magnesium, aluminium, zinc, sodium, potassium, etc. when the burning metals are reactive to water and water containing agents and in certain cases to carbon dioxide, halogenated hydrocarbons and ordinary dry powders.

1- NDMP Plan, 2019

9.3 Prevention From Fire

Fire extinguishers are the most common type of firefighting equipment being installed at office facilities, warehouses and sales offices. They should be selected based on the type of fire hazard, as depicted below:

- Class A fires – Water, foam, ABC dry powder and halocarbons
- Class B fires – Foam, dry powder, clean agent and carbon dioxide
- Class C fires – Dry powder, clean agent and carbon dioxide extinguishers
- Class D fires – Extinguishers with special dry powder for metal fires

9.4 Declaration of Disaster

The Gujarat State Disaster Management Act, 2003 provides for the State Government to declare any area where any disaster has occurred as disaster affected area on the recommendations of the State Relief Commissioner or the District Collector. The purpose of declaration of disaster is to organize effective response and mitigating the earthquake effects. Such a declaration provides wide powers and responsibilities to the State Relief Commissioner and the District Collectors in order to handle the incident effectively

9.5 Institutional Mechanism

Fire service comes under the 12th schedule of the Constitution dealing with Municipal functions. At present, fire prevention and firefighting services are organized by the concerned States and Union Territories (UTs), and Urban Local Bodies (ULBs) in the Country. Directorate of National Disaster Response Force and Civil Defence (NDRF & CD, Fire Cell), Ministry of Home Affairs (MHA) renders technical advice to the States, UTs, and central ministries on fire protection, prevention, and legislation.

In view of the short comings in the fire services in different states of the country and the need to upgrade it, GoI in 1956 formed a Standing Fire Advisory Committee (SFAC) under the MHA with a mandate to examine the technical problems relating to fire services and to advise the GoI for speedy development and upgradation of fire services all over the country which was renamed as Standing Fire Advisory Council (SFAC) in 1980. This council has representation from each state fire service, as well as representation from Ministry of Home Affairs (MHA), Ministry of Defence (MoD), Ministry of Road Transport and Highways (MoT), Ministry of Communications and Information Technology (MoC) and Bureau of Indian Standards (BIS).

Gujarat State Disaster Management Act, 2003 mandated Gujarat State Disaster Management Authority to carry out mitigation and preparedness activities against any hazard including Fire and build the capacity of the state towards the same.

Further, Government of Gujarat has enacted Fire Prevention and Life Safety Measure Act, 2013, Gujarat Fire Prevention and Life Safety Measure Rules, 2014 and Gujarat Fire Prevention and Life Safety Measure Regulations, 2016 to ensure effective provisions for the Fire Prevention, Safety and Protection of Life and property in the State through Directorate.

Government of Gujarat has appointed a Director, Fire Prevention Services based on the Fire Prevention and Life Safety Measure Act, 2013. Further, as mandated in the Act, Five Regional Fire Officers have also been appointed by the State Government. In addition, there is a full-fledge Fire & Emergency Services operational in the all eight Municipal Commissionerate of the State under the UD & UHD Department.

All disaster specific mechanisms would come under a single umbrella allowing for immediate response to all types of disasters with an avowed objective of having a simplified and uncluttered system of response. At the top level, the Chief Secretary will act as the Chief of Operations and will be supported by the Relief Commissioner through the Branch arrangements at the State Emergency Operations Centre (EOC) & the District Emergency Operation Centre (DEOC) at the district level. In case of fire affecting larger community, the role of the Sub-Divisional Magistrate, comes into prominence under the guidance of District Magistrate and Collectors

9.6 Trigger Mechanism

State Government has started Directorate of fire under Urban Development Department (UDD). Thus UDD of the State will be the nodal department for formulating, controlling, monitoring and directing measures for Fire incident preparedness, organizing rescue, relief and rehabilitation. All other concerned departments should extend full cooperation in all matters pertaining to the management of the fire whenever it occurs.

The occurrence of a fire may be reported by the Fire and Emergency services to the Commissioner of Relief by the fastest means. The State Crisis Management Committee (SCMC) under the chairmanship of the Chief Secretary should be activated immediately on the occurrence of any major fire incident.

Besides these, the SEOC also receives reports on the fire from district and taluka levels. On receipt of the information, the SEOC verifies the authenticity of the reports and will inform the real situation to concerned authorities.

Standard Operating Procedure (SOP)

Sr. No	Task	Activity	Responsibility
1.	Disaster and Plan Activation	<ol style="list-style-type: none"> 1. Activate fire emergency plan in consultation with SCG 2. Activate DCG 3. Establish immediate communication with LCG, DCG, DEOC, SEOC, GSDMA and CCG 	Director – Fire Prevention Services Collector, Municipal Commissioner
2.	Mobilization & Deployment	<ol style="list-style-type: none"> 4. Arrange an immediate deployment of various ERTs in affected sector(s). (Police, Fire, S&R, Medical, etc.) 5. Based on the emergency monitoring teams from affected areas initiate counter measures (such as sheltering and medical help) 6. Arrange an evacuation of the affected/ likely to be affected people, workers and population to safer places 7. Activate systems of the State 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 8. Deploy QRMTs/ MFRs consisting of physicians, triage officer, nurses and paramedical staff 	Director – Fire Prevention Services, Collector, Municipal Commissioner, DCG, Home Dept., Health Dept., Industry/ Industrial Association
3.	Fire Fighting	<ul style="list-style-type: none"> • Rush immediately to the site of Fire • Extinguishing the fire • Ventilation for dousing the fire • Search & Rescue the affected persons • Containment of the Fire 	Director – Fire Prevention Services, Chief Fire Officer, Regional Fire Officer
4.	Evacuation	<ol style="list-style-type: none"> 1. To ensure that necessary arrangements at evacuation/ relief centers is made with sufficient availability of: <ol style="list-style-type: none"> ix) Food, x) Water, xi) Blankets/Clothing xii) Medicines xiii) Lighting xiv) Sanitation and Hygiene, etc. 	Civil Supply Dept., Home Dept. Collectors, Municipal Commissioner, Water Supply Dept., Health Dept., GEB, Power & Energy

Sr. No	Task	Activity	Responsibility
		2. To ensure necessary security arrangements for the personnel (Emergency responders/relief teams) who are working at relief centers and involved in distribution of relief materials 3. To ensure that law and order is maintained at evacuation/relief centers and in the affected areas as well	Dept., & Local Authorities, Regional Fire Officer
		4. On the directions of Incident Commander (IC), the ESF Team Leader will perform evacuation. He will instruct the team to initiate evacuation of the areas expected to be exposed to more threat in future 5. The QRT shall move alongwith adequate material and resources to carry out evacuation. People will be directed to move towards safer areas identified by technical experts 6. The team leader will designate in-charge of relief centers and keep in touch with them for regular head count and care of evacuees 7. Police, Fire, Civil Defence & Home Guard (CD & HG) and other government employees may have to go door to door to ensure that residents have been alerted about the fire	Collector, Municipal Commissioner DSP Home Dept, Fire & Emergency Services, Civil Defense, Revenue Dept Regional Fire Officer
5.	Addressing Health Related Issues	8. 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 9. Ensure that the hospitals are well prepared to deal with seriously injured/burn cases 10. Keep adequate stock of essential medicines, antidotes, first-aid, Burn bed etc. at taluka /district hospitals. 11. If required, take the help of doctors/paramedics from the list of doctors/paramedics available at the taluka/district level for immediate medical assistance	Health Dept.
6.	Information to public and media	12. Make an arrangement for providing useful, timely, correct, consistent, and appropriate information to the public and media in the event of a fire incident 13. Ensure that the information to media/general public about the coordinated response is released in an organized manner.	Municipal CommissionerCollector, Commissioner of Info., Fire & Emergency Services

Sr. No	Task	Activity	Responsibility
7.	Dignified Management of the Dead	14. Ensure following procedure is followed before disposal/handing over of dead bodies: a. Photographs of the dead bodies are taken, b. Identification of the dead bodies is done, c. Post Mortem wherever necessary and possible is carried out, d. Handing over dead bodies of persons known/identified to their relatives 15. Disposal of unclaimed and unidentified dead bodies	Collector, Municipal Commissioner, DSP Health Dept., Revenue Dept., Home Dept., Local Authorities,
Roles and Responsibility of Some of The First Responders during Fire			
1.	Police (Law and Order)	9. Control and divert the traffic near the fire affected areas 10. Ensure law and order at the incident site during fire emergency/ disaster and at evacuation centres too. 11. Provide security in evacuated areas 12. Give warning to the people living in the nearby areas. 13. Secretary, Home and Director General of Police (DGP) will direct the participation of Police in the emergency response and will constitute an integrated command. 14. Issue an alert to the DIG and the surrounding districts. Direct all the police officials and forces in adjacent Districts to be deployed if necessary. Ensure that the police forces required for traffic management, evacuation and law and order are available with the District Administration. 15. Review the dissemination of warning and the need for evacuation. Assist the Fire & Emergency Services with Police Wireless sets so that there is continuous communication among the first responders in the emergency situation. 16. In case of big explosion and fire, assess the situation and suggest a Plan of Action based on assessment of the immediate causation. 17. Order deployment of the police force for evacuation of the people from the zone of the danger.	Home Dept.
2.	Assess Situation	18. Reach at the site as soon as possible and assess the situation (information about the chemical leak/spill, the action taken and current status)	Collector Municipal Corporation Fire

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Sr. No	Task	Activity	Responsibility
		<p>19. Start fire fighting with suitable medium and also take care of surrounding storages/ tanks to be over heated so that reduce the chances of ‘domino effect’.</p> <p>20. Secretary, UDD will coordinate redeployment of Fire Tenders from other places, as required</p> <p>21. The SCG, in consultation with the District Collector/ Municipal corporation and other local officials will ensure that all the first responders work closely with full coordination</p> <p>22. Search and identify the risk and nullify the sources of fire incident. If any unclear or unidentified substance or source is identified or detected, inform the higher authorities.</p>	and Emergency Services (F&ES)
3.	Medical Support	<p>23. Provide the necessary expertise and specialized services to the SCG</p> <p>24. Deploy all the necessary medical facilities including doctors, nurses, medicines and ambulances in the affected areas Alert major hospitals (both government & private) in the area and ask them to be in readiness for receiving patients</p> <p>25. Collect information on the number of deaths and persons injured; the nature of injuries and the likely long-term consequences</p> <p>26. 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.</p>	Health & Family Welfare Department, Commissioner of health, Civil Surgeon, District/ Municipal Corporation Hospitals
4.	Incident Reporting	<p>27. Primary Incident report to be prepared and submitted the higher authorities</p> <p>28. Detailed investigation report of the incident to be prepared and submitted to the higher authorities</p>	UD & UHD, State Fire Prevention Services

Chapter 10 : Action Plan for Cyber Attack

10.1 Introduction

Cyberspace is a complex environment consisting of interactions between people, software and services, supported by worldwide distribution of information and communication technology (ICT) devices and networks. As the world is going digital and online, the reliance of society on high end technology has increased and the threats of cyber attacks have also gained momentum. Cyber attack refers to breaching of data sitting from any corner of the world. It can remotely have access to sensitive information/data without the consent of the person. These attacks use malicious code to modify computer code, data or logic. It poses a grave danger to safety and security related incidents. It may be mainly recognized as threat to Critical Information Infrastructure like Banking Services, Financial Organizations, governmental organization and research institutions dealing with data of countries security etc. Cyber crime is one of the main threats to the digital economy, Government sensitive Data or any industries data theft.

Cyberspace is vulnerable to a wide variety of incidents, whether intentional or accidental, manmade or natural, and the data exchanged in the cyberspace can be exploited for nefarious purposes by both nation- states and non-state actors. Cyber attacks that target the infrastructure or underlying economic well-being of a nation state can effectively reduce available state resources and undermine confidence in their supporting structures. A cyber related incident of national significance may take any form; an organized cyber attack, an uncontrolled exploit such as computer virus or worms or any malicious software code, a national disaster with significant cyber consequences or other related incidents capable of causing extensive damage to the information infrastructure or key assets. Large-scale cyber incidents may overwhelm the government, public and private sector resources and services by disrupting functioning of critical information systems. Complications from disruptions of such a magnitude may threaten lives, economy and national security. Rapid identification, information exchange, investigation and coordinated response and remediation can mitigate the damage caused by malicious cyberspace activity.

10.2 The Disaster Management Act, 2005

The Disaster Management Act, 2005: “Disaster” means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.

A ‘**natural disaster**’ is one that emerges in the environmental settings – be natural, managed or civilized. In understanding the origin of a ‘natural disaster’ the natural’ implies to ‘nature’ of an event, process, condition or material (a hazard) that is responsible for causing catastrophe, damage or major loss. It may be related to one or more of geological, hydro-meteorological, industrial, urban or other natural environments.

A ‘**manmade**’ disaster is the direct creation/activity of human – being(s) with direct/indirect knowledge of the risk/resultant catastrophe/damage/loss or due to serious human/technical failure and ‘hazard(s)’ are created or utilized to generate the outcome. These are mostly related to disciplinary performance or security failure, defense/war and mass management / law & order aspects.

10.3 The Information Technology Act, 2000

Under Section 65 of Information Technology Act, 2000 it is a punishable offence “If a person knowingly or intentionally conceals, destroys or alters or intentionally or knowingly causes another to conceal, destroy or alter any computer source code used for a computer, computer programme, computer system or computer network, when the computer source code is required to be kept or maintained by law for the time being in force”.

10.4 National Cyber Security Policy 2013

The Government of India has come out with National Cyber Security Policy 2013 with a vision to build a secure and resilient cyberspace for citizens, businesses and Government. The objectives of the policy is to create a secure cyber ecosystem in the country, generate adequate trust & confidence in IT systems and transactions, create an assurance framework for design of security policies and for promotion and enabling actions for compliance to global security standards, strengthen the Regulatory framework, enhance and create National and Sectoral level 24 x 7 mechanisms for obtaining strategic information regarding threats, enhance the protection and resilience of Nation's critical information infrastructure by operating a 24x7 National Critical information Infrastructure Protection Centre (NCIIPC), develop suitable indigenous security technologies, improve visibility of the integrity of ICT products and services, create a workforce of 500,000 professionals skilled in cyber security, provide fiscal benefits to businesses, enable protection of information while in process, handling, storage & transit, enable effective prevention, investigation and prosecution of cyber crime, create a culture of cyber security and privacy, develop effective public private partnerships, and enhance global cooperation.

10.5 Nodal Agencies at the Centre - Ministry of Communication and Information Technology

The Indian Computer Emergency Response Team under Ministry of Electronics & Information Technology, GOI has been established as the nodal agency at the centre level which is responsible for national repository of and a referral agency for cyber intrusion, the collection, analysis and dissemination of information on cyber incidents and taking emergency measures to contain such incidents.

10.6 Cyber Attack.

In May 2000, The Internet Engineering Task Force defined attack in RFC 2828 as: an assault on system security that derives from an intelligent threat, i.e., an intelligent act that us a deliberate attempt (especially in the sense of a method or technique) to evade security services and violate the security policy of system.

10.7 TYPES OF CYBER ATTACKS

- **Malware-** Malware is a term used to describe malicious software, including spyware, ransom ware, viruses, and worms
- **Phishing-** It is usually employed to steal user data such as credit card numbers and login credentials. It happens when an attacker, posing as a trusted individual, tricks the victim to open a text message, email, or instant message. The victim is then deceived to open a malicious link that can cause the freezing of a system as part of a ransom ware attack, revealing sensitive information, or installation of malware.
- **Man-in-the-middle attack-** In cryptography and computer security, a *man-in-the-middle attack* (MITM), also known as a hijack *attack* is an *attack* where the attacker secretly relays and possibly alters the communications between two parties who believe that they are directly communicating with each other.
- **Denial-of-service attack -** A Denial-of-Service (DoS) attack is an attack meant to shut down a machine or network, making it inaccessible to its intended users. DoS attacks accomplish this by flooding the target with traffic, or sending it information that triggers a crash.
- **SQL injection-** An attacker wishing to execute SQL injection manipulates a standard SQL query to exploit non-validated input vulnerabilities in a database. ... As a result, the entire user database could be deleted. Another way SQL queries can be manipulated is with a UNION SELECT statement.

- **Zero-day exploit- Zero-day** is a flaw in software, hardware or firmware that is unknown to the party or parties responsible for patching or otherwise fixing the flaw. The term **zero day** may refer to the vulnerability itself, or an **attack** that has **zero days** between the time the vulnerability is discovered and the first **attack**.
- **DNS Tunneling- DNS Tunneling** is a method of cyber **attack** that encodes the data of other programs or protocols in **DNS** queries and responses. **DNS tunneling** enables these cybercriminals to insert malware or pass stolen information into **DNS** queries, creating a covert communication channel that bypasses most firewalls.
- **Eavesdropping Attack-** With an eavesdropping attack, hackers listen in on data that flows through the network. This gives them access to things like passwords, identifying details and credit card numbers. Eavesdropping attacks are different from man-in-the-middle attacks because the data still directly reaches its destination. Because of this, eavesdropping attacks are even harder to detect than man-in-the-middle attacks. There are two types of eavesdropping attacks; passive eavesdropping and active eavesdropping. With passive eavesdropping, the hacker simply “listens” to data that is passing through the network. With active eavesdropping, hackers disguise themselves. This allows them to impersonate a website where users would normally share their private data.
- **Drive-by Download Attacks-** Hackers use drive-by download attacks to spread malware. With this style of attack, hackers are casting a wide net as opposed to attacking specific targets. They upload the malicious code to unsecured websites. When users visit this site, the web server code automatically installs the malware or redirects the user to another corrupted site. These drive-by download attacks may be lurking in emails or pop-up windows as well.
- A botnet is a network of devices that has been infected with malicious software, such as a virus. Attackers can control a botnet as a group without the owner’s knowledge with the goal of increasing the magnitude of their attacks. Often, a botnet is used to overwhelm systems in a distributed-denial-of-service attack (DDoS) attack.

10.8 CYBER ATTACKS IN INDIA

10.8.1 Y2K Bug

The flaw, faced by computer programmers and users all over the world on January 1, 2000, is also known as the "millennium bug." (The letter K, which stands for kilo (a unit of 1000)), is commonly used to represent the number 1,000. So, **Y2K** stands for Year 2000. Many skeptics believe it was barely a problem at all.

10.8.2 Hack Attack on Indian Healthcare Websites

Indian-based healthcare websites became a victim of cyber-attack recently in 2019. As stated by US-based cyber-security firms, hackers broke in and invaded a leading India-based healthcare website. The hacker stole 68 lakh records of patients as well as doctors⁴.

10.8.3 SIM Swap Scam

Two hackers from Navi Mumbai were arrested for transferring 4 crore rupees from numerous bank accounts in August 2018. The illegally transferred money from bank accounts of many individuals. By fraudulently gaining SIM card information, both attackers blocked individuals’ SIM cards and by the help of fake document posts, they carried out transactions via online banking. They also tried to hack accounts of various targeted companies⁵.

⁴ <https://www.futuremedicineindia.com/indian-healthcare-website-hacked-68-lakh-records-stolen-report/>

⁵ https://en.wikipedia.org/wiki/SIM_swap_scam

10.8.4 Chinese Cyber Attack:

In view of the ongoing India – China border conflict CERT-In, has warned the prospect of a large scale cyber attack that could target individuals & businesses using Covid-19 as a bait to steal personal and financial information. CERT-In says the potential phishing attackers could impersonate government agencies, departments and trade bodies tasked to oversee disbursement of government fiscal aid. Thus the cyber attacks have increased over a period of time.

10.9 Standard Operating Procedures:

A typical **SOP** should contain a list of specific actions that that **security** professionals need to take whenever their organization faces a particular **cyber** incident. It ensures that all employees within an organization know their responsibility and what activities they need to take in the event of a **cyber attack**. The **GOLDEN** hour concept in the other disasters would be here **GOLDEN** Minute in the Cyber Security because it is the game of seconds to lose data due to cyber attacks.

S. No.	Task	Activity	Responsibility
1.	Warning Receipt and Dissemination	1. Report the occurrence of Cyber Attack to following officials: <ul style="list-style-type: none"> • Hon. Chief Minister • Hon. Minister – Disaster Management • Chief Secretary • Principal Secretary (DST) • Chief Executive Officer, GSDMA • Members of Crisis Management Group • Ministers and Secretaries of all line departments 2. Remain in constant touch with CERT-In.	Department of Science & Technology, GIL, NIC.
2.	Interdepartmental Coordination	3. Instruct and alert all secretary / heads of departments of the key line departments to activate SOPs for Cyber Attack. 4. Alert all response teams in the State 5. Coordinate with all the ISP and TSP.	Department of Science & Technology and All line departments.
3.	Creation of Helpline	6. Establish Help Lines for facilitating communication between the departments and other services for immediate help.	
4.	Information to public and media	7. Establish Media/Press Centre for media management and information dissemination 8. Ensure that the information to media/general public about the response of the State Government is released in an organized manner. 9. Release information at appropriate time to media and public regarding response measures organized by the Government	Information Dept., PIB, TV channels, Print Media, Social Media.
5.	State Data Center	10. Form a response team 11. Identifying preparedness Gap. 12. Block IP address of unknown origin. 13. Block server communication to system.	Department of Science & Technology and

S. No.	Task	Activity	Responsibility
		14. Encryption of session ID 15. Block malicious sites. 16. Block malicious sites/ IP addresses. 17. Enhancing response to cyber incidents & Reducing cyber risk. 18. Use your backup servers. 19. Use Data Encryption in transit. 20. Isolate system where breach has occurred 21. Investigate quickly by identifying the systems and manage the damage 22. Response team is investigating the attack; ensure that they are documenting both their process and their findings. 23. Contact clients & ask them to change their password. 24. Data centre disaster recovery for resuming business operation & continuity.	Service providers for Data Centre, GIL.
6.	GSWAN	25. Immediately stop unauthorised access control. 26. Updation of network security and firewalls. 27. Make backup of data and arrangements/availability of critical standby network equipment (Core, Switches & Router etc.) 28. Make backup copies of important business data and information. 29. Set up alarm systems for any attack (IT & website along with peripherals equipments & internet). 30. Secure your Wi-Fi networks. If you have a Wi-Fi network for your workplace make sure it is secure and hidden. 31. Use Data Encryption in transit.	GSWAN service provider, DST.
7.	E Gram	32. Updation of network security and firewalls. 33. Physical security of E Gram infrastructure. 34. All the servers must be protected against cyber attacks through change of access passwords.	Panchayat and rural housing dept. and E Gram service providers.
8.	Pol Net	35. Form a response team 36. Identifying preparedness Gap 37. Block malicious sites 38. Enhancing response to cyber incidents and Reducing cyber risk 39. Use your backup servers	Home Department, DCPW and GFSU.

S. No.	Task	Activity	Responsibility
		40. Isolate where breach has occurred 41. Investigate quickly by identifying the systems and manage the damage 42. Response team is investigating the attack; ensure that they are documenting both their process and their findings. 43. Contact clients & ask them to change their password. 44. Download and install software updates for your operating systems and applications as they become available.	
9.	Telecommunication	45. Routing protocols and DNS infrastructure. 46. Protection of the servers and user data. 47. Secure your Wi-Fi networks. If you have a Wi-Fi network for your workplace have make sure it is secure and hidden.	Telecommunication dept., ISP, TSP
10.	Banking and Financial Institutions	48. Control physical access to your computers and network components. 49. Servers must be fully protected with firewalls and updated. 50. All the servers of banks and financial institutions must be protected against cyber attacks by adding more layers of security. 51. See that LAN terminals are also encrypted. 52. Limit employee access to data and information and limit authority to install software. 53. Increase the physical security of the work place of banks / financial institutions.	Finance department, All banks nationalized and others, financial instructions.
11.	E Commerce	54. Servers must be fully protected with firewalls and updated. 55. All the servers must be protected against cyber attacks through change of access passwords. 56. Ensure safety of data of users and service providers. 57. Be aware if any malicious calls / information being asked over telephone, mobile or other modes. 58. Identify the actual site while doing any financial transaction. 59. Limit employee access to data and information and limit authority to install software.	DST, IT, All Service Providers, Consumers.
12.	Citizens	60. Don't open or click unsolicited Email addresses.	Consumers / citizens.

S. No.	Task	Activity	Responsibility
		61. Don't share ATM or other pin code to anyone unknown, change them regularly. 62. Don't respond on suspicious mobile call. 63. Don't respond on suspicious / malicious emails. 64. Keep passwords strong and don't share them with anyone. 65. Report to the suspicious calls or emails. 66. Don't use cyber cafe for the financial transactions.	
13.	Websites/Emails	67. Don't open or click attachments. 68. Don't open or click unsolicited Email addresses. 69. Avoid submitting financial details in the malicious sites or emails. 70. Keep changing passwords and security. 71. Prefer "HTTPS" URL instead of HTTP.	Nodal Officers of all departments, Service Providers.
14.	Energy and Petrochemical Dept.	72. Protection of automated grids. 73. Protection of Electricity and Gas routes. 74. Automated plans need to be protected / firewall protection.	Energy & Petrochemical sector, All line depts. Pvt service providers.
15.	Transportation	75. Automated road traffic management plan need to be protected from attacks. 76. Railways, Airways and IT infrastructure must be protected to avoid any disruption. 77. Servers must be fully protected with firewalls and updated.	Railways, Air Traffic Controller, GSRTC, Pvt. service providers.
16.	Water Sector	78. Computer controlled systems needs to be protected. 79. See that the water discharge system is made full proof from cyber attack. 80. Use of a firewall for Internet connection.	Narmada & water resource dept.
17.	Establishment of Lines of Alternate Communication	81. Activate alternative communication equipments. 82. Establish communication links with all the departments.	DST and Information Dept., Dept of Home and line depts.
18.	Review and Reporting	83. Review and monitor following activities: <ul style="list-style-type: none"> ○ Positioning of mobile communication units ○ Mobilization of restoration teams of respective departments ○ Dissemination of information to the vulnerable facilities ○ All preparedness measures to be taken by various authorities 84. Keep in touch with other depts. and agencies.	DST and Information Dept.

S. No.	Task	Activity	Responsibility
19.	Preliminary Assessment and Dissemination of Information	85. Arrange dissemination of information about occurrence of Cyber Attack to Media & Public and steps taken by the govt. to thwart the attack.	DST, IT, and all line depts.
20.	Restoration of critical infrastructure/essential services	86. Ensure that the essential services/critical infrastructure of the affected areas have been restored or alternative arrangement is made for ensuring safety of data and smooth management of emergency response. 87. Ensure that key administrative and lifeline data centre, websites are brought back to operation quickly 88. Ensure following primary necessities are restored 89. Telecommunication. 90. Power. 91. Transport. 92. Internet.	DST, IT, ISP, TSP, Line Depts.
21.	Debriefing	89. Secure all records in the log book. 90. Compile a report which list the lessons learnt on the attack. 91. Assessment of situation how one would have responded if the emergency had escalated further. 92. Decide on changes and or improvement to the emergency management procedures and update SOP accordingly. 93. Ensure that the MOUs with the service providers are appropriate if emergency reoccurred. 94. Communicate to all relevant stakeholders any changes to prevent a reoccurrences.	

Annexure

Annexure -1

Emergency Contact Number

1. Control Rooms (State & Govt. of India)

No.	Department	Phone	FAX
1	Ministry Of Home Affairs, New Delhi (Control Room)	011 23092923 011 23093054 011 23092885 011 23092763	011-23093750
2	National Disaster Management Authority (NDMA) NDMA Bhawan, A-1, Safdarjung Enclave, New Delhi - 110 029	011-26701728 011-26701700	011-26701729
3	IMD (Seismo), New Delhi	011 24619943 011-24624588	011-24619943 011-24649850
4	IMD (MET), Ahmedabad	079-22865165 079-22867206 079-22858020	22865449 22864742
5	State Emergency Operation Center (SEOC), Gandhinagar	23251900 /23251902 23251907/08 23251914	23251912 23251916
6	Flood Control Cell -IRRIGATION 1st Floor, State Data Water Data Center, Sector- 8, Gandhinagar	23248735 23248736	23240553
7	Flood Control Cell- R&B Deptt. Ground Floor Nirman Bhavan, Sector 10, Gandhinagar	23251510	23257681
8	Control Room -HEALTH - PMCC Ground Floor, Block No.5, Old Sachivalaya, Gandhinagar.	23250818	23250818
9	DGP, Police Bhavan, G'nagar (State Control) DYSP (I/C Control Room) 23249257	23246328 23246330/31	23246329
10	Control Room - NEW SACHIVALAYA (HOME) Block No. 2, Ground Floor, New Sachivalaya, G'nagar	23252957 23252958	23252075
11	Police Commissioner, Ahmedabad	25633636/25630100/ 200/300/400	25630600 25630700
12	Guj. Maritime Board, G'nagar	23224758	23236499
13	G.E.B. Vadodara	0265-2330017	2337918 2338164
14	GSRTC, Ahmedabad (1) Chief Traffic Commercial Manager (2) Transportation Suptdt.	999895089 22801264 (O)	22803057 (F)
15	ISR, Gandhinagar	66739000/66739102	66739028
16	Control Room- GWSSB, Ground Floor, Jalseva Bhavanm GWSSB, Sector-10 A, Gandhinagar.	23220859	23225979
17	Member Secretary, GPCB Paryavaran Bhavan, Sector-10A, Gandhinagar. membersecretarygpcb@gmail.com	23232152	23222784
18	Control Room - FISHERIES 3rd Floor, Block No.10, Old Sachivalaya, Gandhinagar	23253730 23253740	23253730 23253740

I. National Level

1. Disaster Management Division, Ministry of Home Affairs, New Delhi

Sr. No.	Name	Designation	Office	Resi.	Mobile
1	Shri Amit Shah	Hon.Home Minister	011-23092462 011-23094686 23094221 (PH)	23793881 23014184 23012151 (Tele/Fax)	-
2	Shri Rajiv Gauba	Home Secretary	011-23092989 011-23093031 23093003 (Fax)	23011863	9871155114
3	Shri Govind Mohan	Ad Secretary (BM)	23092440 23092717 (Fax)	24670679	9811455220
4	Shri Sanjeev Kumar Zindal	Jt.Secretary (Disaster Management)	011-23438087 23438096	24677927	9999455559 9910391422
5	Shri Rohtash	DIR. (Disaster Management-III)	011-23438071	26265646	9968227714
6	Shri Sudhirkumar Rai	Director (Disaster Management-I) (I/C)	011-23438123 23438071(Fax)	26266708	-
7	Shri Pradipkumar	DS (DM-II)	011-23438154	-	9958200960
8	Shri Surendrakumar Thakur	US. (Disaster Management-III)	011-23438102 011-23438123	-	9868137577
9	Control Room (MHA)		011-23093563, 23092763, 23093450, 23093564 FAX- 011-23092398	-	-

2. National Disaster Management Authority

Designation	Name	Office	Fax	Email Id
Member Secretary	Shri G.V.V. Sarma, IAS (Retd.)	011 26701710	011 26701716	secretary@ndma.gov.in
Member	Shri Kamal Kishore	011-26701740	011-26701754	kkishore@ndma.gov.in
Member	Lt. Gen Syed Ata Hasnain, PVSM, UYSM, AVSM, SM, VSM & BAR (Retd)	011-26701775	-	syedata.hasnain@ndma.gov.in
Member	Shri Rajendra Singh	011-26701738	011 26701754	rajendra.59@ndma.gov.in
Member	Shri Krishna Vatsa	011-26701776	-	krishna.vatsa@ndma.gov.in

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Designation	Name	Office	Fax	Email Id
AS (Policy & Plan)	Dr. V.Thiruppugazh, IAS,	011-26701747	011-26701816	jspp@ndma.gov.in
JS (Admin)	Sh. Ramesh Kumar Ganta, IAS	011-26701718	011-26701864	jsadm@ndma.gov.in
JS (Mitigation)	Sh. Sandeep Poundrik, I.A.S	011-26701710	011-26701713	js-mitigation@ndma.gov.in
Financial Advisor	Shri Ravinesh Kumar	011-26701709	011-26701715	fa@ndma.gov.in
Advisor (Ops & Communication)	Brig. Ajay Gangwar	011-26701886	-	advopscomn@ndma.gov.in
NDMA Control Room		011 26701728 9868891801 9868101885 Helpline No. 011-1078	011 26701729	controlroom@ndma.gov.in ndmacontrolroom@gmail.com

3. Indian National Centre for Ocean Information Services (INCOIS)

Address: Indian National Centre for Ocean Information Services (INCOIS)
"Ocean Valley",
Pragathi Nagar (BO), Nizampet (SO),
Hyderabad - 500 090

Warning Centre Number: 040-23895011

Office: 040-23895000 (9 am-5:30 pm)

040-23895002 (24 hrs)

Fax No.: 040-23895012

Email: tsunami@incois.gov.in

Name, designation & address of the officer	Telephone Number			Fax
	Office	Residence	Mobile	
Dr. T M Balakrishnan Nair Dir. INCOIS Indian National Centre for Ocean information services director@incois.gov.in shenoi@incois.gov.in	23886000 23886002	7842043155	09441013377	23895012
T.Srinivasa Kumar Scientist Incharge, ITWC (Interim tsunami warning centre) srinivas@incois.gov.in	23895006 23886006	65863870	09441229297	23895012
Dr. E.Pattabhi Ram Rao (Data Management Group) pattabhi@incois.gov.in	23895008	23046412	09490191923	23895001
Satyanarayana B.V. Head, CWG bvs@incois.gov.in	23895005	-	09490191670	23895001
Control Room Tsunami warning centre (Operation Centre)	23895011/19 23886064 23886034	-	-	23895019 23895012

4. National Institute of Ocean Technology (NIOT)

Designation	Name	Office	Residence	Fax	E Mail
Dr. M.A.Atmanand Dir NIOT	044-66783301 044066783575	044- 22590391	09444399800	044-22460275	director@niot.res.in atma@niot.res.in

Address: Velachery-Tambaram Main Road,
Narayanapuram, Palikaranai,
Chennai,
Tamil Nadu- 600100
Phone: +91 44 66783300, Fax: +91 44 22460645
Email: postmaster@niot.res.in

5. Army, Air Force and Coast Guard

RAF (Rapid Action Force) Vastral Ahmedabad

No.	Designation	Name	Tel. No.s
1	Control Room		079-29708628
2	Commandant	Shri Puspendrakumar	(M) 9427308730

CRPF (Central Reserve Police Force) Group Centre Gandhinagar

No.	Designation	Name	Tel. No.s
1	Control Room		079-23200769, 23200241- 29750263
2	Range DIG	Shri J.N.Kohli	(O) 079-29750406 (O/F) 079-29750313 (M) 9414007704

Army camp (Ahmedabad)

No.	City	Name	(O)
1	Ahmedabad	Army Exchange- Hanuman Camp	22856251 (Exchnge)
2	Ahmedabad	Major Abhishek GSO-II (Ops.)	(O) 2411(Ext.) (R) 2683(Ext.), (Fax) 22856251, 22861902 Mo. 8006406016

Army camp (Gandhinagar)

No.	City	Name	(O)
1	Gandhinagar	Army Exchange-Chiloda Rod	23201507, 23201503, Ext.2198
2	Gandhinagar	Major Vikrant Sharma	(O) 23200930, (R) 23201117 (M) 8155022787
3	Gandhinagar	Capt. Baxi	(M) 9888657335

Airforce

No.	City	Name	(O)
1	Gandhinagar	HQ SWAC Control Room	23242600, 23242700(Exch.) (M) 9427476071 (F) 23240054/94002, 23240076/88
2	Gandhinagar	Group Captain Vijendran	22869251
3	Ahmedabad	Air Traffic Control	011-23010231, 011- 25687194-97 (F) 011-23011051
4	Delhi	Air HQ	

Coastguard
Address : 7th Floor, Udhog Bhavan, Gandhinagar

No.	City	Name	(O)
1	Gandhinagar	D.I.G. V. Anbarasan	(O)23241717, 23243264 (R) 23244123 (Fax) 23243283 (M) 8826650012
2	Porbandar	D.I.G. I.S.Chauhan	(O)0286-2242450 (Fax) 0286-2210559 (M) 9427505170/ 9099906726
3	Okha	D.I.G. M.K.Sharma Commanding Officer	(O) 2892-262261/60, (F) 02892-263421
4	Veraval	Comdt. A.R.Bhatt Commanding Officer	(O) 2876-241352, (F) 02876-241353 (M)9486128940
5	Mundra	Comdt. (JG) Shri Sisodiya Commanding Officer	(O) 02838-271402/03, (F) 02838-271404 (M)8800229334, 7838986026
6	Jakhau	Comdt. Ashok Kumar Commanding Officer	(O) 02831-294521, (F) 02831-286432 (M)7598404091
7	Vadhinar	Comdt. Raman Kumar Commanding Officer	(O) 02833-256333, (F) 02833- 256560 (M)9099028767

6. India Meteorological Department and Observatories

No.	Name	Desi.	(O)	(R)	(F)	Email ID
1	Dr. Mrutyunjay Mohapatra	Director General of Meteorology, Mausam Bhavan, Lodi Road, New Delhi-3.	011-43824201 011-43824253 011-43824225	9868733464	011- 24611792 24699216	dgm.hg@imd.gov.in
2	Dr.M.Mohapatra	Sc-G Mausam Bhavan, Lodi Road, New Delhi-3.	011-24652484 011-43824304	9868623475	011- 24623220 011- 24699216	-
3	Dr. Medha Khole	D.D.G.M. (WF) I.M.D. Shivaji nagar, Pune	020-25535886	020- 25520680	020- 2553886, 020- 25530201	-
4	Shri K.S.Hosalikar	D.D.G.M. , R.M.C.Mumbai	022-22150517	9167331299	022- 22150517	ks.hosalikar@imd.gov.in

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No.	Name	Desi.	(O)	(R)	(F)	Email ID
5	Shri Vishavmbhar Sing	Director (ACWC) Mumbai	022-22174718 022-22150405 (Fax)	022-28234137 9757218578	022-22184937 022-22130824 022-22154098	-
6	Dr.Jayanta Sarkar	Director, M.C. Ahmedabad I/C	079-22865165 079-22858020	9426805439	079-22865165	mcahm@rediffmail.com
7	Mrs.Manorama Mohanty	Scientist- D, M.C. Ahmedabad	079-22865012 079-22865449	9428909340	079-22865449	metahm01@gmail.com
8	Sh.vigin Lal F.	Scientist- B,M.C.Ahmd.	079-22858020	9604465468 7567288582	079-22865449	
9	Control Room		079-22867206 079-22865449		079-22867206 079-22865449	

7. Airport Authority of India

No.	Airport	Designation & Name	Tel No.(O)/Mobile No./Fax
1	S.V.P.I. Airport, Ahmedabad	Sh. A. K. Verma Offtg. Airport Director	(O)22869211 (M) 9825024022 (F)22863561
2	S.V.P.I. Airport, Ahmedabad	Shift Duty Airport Manager T-1 (Domestic Terminal)	(O)22869266 (M)90999 51141
3	S.V.P.I. Airport, Ahmedabad	Shift Duty Airport Manager T-2 (Domestic Terminal)	(O)22858058 (M)90999 51142
4	S.V.P.I. Airport, Ahmedabad	Shri Sanjesh Kumar, Dy. General Manager (T.M.)	(O) 22885520 (M)9426591975
5	S.V.P.I. Airport, Ahmedabad	Shift Duty Officer Air Traffic Control Tower	(O)22869251
6	S.V.P.I. Airport, Ahmedabad	Shri A. K. Verma General Manager (A.T.M.)	(O) 22863396 (M) 9414166522
7.	S.V.P.I. Airport, Ahmedabad	Sh. Ajay Kumar DGM(HR)/PIO	(O) 22858005 (M) 9512085670
7	Rajkot	Airport Director,Rajkot Airport Shri A.N. Sharma	(O) 0281-2451849 (F) 0281-2453009 (M) 9427207439
8	Vadodra	Airport Director Vadodra Airport Sri Charan singh	(O) 0265-2482228, 2481356, 2486718 (F)2482741,
9	Bhavnagar	Airport Director,Bhavnagar Airport Ms.Sudha.R.Morli	(O) (1) 0278-2212971 (2) 0278-2208226 (M) 91766 70236

8. Western Railway

Security Helpline (Suburban) 1311

Security Helpline (All India) 182

No.	Division	Designation	Landline/CUG/Fax
1	Ahmedabad	Divisional Railway Manager Shri Deepak Kumar Jha	(O)079-22204588 (M)9724093000 (F)22204589
2	Ahmedabad	ADRM Shri Anant Kumar	(O)22204590 (M) 9724090001
3	Ahmedabad	SR. DOM (Operating Dept.) Shri Pavankumar Sing	(O)22204008 (Fax) (M)9724093900
4	Ahmedabad	SR.DCM (Commercial Dept.) Shri Kushagra Mittal	(O)22201990(Fax) (M) 9724093950
5	Ahmedabad	SR.DEN/CO (Eng.Dept.) Shri Lokesh Kumar	(O)22205665 (M)9724093200
6	Ahmedabad	Sr.Divisional Safety Officer Shri A.V.Purohit	(O)22205005 (M) 9724093730
7	Ahmedabad	Station Director/ DOM (General) Shri Narendra Kumar	(O)22203330 (M) 9724093902
8	Vadodara	Divisional Railway Manager Shri Devendrakumar	(O)0265-2638081 (M) 9724091000
9	Bhavnagar	Divisional Railway Manager Shri Prateek Gosawami	(O)0278-2445475 (M)9724097000
10	Rajkot	Divisional Railway Manager Shri Parmeswar Funkwal	(O)0281-2477006 (M) 9724094000
11	Mumbai Central	Divisional Railway Manager Shri G V L Satya Kumar	(O)022-23002977 (M) 9004499000
12	Mumbai Central	Control Room	(O)022-67644615, 9004499936s
13	Mumbai Churchgate	Chief Bridge Engineer Shri Manjul Mathur	(O)022-22015154, (M) 9004490201

Western Railway - Headquarter Office (Mumbai)

Chief Bridge Engineer(Churchgate, Mumbai)	(O) 022-22015154 (M) 9869048946
Chief Controller (Churchgate, Mumbai)	022-22017420, 022-22084287

II. State Level**1. Gujarat State Disaster Management Authority, (GSDMA)**

No.	Name	Designation	(O)	(M)
1	Shri Dilipkumar Viraji Thakor	Minister, Disaster Management	23250127 23250128 23250129 23250306-Fax	9879598166 9978405945
2	Smt. Anuradha Mall, IAS	Chief Executive Officer	23259276	99784 05367 ceo@gsdma.org
3	Shri H.G.Vyas	PS to CEO	23259276	9276800421
4	Shri Victor Mecwan, IAS	Additional CEO	23259451	99099 73692
5	Vacant	Director	23259219	-

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No.	Name	Designation	(O)	(M)
6	Shri Yogita N. Parmar	Director (Finance)	23259278	9925470936
Gujarat Institute of Disaster Management (GIDM)				
1	Shri P.K.Taneja, Retd.IAS	Director General (GIDM)	23275801/804	9978406146
2	Shri Sanjay Joshi	Director (F & A)	232-75811 Fax 232 75814	9978407173

2. SEOC Important Telephone Numbers - (079)

Sr. No.	Name	Designation	Office	Mobile No.
1	Shri T.J.Vyas	Deputy Collector	23251900	9978405741
2	Shri M.B.Desai	Mamlatdar	23251900	6355953084
3	Shri M.D.Trivedi	Mamlatdar	23251900	9979086285
4	Shri P.L.Gothi	Mamlatdar	23251900	9825632758
5	Shri G.P.Bhayani	Deputy Mamlatdar	23251902	9825097079
6	Shri U.V.Rao	Deputy Mamlatdar	23251902	9898029872
7	Shri E.G.Patel	Deputy Mamlatdar	23251902	9714018789
8	Shri Ashok Rathod	Deputy Mamlatdar	23251902	9925222402
9	Shri Sandip Dhadiya	Deputy Mamlatdar	23251902	8000005595
10	Shri Jogidan Gadhavi	Deputy Mamlatdar	23251902	9274480700
11	Shri J.J.Patel	Deputy Mamlatdar	23251902	9016919636
12	Shri R.V.Sakhreliya	Deputy Mamlatdar	23251902	9925140999
13	Shri N.B.Soni	Deputy Mamlatdar	23251902	7622000225
14	Shri M.N.Thakar	Deputy Mamlatdar	23251902	8128147859
e-mail	revcontrol1@gujarat.gov.in / revcontrol2@gujarat.gov.in			
SEOC	(O) 23251900,23251902,23251908			
	(F) 23251912/23251916			

3. 6Bn, NDRF, Chiloda Road, Gandhinagar

No.	Designation	Name	Tel. No.
1	Commanadant	Shri R.S.Joon	(O) 02668-274470, (R)274211 (F)274470 (M) 094288 26445
2	Second Incharge	Shri N.K.K.Prasad	(M) 94273 04217 (o)02668-274460
3	Dy. Commandant (Operational)	Shri Ranvijay Singh	(M)9427050984 (M) 9427304214 (M)8320459958
4	Dy. Commandant (Administrative)	Shri A.K.Singh	(M)9408683543
5	Control Room		02668-274245(F)02668-274470,(M)9723639166,9429469388

4. IMD Regional Offices

Indian Meteorological Department (IMD) Regional Offices

S.No	Location	Phone
1	CDR Bhuj	02832-220007, 250575
2	Veraval	02876-220004
3	Vadodara	0265-2482228
4	Deesa	02744-221178
5	Okha	02892-262129

S.No	Location	Phone
6	Rajkot	0281-2451296
7	Keshod	De function
7	Porbandar	0286-2220955
9	Dwarka	02892-234437
10	Bhavnagar	0278-2209440
11	Surat	0261-2725092
12	Naliya	02831-222201
13	Kandla	02836-257905
14	Bhavnagar (Seismo)	0278-2560451/2 circuit house

5. Institute of Seismological Research

Address: Near P.D.P.U. campus, Raisan village, Gandhinagar

No.	Name	Desi.	(O)	(R)	(M)
1	Dr.M Ravikumar	Director General	66739001 66739015(Fax)	-	8980809115
2	Shri Dr.Sumer Chopra	Director ISR	66739002	-	9426564038 9910414038
3	Shri Santosh Kumar	Scientist-D	66739023	-	99252 43646
4	Data Centre	-	66739000 (F) 66739028	-	-

6. Bhaskaracharya Institute of Space Application & Geo-informatics (BISAG)

No.	Name	Desi.	(O)	(R)	(M)
1	Shri T.P.Singh	Director	23213081/90 (F)23213091	23254846	9909945001
2	Vacant Post	Manager	23213081		
3	Smt. Paru Thakkar	Project Manager	23213081	-	9909945008

7. Information and Communication

Sr. No.	Name & Desination	Office	Mobile	Fax	
1	AIR, Ahmedabad Shri N.R. MEENA, PEx I/C Prog. Head	27540438	9913860467	27540195	ahmedabad@prasarbharati.gov.in
2	CBS,AIR, Ahmedabad Shri Yatin Dave Head of Office	27541597	9427615362	27541597	vbs079@gmail.com
3	AIR, Rajkot Shri Vasant Joshi, Asstt. Director (P)	0281- 2453503/ 2444603	9426987882	2453503	rajkot@air.org.in
4	AIR,Bhuj Dr, Meera Saurab Asstt.Director (P)	02832- 250852 222503	9428156164	252251 250852	akashvanibhuj@gmail.com
5	AIR, Surat Amrapali Desai Asstt. Director (P)	0261- 2232323 2236209	9427104852	2232323 2236209	air.surat@yahoo.com

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Sr. No.	Name & Desination	Office	Mobile	Fax	
6	AIR, Baroda Shri Jagdish Parmar Programme Executive	0265-2643796	9426588866	0265-2642646	cbsvadodara@gmail.com
7	AIR, Godhara Ms Geeta Gida Prog. Executive	02672-241478 241660	9426719679	241478	godhrafm@gmail.com
8	AIR, Ahwa Shri Sailesh Pandya Head of Officer	02631-220295/ 220356	8866557727	026131- 220295	airahwap@gmail.com
9	AIR, Daman Shri Ojas Mankodi Program Executive	0260-2242966	9427214336	2242966	airdamanprog@gmail.com

8. Gujarat Maritime Board

Head Office, Control Room, Gandhinagar 079- 23224758

Fax No. 079- 23236499

DM Cell, Gandhinagar 079-23238346, 23238347, 23238351

Fax No.079- 23236499

Sr. No.	Name of Port	Port Officer	Office	Mobile	Fax No	E mail id
1	Gandhinagar	Capt. Ashwin Solanki, Chief Nautical officer, GMB, Gandhinagar	23234716	9979669659	23234716	solankiashwin@yahoo.com
2	Magdalla	Capt. Rakesh Mishra, Port Officer, 3 rd Floor, BSNL Bhawan, Falsawadi, Nr. Belgium Tower, Surat-395003	0261-2430533	9601254062	0261-2435645	pomagdalla@gmail.com
3	Gandhinagar	Shri Gauravkumar Mehta & Shri Ankur gupta (I/C) Control Room, Head office, Gandhinagar	23238346	9099938014 & 9909954710	23234704	gkmehtaa@gmail.com & ankurgupta.gmb@gmail.com
4	Bharuch	Capt. Kuldeep singh(I/C), Nautical officer & Port Officer, GMB Near ST Bus Stand, Bharuch	02642-241772	9998057507	02642-243140	dahejportoffice@gmail.com

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Sr. No.	Name of Port	Port Officer	Office	Mobile	Fax No	E mail id
5	Bhavnagar	Capt. Sudhir Chhadha, Port Officer, GMB, New Port, Bhavnagar	0278-2210558; 0278-2561221	9925153073	0278-2571221	sudhir_chadha@yahoo.com
6	Alang	Capt. Sudhir Chhadha, Port Officer (I/C) GMB, Alang Ship recycling Yard, Tal. Talaja, Dist. Bhavnagar, ALANG	02842-235621	9925153073	02842-235955	alanggmb@yahoo.com
7	Jafrabad	Capt. Sudhir Chhadha, (I/C) Port Officer GMB, Jafrabad Port, Dist. Amreli	02794-245443	9925153073	02794-245165	gmbpojfd@gmail.com
8	Veraval	Capt. Arvind Kumar Mishra, Port Officer(I/C), Gujarat Maritime Board Veraval Port, Veraval	02876-221139; 02876-220001	9099694747	02876-243138	poveraval@gmail.com
9	Porbandar	Capt. Banshiva Ladva, I/C Port Officer, Gujarat Maritime Board, Vaghswari Plot, Port Colony No-1, Porbandar port, Porbandar.	0286-2242404	9825412186	0286-2253664	popbr1@rediffmail.com
10	Jamnagar	CAPT. Banshiva Ladva Port Officer, GMB, GMB Complex, Jamnagar	0288-2712307	9638112186	0288-2712815	pojam.gmb@gmail.com
11	Navlakhi (Morbi)	Capt. Niraj Hirwani, Pilot officer, Near Rly. Crossing, Char Godown, Morbi	02822-227304	9558801612	02822-234465	<u>pfsonavlakhi@gmail.com</u>
12	Okha	CAPT. R.K.Raman, Port Officer, GMB, Okha Port, OKHA	02892-262109	9925153038	02892-262002	portofficerokp@gmail.com
13	Mandvi	Shri R.C.Patel, Port Officer, I/C Mandvi Port, Mandvi.	02834-222633	9925153083	02834-230033	pomgmb@yahoo.co.in

9. Telecommunication

No.	Name	Desi.	(O)	(R)	(M)
1	Shri Hemang Purohit	DS(IT)	23250438	-	9978405941
2	Shri Kamlesh Raval	Communication Engineer (IT)	26440908	-	9825045169
3	BSNL. Gandhinagar	Shri Kamle General Manager	23248555 23229390	-	8275711100
4	BSNL. Gandhinagar	Shri R.Kumar Divi. Eng. (External)	23249555	-	9426604777
5	BSNL. Gandhinagar	Shri Shashank Johri Commercial Officer	23240999 23220500	-	9427319900
6	BSNL. Gandhinagar	Shri J. S. Patel DGM. BSNL	232229191	23246848	9408597879
7	BSNL. Ahmedabad	Shri K.R.Shah AGM(OP) BSNL	079-26481260	26481420	9426622244
8	Vodafone	Head (Admin & Safty) rajesh.roy2@vodafone.com	079-26577228 079-71716001	-	-
9	Bharti Airtel	Anant Arora Gujarat Head, Bharti Airtel	-	-	9979999221
10	Tata Docomo	Niraj Mehta Dy.General Manager	-	-	9033076800
11	Idea	Punit Krishnan Manager (Facility & Admin)	079-66714000	-	9824004701

III. District Level

1. GSWAN Network

GSWAN Control (Help)		777
Sr. No.	District Name	Code
1	Ahmedabad	2000
2	Amreli	2200
3	Anand	2300
4	Banaskantha	2400
5	Bharuch	2500
6	Bhavnagar	2600
7	Dahod	2700
8	Dang	2800
9	Gandhinagar	2900
10	Jamnagar	3000
11	Junagadh	3100
12	Kheda	3200
13	Kutch	3300
14	Mehsana	3400
15	Narmda	3500
16	Navsari	3600
17	Panchmahal	3700
18	Patan	3800
19	Porbandar	3900
20	Rajkot	6000
21	Sabarkantha	6100

GSWAN Control (Help)		777
Sr. No.	District Name	Code
22	Surat	6200
23	Surendranagar	6300
24	Vadodara	6400
25	Valsad	6500
Sr. No.	Local Office	Extn.No.
1	Collector	123
2	RDC	132
3	Pa to Collector	123
4	Add. Collector	121
5	Dist. Planning Officer	124
6	Election Department	125
7	Disaster Management	100
8	Dist. Supply Officer	126
9	PRO Branch	127
10	Chitnis	128
11	Home Deppartment	129
12	Mid Day meal Office	130
13	MDC	131
14	GSWAN Coordinator	133
S. No.	Other Office	Extn.No.
1	DSP (Rural)	200
2	DDO & Panchayat	201
3	Prant Office	202
4	Mamlatdar Office (City)	203
5	Civil Surgen	204
6	Civil Survey Office	205
7	DILR	206
8	Dist. Indust. Office	207
9	RTO	208
10	Social Walfate	209
11	DEO	210
12	Dist. Cout	211
13	Dist. Register	212
14	Dist. Mahiti Office	213
15	Stamp Duty	214
16	LAQ (SSNL)	215
17	Geology & Mining Office	216
18	Forest Office	217
19	Waher Supply	218
20	R & B	219

2. Ahmedabad(STD Code :-079)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Shri K.K.Nirala	27551681	22863598	9978406201	27552144	collector-ahd@gujarat.gov.in
2	Police Commissioner	Shri Aashish Bhatiya	25633434, 258865511	26924972	9978406258	25630600	cp-ahd@gujarat.gov.in
3	Municipal Commissioner	Shri Mikesk Kumar	25352828, 25391811	-	9978405060	25354638, 26841203	mc@ahmedabadcity.gov.in
4	D D O	Shri Arun MaheshBabu	25506487	-	9978406226	25511359, 25511289, 25507762	ddo-ahd@gujarat.gov.in
5	DSP (Rural)	Shri Rajendra Asari	26890440	-	9978406342	22686145	spsp-ahd@gujarat.gov.in
6	Resi. Addl. Collector	Shri H.M.Vora	27551682	-	9978405173	27552144	addl-collector-ahd@gujarat.gov.in
7	DRDA	Shri Pankaj Ondhiya	26643148	-	9978407442	26643147	-
8	ARDC	Shri Y.D.Gohil	27551047	-	9978405198	27552144	addrdc-ahd@gujarat.gov.in
9	DSO	Shri Kajalben Tuvor	27551691	-	9687361449	27552144	dso-ahd@gujarat.gov.in
10	Dy. DDO (Revenue)	Shri G.D. Prajapati		-	9428001131	25507152	-
11	CDHO	Dr. S.K.Patel	25501204	-	9099064001/ 9099064799	-	cdho.health.ahmedabad4@gmail.com
12	DEO, City	Shree R.C.PATEL	27912966	-	9909970201	-	ahmcdeo@gmail.com
13	DEO, Rural	Shree Rakesh Vyas	27913264	-	9909970202	27910571	ahmrdeo@gmail.com
14	DPEO	Shri N.M.Patel	25507126	-	9909971649	25501956	dpeo.ddo.ahd@gmail.com
15	Dy.Muni.Commi. (C.Z.)	Shri V.K.Mehta	25391811	27436318		22160774	vkmehta@ahmedabadcity.gov.in
16	Dy. Muni.Commi.(E.Z.)	Shri Om Prakash	22970500	27543419		25353114	

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
17	Dy. Muni.Commi.(N.Z.)	Shri K.B.Thakkar	22801182	22800803		22804912	-
18	Dy. Muni.Commi.(S.Z.)	Shri R.K.Mehta	25465255	26460622		25452253	-
19	Dy. Muni.Comi. (N.W.Z.)	Shri Mukesh Gadhvi	26841201			26841203	
20	Dy.Muni.Commi. (W.Z)	Shri Nitin Sangvan	27552586	26600438		27551163	
21	Shasanadhikari	Dr. L.D.Desai	26427014	22977998	9375687555 9879313109	26460576	aoschoolboard@gmail.com
22	General Manager DIC	Shri R K Vasava	25508339	-	9904094573	25502801	gm-dic-ahd@gujarat.gov.in
23	<u>Dy.Dir.Info</u>	Shri R.B. Kher	25501123 26308405 22681375	-	9978405783 9106678817	-	dbcwo-ahd@gujarat.gov.in
24	Chief Fire Officer	Shri M. F. Dastoor	22148466/6 7/68		9327038754		mfdastoor@gmail.com
25	Control Room Mam.Disa.	Shri Priti M.Patel	27560511	-	7436063785	27552144	dismgmt-ahd@gujarat.gov.in
26	DPO	Shri Prashant Makwana	27560511	-	9825498315	27552144	prashant.makwana@yahoo.co.in

3. Amreli (STD Code :02792)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Shri Ayush Oak	222307	222301	9978406202	22210	collector-amr@gujarat.gov.in
2	SP	Shr Nirlipt Rai	222333	222424	9925143505	222711	sp-amr@gujarat.gov.in
3	D D O	Shri Tejas Parmar (IAS)	222313	222431	9974806227	222378	ddo-amr@gujarat.gov.in
4	DSP (Rural)	Shri M.S.RANA	222797	222094	9978407960	-	sp-amr@gujarat.gov.in
5	Resi. Addl. Collector	Shri A.B.Pandore	228903	228913	9978405203	222589	add-collectoramr@gujarat.gov.in
6	DRDA	Shri P.M.Dobriya	223563	222286	7567031983	222022	drdaamreli@yahoo.com
7	DSO	Shri M.M.Barasra	222807	231322	9428280084	231322	dso-amr@gujarat.gov.in
8	Dy. DDO (Revenue)	Shri Y.P.Joshi	223546	-	7567017226	222378	dyddo-amr@gujarat.gov.in
9	CDHO	Shri H.F.Patel	232344	-	9727779661	222115	dso.health.amreli@gmail.com
10	DEO, City	shriM.G.Prajapati	222936	-	9909970203	-	deoamreli@gmail.com
11	DPEO	Shri C.M.Jadav	222109		9909970203	222109	dpeoamreli@gmail.com
12	General Manager Dic	Shri P.B.Patel	222529	2630325	8128991427	220152	gm-dic-amr@gujarat.gov.in
13	Dy.Dir .Info	Shri B.S.Basia	222529	223837	9226232134	221780	amrelisse@gmail.com
15	Mam-Disaster	Shri B.K.Pandya	230735		9429585891	221600	dismgmt-amr@gujarat.gov.in
16	DPO -DisasterManagement	Miss Mansi Singh	230735		8319460485	221600	dismgmt-amr@gujarat.gov.in

4. Anand (STD Code : 02692)

Designation	Name	Phone Numbers (Code No.)			Email Id
		Office	Fax	Mobile	
Collector	Shri R G Gohel	268 262271	261575	9978406203	collector- and@gujarat.gov.in
SP	Shri Ajit Rajiyan	2692 260027	260623	9978405064	sp-and@gujarat.gov.in
DDO	Shri Ashish Kumar	2692	263895	9978406228	ddo- and@gujarat.gov
RAC	P C THAKOR	264110 263873		9978405175	rdc- and@gujarat.gov.in
CDHO	Dr. M D Chari	269253 277		7567870001	cdho.health.anand@g mail.com
DPEO	Shri Nivedita Chaudhary	26292 263205		9909971653	dpeoanandl@gmail.c Om
Executive Engineer , State, R&B	Shri Hanubhai Rathod	2692 260455	26532	9879529103	eenbanand@gmail.com
Executive	Shri Nikhil Popat	2692	261597	9601940005	arbcee@gmail.com
Engineer, Panchayat, R&B		261597			
Chief Fire Officer	Shri Dharmesh Patel	2692 243101	244881	7574831711	anand_nagarpalika@ hoo.co.in ya
Factory Inspector	Shri J J Patel	2692 264396	264396	9638233484	Astdish- and@gujarat.gov.in

Designation	Name	Phone Numbers (Code No.)			Email Id
		Office	Fax	Mobile	
Mamlatdar	Shri	2692	266193	9099041102	dismgmt-
DM	Maheshwari Rathod	243222			and@gujarat.gov.in
DPO	Shri V S Tiwari	2692	266193	7878128303	dismgmt-
		266193			and@gujarat.gov.in
Red Cross	Shri Suresh Gami			9426182556	Sureshgami_2@rediffmail.
Secretary					com

5. Arvalli (STD Code : 02774)

Sr.No.	Designation	Name	Office	Resi	Mobile	Fax	E mail ID
1	Collector	Shri Amrutesh Aurangabadkar	02774-250200	247804	9978405935	250202	collectoraravalli@gmail.com
2	DDO	Shri Anil Dhameliya	02774-241544	241488	9978406496	240744	ddo.arvalli@gmail.com
3	DSP	Shri Mayur Patil	02774-248666	248415	9978405978	248406	dysp-hq-arv@gujarat.gov.in
4	Resi. Addi. Collector	Shri R.J.Valavi	02774-245800	241802	9727756393	250202	collectoraravalli@gmail.com
5	Director DRDA	Shri B.D.Davera	02774-240433		9979877055	246461	drda.arvalli@gmail.com
6	DSO	i/C Shri S.G.Parmar	02774-243001		9387667563	250202	dsoarvmodasa@gmail.com
7	DY.DDO	Smt.R.D.Barot	02774-250034		9979895007		dyddomhl@gmail.com
8	CDHO	Dr Amarnath Verma	02774-248911		7575800951		cdho.health.arvalli@gmail.com
9	DEO	smt G.H.Patel	02774-250190		7574812280		aravallideo@gmail.com
10	DPEO	Shri A.K.Modh	02774-250190		7567029560		dpeoarvalli@gmail.com
11	General Manager DIC	Shri D.D.Solanki	02774-250182		9974171249		gm-dic-ara@gujarat.gov.in
12	Dy.Director Info.	I/C Shri Hareh Parmar	02774-240948		9687609143	248444	aravallimedia.dmooffice@gmail.com
13	Fire Officer Modasa	Shri Divynag Bhatt	02774-246209		9427698947	248209	np_modasa@yahoo.co.in
14	Mamlatdar Disaster		02774-250221			250202	disaster.arvalli@gmail.com
15	DPO (GSMDA)	I/C Shri.K.B.Patel			9974332782		kanupatel11@gmail.com

6. Banaskantha (STD Code: - 02742)

Sr.No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Shri Sandip Sangale	257171	257007	9978406204	252740	collector-ban@gujarat.gov.in
2	D D O	Shri Ajay Dahiya	254060	253029	9978406229	252063	ddo-ban@gujarat.gov.in
3	DSP (Rural)	Shri Tarun Duggal	257015	257014	9978405065	252190	sp-ban@gujarat.gov.in
4	Resi. Addl. Collector	Shri L B. Bambhaniya	254004	254311	9978405176	252740	rdc-ban@gujarat.gov.in
5	DRDA	Shri R. V. Vala	260004	264002	9925042038	-	drdabanas@gmail.com
6	DSO	Shri S.G. Chavda	254309	254289	7567021929	-	dso-ban@gujarat.gov.in
7	Dy. DDO (Revenue)	Shri A.D. Chauhan	257087	-	9925375859	257445	dyddo-vikas-ban@gujarat.gov.in
8	CDHO	Shri Dr. Manish Fency	250004	-	9727730004	-	cdho.health.banaskantha@gmail.com
9	DEO	Shri J P Prajapati (i/c)	257055	-	9909970210	-	bns-deo@gmail.com
10	DPEO	Shri J P Prajapati	257063	-	9909971654	-	dpeobanaskantha@gmail.com
11	General Manager DIC	Shri P.P. Trivedi	254307	-	9824260270	-	gm-dic-ban@gujarat.gov.in
12	Dy. Dir. Info	Shri D P Rajput	252664	-	9427514033	-	cdmo.ban@gmail.com
13	Control Room Mam. Disaster	Shri. Hiteshbhai Chavda	250627	-	8758645586	252740	dismgmt-ban@gujarat.gov.in
14	D.P.O – Disaster	Shri Sanjaykumar.N. Chauhan	250627	-	9537511458	252740	sanjaykumarchauhan91@gmail.com

7. Bharuch (STD CODE:02642)

Sr.	Designation of the Officer	Name of officer	Telephone Numbers		
No.			Office	Residence	Mobile
1	Collector	Dr.M.D. Modiya	240600	223701	99784 06205
			244500	223703	
2	P.A. to the Collector	Shri P B Purohit	240600		99247 95935
3	Resident Additional Collector	Shri J D Patel	222332	221050	99784 05177
4	District Supply Officer	Shri I.J. Gamit	241,500		75670 21674 99258 98191
					collector-bha@gujarat.gov.in
					add-collector-bha@gujarat.gov.in
					dso-bha@gujarat.gov.in

Sr.	Designation of the Officer	Name of officer	Telephone Numbers		
			Office	Residence	Mobile
No.					
5	District Supply Mamlatdar, GSCSC	Shri T C Patel	241799		63599 45824 9924204677
6	Deputy Collector - MDM	Smt Rasilaben Rayaka	240045		75670 21674,99250 07390
7	Deputy Collector - Election	Shri Bhogayata	242751		99784 05290
8	Asst. Commissioner Land Acqui.Cell, SSPA, Bharuch	Shri H.M. Rathwa			
9	Chitnis	Shri Kamlesh Chaudhari	220600		99784 23014
10	Additional Chitnis	Shri M R Vyas (I/c.)	243514		99091 18307
11	Extra Chitnis	Shri Jignesh Bhingaradia (I/c.)	243499		94268 93999
12	Disaster Mamlatdar(I/c)	Shri Kamlesh Chaudhari	243751		99747 60173
13	District Project Officer, GSDMA	Saibal Sarkar		26421077 (Toll Free)	99091 18307
14	Mamlatdar (RTS)	Shri Kamlesh Chaudhari I/C	242300		siiyani@gmail.com
15	Mamlatdar (Election)	Shri P J Somani (I/c)	265050 242300		9717393310
16	Public Relation Officer	Shri Kamlesh Chaudhari	243514		99091 18307
17	DMO, DUDA	Shri Sanjay Soni			9737675251
18	JTP, BAUDA	Shri Atul Dandavade	243599 264700 222075 222074		99091 18307 95740 07002 98243 33070

Sr.	Designation of the Officer	Name of officer	Telephone Numbers		
			Office	Residence	Mobile
No.					
19	Accounts Branch	Shri Rajesh Mehta	243599		9427585332
20	P.R.O. (I/c)	Shri Kamlesh Chaudhari I/C	243599		99091 18307
20	DIO - NIC - Computer Centre	Shri Pallav Kendurkar	242544		94291 09472
21	Dist. Proj. Manager (DST)	Anand Nadurbarkar			9510878159 81606 50978
22	GSWAN Control Room	Shri Divyesh Shri Milin			99094 15995 9998668257
23	Spl. L.A.O., Bharuch (I/c)	Shri R K Bhargava I/C	240900		75670 11411
24	Spl. L.A.O., ONGC, Ankleshwar (I/c)	Shri R.K. Bhagora	237562		75670 11436
25	Inspector Registration	Shri S J Karthiya			94277 04343
	Sub Registrar, Bharuch	Shri K J Patel	241458 260401		9638185489
27	Sub Registrar, Jambusar	Shri Nilesh B Shah			76005 02661 98259 58975
28	Assistant Geologist	Shri Keyur Rajpura	260043		94083 84893
	Assistant Geologist I/c	Sunita Aroda			97277 06371
	Superwiser Geolist	Nishant Ghogari			8238696887
29	Deputy Collector, Stamp Duty (I/c)	U N Jadeja	240650		9726512588
	Stamp Inspector	S N Patel	240650		9427945750

Sr. No.	Designation of the Officer	Name of officer	Telephone Numbers		
			Office	Residence	Mobile
30	District Planning Officer	Shri I G Patel	240771		9427678984
	Research Officer Bharuch Planning Officer	Shri N K Shah			82000 85950
31	Project Administrator, TSP, Bharuch	Shri J.P. Asari	222232		94272 34099
			222331		
32	Spl. LAO, Narmada Yojana	Shri A.V. Dave	228550		98253 18118
33	Spl. LAO, Karjan Yojana (I/c)	Smt Rasilaben Rayaka	221238		99250 07390
34	Aadhar Card Branch (UAID) (I/c)	Shri A S Trivedi (I/c.)	268872		7778031188

8. Bhavnagar (STD Code :- 0278)

No.	Designation	Name	Phone Numbers (Code No.)		Email
			Office	Mobile	
1	Collector	Shri Gaurang Makwana	0278 2428822	9978406206	collector-bav@gujarat.gov.in
2	Municipal Commissioner	Shri M.A. Gandhi	0278 2510532	9978403000	comm@bmc.gujarat.gov.in
3	DDO	Shri Varunkumar Baranval	0278 2426810	9978406231	ddo-bav@gujarat.gov.in
4	SP	Shri Jaypalsinh Rathore	2782520050	9978405067	sp-bav@gujarat.gov.in
5	DCF, Forest	Dr. Sandip Kumar	0278 2428644	9913144339	
6	RAC	Shri Umesh Vyas	0278 2421881	9978405178	add-collector-bav@gujarat.gov.in
7	DSO	Bhumika Koriya	0278 2428908	7567021670	dso-bav@gujarat.gov.in
8	Dy. Controller, Civil Defence	B.H.Talati	-	9925228838	
9	Mamlatdar DM	Hetal Makwana	0278 2521555	9429222522	dismgmt-bav@gujarat.gov.in
10	DPO GSDMA	Dimpal Teraiya	0278 2521554	9824438275	teraiya.dimpal.89@gmail.com
11	Superintendent Civil Hospital	Dr. Vikas Sinha	0278 2423250	9879579193	
12	CDHO	A.K.Taviyad	0278 2423665	9727779662	
13	DPEO	K.D. Kansagara	0278 2523582	9909970212	
14	Executive Engineer (Irrigation), Panchayat	D.R.Patel	0278 2430155	9825352556	
15	Executive Engineer (R&B), Panchayat	D.R.Patel	0278 2422548	9825352556	
16	Executive Engineer (R&B), State	D.L.Mer	0278 2423383	9825819776	
17	Superintending Engineer- PGVCL	J.M.Rathod	2433043	9879203840	
18	District Agriculture Officer	S.R.Kosambi	0278 2439931	7600530340	
19	Dy.Director-Animal Husbandary	B.M.Shah	0278 2524376	9426936997	
20	Chief Fire Officer-BMC	Dr. Mahesh Hirpara	0278 2430061	9727712177	

No.	Designation	Name	Phone Numbers (Code No.)		Email
			Office	Mobile	
21	Deputy/Assistant Director Industrial Health & Safety	Y.M.Patel	0278 2428473	9099046683	
22	Regional Officer-GPCB	K.R. Upadhyay	0278 2524108	9427307949	
23	District Homeguard Commandant	Shambhusinh Sarvaiya	0278 2423011	9998613672	
24	District Education Officer	N.G. Vyas	0278 2426629	9909971655	
25	Dy. Director-Information Department	J.B. Vasaiya	0278 2424994	9099962079	
26	Ass. Director, Fisheries	Smt. S.A. Bhardiya	0278 2427567	9426466624	
27	Airport-Director	Sudha R. Murli	0278 2212971	9427211500	
28	DRM-Railway	Pratik Goswami	0278 2445475	9724097000	
29	Divisional Controller-State Transport	P.M. Patel	0278 2422699	9998953211	
30	Port Officer	Shri Mishra	02842 235621	9099694747	

9. Botad (STD Code: 02849)

Sr.No.	Designation	Name	Office	Resi	Mobile	Fax	Email
1	Collector	Mr. Vishal Gupta (IAS)	02849-271301	-	9978405931	02849-271304	collector.botad@gmail.com ; collector-botad@gujarat.gov.in
2	S.P.	Mr. Harshad Mehta (G.P.S)	02849-231400	-	9978405988	02849-231405	sp-botad@gujarat.gov.in
3	D D O	Mr. Lalit Narayan (IAS)	02849-255222	-	9978406493	02849-255333	ddo.botad@gmail.com
4	Dy.SP	Mr. R.N.Nakum	02849-251416	-	9978407988 9825488608	02849-251416	sdpo-botad-bav@gujarat.gov.in
5	Resi. Addl. Collector	Mr. B.N. Patel (G.A.S)	02849-271307	-	9727758035	02849-271304	addl-collector-bot@gmail.com
6	DRDA	Mr. I.V.Desai (I/C)	02849-271621	-	9913625642	-	drda-botad@gmail.com
7	DSO	Mr. A.D. Miyatra (I/C)	02849-271324 02849-271425	-	9727366843	02849-271304	dso.collectorbotad@gmail.com
8	Dy. DDO (Revenue)	Mr. I.V.Desai (G.A.S)	02849-231530	-	9913625642	02849-255333	dyddoesbotad@gmail.com
9	CDHO	Dr. J.S. Kanoriya (I/C)	02849-231534	-	6359661011	-	cdho.health.botad@gmail.com
10	DEO	Su.D.J.Patel	02849-271327	-	7574812276	-	botaddeo@gmail.com
11	DPEO	Mr. S.J.Dumaraliya	02849-271387	-	9925292171	-	dpeobotad@gmail.com
12	Shasanadhikari	Mr.P.D.Mori	02849-242713	-	9737957757	-	botadmsb@gmail.com

Sr.No.	Designation	Name	Office	Resi	Mobile	Fax	Email
13	General Manager DIC	Mr.J.D.Ninama	02849-271612	-	8460827541	---	gm-dic-bot@gujarat.gov.in
14	Dy.Dir. Info	Mr. D.P.Pandya (I/C)	02849-271350-	-	9879537553	02849-271353	mahitibotad2014@gmail.com
15	Fire supervizer	Mr.Udayraj khachar	02849-252420	-	6354556654	---	np_botad@yahoo.co.in
16	Control Room Dy.Mam.Disa.	Mr. M.B.Mesariya	02849-271340 02849-271341	-	9925139009	---	collector.botad@gmail.com; disas.collector@gmail.com
17	Mamlatadar - 2	Mr. G.A.Rathod (I/C)	02849-271340 02849-271341	--	8780245300	---	collector.botad@gmail.com; disas.collector@gmail.com
17	DPO(Disaster)	Mr. Prashant Makwana I/C (Ahmedabad)	-	-	9825498315	---	-

10. Chota Udepur (STD Code : 02669)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Shri Sujal J Mayatra, IAS	233003	233003	9978405937	233002	collector-cho@gujarat.gov.in
2	DSP	Shri M.S.Bhabhor(IPS)	233077		9978405977		control-sp-cpr@gujarat.gov.in
3	D D O	Shri Mihir Patel, IAS	233050	240005	9978406468	233251	ddochhotaudepur@gmail.com
5	DSP (Rural)	Shri J.G.Chavda	233104		9978408194		
6	Resi. Addl. Collector	Shri K.S.Vasava	233004		7574953262	233002	collector-cho@gujarat.gov.in
7	DRDA	Shri.P.A.Gamit	232755		9909289180		drdachhotaudepur@gmail.com
8	DSO	Miss.Ankita K. Parmar(GAS)	232626		9925007405		dsochhota@gmail.com
9	Dy. DDO (Revenue)	Shri P.M.Acharya	233023		9925045103		daochhotaudepur@gmail.com
10	CDHO	Shri M.R.Chaudhary			9426770602		dhho.health.chhotaudepur@gmail.com
11	DEO	Shri.B.D.Bariya	232137		9909976194		deochhotaudepur@gmail.com
12	DPEO	Shri.B.D.Bariya	232137		9909976194		dpochhotaudepur@gmail.com
13	General Manager DIC	Shri P.B.Patel	233640		8128991427		gm-dic-chh@gujarat.gov.in
14	Dy.Dir.Info	Shri.C.F.Vasava			9978440878		infochhota@gmail.com
15	Chief Fire Officer	Shri Shivhari Sharma	232059		9737282888		Np.cudepur@yahoo.com
16	Control Room Mam.Disa.	Miss.Riddhi K Parmar	233,022,233,021		9428832579		disasterchhotaudepur@gmail.com
17	DPO	Miss Kinjal D. Pandya	233,022,233,021		9426185224		pandyaakinjal@gmail.com
					8200688146		disasterchhotaudepur@gmail.com

11. Dahod (STD Code:02673)

Sr. No.	Designation	Name	Office	Mobile	Fax	Email ID
1	Collector	Shri Vijay Kharadi- IAS	239001	9978406207	239005	collector-dah@gujarat.gov.in
2	D D O	Shri Ruchit Raj-IAS	293066	9978406232	293066	ddodahod@gmail.com
3	DSP (Rural)	Shri Hitesh Joysar-IPS	222300	9978405068	220800	dahodsp@gmail.com
4	Resi. Addl. Collector	Shri M J Dave-GAS	239111	9978405179	239005	racdahod@gmail.com
5	DRDA	Shri C B Balat-GAS	239055	7567033431	239050	drdadahod1@gmail.com
6	DSO	Shri V A Khant-GAS	239250	1567022178	239250	dsodahod@gmail.com
7	Dy. DDO (Revenue)	Smt.N P Patdiya	239150	9879373813		dyddorevdahod@gmail.com
8	CDHO	Shri R D Pahadiya	239130	7567895134		cdmodahod@gmail.com
9	DEO, Rural	A B Prajapati	239100	9909970224		deodahod1@gmail.com
10	DPEO	Shri B D Patel	239113	9909971662		dpeodahod@gmail.com
11	General Manager DIC	Shri J B Dave(i/c)	266086	7567020896	267416	gm-dic-dah@gujarat.gov.in
12	Dy.Dir.Info	Shri	239242			ddinfodahod@gmail.com
14	Control Room Mam.Disa.	Shri P B Kunbhani	239277	9879836437	239277	dismgmt-dah@gujarat.gov.in

12. Devbhoomi Dwarka (STD Code: 02833)

S. No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
1	Collector	Shri Dr. Narendra Kumar Meena (IAS)	232803	232456	9978405933	232102	collector-devbdwarka@gujarat.gov.in
2	D D O	Shri D.J. Jadeja (IAS)	235947	-	9978406492	235947	ddo-dev@gujarat.gov.in
3	SP	Shri Rohan Anand(IPS)	233223	-	9978405976	232002	sp-jam-dbdwarka@gujarat.gov.in, spdevbhumi@gmail.com
4	Resident Additional Collector	Shri K.M. Jani	232620	-	9727763794	232102	addl-collector-dev@gujarat.gov.in

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S. No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
5	Director-DRDA	Shri. Y. D. Shrivastava (I/C)	235947	-	9825262319	-	drda.dwarka@gmail.com
6	Executive Engineer, R & B (State)	Shri J. R. Ojha	02883-2550362	-	9426464610	2678 106	rmb-jam@gujarat.gov.in
7	Executive Engineer, R & B (Panchayat)	Shri A.J. Chauhan	234211	-	9825873849	-	eedwarka@yahoo.com
8	Executive Engineer, GWSSB	Shri P. M. Nagar	234781, 235765	-	9978406618	-	eedbgsswb1@gmail.com
9	DSO	Shri. P.B. Manguda	235990	-	9687888998	2321 02	supp-devbdwarka@gujarat.gov.in
10	Dy. DDO (Revenue)	Shri. Y. D. Shrivastava	235947	-	9825262319	-	dy.ddo.gen@gmail.com
11	CDHO	Dr. R. B. Patel	234001	-	9099900607	2671 097	cdho.health.dwarka@gmail.com , dpmcc.health.dwarka@gmail.com
12	DEO	Shri B.H Vadhel (I/C)	235976	-	7567806316, 7069008475	-	deodevbhumidwarka@gmail.com
13	DPEO	Shri B.H Vadhel	236376	-	7567806316, 7069008475	-	dpeodevbhumidwarka@gmail.com
14	RO-GPCB	Shri B.G. Sutreja	0288-2752366	-	7574827580	-	ro-gpcb-jamn@gujarat.gov.in
15	ARTO,	Shri V.S. Chauhan	233300	-	9586571977	-	arto-trans-dbd@gujarat.gov.in
16	PO-GMB, Okha	Captain Neeraj Hiravani	02892-262001, 262049, 262039	-	9512200035	2620 02	portofficerokp@gmail.com
17	Superintendent of Fisheries	Shri Rahul Lashkari	02892-262076	-	9724268863	-	asfokha@gmail.com
18	Assistant Director, Industrial Safety & Health	Shri B. S Patel	0288-2678206	-	9408872078	-	ad4-dish-brd@gujarat.gov.in astdish-jam@gujarat.gov.in
19	General Manager DIC	Shri P.B Patel	2670380	-	9106540764	2660 392	gm-dic-dbd@gujarat.gov.in
20	Dy. Director Information	Smt U.J. Kotak	235932	-	9067393800	2320 73	informationdev dwarka@gmail.com
21	Executive Engineer-PGVCL, Khambhaliya Division	Shri M.G. Chavada	234791/94 O.236963 FAX.235088	-	9879200762	-	de1khdo.pgvccl@gebmmail.com hrijmnhdo.pgvccl@gebmmail.com
22	Executive Engineer-PGVCL, Dwarka Division	Shri M.A. Vghela	02892-234610	-	7567109172	-	ee.dwarkado.pgvccl@gebmmail.com

S. No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
23	Assistant Director, Industrial Safety & Health	Shri B. S Patel	0288-2678206	-	9408872078	-	ad4-dish-brd@gujarat.gov.in astdish-jam@gujarat.gov.in
24	Disaster Mamlatdar	NA	232183, 232125, 232084	-	-	2321 02	disa-devbdwarka@gujarat.gov.in
25	District Project Officer-GSDMA	Shri Mohit Sisodiya	232183, 232125, 232084	-	9407115141, 8770399561	2321 02	disa-devbdwarka@gujarat.gov.in

13. Gandhinagar (STD Code :079)

Sr.No.	Designation	Name	Office no.	Mobile	Fax	Email ID
1	Collector	Shri kuladip aary	23259030	9978406209	23256949	ddo-gnr@gujarat.gov.in
2	Police Commissioner	Shri Mayur chavad	23210901	9978405070	23210906	sp-gnr@gujarat.gov.in
3	Municipal Commissioner	Dr.Ratankanvar H.gadhavicharan	23220440	9978445135	23221419	gmc8gandhinagar@gmail.com
4	D D O	Shri R.R.Raval	59035	9978405181		ddo-gnr@gujarat.gov.in
5	D.I.G.P Gnadhinagar	Mayankshih chavada	23222618	9978406999		-
6	Resi. Addl.Collector	shri.H.M.Jadeja	23259035	9978405181		rdc-gnr@gujarat.gov.in
7	DRDA	shri.harsh.yadav	9408600045	9978499101		drda.gnr@gmail.com
8	DSO	shri nirupa Gathvi	59182	8460152641		-
9	Dy. DDO (Revenue)	shri Vadar	23244721			ghengineer@ugvclmail.com
10	CDHO	Dr.M.H.Solnki	-	9909942202		
11	DEO -Gadhinagar	Dr.Bharat.Vather	56955	9909970227		dpeogandhinagar@gmail.com
12	DPEO	Archna.V.prajapati		9909997167		distaff-sahyog-sjc@gujarat.gov.in
13	Shasanadhikari	Kiran Patel	-	9978011701		shasandhikarigar@gmail.com
14	Dy.Muni.Commi.	P.C.Dave	-	9978407123		gmc8gandhinagar@gmail.com
15	Dy.Dir manager Dic	Vargish Abraham	-			
16	General Manager DIC	Rikesh shah	-	9879054980	-	-
17	Chief Fire Officer	Mahesh.modh	23971335	9427955551		
18	Control RoomDy Mam.Disa.	R.C.Rao	-	9898040585	-	
19	DPO (GSDMA)	megha rabari	-	8160439782	-	megharabari96@gmail.com

14. Gir Somnath (STD Code-02876)

Sr. No.	Designation	Name	Office no.	Resident	Mobile	Fax	Email ID
1	Collector	Shri Ajay Prakash	02876-285001	02876-240005	9978405934		collectorgirsonnath@gmail.com
2	D.D.O	Shri.D.B.Rahevar	02876-285255	-	99784 06495	249255	ddo.girsonnath@gmail.com
3	D.S.P.	Shri. Rahul tripathi	02876-222250	-	9978405974	222110	sp-gir@gujarat.gov.in
4	R.A.C	Shri.B.S.Prajapati (IC)	02876-285003	-	9727756448	-	-
5	D.R.D.A.	Shri.Dr.B.S.Prajapati	02876-245271	-	8849152853	-	drdagirsonnath@gmail.com
6	D.S.O.	Shri.Sushil Parmar	02876-285032	-	9724363100	-	dsogirsonnath@gmail.com
7	Dy. D.D.O. (Revenue)	S.mt. I.G.Gohil	02876-249249	-	75678 63927	-	ddogs@gmail.com
8	C.D.H.O.	Shri.Chetan Maheta	02876-240051	-	7567889923	-	cdho.health.girsonnath@gmail.com
9	DEO -Gir Somnath	Shri B.S.Kaila	02876-221095	-	7574822584	-	girsonnathdeo@gmail.com
10	D.P.E.O.	Shri.B.S.Kaila (IC)	2876-244500	-	7574822584	-	girsonnathdpeo@gmail.com
11	General Manager DIC	Shri.P.B.Patel	02873-244222	-	9106540764	-	gm-dic-gir@gov.gujarat.in
12	Dy.Dir.Info	Shri.Himmat Goniya	02876-240108	-	9426985625	240109	mahitigirsonnath@gmail.com
13	Control Room Dy Mam.Disa.	Shri. V.S.Chavda	02876-285063		9726785181		girsonnath@gujarat.gov.in
14	D.P.O. (GSDMA)	Shri K.S.Trivedi	02876-285063	-	9426969236	-	girsonnath@gujarat.gov.in

15. Jamnagar (STD Code : 0288)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	e-mail
1	Collector	Shri Ravi Shankar	2555869	2554059	9978406210	2555899	collector-jam@gujarat.gov.in
2	Municipal Commissioner	Shri Satish Patel	2552321	2552372	7567038888	2554454	mcjamnagar@gmail.com

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	e-mail
3	D D O	Dr.Vipin Garg	2553901	2552402	9978406235	2552394	ddo-jam@gujarat.gov.in
4	SP	Shri Sharad Singhal	2554203	2555868	9978405071	2556382	sp-jam@gujarat.gov.in
5	Resi. Addl. Collector	Shri Rajendra Sarvaiya	2550284	2672131	9978405210	2555899	addl-collector@gujarat.gov.in
6	Director-DRDA	Shri R.M.Rayzada	2753289	2662106	9978982383	2756557	drda.jam@gmail.com
					7567022435		
7	District Supply Officer	Shri Keyur Jethva	2553897	-	9638377777	2553897	dso-jam@gujarat.gov.in
8	Dy. DDO (Revenue)	Ms.Afsana Makva	2555749	2756346	9427597592	2552394	dyddo-rev-jam@gujarat.gov.in
9	Dy.DDO (Panchayat)	Ms.Afsana Makva	2553901	-	9825717188		dyddo-pan-jam@gujarat.gov.in
10	CDHO-District Panchayat	Dr.A.G.Bathvar	2671097	-	7567880001	2552394	cdho.health.jamnagar@gmail.com
11	District Education officer	Shri Sursinh Dodia	2553321	-	9909970206	2553321	jamndeo@gmail.com
						2671532	
12	District Pri. Edu. Officer	Shri Sursinh Dodia	2676532	-	9909971674	2552394	dpeojamnagar@gmail.com
13	Dy.Muni. Commi.	Shri A.K. Vastani	2550231	2553740	9510018599	2554454	amccomm@yahoo.com
14	Shasanadhikari	Shri C.M.Mehta	2671195	-	8780995489	2554454	aomds.jamnagar1@yahoo.com
15	General Manager DIC	Shri D.M.Joshi	2660381	-	9328966697	2660391	gm-dic-jam@gujarat.gov.in
16	Dy.Dir. Info	Shri Raju Jani	2679234	-	9913615298	2661267	informationjam@gmail.com
17	Chief Fire Officer	Shri K.K.Bishnoi	2672208	-	9879531101	2554454	knbishnoi@gmail.com
18	DPO	Shri Yashvantsinh Parmar	2553404	-	8469288345	2541485	dismgmt-jam@gujarat.gov.in
19	Control Room Mam.Disa.	Shri K.B.Sanghvi	2553404	-	7284049595	2541485	dismgmt-jam@gujarat.gov.in
20	Ex.Engineer-GWSSB	Shri C.B.Zala	2677279	-	9978407184	2555146	phwjaml@gmail.com
21	RTO	Shri J.J.Chaudhri	2672100	-	9408701779	-	rtojamnagar10@yahoo.in

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	e-mail
22	Dy.DDO Dev.	Ms.Kirtan Parmar	2554203		9374111262		-
23	Ex.Engineer R&B-State	Shri Sachin Oza	2550362		9426464610	-	rnb-jam@gujarat.gov.in
24	PO-GMB	Cap.B.N.Ladva	2711805	2711808	9638112186	-	pojamgmb@gmail.com
25	SE-PGVCL	Shri N.P.Shah	2550301		9925209912		sejmn.pgvcl@gebmil.com
		Shri					
26	DCF	R.Shenthilkumaran	2679357	2665110	9800293321	-	mnpforest@yahoo.com
27	Dy.Dire-DISH	Shri M.G.Bariya	2678206		9426122924		
28	Asst.Director Fishries	Ms.Bharti S.Tank	2564904		9427736551		asdirjam@gmail.com
29	Dy.DEO	Ms.Mitaben Joshi	2663681	-	9978405278		eo-jam@gujarata.gov.in
30	RM-GIDC	Shri Paneliya			9879110081		rmjmn@gidcgujarat.org
31	District Registrat Cooperative	Shri Manoj Lokhande	2674186		9427019121		
32	Divisional Controller- ST	Shri M.B.Rawal			6359919034		dcjmn98@gmail.com
33	Ex.Engineer-salinity control	N.H.Sadiya	2570423		8980725349		
34	RO GPCB	Shri Sutreja			7574827580		ro-gpcb-jamn@gujarat.gov.in
35	Dy.Director Animal Husbandary	Dr.Bhagirath Patel			9825717188		
36	District planning officer	Shri Jethabhai Dodia			9824848818		

16. Junagadh (STD Code :0285)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	2	3	4	5	6	7	8
1	Collector	Dr. Sourabh Pardhi	2630100	2650203	9978406211	2635599	collector-jun@gujarat.gov.in
2	DSP	Shri Saurabh Singh	2635633	2655644	9978405250	2634501	sp-jun@gujarat.gov.in

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
3	Municipal Commissioner	Shri Tushar sumera	2650450	2652988	9426250200	2651510	municipalcorporationjund@yahoo.co.in
4	D D O	Shri Praveen Chaudhary	2635315	2651202	9978406236	2636317	ddo-jun@gujarat.gov.in
5	Resi. Addl. Collector	Shri D K Baria	2636666	-	9978405211	2635599	add-collector-jun@gujarat.gov.in
6	DRDA	Shri R.J. Jadeja	2633179	2670690	7567035902	2636080	drda.jun1@gmail.com
7	Dy. DDO (Revenue)	Shri P S Baraiya	2636032	-	7567017608	2633021	ddo-jun@gujarat.gov.in
8	DSO	Shri N D Govani (i/c)	2631480	-	7567021546	2635782	dso-jun@gujarat.gov.in
9	CDHO	Dr. C A Maheta	2633074	2657679	7567885111	2633131	cdho.health.junagadh@gmail.com
10	DEO	Shri N K Makvana	2630151	-	9909970207	-	junagadhdeo@gmail.com
11	DPEO	Shri K A Patel	2634136	2631509	9909971279	2632136	dpeojunagadh@gmail.com
12	Dy. Muni.Commi.	Shri J.N. Likhya	2650450	-	9099877477	2650450	municipalcorporationjund@yahoo.co.in
13	Gen.Mana.DIC	Shri P.S. Parmar	2630625	-	9408635025	2634671	gm-dic-jun@gujarat.gov.in
14	Dy. Director (Info.)	Shri Arjun Parmar	2627281	2675366	9426520131	2651359	cdmo-jun@gujarat.gov.in
15	Fire Superintendent	Shri Bhumi Mistri	2620841	2654101	9712110044	2651510	municipalcorporationjund@yahoo.co.in
16	Control Room Mam. Disa. DDMO	Shri A.M. Bhatt (I/C)	2633446 2633448	-	9429765444	2633449	dismgmt-jun@gujarat.gov.in
17	Disaster Mgmt.	Shri Yakin Shivani	2633447	-	9427433979	2633449	yakin.shivani@gmail.com

17. Kheda (STD Code :0268)

Sr No	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Shri I.K.Patel	2553334	2556700	9978406212	2553358	collectorofficekheda@gmail.com
2	DDO	Shri D.S.Gadhvi	2557262	232802	9978406237	2557567	dyddi-vikeas@gov.in
3	DSP	Shree Divy Mishra	2550250	-	9978405072	2552750	sp-khe@gujarat.gov.in
4	Resi.Add. Collector	Shri Ramesh Merja	2553336	2532777	9978405597	2553358	add-collectorkhe@gujarat.gov.in
5	DRDA	Shri R.T.Zala	2550221	-	7567036029	2551169	drda.khe@gmail.com
6	DSO	Shri B.A. Patel	2553839	-	7567021504	2551131	dso-khe@gujarat.gov.in
7	Dy.DDO (Revenue)	Su Shri Sonalben Solnaki	2557230	-	7567018023	2557567	ashokkumar6327@gmail.com

Sr No	Designation	Name	Office	Resi	Mobile	Fax	Email ID
8	CDHO	Dr.D.C.Jagani	2556273	-	9909966909	-	cdho.health.kheda@gujart.gov.in
9	District Forest Officer	Dr.T.Karuppasamy	2550316		7574950045		
10	Executive Engineer ,MGVCL	Shri S.N.Chavda	2562204		9925208353		
11	Executive Engineer , water Supply Sewerage Board	Shri P.S.Dangi	2560996		9978445246		
12	Executive Engineer , State, R&B	Shri P.M.Modi	2566404	-	9879529103	-	ec-khe@gujarat.gov.in
13	Executive Engineer , Panchayat, R&B	Shri K.H.Rathod I/C	2557640	-	9586440844	-	-
14	Executive Engineer ,Irrigation Nadiad	Shri B.G.Prashnani	2566653		9427316009		
15	Deputy / Assistant Director Industrial Health & Safety	(I/C) D.B.Gamit	2568986	-	9978262544	-	Dy-khe@gujarat.gov.in
16	DEO	Su Shri Kajalben G.Dave	2550183	2550388	9909971682	2550183	khedeo@gmail.gov.in
17	DPEO	I/C Su Shri Kajalben G.Dave	2557452	-	9909971682	-	dpo-khe@gujarat.gov.in
18	Dy. Director information	Su Shri Ila ben vyas	2550903	-	9909957289	2552187	cdmo-khe@gujarat.gov.in
19	General Manager DIC	Tanviben Patel	2555003	-	7567020727	244716	gm-dic-khe-Gujarat.gov.in
20	Chief Fire Officer	Shri Dixit Patel	2550106	-	9879253440	-	nadiadmunicipality@yahoo.com
21	Mam.Disa. Control Room	Shri H.B.Rathod	2553356	-	9825542167	2553358	ec.kheda@gmail.com
22	District Project Officer	Shri Sachi Desai	2553357		9725678973	2553358	sacheedesai@gmail.com

18. Kutch (STD Code : 02832)

Sr. No.	Designation	Name	Office	Mobile	Fax	Email
1	Collector	Smt Praveena D.K.	2832250020	9978406213	250430	collector-kut@gujarat.gov.in
2	D D O	Shri Prabhav Joshi	2832250080	9978406238	250355	ddo-kut@gujarat.gov.in
3	DSP (Western)	Shri Saurabh Tolambiya	2832250444	9978405073	250427	sp-kut@gujarat.gov.in
4	DSP (Eastern)	Smt Parikshita Rathor	2836280287	9978405690	280211	sp-east-kut@gujarat.gov.in
5	Resi. Addl. Collector	Shri K S Jhala	2832250650	9978405212	250430	add-collector-kut@gujarat.gov.in
6	DRDA	Shri Mehul Joshi	2832231577	7567035930	231342	drda-kut@gujarat.gov.in
7	DSO	M/s R.N. Chaudhary	2832221453	9408308508	227495	dso-kut@gujarat.gov.in
9	CDHO	Dr. P.K. Kannar	2832252207	9909949304	221666	cdho.health.kutch@gmail.com
10	DEO	Dr. B.N. Prajapati	2832250156	9909970204	250156	kutchhdeo@gmail.com
11	DPEO	Shri S.B. Parmar	2832221103	9909971683	252403	dpckutchhh@gmail.com
12	General Manager DIC	Shri K.P.Der	2832250501	9879596947	251874	gm-dic-kut@gujarat.gov.in
13	Dy.Dir. Info	Shri Mitesh Modasiya	2832224859	95864 43968	250954	ddibhui@gmail.com
14	Chief Fire Officer	Shri Anil Maru	-	9925170506	-	anilkumarafire1@gmail.com
15	Control Room Mam.Disa.	Shri C.R. Prajapati	2832250923	9537798343	224150	dismgmt-kut@gmail.com
16	DPO	Shri Mehul Padharia	2832250923	9557920767	224150	

19. Mahisagar (STD Code: 02674)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Mr. R B Barad	02674-250664	02674-253555	9978405936	250655	collector-mah@gujarat.gov.in
2	D D O	Ms. Neha Kumari	02674-250945	-	9978406497	250946	ddo-mahi@gujarat.gov.in
3	SP	Mrs. Usha Rada	02674-254001	-	9978405980	250816	sp-lunav-mahi@gujarat.gov.in
4	Resi. Addl. Collector	Mr. R R Thakkar	02674-250165	-	9727763950	250655	add-collector-mah@gujarat.gov.in
5	DRDA	Mr. J K Jadav	02674- 251123	-	9687606497	-	drda.mahisagar@gmail.com
6	DSO	Mr. R.B. Ansari	02674-250722	-	7574898793	-	dso-mahi@gujarat.gov.in

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
7	Dy. DDO (Revenue)	Mrs.C N Bhabhor	02674-250946	-	9428446244	-	dyddo.mahi.mahekam@gmail.com
8	CDHO	Mr. S.B. Shah	02674-252702	-	7573006978	-	cdho.health.mahisagar@gmail.com
9	DEO	Mrs. S T Patel	02674-250901	-	7574822583	-	deomahisagar@gmail.com
10	DPEO	Mr.M G Malek	02674-255590	-	7567804983	-	dpeomahisagar@gmail.com
11	General Manager DIC	Mr. D R Rathva	-	-	9638222418	-	gm-dic-lun@gujarat.gov.in
12	Dy.Dir.Info	Shri Sanjay Shah(I/c)	02674-254051	-	9879961441	-	mahimahiti254051@gmail.com
13	Control Room Mam.Disa.	Mr. B S Makwana (I.C)	02674-252300	-	9427391326	-	disaster.mahisagar@gmail.com
14	DPO	Mr.Jigar Makwana	02674-252301	-	9898100757	-	jigarmakwana@live.com

20. Mehsana (STD Code : 02762)

Sr. No	Designation	Name	Office	Resi	Mobile	Fax	Emil ID
1	Collector	shri H.K.Patel	222200/ 222211	253365 / 222201	9978406214	222202	collector-meh@gujarat.gov.in
2	DDO	shri M.Y.Daxini	222301/ 222302	222304	9978406239	221447	ddo-meh@gujarat.gov.in
3	DSP	Shri Manish Singh	222122	222123	9978405074	222125	dsp-meh@gujarat.gov.in
4	Rasi.Addi. collector	Shri P. B. Rathod	222203/ 222204	222205	9978405213	222202	add-collector-meh@gujarat.gov.in
5	DRDA	Shri Mehul Dave	222328 / 222329	232638	9979861690	222230	drda.meh2@gmail.com
6	DSO	Kum. Krupali Mistry	222208	-	7567022373 9426247583	222209	dso-meh@gujarat.gov.in
7	I/C Dy.DDO (Revenue)	Shri B. S. Chaudhary	221866	-	9408240909	221447	dyddo.mkm.meh@gmail.com
8	CDHO	Dr.Tushar K.Soni	222324	-	9909966907	220282	dpmu.health.mehsana@gmail.com
9	DEO	I/O Smt. S. D. Patel	221171	-	9909970213	221171	mahedeo@gmail.com

Sr. No	Designation	Name	Office	Resi	Mobile	Fax	Emil ID
10	DPEO	Smt. S.D.Patel	222320	-	9909971684	-	dpeomehsana@gmail.com
11	General Manager DIC	Shri S. V. Solanki	257409	-	9825336449 9328274990	254924	gm-dic-meh@gujarat.gov.in
12	Dy.Dir.Info	Shri R. R. Turi	221888	-	9978405870 9978405441	221617	cdmo-meh@gujarat.gov.in
13	I/C Chief Fire OFFICER	Shri N.B.Singhane	225606	-	9969228348	225705	shinganenb@ongc.co.in
14	Control Room Mam. Disaster	Shri K. S. Ninama	222220	-	8347062985	222202	dismgmt-meh@gujarat.gov.in
15	DPO	Smt. Anjela Gamdiya	222220	-	9898283817	222202	dpo-meh@gujarat.gov.in angelchris90@gmail.com

21. Morbi (STD Code: 02822)

S.No.	Designation	Name	Mobile	Landline No.	Email Id
1	Collector	Shri J.B. Patel	9978405932	240701	collector-mor@gujarat.gov.in
2	DDO	Shri S.M. Khatana	9978406470	222899	ddo-morbi@gujarat.gov.in
3	S P	Shri Karanraj Vaghela	9978405975	342471	sp-morbi@gujarat.gov.in
4	Resi. Addl. Collector	Shri. Ketan P.Joshi	9927759674	240701	
5	Dy. District Development Officer (Mehsul)	Shri. P.V. Vasaiya	9825791455	222899	dyddo.morvi@gmail.com
6	Deputy Conservator of Forest	Shri. N.A. Khavadiya	7574950203	241611	forest.dcsfraj@gmail.com
7	Dy. Police Officer	Shri. D.G. Chaudgri	9913970000	243473	-
8	Chief District Health officer	Dr. J.M. Katira	9727700025	222707	cdho.health.morbi2@gmail.com
9	Director, DRDA	Shri D.D. jadeja	9978405234	220780	morbidrda@gmail.com
10	DSO	Ms. Pravinaben Pandavadra	9714766685	227844	dsomorbi36@gmail.com
11	Medical Superintendent(Civil Hospital)	Dr. Dudrachia RMO Dr. R. Sardva	7567876154 9825983301	230538	
12	CDMO	Dr. P. That Dudarejia	7567876154	230538	cdmo.health.morbi@gmail.com

S.No.	Designation	Name	Mobile	Landline No.	Email Id
13	DEO	Mr. B M Solanki	7574812279	222875	morbideonew@gmail.com morbideo36@gmail.com
14	DPEO	Shri Mayurbhai Parekh	9824262237	222710	dpeomorbi@gmail.com
15	General Manager, DIC	Shri. G.P. Zala	9909578681	242715	gm-dic-mor@gujarat.gov.in
16	Ass. Director of Information	Shri G.R.Padwa	9429199886	241012	informationmorbi@gmail.com
17	Port Officer, GMB	Cap. Neeraj Hirwani	9512200035	229101	pilotofficergmb@gmail.com
18	Chief Fire officer	Shri. Kalpesh Bhat	9099064847	230800	-
19	Executive Engineer, R & B (State)	Shri. B.P. Joshi	9998017171	240524	exe.mor.mrb@gmail.com
20	Executive Engineer, R & B (Panchayat)	Shri A.N. Choudhary	9825406053	222840	expmorrmb@gmail.com
21	Executive Engineer, irrigation (State)	Shri B.K. Valgotar	9429955178	2222897	exeirripor@gmail.com
22	Executive Engineer, irrigation (Panchayat)	Shri D.V. Malvaliya	9909957832	222848	morbi_panchayatirrigation@gmail.com
23	Executive Engineer GWSSB	Shr. P. A. Solanki	9978406632	223839	eephwdmrb@gmail.com
24	Superintendent Engineer, PGVCL,	Shri. B.M. Bhilani	9925209959	242291	asmrb.pgvccl@gebm.com
25	Dy Director of Animal husbandry	Dr. D.A. Bhoriya	9898598397	222712	drdayal98397@gmail.com
26	District Agriculture officer	Shri. D.B. Gajera	9998546369	222709	daomorbi@gmail.com
27	Program Officer ICDS	Shri. M.V. Joshi	9512700677	222716	icds.morbi@gmail.com
28	Director Industrial Safety and Health	Shri. B.V. Bharthi	9879512123	242350	dydlabmorbi@gmail.com
29	ST Manager depot.	Shri. Dleep Samlanu Porsang	9998953191	230701	-
30	Superintendent of Fisher	Shri. K.V. Ramani	8141789262	243577	sfmorbi@gmail.com
31	Regional officer, GPCB	Shri. N.I. Kapadiya	9824466902	228001	ro-gpcb-morb@gujarat.gov.in
32	Manager BSNL	Shri. R.G. Gami	9427561061	220895	cscmorbi1990@gmail.com
35	Mamlatdar Disaster	Shri B.B.Kasundra	9879188224	243300	dmcemorbi@gmail.com
37	DPO Disaster	Amreen Khan	9907698161	243435	dmcemorbi@gmail.com
38	Dy. Mamlatdar Disaster	Shri. Maheshbhai Kunvariya	9099189540	243436	dmcemorbi@gmail.com

22. Narmada (STD Code : 02640)

S.No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
1	Collector	Shri M.R.Kothari	222161	222162	9978406216	222171	collector-nar@gujarat.gov.in
2	Police Commissioner (If any)			-			
3	SP	Shri Himkar Sinh	222316	222166	9978405076	222316	sp-nar@gujarat.gov.in
4	D D O	Dr. Jincy R. William	224820	222081	9978406241		ddo-nar@gujarat.gov.in
5	Resident Additional Collector	Shri H. K. Vyas	222326	220058	9978405188	222171	rdc-nar@gujarat.gov.in
6	Executive Engineer, R & B	Shri I. V. Patel	223032	-	9726395949	222939	rnb_rajpipla@yahoo.in
7	DSO	Shri U. N. Pathan	224828	-	8980035040	221314	dsonarmada@gmail.com
9	CDHO	Dr. K. P. Patel	221806	-	7573972948		cdho.health.narmada@gmail.com
10	DEO	Dr. N. D. Patel	222603	-	9909970226	222603	narmdeo@gmail.com
11	DPEO	I/C Dr. N. D. Patel	222920	-	9909970226	222085-86	dpcnarmada@gmail.com
12	General Manager DIC	Shri H. R. More	224182		9824067451	222438	gdm-nar@gujarat.gov.in
13	Dy. Director Information	Shri Y. R. Gadiwala	224038	-	9428694976	220146	ddinarmada@gmail.com
14	Fire Officer	Shri Mukesh Solanki	220763	-	9978233384	220654	rajpiplanagarapalika@gmail.com
15	Disaster Mamlatdar	Shri M.S. Solanki	224001	-	9825852608	224719	dismgmt-nar@gujarat.gov.in
16	DPO	Shri Bantish Parmar	224911	-	8866621514	224719	dponar.gsdma@gmail.com parmarbantish@gmail.com

23. Navsari (STD Code : 02637)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Shri Ardra Agarwal I.A.S	244999	246000	9978406215	281540	collector-nav@gujarat.gov.in
2	D D O	Mrs. Prashsti parik	244299	246057	9978406240	230475	ddo-nav@gujarat.gov.in
3	DSP	Shri Girish Pandia	245333	244330	9978406240	247510	sp-nav@gujarat.gov.in
4	Resi. Addl. Collector	Shri K. J. Rathod	246299	248399	9978405187	281540	add-collector-nav@gujarat.gov.in
5	DRDA	Shri P.K.Hadula	281083	281375	9825518780	281377	drdanav@gmail.com

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
6	DSO	Smt. Pritiben Thakkar	248155	-	9924074750	248155	dso-nav@gujarat.gov.in
7	Dy. DDO (Revenue)	Shri R.I. Shaikh	244399	-	7567017683	-	dy.ddo@gmail.com
8	CDHO	Dr. Bhavsar	280143	-	9099086001	232533	cdho.health.navsari@gmail.com
9	DEO, Rural	Shri R.M. Chaudhary	232572	235755	9909970223	232572	navsarideo@gmail.com
10	DPEO	Shri R.M. Chaudhary (I/C)	258467	-	9909971688	231810	dpcnavsari@gmail.com
11	General Manager DIC	Shri S. B. Vasava	248873	-	7567020860	288873	dm-dic-nav@gujarat.gov.in
12	Dy. Dir. Info	Shri Raj Jethva	244914	259780	9824532939	249611	navsariadi@gmail.com
13	Fire Officer	Kishorbhai Mangela(I/C)	259001	-	9879654125	-	np-navsari@yahoo.co.in
14	Control Room Mam.Disa.	Roshani Patel	259401	-	7567004630	281540	dismgmtnav@gmail.com
15	DPO	Shri Ankit Parmar	259401	-	9714343111	281540	prmrankit3@gmail.com

24. Panchmahal (STD Code: 02672)

Sr. No.	Designation	Name	Office	Mobile	Fax	Email ID
1	Collector	Shri Amit Arora	242800	9978406217	242899	collector-pan@gujarat.gov.in
2	D D O	Shri A J Shah	253377	9978406242	253350	ddo-pan@gujarat.gov.in
3	DSP (Rural)	Dr. Leena Patil	242200	9978405077	242812	sp-pan@gujarat.gov.in
4	Resi. Addl. Collector	Shri. M L Nalvaya	242450	9978405189	241965	rdc-pan@gujarat.gov.in
5	DRDA	Shri R P Chaudhry	253391	9427619801	253393	dr-pan@gujarat.gov.in
6	DSO	Shri N B Rajput	242936	9924111329	242776	dso-pan@gujarat.gov.in
7	Dy. DDO (Revenue)	Shri C D Rathwa	253352	9712397727	253350 253361	dyddo-pan@gujarat.gov.in
8	CDHO	Shri S K Modh	253367	7567893600	250668	dpc-panchmahal@yahoo.com
9	DEO, Rural	Shri B S Panchal	242240	9909970209	242240	panchmahaldeo@gmail.com
10	DPEO	Dr. V M Patel	253376	9228470597	253350	dpeogodhra@gmail.com
11	General Manager DIC	Shri Jigar Dave	247216	7567020896	242271	gm-dic-pan@gujarat.gov.in
12	<u>Dy.Dir.Info</u>	Shri R R Rathod	249111	9408727845	-	
13	Chief Fire Officer	Shri P.F.Solanki	241584	8780272718	-	
14	Control Room Mam.Disa.	Shri V K Atiya	242536	8320119443	240921	dimgmt-pan@gujarat.gov.in

25. Patan (STD Code: 02766)

Sr.	Designation	Name	Office	Resi	Mobile	Fax	E-MAIL
1	Collector	Shri Anand Patel	233301	233300	9978406218	233055	collector-pat@gujarat.gov.in
2	D.D.O	Shri D K Parekh	232936	231446	9978406243	234294	ddo-pat@gujarat.gov.in
3	S.P.	Shri Axayraj Makwana	230104 / 223555	230500	9978405078	230182	sp-patan@gujarat.gov.in
4	Resi.Addi. Collector	Shri N D Paramar	233400	233401	9978405190	--	add-collector-pat@gujarat.gov.in
5	D.R.D.A.	Shri Mukesh Parmar	291706	--	9998418903	221111	drda.pat@gujarat.gov.in
6	D.S.O.	Smt. G.N.DESAI	224660	--	9909770389	224660	drda-pat@gmail.com
7	Dy.DDO (Revenue)	Smt Ritaben Pandya	232521	-	9426301928	-	dso-pat@gujarat.gov.in
8	C.D.H.O.	Dr. DS Slavi	220592	--	9909981895	--	dyddo-rev-pat@gujarat.gov.in
9	D.E.O.	Shri A P Zala	230025	-	9909970222	230025	cdho.health.patan@gmail.com
10	D.P.E.O.	Shri BA Chaudhari	234239	--	9909971692	--	patandeo@gmail.com
11	General Manager D.I.C.	Shri S.V.Solanki	222023	--	9978408845	--	dpcpatan@gmail.com
12	Dy.Dir.Info	Smt.Amitbhai Gadhavi	222158	--	9924391616	--	gm-dic-pat@gujarat.gov.in
13	Mam.Disa	Hitesh Rawal	224830	--	9825220025	224830	ddiinfopatan@gmail.
14	DPO -(GSDMA)	Shri K.S.Patel	224830	--	9426533915	224830	deocpatan@gmail.com
							dismgmt-pat@gujarat.gov.in

26. Porbandar (STD Code: 0286)

Sr.	Designation	Name	Office	Resi	Mobile	Fax	E-MAIL
1	Collector	Shri D.N. Modi	2221800	2243801	9978406219	2222527	collector-por@gujarat.gov.in
2	District Development Officer	Shri V.K. Advani	2243803	2212638	9978406244	2212477	ddo-por@gujarat.gov.in
3	District Superintendent of Police	Shri Ravi Mohan Saini	2211222	2211223	9978405079	2243015	sp-por@gujarat.gov.in

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Sr.	Designation	Name	Office	Resi	Mobile	Fax	E-MAIL
4	Resident Additional Collector	Shri Rajesh M. Tanna	2221085	2245801	9978405191	2222527	collector-por@gujarat.gov.in
5	Deputy Conservator of Forest	Shri D.J. Pandya	2242551	-	9429551267	2210373	dcfbr@gmail.com
6	Director, DRDA	Shri S.D.Dhanani	2213736	-	9825292364	-	drda.por@gmail.com
7	DSO	Shri Vivek Tank	2220070	-	9909003272	2220071	dso-por@gujarat.gov.in
8	Dy. DDO (Revenue)	Shri D.V. Vala	2252806	-	9574513898	2212477	ddo-por@gujarat.gov.in
9	CDHO	Shri Dr A.G. Rathod	2241134	-	9512015633	2242731	cdho.health.porbandar@gmail.com
10	CDMO cum Civil surgeon	Dr. J.D. Parmar	2240923	-	9099079117	-	cdmo.health.porbandar@gmail.com
11	DEO	Shri K.V. Miyani	2251350	-	9909970225	2253108	porbandardeo@gmail.com
12	DPEO	Shri K.V. Miyani (i/c)	2252808	-	9909970225	2252808	dpeoporbandar@gmail.com
13	General Manager DIC	Shri K.B. Mori	2222168	-	9227753653	2222169	gm-dic-por@gujarat.gov.in
14	Asst. Director of Information	Shri Naresh Mehta	2222470	-	9825263775	2222480	informationpor@gmail.com
15	Port Officer, GMB	Shri Niraj Hirvani	2242408	-	9512200035	2244013	gmbporbandar@gmail.com
16	Chief Fire Officer	Shri L.R.Joshi	2249850	-	9727751800	-	jlalit619@gmail.com
17	Executive Engineer, R & B(state)	Shri S.R. Patel	2240948/ 2242547	-	97120 17210	242466	ee_rnb_pbr@yahoo.co.in
18	Executive Engineer, R & B(Panchayat)	Shri J.J. Pandya (I/C)	2212971	-	9825166618	2213224	exernbddopor@gmail.com

Sr.	Designation	Name	Office	Resi	Mobile	Fax	E-MAIL
19	Executive Engineer, irrigation (Panchayat)	Shri B.K. Valgotar(I/C)	2212667	-	9429955178	-	exeiri-ddo-por@gujarat.gov.in
20	Executive Engineer, irrigation (State)	Shri B.K. Valgotar	2222897	-	9429955178	-	exeirripor@gmail.com
21	Executive Engineer, salinity control	Shri B.K. Valgotar	2220503	-	9429955178	-	eescdnpbr@yahoo.in
22	Executive Engineer, GWSSB	Shri L.M. Sindhal	2242528	-	9978406843	-	eeprgwsb@gmail.com
23	Superintendent Engineer, PGVCL	Shri D.B. Kodyatar	2240952/ 2240947	-	9825603182	2240952	Sepbr.pgvc@gmail.com
24	Dy Director of Animal husbandry	Shri K.V. Raval	2213681	-	9925028054	-	dydir-ah-por@gujarat.gov.in
25	District Agricultural Officer	Shri J.N. Parmar	2252809	-	9428242657	-	dao-ddo-por@gujarat.gov.in
26	District Social welfare officer, Zila panchayat	Shri S.T. Sagathiya	2245897	-	9427243857	-	swo-ddo-por@gujarat.gov.in
27	Programme officer(ICDS), Zila panchayat	Smt Anjanaben Joshi	2247800	-	9429515359	-	pol.icds.porbandar@gmail.com
28	Director, Industrial Safety & Health	Shri J.M. Dvivedi	0285- 2636946	-	98241 90891	0285-2635013	dydish-jun@gujarat.gov.in
29	General manager S.T. depot	Smt H.R. Katara	2242409	-	6359918582	-	dmpbr@gsrtc.in
30	Assistant Director of Fisheries department	Shri V.K. Gohel	2242491	-	9408320907	2240949	adfporbandar@gmail.com
31	District Commandant, Home guard	Shri Suresh Sikotra	2215250	-	9824225080	-	sisikotra@gmail.com

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Sr.	Designation	Name	Office	Resi	Mobile	Fax	E-MAIL
32	Secretary, Indian Red Cross	Shri Akbar Sorathiya	-	-	9998996939	-	redcrosspbr@gmail.com
33	Scientific officer, GPCB	Shri R.C.Vasava	2220050	-	9879383575	-	ro-gpcb-por@gujarat.gov.in
34	Commander, Indian coast guard	DIG I.S. Chauhan	2242451	-	9099906726	2210559	dhq1@indiancoastguard.nic.in
35	Airport Director	Shri P.K. Sharma	2222234/ 2222173	-	9925012668	2220031	apdporbandar@AAI.AERO
36	DE, BSNL	Smt. Manjuben Modhvadiya	2251400/ 2251200	-	9429810303	2251500	bsnlsdotpbd@gmail.com
37	ARTO, Porbandar	Shri B.N chavda	-	-	9998856708	-	rtoportbandar25@yahoo.in
38	Disaster Mamlatdar	Sushree Neha Sojitra	2220800	-	96873 75750	2220801	dismgmt-por@gujarat.gov.in
39	DPO	Shri Likun Patra	2220800	-	7359214530	2220801	dismgmt-por@gujarat.gov.in
40	EME, 108 EMRI, Porbandar	Shri Milan Jani			9909344108		
41	Weather Observatory Officer, Porbandar	Shri M. Chaudhry	2220955		9898739974		amspbd@gmail.com

27. Rajkot (STD Code: 0281)

SR No.	Designation	Name	Office	Resi	Fax	Mobile	Email ID
1	Collector	SMT REMYA MOHAN	2473900 2479351	2472900	2453621 2479351	99784 06220	Collector-raj@gujarat.gov.in
2	Police Commissioner	SHRI MANOJ AGRAWAL	2459888	2450888	2458526	99784 06298	cp_raj@gujarat.gov.in
3	Muni.Commissioner	Shri Udit Agarwal	2224133 2239973	2465859	2224258	97145 03701	mc_rmc@rmc.gov
4	D.D.O.	SHRI ANIL RANAVASIYA	2477008	2477144	2479128	99784 06245	ddo-raj@gujarat.gov.in
5	D.S.P. (Rural)	Shri Balram Mina	2446333	--	2476052	99784 05080	sp-rural-raj@gujarat.gov.in
6	Addi. Collector	SHRI P.B. PANDYA	2476374	2451666	2453621	99784 05218	Collector-raj@gujarat.gov.in
7	DRDA	SHRI J K PATEL	2474305	--	2451892	9978447471	drdaraj2002@yahoo.com
8	ARDC	--	--	--	--	--	--
9	D.S.O.	INC. M.K. PATEL	2476891	2476813	2476891	9727763124	--
10	Dy.DDO (Revenue)	SHRI D V MAKWANA	2441248	--	2441248	7567018789	dyddo-rev-raj@gujarat.gov.in
11	CDHO	SHRI DR. MANISH MEHATA	2443235	2479148	2476361	97277 00031	cdho.health.rajkot@gmail.com
12	DEO, City	SHRI R.S. UPADHYAY	2223453	--	--	9909970214	rajkotdeo@gmail.com
13	DEO, Rural	SHRI R.S. UPADHYAY	2223453	--	--	9909970214	rajkotdeo@gmail.com
14	DPEO	SHRI M.G. VYAS	2444437	--	--	9909971694	dpeorajkot@yahoo.com
15	Dy. Muni.Com. (C.Z.)	SHRI C.K.NANDANI	2220938	--	--	9714503704	enandani@rmc.gov.in
16	Dy. Muni.Com. (E.Z.)	SHRI C.V. GANATRA	2389274	--	--	9714503703	dmcez@rmc.gov.in
17	Dy. Muni.Com. (N.Z.)	SHRI D.J. JADEJA	2235418	--	--	9409700123	dmcwz@rmc.gov.in

SR No.	Designation	Name	Office	Resi	Fax	Mobile	Email ID
21	Shasanadhikari	SHRI S.B.Dodiya	2227231	--		9898579880	msbrmerajkot@gmail.com
22	Gen. Manager DIC	SHRI G.P.ZALA	2476376	--	2476293	9909578681	gm-dic-rai@gujarat.gov.in
23	Dy Director (Info.)	SHRI K.A. KARAMTA	2223264	--	2229325	9978405786	rajkot.information@gmail.com
24	Chief Fire Officer	SHRI B.J. THEBA	2227222	2227222	2226185	97145 03715	ssyshailash@yahoo.com
25	Control Room Mam.Disaster	Shri Ashok Trivedi	2471573 1077	--	2471574	9427204934	disastercellrajkot@gmail.com
26	DPO (GSDMA)	Shri Priyank Singh	2471573	--	2471574	8401595144 7990365385	disastercellrajkot@gmail.com

28. Sabarkantha (STD Code: 02772)

S.No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
1	Collector	Shri C J Patel	241001	223001	9978406221	241611	collector-sab@gujarat.gov.in
2	DSP	Shri Chaitanya Mandlik	247333	223333	9978405081	247933	sp-sab@gujarat.gov.in
3	D D O	Shri Rajendra Patel	242350	222351	9978406246	240872	ddo-sab@gujarat.gov.in
4	Resident Additional Collector	Shri V L Patel	246012	228001	9978405219	-	add-collector-sab@gujarat.gov.in
5	Executive Engineer, R & B	Shri S G patel	241651	222871	9909233266		rmb-sab@gujarat.gov.in
6	DSO	Rahul Chaudhry	240698	-	9724330906	240492	dso-sab@gujarat.gov.in
7	CDHO	Dr Rajesh patel	246422	234633	9687679002	234633	cdho-sab@gujarat.gov.in
8	DEO	Shri Sanjay Vyas	240793	244235	9909970217	240793	deo.sabarkantha@gmail.com
9	DPEO	Shri Mitaben gadhvi	240694	-	9909971696		dpc-sabarkantha@gmail.com

S.No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
10	General Manager DIC	Shri R S Shah	240948	-	9879054980	245274	dic-sab@gujarat.gov.in
11	Dy. Director Information	Shri Arvind Machhar	241699	-	9824112410	240699	info-sab@gujarat.gov.in
12	Director, Industrial Safety & Health	Shri H B Patel	23233231		9624000903		
13	Fire Officer	Shri Pratapsinh Devda	246720	-	9974605342		np_himatnagar@gmail.com
14	Secretary, Red Cross	Shri Hasmukh Soni	240789	-	9427691082		
15	Disaster Mamlatdar	Shri Urvish Valand	249039	-	9558103639	230100	dismgmt-sab@gujarat.gov.in
16	DPO	Shri K B Patel	249039		9974332782	230100	kanupatel11@gmail.com

29. Surat (STD Code : 0261)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	Collector	Dr. Dhaval A Patel	2652525/2655151	2669080/ 2669580	99784-06222	2655757	collector-sur@gujarat.gov.in
2	Police Commissioner	Shri R. B. Bhrahmbhat	2244440	2668555	99784-65080	2241304	cp-sur@gujarat.gov.in
3	Municipal Commissioner	Shree Banchhanidhi Pani	2422244	2258393	97243-45000	2422110	commissioner@suratmunicipal.org
4	D D O	Shree Hitesh Koya	2422160-2425751	--	99784-06247	2412543	ddo-sur@gujarat.gov.in
5	DSP (Rural)	Shree A.M.Muniya	2651831/32/33	--	99784-05082	2651834	sp-sur@gujarat.gov.in
6	Resi. Addl. Collector	Shree S.D. Vasava	2660011	--	99784-05220	2655757	rdc-sur@gujarat.gov.in
7	DRDA	Shree U.P Machhar	2780272	2795715	98253-36987		drdasurat@gmail.com
8	ARDC	Shri. N.G. Gamit	2425751	-	99783-54901		
9	DSO	Smt. Ashtha Solanki	6599749		99784-05223	2655752	dso-sur@gujarat.gov.in

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
10	Dy. DDO (Revenue)	I/c. Shree V.K.Shambhad	2422160-2425751	--	75670-17800	2412543	dyddo-rev-sur@gujarat.gov.in
11	CDHO	Dr. H.J.Chaudhari	2430780/589	--	97277-09501	2412543	cdho.health.surat3@gmail.com
12	DEO, City	Shree H.S.Rajyaguru	2662903	2652049	99099-70218	2662902	suratdeo@gmail.com
13	DEO, Rural	Shree Ashok Munia	2595903	2652049	99784-05082	2595903	dpcsurat@gmail.com
14	DPEO	Shree J.M.Khradi	2595903	2652049	95375-36433	2595903	dpcsurat@gmail.com
15	Dy.Muni.Commi. (C.Z.)	Shree K.S.Patel	2423750	2254605	97243-45218	2420548	amc.cz@suratmunicipal.org
16	Dy. Muni.Commi.(E.Z.)-A	Shree D.M. Jariwala	2547750	--	97243-45216	2543640	amc.ez@suratmunicipal.org
17	Dy. Muni.Commi.(E.Z.)-B	Shree. N.B. Upadhyay	2547750		97243-45001	2543640	amc.ez@suratmunicipal.org
18	Dy. Muni. Commi.(N.Z.)	Shree D.M.Patel	2480518/2485700	--	97243-45210	2486300	amc.nz@suratmunicipal.org
19	Dy. Muni. Commi.(S.Z.)	Shree A.M.Dubey	2277043/278429	--	97243-45466	2272147	amc.sz@suratmunicipal.org
20	Dy. Muni.Comi.(N.W.Z.)	Shree R.J. Pandya	2667926/2665511	--	97243-45420	2668426	amc.nz@suratmunicipal.org
21	Dy.Muni.Commi. (S.E.Z.)	Shree J.M. Desai	2331903-04-05	--	97243-45216	2420548	amc.cz@suratmunicipal.org
22	Shasanadhikari	Shree Vimal M. Desai	2455301/2455302	2760987	99096-58181	2450322	info@msbsurat.in
23	General Manager DIC	Shree Mitesh Ladani	2465925	--	88799-66892	2465929	jim-dic-sur@gujarat.gov.in
24	Dy.Dir. <u>Info</u>	Shree M.S.Valvi	2464225	--	98794-12185	2465542	infosurat2013@gmail.com
25	Chief Fire Officer	(I.C) B.K.Pareekh	2423751	--	97243-45553	2451935	
26	Control Room Mam.Disa.	Dr. Dipal.A.Bharai	2663200	--	81601-08818	2664800	dismgmt-sur@gujarat.gov.in
27	DPO	Shree Kaushik Poriya	2663200	--	90339-20674	2664800	kaushikgsdma@gmail.com
28	DY.Mam. Disaster	Smt. R.N. Patel	2663200	--	99130-72614	2664800	66.disastersurat@gmail.com

30. Surendranagar(STD Code : 02752)

Sr.No.	Designation	Name	Office	Resi	Mobile	Email ID	Fax
1	Collector	Shri K. Rajesh, (IAS)	282200	240005	9978406223	collector-snr@gujarat.gov.in ,	283862
2	D D O	Shri S.L.Shah I/C	283752	283501	99784 06248	ddo-snr@gujarat.gov.in ,	283862
3	DSP	Shri Mahendra Bagria	282100	285051	99784 05083	sp-control-snr@gujarat.gov.in	282815
4	Resi. Add. Collector	Shri N. D. Zala	285200		99784 05224	rdc-snr@gujarat.gov.in	283862
5	Dir. DRDA	Shri S.L.Shah	284808/ 284809		7567039837 9879388262	drda-snr@gujarat.gov.in	284276
6	Dy. DDO (Revenue)	shri B M Suryavanshi	285602		8866224659		283402
7	DSO	Shri Chetan Misan) Shri P. K. Parmar	284351 283706/ 285383	282407	7043047360	dso-snr@gujarat.gov.in	283884
8	CDHO				9727721376	cdho-snr@gujarat.gov.in	282383
9	DEO	shir S.M. Barad	284710		9909970219	dpeosnr@gmail.com	284170
10	DPEO	Shri H.H.Chodhari	283099		99099 71695	dpeosnr@gmail.com	282973
11	Gen. DIC	Shri b j nakum	283465		9924025050	dic-snr@gujarat.gov.in	282046
12	Dy. Director (Information)	shri Hetal B. dave	282253		9825599149	information-snr@gujarat.gov.in	
13	Fire branch (I/C) Surendranagar	Shir R K Zala	282250		97277 78087	np_surendranagar@yahoo.co.in	283612
14	Control Room Disaster Mamlatdar	Smt S R Kelaiya	283400		97123 59331	dismgmt-snr@gujarat.gov.in ,	284300
15	DPO - GSDMA	Shri Nilesh Parmar	283400	-	97121 85595	dismgmt-snr@gujarat.gov.in ,	284300

31. Tapi (STD Code : 02626)

Sr. No.	Designation	Name	Office No.	Resi. No.	Mobile No.	Fax No.	E-Mail ID
1	2	3	4	5	6	7	8
1	Collector	Shri R.J.Halani	02626-224460	02626-220221	9978405364	221281	collector-tapi@gujarat.gov.in
2	DDO	Shri Neha Singh	02626-222141	02626-220222	9978405263	222142	ddo-tapi@gujarat.gov.in
3	DSP	Shri N.N.Chaudhari	02626-222700	02626-222722	9978405488	220100	sp-tapi@gujarat.gov.in
4	Resi.Addl. Collector	Shri B.B.Vahoniya	02626-224450	02626-221222	9978405415	221281	collector-tapi@gujarat.gov.in
5	DFO	Shri Anand Kumar	02626-222019	—	8980613505	222339	dcfvyaral@gmail.com
6	DRDA	Shri J.J.Ninama	02626-223232	—	7567042193	224001	drda.tap@gmail.com
7	DSO	Smt. N.H.Patel	02626-224401	—	9879598335	221281	collector-tapi@gujarat.gov.in
8	Dy. DDO (Revenue)	Shri G.R.Vasava	02626-220405	—	9427878247	222142	ddo-tapi@gujarat.gov.in
9	CDHO	Dr. Harshad B. Patel	02626-220376	—	7434065700	220453	cdho.health.tapi@gmail.com
10	DEO	Shri B.M.Patel	02626-221624	—	9099071307	221623	tapideo@gmail.com
11	DPEO	Shri J.M.Patel	02626-222057	—	9099237135	221623	tapidpc@gmail.com
12	General Manager DIC	Shri M.M.Gamit	02626-221820	—	9979117143	221810	gm-dic-tap@gujarat.gov.in
13	Dy.Dir.Info	Shri R.R.Tadvi	02626-222980	—	9909237547	222980	tapiadi932@gmail.com
14	Chief Fire Officer	Shri S.N.Panchal	02626-222022	—	9925031901	221015	vvaranagar@yahoo.co.in
15	Control Room Mamlatdar Disaster	—	—	—	—	—	—

32. The Dang (STD Code : 02631)

S.No.	Designation	Name	Office	Residence	Mobile	Fax	Email Id
1	Collector	Shree N.K.Damor	220201	220202	9978406208	220294	collector-dang@gujarat.gov.in
2	Police Commissioner (If any)	-	-	-	-	-	-
3	SP	-	-	-	-	-	-
4	DSP	Mrs. Sweta Srimali	220248		9978405021	220226	dang@gujarat.gov.in
5	D D O	Shree H.K. Vadvaniya	220254	220235	9978406233	220444	ddo-dang@gujarat.gov.in
6	Resident Additional Collector	Shree T.K. Damor	220221	-	9978447801	220294	rac-dang@gujarat.gov.in
7	Executive Engineer, R & B	Shree J. K. Patel-	220228	220476	9426439165	-	r&bdang@gmail.com
9	DRDA	Shree D. R. Asari	220217	220206	7567034465	220214	drda-dan@gujarat.gov.in
10	DSO	Shree P. F. Patel (I/C)	220272	-	9712624231	220384	
11	CDHO	Dr .Sanjay Shah	220344	-	9427119204	220444	dcp.health.dang@gujarat.gov.in
12	DEO, City	-		-			
13	DEO, Rural	Shree M.C.Bhusara	220208	-	9909971663	220408	dangldeo@gujarat.gov.in
14	DPEO	Shree M.C.Bhusara(I/C)	220337	-	9909971688		
15	Shasanadhikari	-	-	-	-	-	-
16	General Manager DIC	-	-	-	-	-	-
17	Dy. Director Information	Shree Kanubhai Parmar	220326	-	8141778910	220581	
18	Assitant Director, Industrial Safety & Health	-	-	-	-	-	-
19	Fire Officer	-	-	-	-	-	-
20	Secretary, Rec Cross	-	-	-	-	-	-
21	Disaster Mamlatdar	Shree Jayesh Patel	220346	-	9408957558	-	mamlatdar@gmail.com
22	DPO	Shree Chintan Patel	220347	-	8866641248	-	chintucn3@gmail.com

33. Vadodra (STD Code : 0265)

Sr.No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	2	3	4	5	6	7	8
1	Collector	Ms. Shalini Agrawal (IAS)	2433000	2313131	9978406224	2431093	collector-vad@gujarat.gov.in
2	Commissioner of Police	Shri Anupamsinh Gehlot (IPS)	2431414	2322232	9978405299	2432582	cp-vad@gujarat.gov.in
3	Municipal Commissioner	Shree Nalin Upadhyay (IAS)	2433344	2791300	9978406985	2433060	commissioner@vmc.gov.in
4	D.D.O.	Shri Kiran B. Jhaveri (IAS)	24 32027	2338476	9978406249	2431078	ddo-vad@gujarat.gov.in
5	D.S.P.	Shree Sudhir Desai	2412255	2452923	9978406094	2432604	sp-vad@gujarat.gov.in
6	Resi. Addl. Collector	Shri D R Patel	2419700	-	9978405196	2431093	-
7	D.R.D.A.	Shri B B Chaudhary	2487432	-	7567043376	2485608	drdavad@yahoo.com
8	DSO	Shree Shailesh D. Goklani	2433201	2464066	7567022247	2418900	dso-vad@gujarat.gov.in
9	Dy. D.D.O. (Revenue)	Shri Swetaben B. Rathod	2431770	-	7567017977	2431036	dyddorevvado@gmail.com
10	C.D.H.O. I/C	U.T.Tilavat	2432383	-	8980039101/	2431036	cdho.health.vadodara@gmail.com
11	D.E.O.	Shree U. N. Rathod	2461703	2711416	9909987576	2461703	vadodeo@gmail.com
12	D.P.E.O.	Smt. Chaudhary	2436411	-	9909987576	2431078	dpeovadodara@gmail.com
13	Dy. Muni. Commi.	Shri Sudhirbhai K. Patel	2433233	2782278	9909919529	2433060	vmcdymca@gmail.com
14	Shasanadhikari	Shri Dharmendrasinh Chudasama	2418388	-	9574555837	2417620	npssvadodara@yahoo.com & msbvdtr@gmail.com
15	General Manager D.I.C.	Shri H N Mewada	2423246	-	9825075598	2426516	gm-dic-vad@gujarat.gov.in
16	Dy. Director Information	Shri Babubhai P. Desai	2458761	-	9978405785	2431377	cdmo-vad@gujarat.gov.in
17	Chief Fire Officer	Shri Parth Brahmabhatt I/c	2420881	2420882	9924025094	2420881	cfovadodarafire@gmail.com
18	Mamlatdar Disast. Managmnt.	Smt. Rekhaben Modha	2427592		9714556264		vad.deoc@gmail.com
19	DPO(GSDMA)	Smt. Shlesha Parmar	2427592	-	9737988891	2431093	dpovadodara.gsdma@gmail.com

34. Valsad (STD Code : 02632)

Sr. No.	Designation	Name	Office	Resi	Mobile	Fax	Email ID
1	2	3	4	5	6	7	8
1	Collector	Shri.C.R.Kharsan	253613	253060	9978406225	243417	collector-val@gujarat.gov.in
2	DDO	Shri Arpit Sagar	253184	253086	9978406250	253829	ddo-val@gujarat.gov.in
3	DSP (Rural)	Shri. Sunil Joshi	254222	253093	9978405085	253408	sp-val@gujarat.gov.in
4	Resi.Addl.Collector	Shri N.A.Rajput	253731	244476	9978405253	243417	add-collector-val@gujarat.gov.in
5	DRDA	Shri. B.K. Vasava	254093 244303		9978405650	-	drda.val@gmail.com
6	DSO	Shri. D.I.Patel	244192	-	9974309633	252251	dso-val@gujarat.gov.in
7	Dy.DDO (Revenue)	Shri. D.V.Makvana	254282	-	7567018018	-	dyddorev.val@gmail.com
8	CDHO	Dr. A.B.Patel	253080	-	9426553969 9727782001	-	cdho.health.valsad@gmail.com
9	DEO, Rural	Shri. K.F. Vasava	254228	-	9909970216	254228	vlsddeo@gmail.com
10	DPEO	Shri. Y.H.Patel	253210	-	9909987577	-	dpeovalsad@gmail.com
12	General Manager DIC	Shri.G.L.Patel	254283 244100	244160	7567021207	244987	gm-dic-val@gujarat.gov.in
13	<u>Dy.Dir.Info</u>	I/C Shri.M.S.Valvi	253817	-	9879412185	256595	ddivalsad@gmail.com
15	Control Room Mam.Disa.	I/C Shri.Hardik Satasiya	243238	-	8460473071	-	dismgmt-val@gujarat.gov.in
16	DPO	Shri.Jayvirsinh Raol	243238	-	8849000397	-	raoljayvir09@gmail.com

35. Municipal Commissioners

No.	Name	City	Telephone No.	E-mail
1	Shri Mukesh Kumar	Municipal Commissioner, Ahmedabad	(O)07925352828 (M) 9978407676	mc@ahmedabadcity.gov.in
2	Shri Udit Agrawal	Municipal Commissioner, Rajkot	(O)02812224133 (M) 9714503701	mc_rmc@rmc.gov.in
3	Dr. (Ms.) Ratankanvar H. Gadhvicharan	Municipal Commissioner, Gandhinagar	(O)07923220440 (M) 9978445135	gmc8gandhinagar@gmail.com
4	Shri M.A. Gandhi	Municipal Commissioner, Bhavnagar	(O)02782510532 (M) 9978403000	commi-bmc@gujarat.gov.in
5	Shri Banchha Nidhi Pani	Municipal Commissioner, Surat	(O)02612422244 (M) 9724345000	commissioner@suratmunicipal.org
6	Shri S.A. Patel	Municipal Commissioner, Jamnagar	(O)02882552321 (M) 9327372179	mcjamanagar@gmail.com
7	Shri Tushar Dalpatbhai Sumera	Municipal Commissioner, Junagadh	(O)02852650450 (M) 9978400501	municipalcorporationjund@yahoo.co.in
8	Shri N.B.Upadhyay	Municipal Commissioner, Vadodara	(O) 02652433344 (M) 9978406985	commissioner@vmc.gov.in

III. Important Websites

Department	Website
MHA	www.mha.nic.in
NDMA	www.ndma.gov.in
GSDMA	www.gsdma.org
GIDM	http://www.gidm.in/
NIDM	www.nidm.net
IDRN	http://idrn.gov.in
SDRN	http://117.239.205.164/SDRN_NEW/
IMD	www.imd.gov.in
ISR, Gujarat	http://dst.gujarat.gov.in/isr.htm
BISAG	http://www.bisag.gujarat.gov.in
GSWAN	http://www.gswan.gov.in

Annexure 2
Emergency Response Center

Sr. No.	Name of the ERC	Contact Details					
		Chief Fire Officer (CFO)		Station Officer		Project Officer/District Project Officer	
		Name	Number	Name	Number	Name	Number
1	Gandhinagar	M. F. Dastoor	9327038754	Raj Kumar	9227135277	Radhika Tiwari	8849344852
		Mahesh Mod	9427955551				
2	Vadodara	Parth Brahmhatt	9924025094	Harsh Vardhan	8141438666	Chirasmitha Barik	9737478088
3	Gandhidham-Kutch	Ilesh Kher	9879515966	Narendra Bhai Gadhvi	9825572188	Shlesha Mistry	9737988891
4	Surat	Basant Pareek	9724345553	Jagdish Patel	9724345684	Mehul Padaria	7987702303
						Nital Doshi	8780656017
5	Rajkot	B. J. Theba	9714503715	Shailesh Nadiyapara	9714912125	Kaushik Kumar	9033920674
						Priyank Singh	8401595144

Annexure 3

Format for Damage and Loss Assessment (Relief Memorandum)

A. Inspection Team Inspection Date & Time: _____
 Structure Engineer: _____
 Civil Engineer: _____
 Junior Engineer: _____
 Officer of Local Competent: _____
 Authority (from engg. section) _____
 Photographer: _____

Area Inspected: ☐ Exterior Only
☐ Exterior & Interior

B. Type of Disaster
☐ Earthquake ☐ Flood ☐ Fire ☐ Cyclone ☐ Blast ☐ Other

C. Location, Type & Occupancy of Building:

Location:
 Building Name: _____
 Address: _____

 Contact: _____ Phone: _____
 Survey No.: _____
 Final Plot No.: _____
 Sub Plot No.: _____
 Town Planning Scheme No.: _____

Brief Details:
 Number of stories above ground: _____
 below ground: _____
 Parking Floor: ☐ Ground Level
☐ Basement Level
 Approx. Footprint area (sqm): _____
 No. of residential units: _____
 No. of residential units: _____
 not habitable

(To be collected from Competent Authority)

Type of Construction:

<input type="checkbox"/> Timber Construction	<input type="checkbox"/> Reinforced Masonry
<input type="checkbox"/> Masonry Construction	<input type="checkbox"/> Kiln burnt bricks
<input type="checkbox"/> Kiln burnt bricks	<input type="checkbox"/> Hollow Concrete Blocks
<input type="checkbox"/> Unburnt bricks	<input type="checkbox"/> Concrete Frame
<input type="checkbox"/> Random Rubble Uncoarsed	<input type="checkbox"/> Concrete Shear Wall
<input type="checkbox"/> Random Rubble Coarsed	<input type="checkbox"/> Dual System
<input type="checkbox"/> Hollow Concrete Blocks	<input type="checkbox"/> Precast Concrete Construction
<input type="checkbox"/> Steel Structure	<input type="checkbox"/> Composite Structure
<input type="checkbox"/> Other: _____	

Primary Occupancy:

<input type="checkbox"/> Individual House	<input type="checkbox"/> Commercial	<input type="checkbox"/> Educational	<input type="checkbox"/> Group Housing
<input type="checkbox"/> Offices	<input type="checkbox"/> Restaurant	<input type="checkbox"/> School	<input type="checkbox"/> Tenements
<input type="checkbox"/> Government	<input type="checkbox"/> Hotel	<input type="checkbox"/> College	<input type="checkbox"/> Flats
<input type="checkbox"/> Semi Government	<input type="checkbox"/> Industrial	<input type="checkbox"/> University	<input type="checkbox"/> Historic
<input type="checkbox"/> Emergency Services	<input type="checkbox"/> Cinema House, Auditoriums, Assembly Halls	<input type="checkbox"/> Fire Stations	
<input type="checkbox"/> Hospital	<input type="checkbox"/> Other: _____		

D. Assessment:

Investigate the building for the conditions given below and check the appropriate column.

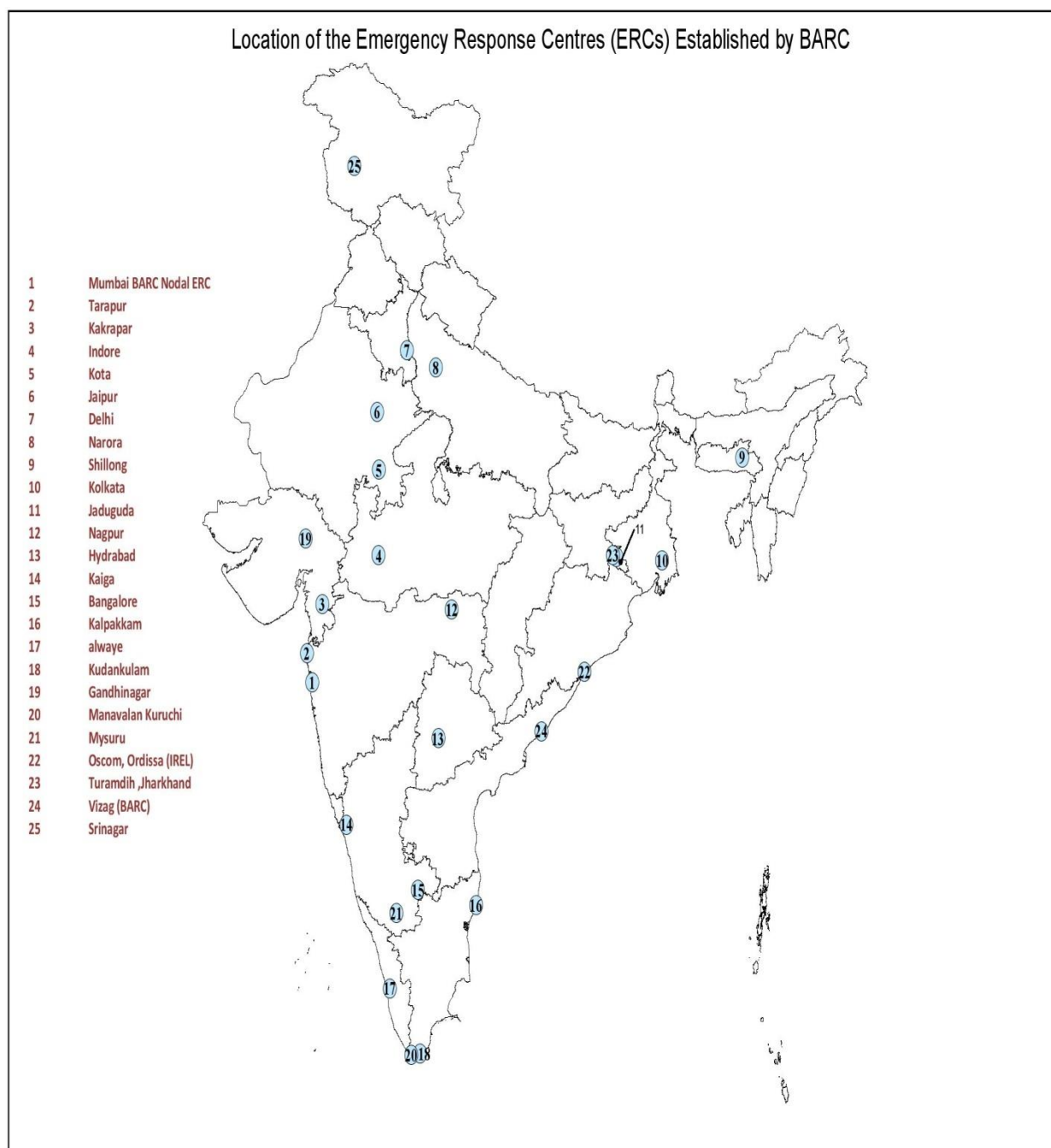
Observed Conditions	None	Minor	Moderate	Severe
● Collapse, partial collapse, or subsidence or uneven settlement of foundations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Building or story leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Structural Damage to Bearing Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Structural Damage to Frame Structure				
Columns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Column-Beam Junction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Parapet Wall, Architectural Elements, other Falling Hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Subsidence of ground, cracking ground slope movement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Internal Services				
Water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drainage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lift	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire Fighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Site Hazards				
Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electricity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drainage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toxic Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sketches:

Photographers:

Annexure 4

Location of the Emergency Response Centres (ERCs) Established by BARC



Annexure 5

Suggested Radius of Inner Cordoned Area (Safety Perimeter) for Radiological Emergencies (IAEA-EPR-FIRST RESPONDERS 2006)

Situation	Initial Inner Cordoned Area (Safety Perimeter)
Initial Determination (Radiological Emergency in Open Area)	
Unshielded or damaged potentially dangerous source	30m around
Major spill from a potentially dangerous source	100m around
Fire, explosion or fumes involving a potentially dangerous source	300m radius
Suspected bomb (potential RDD), exploded or unexploded	400m radius or more to protect against an explosion
Initial Determination (Radiological Emergency Inside a Building)	
Damage, loss of shielding or spill involving a potentially dangerous source	Affected and adjacent areas (including floors above and below)
Fire or other event involving a potentially dangerous source that can spread materials throughout the building (e.g., through the ventilation system)	Entire building and appropriate outside distance as indicated above
Expansion Based on Radiological Monitoring	
Ambient dose rate of 100 μ Sv/h	Wherever these levels are measured

Annexure 6

Technical Specifications of Instruments

- I. For the purpose of surveillance, it is proposed to equip fairly good number of vehicles patrolling on road in all metropolitan cities and other district headquarter – town, that have high potential of radiological hazards with **Go/No-Go type of Survey Instrument**. It will give an audio – visual alarm at dose rate exceeding 1mR/hr (.01mSv/hr). (**@ 1 no. For each AERC**)
- II. Portable Survey Meter with maximum dose range (Gamma Rays) of 5 R/hr (50 m Sv/hr). It will read the radiation field in an affected area. (**@ 1 no. for each AERC**)
- III. Digital Dosimeters to provide digital display of cumulative dose received and to a trigger an alarm when the cumulative dose exceeds a set value (**@ 5 nos. for each AERC**)
- IV. **Comfo – Respirators** to prevent particular radioactivity from inhalation and/or exposure to the face and eye. It is like a helmet to protect face, eye and nose. (**@ 5 nos. for each AERC**)
- V. **Radiation Symbols** to be utilised for cordoning off the suspected/affected area of radiological contamination. (**@ 10 nos. For each AERC**)
- VI. **Oro- Nasal Surgical Masks** for preventing inhalation of particulate radioactive material. (**@ 50 nos. for each AERC**)
- VII. **Centralised Laboratory Facility** at each town/metro to ensure workability of all the instruments. It will have facility for calibration, maintenance etc. This will house one radioactive source (Cs- 137/Co-60) for calibration, a high range survey meter and some instruments for maintenance. (**@1no. per town/metro**). The room required for this laboratory will be provided by the concerned State Government.

Annexure 7

Dose Limits

AERB has prescribed the following dose limits for exposures to ionising radiations for occupational workers.

A) Effective dose¹ (whole body)

1. 20 mSv averaged over five consecutive years, calculated on a sliding scale of five years²; (The cumulative effective dose in the same five year period shall not exceed 100 mSv)
2. a maximum of 30 mSv in any year.

B) Equivalent dose (Individual Organs)

- | | |
|---|----------------------|
| 1. i) Eye lens | 150 mSv per year and |
| 2. ii) Skin ³ | 500 mSv per year |
| 3. iii) Extremities
(hands and feet) | 500 mSv per year |

C) Pregnant woman

- | | |
|--|----------|
| 1. Equivalent dose limit to the surface of the
woman's lower abdomen
(for the remaining period of pregnancy) | 2 mSv |
| 2. Annual Limit on Intake (ALI) for radio nuclides
(for the remaining period of pregnancy) | 0.05 ALI |

D) Apprentices and students (above the age of 16 years)

- | | |
|-------------------------------------|-----------------|
| Effective dose ((whole body): | 6 mSv per year |
| Equivalent dose (Individual Organs) | |
| 1. Eye lens | 15 mSv per year |
| 2. Skin | 50 mSv per year |
| 3. Extremities
(hands and feet) | 50 mSv per year |

In addition, investigation limits are also prescribed by AERB at which investigation of exposure cases exceeding these limits are carried out by an AERB committee.

Note-

- ¹ Effective dose means summation of the tissue equivalent doses, each multiplied by the appropriate tissue- weighting factor.
- ² Sliding scale of five years means current year and previous four years.
- ³ Average dose over 1cm² of the most highly irradiated area of the skin.

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