पश्चिम रेलवे
Western Railway

आपदा प्रबंधन योजना
Disaster Management Plan

2026

PART: A

राजकोट मंडल

FirstEdition	2009
SecondEdition	2014
ThirdEdition	2019
Fourth Edition	2020
Fifth Edition	2022
Sixth Edition	2023
Seventh Edition	2024
Eight Edition	2025
Ninth Edition	2026
Publishedby	: Safety Department Rajkot Division, WesternRailway

Sr.DSO-RJT (Telephone) : (M) - 9724094901
(Rly)- 094-44602

ACKNOWLEDGEMENT

The Safety Department of Rajkot Division expresses its sincere gratitude to the State Government of Gujarat, Civil Authorities of Gujarat, Gujarat State Disaster Management Authority, Revenue Department of the Government of Gujarat, and the National Disaster Response Force for their invaluable support.

Utmost care has been taken to provide accurate information regarding local resources.

As Railway doubling work is currently in progress in the Rajkot Division, relevant information has been included in this edition.

The publisher welcomes feedback and corrections, if any errors are found.

DISASTER MANAGEMENT PLAN 2026

प्रस्तावना

(आपदा प्रबंधन योजना राजकोट मंडल का 9 वाँ संस्करण)

आपदा एक प्राकृतिक अथवा मानव निर्मित घटना होती है जो जीवन, संपत्ति, आजीविका अथवा उद्योग पर नकारात्मक प्रभाव डालती है। इसके परिणामस्वरूप मानव समाज , पारिस्थितिक जीवन तंत्र एवं पर्यावरण में स्थाई परिवर्तन होता है। आपदाओं के प्रबंधन हेतु तैयार की गयी सुव्यवस्थित योजनाएं जान-माल की क्षति और संसाधनों के दुरुपयोग को न्यूनतम स्तर तक कम करने में सहायक होती हैं।

इस योजना की सफलता ऐसे आपदाजनक परिस्थितियों से निपटने के लिए रेल कर्मियों की तत्परता पर निर्भर करती है। अतः यह ध्यान देने का विषय है कि जितना अधिक हम अभ्यास करेंगे, उतनी ही गंभीरता से सभी संबंधित पहलुओं पर विचार कर सकेंगे तथा गुणवत्तापूर्ण और प्रभावी बचाव कार्य कर पाएंगे और पुनःस्थापन के लिए बेहतर रूप से तैयार रहेंगे।

अगले प्रकाशन में अतिरिक्त सुधार हेतु सुझाव आमंत्रित हैं।

गिरिराज कुमार मीना
मंडल रेल प्रबंधक
राजकोट

DISASTER MANAGEMENT PLAN 2026

प्रस्तावना

आपदा चाहे वह मानवरचित हो या प्राकृतिक, दोनों ही स्थितियों में जीवन एवं संपत्ति की अपूरणीय क्षति का कारण बनता है। रेलवे के पास एक सुव्यवस्थित आपदा प्रबंधन तंत्र है, जिसके माध्यम से वह मानव-त्रुटि अथवा प्राकृतिक कारणों से उत्पन्न छोटी-बड़ी आपदाओं से प्रभावी ढंग से निपटने में सक्षम है। यह सर्व विदित है कि रेलवे के इस तंत्र को प्रारंभ से ही निरंतर सुदृढ़ किया जाता रहा है और यह प्रक्रिया निरंतर जारी है।

आपदा प्रबंधन का मूल उद्देश्य त्वरित प्रतिक्रिया एवं कार्यवाही के लिए सदैव तत्पर रहना है। इसी कारण रेलवे की संयुक्त संरक्षा योजना में आपदा प्रबंधन पर विशेष बल देते हुए इसका विस्तृत विवरण प्रस्तुत किया गया है।

रेलवे बोर्ड द्वारा गठित उच्च स्तरीय समिति ने भी आपदा प्रबंधन की आवश्यकता को स्वीकार करते हुए अपनी सिफारिशें प्रस्तुत की थीं। समिति ने सुझाव दिया कि रेलवे के आपदा प्रबंधन तंत्र का नियमित रूप से निरीक्षण किया जाए एवं आवश्यकतानुसार उसमें सुधार किया जाए। इन सिफारिशों के आधार पर भारतीय रेल के सभी ज़ोन एवं मंडल नियमित रूप से अपने आपदा प्रबंधन तंत्र को उन्नत करते रहते हैं। यह समस्त कार्य आपदा प्रबंधन अधिनियम, 2005 में वर्णित निर्देशों के अनुरूप किया जाता है।

इसी क्रम में, राजकोट मंडल अपना नौवाँ आपदा प्रबंधन योजना संस्करण प्रकाशित करने जा रहा है। यह आशा की जाती है कि इस योजना में दिए गए सभी निर्देशों का राजकोट मंडल के समस्त अधिकारी एवं कर्मचारीगण गंभीरतापूर्वक अध्ययन करेंगे तथा मंडल की आपदा प्रबंधन टीम योजनाबद्ध तरीके से किसी भी आपदा से निपटने हेतु सदैव तैयार रहेगी।

KAUSHAL KUMAR CHAUBEY
Digitally signed by KAUSHAL KUMAR CHAUBEY
Date: 2026.03.19 12:44:00 +05'30'

(कौशल कुमार चौबे)
अपर मंडल रेल प्रबंधक

DISASTER MANAGEMENT PLAN 2026

प्रस्तावना

पश्चिम रेलवे का राजकोट मंडल गुजरात के अरब सागर तट क्षेत्र पर स्थित है। यह संभाग भूकंप और चक्रवात के प्रति संवेदनशील है। ऐसे में भूकंप की संभावना से इनकार नहीं किया जा सकता है। ऐसी आकस्मिक स्थिति से निपटने हेतु रणनीति बनायी गयी है।

इस संस्करण में, मुख्यालय और रेलवे बोर्ड की गाइड लाइन के अनुसार योजनाबद्ध तरीके से राहत, बचाव और बहाली के विभिन्न पहलुओं को शामिल किया गया है। आपदा प्रबंधन अधिनियम 2005 की महत्वपूर्ण धाराओं के साथ-साथ मीडिया प्रबंधन और NDMA द्वारा जारी CBRN से संबंधित दिशा निर्देश भी शामिल हैं।

इसमें भारतीय रेलवे के साथ-साथ पश्चिम रेलवे की आपदा प्रबंधन योजना के प्रावधान भी शामिल हैं। चिकित्सा विभाग द्वारा निभाई गई भूमिका से प्रेरित होकर, राजकोट डिवीजन के अस्पताल आपदा प्रबंधन योजना को इस संस्करण में शामिल किया गया है ताकि किसी भी MCE (सामूहिक हताहत निकासी) के परिणामस्वरूप रुग्णता और मृत्यु दर को कम करने के लिए अधिकतम संभव त्वरित और प्रभावी चिकित्सा देखभाल प्रदान की जा सके। दुर्घटना स्थल की त्वरित बहाती के लिए सड़क संपर्क आरेख भाग वी में उपलब्ध कराए जा रहे हैं। राजकोट मंडल में रेलवे विद्वयुतीकरण कार्य का तकनीकी विकास किया जा रहा है, इसलिए इस डीएम योजना में संबंधित जानकारी भी शामिल की गई है।

सभी विभागों और कर्मचारियों के कर्तव्यों में आपात स्थिति से निपटने के लिए अपनी-अपनी भूमिका और जिम्मेदारी को समझना और परिचित करना शामिल है। नागरिक सुरक्षा, स्काउट और गाइड, आर.पी.एफ. ट्रैकमैन, स्टेशन स्टाफ और रेलवे और नागरिक प्राधिकरणों, एन.डी.आर.एफ. जी.एस.डी.एम.ए. गैर सरकारी संगठनों, रेलवे के बाहर से सेना संगठन, निजी ठेकेदारों के बोर्ड स्टाफ सहित सभी संबंधित पक्षों की ओर से तैयारी, गतिशीलता और उपयुक्त प्रतिक्रियाएँ वे चैनल जिन पर आपदा प्रबंधन प्रणाली टिकी हुई है।

मैं अपने स्टाफ के प्रति हार्दिक आभार व्यक्त करता हूं जिन्होंने आपदा प्रबंधन योजना 2026 की तैयारी में सहायता और समर्थन किया। हमारे सम्मानित प्रधान मुख्य संरक्षा अधिकारी श्री कुशाल सिंह, मंडल रेल प्रबन्धक श्री गिरिराज कुमार मीणा, अपर मंडल रेल प्रबन्धक श्री कौशल कुमार चौबे और राजकोट मंडल के सभी अधिकारियों को उनके सहयोग के लिये मेरा हार्दिक धन्यवाद।

RAMESH CHAND MEENA
Digitally signed by RAMESH CHAND MEENA
Date: 2026.03.19 18:37:15 +05'30'

(रमेश चंद मीना)
वरिष्ठ मंडल संरक्षा अधिकारी, राजकोट

GIST
DISASTER MANAGEMENT PLAN

1. Disaster in the railway context is defined asunder:-

   "Railway Disaster is a serious train accident or an untoward event of grave nature, either on the railway premises or arising out of railway activity in that area, due to natural or man-made causes, that may lead to loss of many lives and/or grievous injuries to a large number of people, and/or severe disruption of traffic, necessitating large scale help from other Government/ Non-government and private Organizations"

   (Rly. Bd's letter No. 2003/Safety (DM)/6/2 Pt. dated 06.01.09 & based on the definition of the Disaster Management Act2005, Ministry of Railways has adopted).

2. This compendium of instructions has been prepared for dealing with such disaster, and not for normal train accident. Instruction in G&SR, SWR and Accident Manual are also to be followed.

Term of reference:

Railway Board's Safety Directorate vide their letter No.2003/Safety-I/6/2 dated 29th September 2003 laid down the requirement of Zonal Railway's Disaster Management Plan as follows.

1. **Disaster Management Plan:** All Divisions and Zonal Railway Headquarters (including Metro Kolkata & Delhi Metro Rail Corporation)must devise their disaster management plan, If not already done taking into consideration the resources available with them,their neighbouring divisions/Zonal Railways,civil authorities,industrial units and armed Force bases located in their territory.This would enable the Divisions / Zonal Railways to muster the entire local resources in case of a major disaster/natural calamity.Zonal Railways DisasterManagementPlanshould integrate all divisions and also to take into consideration adjacent railways' framework.
2. **Preparation of Disaster Management Plan**: The Disaster Management Plan must inter-alia include who is responsible for what activities in detailfor:-
   (i) Preparation and implementation of disaster management plan is the responsibility of concerned Divisional RailwayManager.
   (ii) Authority to order ART/ARME/SPART/Break Down crane - Chief Train Controller along with the co-ordination of Chief Power Controller (as per accident manual)
   (iii) Senior most railway officer at the site of the accident shall be the designated Site Manager.
   (iv) Management of rescue operations - Primarily Mechanical and Medical Departments. Assistance to be provided by all railwaymen (irrespective of their department) asneeded.
   (v) Relief operations including care for the dead - Commercial, Medical & RPF Departments.

(vi) Communication network- Telecom Department.

(vii) Crowd control and law & order at site-RPF.

(viii) State Police clearance for restoration-RPF.

(ix) Restoration operations–
Rolling stock- Mechanical Department.
Fixed infrastructure like Track, Over Head Equipment, Signalling system, etc. departments concerned.

(x) Maintenance of SPART/ART & SPART/ARME, Break Down cranes including rail-cum-road and road mobile emergency vehicle etc.- Mechanical Department.

(xi) Maintenance of equipment kept in SPART/ART/ARME for rescue and restoration operations- Departments concerned.

(xii) Media Management at site–
- (a) Site Manager shall be the chief spokesman at site and can be assisted by the branch officer concerned, if needed.
- (b) PublicRelation/Commercial Department to look after the media needs at site.

(xiii) Check list for the officers & supervisors must be issued in the form of a pocket booklet indicating DOs and DON'Ts for the benefit of:
- (a) First official reaching the site of accident.
- (b) Senior most officers at the site.
- (c) Divisional/HQ controlorganization.
- (d) Station Manager/StationMaster.

The Disaster Management Plans must be reviewed and updated in the month of **January every year.**

Abbreviations

1AC	-	1st Air ConditionedCoach
2AC	-	2 Tier Air Conditioned SleeperCoach
3AC	-	3 Tier Air Conditioned SleeperCoach
AC	-	Air Conditioned
ADG	-	Additional DirectorGeneral
ADI	-	Ahmadabad Junction
ADMO	-	Assistant Divisional Medical Officer
ADRM	-	Additional Divisional RailwayManager
ADEN	-	Assistant DivisionalEngineer
ADME	-	Assistant Divisional Mechanical Engineer
AGM	-	Additional GeneralManager
ARME	-	Accident Relief Medical Equipment
ART	-	Accident Relief Train
Asstt.	-	Assistant
ASTE	-	Assistant Signal & Telecommunication Engineer
BCT	-	Mumbai CentralTerminus
BCNHS	-	8-Wheel covered air brake wagon with high speed
BDSpl	-	Break down Special
BRNHS	-	8-wheel open flat air brake wagon with high speed
BSNL	-	Bharat Sanchar Nigam Limited
BVP	-	Bhavnagar Junction
CR	-	Central Railway
C&W	-	Carriage and Wagon
CAC	-	Combined Assistance Centre
CBE	-	Chief Bridge Engineer
PCCM	-	Principal Chief Commercial Manager
CCRS	-	Chief Commissioner of Railway Safety
PCEE	-	Principal Chief Electrical Engineer
CFTM	-	Chief Freight TransportationManager
CTNL	-	ChiefController
Chg.	-	Coaching
PCMD	-	Principal Chief Medical Director
PCME	-	Principal Chief Mechanical Engineer
CMI	-	Commercial Inspector
PCMM	-	Principal Chief Materials Manager
CMPE(Diesel)	-	Chief Motive Power Engineer (Diesel)
PCOM	-	Principal Chief Operations Manager
PCOS	-	Principal Controller of Stores
PCPO	-	Principal Chief Personnel Officer
CPRO	-	Chief Public Relations Officer
CPTM	-	Chief Passenger Transportation Manager
CRS	-	Commissioner of Railway Safety
CRSE	-	Chief Rolling Stock Engineer
PCSC	-	Principal Chief Security Commissioner
CSE	-	Chief Signal Engineer
CSO	-	Chief Safety Officer

CSTE	-	Chief Signal & Telecommunication Engineer
CTE	-	Chief Track Engineer
CWE	-	Chief Workshop Engineer
CWI	-	Carriage & WagonInspector
SSE(C&W)	-	Senior Section Engineer (Carriage & Wagon)
DAC	-	Dahinsara Junction
DCM	-	Divisional Commercial Manager
DMM	-	Divisional Material Manager
DEE	-	Divisional ElectricalEngineer
DEN	-	Divisional Engineer
DFM	-	Divisional FinanceManager
DG	-	Director General
DM	-	Disaster Management
DME	-	Divisional Mechanical Engineer
DMO	-	Divisional Medical Officer
DMT	-	Disaster Manager Team
DMU	-	Diesel Multiple Unit
DOM	-	Divisional Operations Manager
DOT	-	Department ofTelecommunication
DPO	-	Divisional PersonnelOfficer
DR	-	Disaster Response
DRM	-	Divisional Railway Manager
DSC	-	Divisional Security Commissioner
DSO	-	Divisional Safety Officer
DSTE	-	Divisional Signal & Telecommunication Engineer
Dy.	-	Deputy
Dy.TNL	-	Deputy Controller
E-Mail	-	Electronic Mail
EC	-	Emergency Control
ED	-	Executive Director
EMU	-	Electric Multiple Unit
Engg.	-	Engineering
ETL	-	Emergency TrainLighting
FA&CAO	-	Financial Advisor and Chief Account Officer
FR	-	First Responders
(G)	-	General
G&SR	-	General& SubsidiaryRule
GIM	-	Gandhidham Station
GM	-	General Manager
GRP	-	Govt. Railway Police
HOD	-	Head of Department
HOR	-	High Official Requisition
HPC	-	Hindustan Petroleum Corporation
HQ	-	Head Quarters.
HRE	-	Hydraulic Rerailing Equipment
HRD	-	Hydraulic Rescue Device
IAF	-	Indian Air Force
IAT	-	Instant ActionTeam

IG	-	Inspector General of Police
IR	-	Indian Railways
IRCM	-	Indian Railway Commercial Manual
IRMM	-	Indian Railway Medical Manual
IRPWM	-	Indian Railway P-Way Manual
IOC	-	Indian Oil Corporation
ISD	-	International Subscriber Dialling
IT	-	Information Technology
JA	-	Junior Administrative
JCB	-	Jack-cum-Bulldozer
JE	-	Junior Engineer
Jn.	-	Junction
KKF	-	Kankariya
LC	-	Level Crossing
LCC	-	Local CommandCentre
LI	-	Loco Inspector
LPG	-	Liquefied Petroleum Gas
LR	-	Leave Reserve
MALB	-	Maliya Miyana Junction
MOR	-	Ministry of Railways
MOSR	-	Minister of State for Railways
MR	-	Minister for Railways
NGO	-	Non-Govt.Organisation
OC	-	Officer-in-Charge
OHE	-	Over Head Equipment
OKO	-	Okha Station
Op.	-	Operations
PA	-	Public Address
PC	-	Personal Computer
PCE	-	Principal Chief Engineer
PCO	-	Public Call Office
PHOD	-	Principal Head of Department
PNU	-	Palanpur Junction
POL	-	Petroleum &Oil
PR	-	PublicRelations
PCR	-	Power Controller
PRO	-	Public Relations Officer
PSU	-	Public Sector Undertaking
P.W.I	-	Permanent Way Inspector
RAT	-	Railway AffectingTanks
RAW	-	Railway AffectingWorks
RCT	-	Railway ClaimsTribunal
RE	-	Railway Electrification
RG	-	Rest Giver
RJT	-	Rajkot Junction
RMS	-	Railway Mail Service
RPF	-	Railway Protection Force
RPZ	-	Rana Pratap Nagar Station

SUNR	-	Surendranagar Junction
S&T	-	Signal &Telecommunication
SDGM	-	Senior Deputy GeneralManager
SE	-	Section Engineer
Secy.	-	Secretary
SHO	-	Station House Officer
SI	-	Sub-Inspector
SLR	-	Second Class-cum-Luggage-cum-BrakeVan
SM	-	Station Manager
SP	-	Self-Propelled
SPART	-	Self-Propelled Accident Relief Train
SPARME	-	Self Propelled Accident Relief Medical Equipment
SO	-	StaffOfficer
SOS	-	International Call forDistress
Sr.	-	Senior
Sr.DCM	-	Senior Divisional Commercial Manager
Sr.DEE	-	Senior Divisional Electrical Engineer
Sr.DME	-	Senior Divisional Mechanical Engineer
Sr.DMO	-	Senior Divisional Medical Officer
Sr.DOM	-	Senior Divisional Operations Manager
Sr.DPO	-	Senior Divisional Personnel Officer
Sr.DSC	-	Senior Divisional SecurityCommissioner
Sr.DSTE	-	senior Divisional Signal & Telecommunication Engineer
SSE	-	Senior Section Engineer
STD	-	Subscriber Trunk Dialling
STM	-	Senior Transportation Manager
SS	-	Station Superintendent
SWR	-	Station Working Rule
TCM	-	Telecommunication Maintainer
TCI	-	Telecommunication Inspector
TI	-	Traffic Inspector
TRD	-	Traction Distribution
TS	-	Train Superintendent
TTE	-	Travelling Ticket Examiner
TXR	-	Train Examiner
UCC	-	Unified Command Centre
VG	-	Viramgam Station
VHF	-	Very High Frequency
VPU	-	Vehicle ParcelVan
WKR	-	Wankaner Junction
WLI	-	Welfare Inspector
WLL	-	Wireless on Localloop
WTT	-	Working Time Table

INDEX

Introduction		
S.No.	**Topic**	**Page No.**
I	Acknowledgement	i
II	Preamble by Shri Ashwini kumar(DRM Rajkot)	ii
III	Foreword by Shri Kaushal Kumar Chaubey(ADRM Rajkot)	iii
IV	Preface by Shri R. C. Meena(Sr. DSO Rajkot)	iv
V	GIST of Disaster Management	v
VI	Abbreviations	vii
VII	Index	xi
Chapters		
S.No.	**Topic**	**Page No.**
1	Introduction	01
2	Institutional Frame work for Disaster Management	26
3	Reducing Risk and Enhancing Resilience	38
4	Preparedness and Response	69
4.1	Background:	69
4.2	Institutional Framework	70
4.3	National Early Warning System	71
4.4	Coordination of Response at National Level	72
4.5	Fire and Emergency Services (FES)	74
4.6	Responding to Requests for Central Assistance from States	74
4.7	Management of Disasters impacting more than one State	75
4.8	Major Tasks and the Responsibilities - Centre and State	75
4.9	Responsibility Matrix for Preparedness and Response	77
4.10	Disaster Preparedness- Resources	94
4.11	Disaster Preparedness- Different Departments	96
4.12	Helicopter Requirements	100
4.13	Railway Hospital	101
4.14	General	101
4.15	Disaster Preparedness- ARTs/ARMEs	101
4.16	Use Of Accident Alarm Signals- Sounding Of Engine Whistle/ Hooter/ Station Bell	102
4.17	Disaster Preparedness– On Board Resource	103
4.18	Disaster Response –Overview	104
4.19	Disaster Response – Instant Action Team	107

4.20	Duties of OC Site – Immediately after the accident	110
4.21	Formation of Groups comprising members of Instant Action Team	111
4.22	Disaster Response – First Responders	114
4.23	Intimation of Accident	122
4.24	Disaster Management Team	128
4.25	Duties& Responsibilities of Various departments	132
4.26	Helpline Enquiry Booths at stations	145
4.27	Mechanical Department	155
4.28	Security Department	158
4.29	Electrical Department	161
4.30	Signal& Telecommunication Department	164
4.31	Engineering Department	168
4.32	IT Department	170
4.33	Accounts Department	171
4.34	Personal Department	171
4.35	Disaster Response – Co-ordination Centres	172
4.36	Disaster Response – Assistance From Adjoining Divisions/Zones	179
4.37	Site Management Plan	182
4.38	Passenger Care	188
4.39	Management Of Fire In Trains	192
4.40	Other Accidents	196
5	SOP of fire accident	197
6	Strengthening Disaster Risk Governance	207
7	COVID-19 pandemic	220
8	Disaster Management Plan of Railways –Periodical Review	230
9	Capacity Building to handle Disasters	235
10	Medical Preparedness and Hospital DM Plan	245
11	Role of Security Department in DisasterManagement	259
12	Disaster Communication System	266
13	Disaster Information Flow and Alerts of Disaster	280
14	Media management	288
15	Crisis Management Plan – CMP	291
16	Guidelines for Management of Disasters	293
17	Management of Chemical (Industrial) and CBRN Disasters	339
18	Storage & Handling of Hazardous Chemicals	349
19	Managing Crowds	351
20	Disaster Management Training	357
21	NDMA guidelines on Incident Response System	364
22	Disaster Management System, Strategies, Critical Activities and available Resources	365

Annexure		
S.No.	**Topic**	**Page No.**
1	Outline schematic plan of UCC/CAC/LCCs	384
2	Detail schematic plan of UCC	385
3	Detail schematic plan of CAC	386
4	Location of ARMEs over Western Railway	387
5	Location of ARTs over Western Railway	388
6	Division Wise Statement of Modern Gadgets over WR	389
7	Register of Amendment Slips	393

CHAPTER -1
INTRODUCTION

1.1 Background:

Indian Railways is the life-line of nation and thefourth largest Railway network in the worldby size, with a route length of over 72,038 kilometres and total track length of 1,23,236 kilometres. Indian Railway runs more than 13,452 passenger trains and 9,141 Goods trains daily, from 7,318 stations across India.

Western Railway is one of the 17 zones of **Indian Railways**, and is among the busiest railway networks in India. The railway system is divided into six operating divisions: Mumbai, Vadodara, Ratlam, Ahmedabad, Rajkot & Bhavnagar. Western Railway has a route length of over 6508 kilometres and total track length of 8424 kilometres consisting 723 Stations.

Rajkot Division is one of the six Divisions of Western Railway has a route length of over 598.91 kilometres consisting 60 Stations.

As a national common carrier transporting passenger and goods over its vast network, Indian Railways has always played a key role in India's social and economic development. It is a cheap and affordable means of transportation for millions of passengers. As a carrier of bulk freight viz. ores and minerals, iron and steel, cement, mineral oils, food grains and fertilizers, containerized cargo etc., the importance of Indian Railways for agriculture, industry and the common man is well recognized. Indian Railways carried 23.12 million passengers and 3.35 million tonnes of freight each day during 2018-19.

Indian Railways, functioning as Ministry of Railways, is headed by the Minister for Railways. The apex body entrusted with the management of this mega enterprise is led by the Chairman, Railway Board (CRB). Members of the Railway Board include Financial Commissioner, Member Traffic, Member Engineering, Member Rolling Stock, Member Traction, Member S&T, Member Material Management and Member Staff who represent their respective functional domains. Further for administrative convenience, Indian Railways is divided into 17 Zones, each headed by a General Manager (GM). The Zonal Railways are further divided into 68 divisions, each under a Divisional Railway Manager (DRM) where teams of officers, supervisors and staff are directly looking after day to day operational works of the Railways and interacting with rail users. In addition, there are a number of Production Units, Training Establishments, Public Sector Enterprises and other offices working under the control of Railway Board.

Indian Railways came into existence with the running of the first train from Kurla to Thane in 1853. Ever since then handling train accidents has been a priority area for the railways. With the main reason for building up of the rail network by the British Empire being the transportation of the military requirements through the Indian Railways, the railway organization worked hand in hand with the army authorities. Sharing of the Indian Railways and Army Cranes as also their Medical Vans in times of a train accident was anaccepted system for handling disasters (rail accidents).

Western Railway was created on 5 November 1951 by the merger of several state-owned railways, including the Bombay, Baroda, and Central India Railway (BB&CI), and the Saurashtra Railway, Rajputana Railway and Jaipur State Railway.

The narrow gauge lines of Kutch State Railway was also merged into it in 1951.The BB&CI Railway was itself inaugurated in 1855, starting with the construction of a 29-mile (47-km) broad gauge track from Ankleshwar to Utran in Gujarat state on the west coast. In 1864, the railway was extended to Mumbai.

With the gradual growth of Indian Railways and its transition to transportation of passengers and other goods including raw material for industries etc. the railway gradually built up its own infrastructure of Cranes, Accident Relief Trains (ARTs), Accident Relief Medical Equipment Van (ARMVs). Till the beginning of the year 2005, a disaster on the railway in effect meant a serious train accident, other items of disaster viz. Floods, Earthquakes etc.andwere handled in an uncoordinated manner. Disaster preparedness of the Railways, mainly pertaining to handling train accidents, had been gone into by a High Level Committee (HLC) in the year 2002/03 whose recommendations, where relevant, have been kept in view in the preparation of Railways Disaster Management Plan.

The situation has now changed with the promulgation of the Disaster Management (DM) Act in 2005. A disaster no longer means only a train accident, but its scope has become much wider to include other incidents, terrorism related activity and natural calamities etc. The Indian Railways Disaster Management Plan has been prepared on the principles now incorporated in the Disaster Management Act, National Disaster Management Plan and also Guidelines issued by NDMA. The basic philosophy is now to be followed is of sharing resources of all Government Departments along with Railways own resources available to handle serious train accidents, other mishaps, terrorism related crisis, natural calamities etc.

1.2 CONCEPT OF DISASTER ON RAILWAYS:

1.2.1 Disaster Risks in India:

India is vulnerable, in varying degrees, to a large number of natural as well as man-made disasters. 58.6% of the landmass is prone to earthquakes of moderate to veryhigh intensity; over40 million hectares (12% of land)is prone tofloods and river erosion; of the 7516 km long coastline, close to 5700 km is prone to cyclones and tsunamis; 68% of the cultivable area is vulnerable to drought and hilly areas are at risk from landslides and avalanches. Vulnerability to disasters/emergencies of Chemical, Biological, Radiological and Nuclear (CBRN) origin also exists. Heightened vulnerabilities to disaster risks can be related to expanding population, urbanization and industrialization, development within high-risk zones, environmental degradation and climate change.

1.2.2 Disaster defined in Railways'context:

The concept of a Disaster was, till the year 2005, not adequately and comprehensively defined on Indian Railways. It was understood that a Disaster situation implies, on the railways, to cover only cases of serious rail/train accidents. It was, perhaps, due to this anomaly as late as the year 2008, even CAG's report on DM on Indian Railways has broadly adopted this fact in the concept of disaster and has gone to examine the relief/rescue/mitigation and preparedness of Indian Railways based on the earlier concepts and has reviewed the facilities for handling disasters available with the Railways only on the report/recommendations of the HLC on DM.

The definition of DM as given by the Government of India was legislated for the first time in the Disaster Management Act, 2005. The broad principles of disaster for any department of the government changed to the concept of any incident, which could not be handled by the department singularly i.e. if it was beyond the coping capacity of a particular department, the incident could be termed as a disaster. With this came the concept of the departments of Government of India as also the State governments joining hands to extend whatever facilities were available with them to provide relief/rescue and mitigation on the occurrence of a disaster.

In the Disaster Management Plan Plan of Western Railway, this concept of disaster, which has now evolved, has been adopted. All efforts are being made by this railway to ensure that, down the line, thisconcept is understood.

While this Disaster Management Plan is a comprehensive document, more detailed guidelines where required will be laid down by Railway Board on specific topics under the overall philosophy of Disaster Management laid down in this document. For instance, this has been done in the Guidelines on Management of Chemical Disasters and the Hospital DM Plan.

1.2.3 Strengths of the Railways to handle a Disaster: -

In handling disasters, Indian Railways is in a unique position as it has a number of strengths not available with many other departments of Government of India. These include:

- Railways' own Communication Network.
- Operating Control on each Division linked with each Station.
- Territorial Army Units.
- Uniformed force of RPF/RPSF
- Railways' own Medical Infrastructure
- Civil Defence Organization
- An army of gang men spread out all over the Indian Railways.
- Scouts and Guides
- Dedicated Rescue/Restoration and Medical Equipment on Rails.

1.2.4 Types of Disasters:

Disaster in the Railway context was traditionally a serious train accident, caused by human/equipment failure, which may affect normal movement of train services with loss of human life or property or both. This is now extended to include natural and other manmade disasters. Different types of disasters are described along with a few examples, below:

(a) Natural Disasters:

Earthquakes, Floods, Cyclones, Land Slides, Snow Avalanches, Tsunami etc.

(b) Train Accident related Disaster:

Collisions (with a huge number of casualties), Train marooned (flash floods), derailments on a bridge over a water body/gorge and coaches fallen down,

train washed away in cyclone, derailment of a train carrying explosives or highly inflammable material, collapse of tunnel/deep cutting on a train, fire or explosion in trains, and other miscellaneous cases.

(c) Man made Disasters:

Acts of Terrorism and Sabotage, i.e. causing deliberate loss of life and/or damage to property, which includes:-Setting a Train on fire, Railway installations etc., bomb blast at Railway Station/Train, Chemical (Terrorism) Disaster, Biological, Radiological and Nuclear (CBRN) Disaster.

1.2.5 Changed Philosophy of Disaster Management in the Railways

With the enactment of the Disaster Management Act, 2005 and other developments on the national level, DM philosophy has also changed to adopt the latest concepts.

NEW PHILOSOPHY:

- Serious train accidents, not the only events termed as disasters.
- Other events, e.g. Internal security related events like terrorist attack at station/train, marooning of train due to flash flood, disruption to traffic due to natural factors like earth-quake, cyclone, floods etc.
- No more Relief and Rescue Centric.
- Holistic Approach adopted to incorporate :
  - Understanding Disaster
  - Risk Reduction
  - Risk Prevention
  - Mitigation
  - Preparedness
  - Rescue, Relief
  - Rehabilitation

New Philosophy gives more Emphasis on Understanding disaster risk, risk reduction, Prevention and Mitigation as under:

- Understanding Risks
- Risk reduction
- Prevent and mitigate disasters.
- Audit Existing Systems for Disaster Resistance, Disaster Prevention and Mitigation on the basis of NDMA's and self-prepared guidelines.
- Disaster Management in Developmental Planning – New activities should be disaster resistant.
- Preparedness, Rescue, Relief and Rehabilitation - Dimensions of DM.
- Expertise based response from all stake holders.
- Pooling of resources of all agencies, e.g. local administration, community, defence, hospitals and other Govt. Organizations.

1.2.6 Sendai Framework

The NDMP is consistent with the approaches promoted globally by the United Nations, in particular the Sendai Framework for Disaster Risk Reduction 2015-2030 (hereafter "Sendai Framework") adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015 (UNISDR 2015a) as the successor instrument to the Hyogo Framework for Action 2005-2015. It is a non-binding agreement, which the signatory nations, including India, will attempt to comply with on a voluntary basis. However, India will make all efforts to contribute to the realization of the global targets by improving the entire disaster management cycle in India by following the recommendations in the Sendai Framework and by adopting globally accepted best practices.

The Sendai Framework was the first international agreement adopted within the context of the post-2015 development agenda. Two other major international agreements followed it in the same year: the Sustainable Development Goals 2015 – 2030 in September, and the UNCOP21 Climate Change agreement to combat human-induced climate change in December. DRR is a common theme in these three global agreements. The Paris Agreement on global climate change points to the importance of averting, minimizing, and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage. These three agreements recognize the desired outcomes in DRR as a product of complex and interconnected social and economic processes, which overlap across the agendas of the three agreements. Intrinsic to sustainable development is DRR and the building of resilience to disasters. Further, effective disaster risk management contributes to sustainable development.

In the domain of disaster management, the Sendai Framework provides the way forward for the period ending in 2030. There are some major departures in the Sendai Framework:

- For the first time the goals are defined in terms of outcome-based targets instead of focusing on sets of activities and actions.
- It places governments at the centre of disaster risk reduction with the framework emphasizing the need to strengthen the disaster risk governance.
- There is significant shift from earlier emphasis on disaster management to addressing disaster risk management itself by focusing on the underlying drivers of risk.
- It places almost equal importance on all kinds of disasters and not only on those arising from natural hazards.
- In addition to social vulnerability, it pays considerable attention to environmental aspects through a strong recognition that the implementation of integrated environmental and natural resource management approaches is needed for disaster reduction
- Disaster risk reduction, more than before, is seen as a policy concern that cuts across many sectors, including health and education

As per the Sendai Framework, in order to reduce disaster risk, there is a need to address existing challenges and prepare for future ones by focusing on monitoring, assessing, and understanding disaster risk and sharing such information. The Sendai Framework notes that it is "urgent and critical to anticipate, plan for and reduce disaster risk" to cope with disaster. It requires the strengthening of disaster risk

governance and coordination across various institutions and sectors. It requires the full and meaningful participation of relevant stakeholders at different levels. It is necessary to invest in the economic, social, health, cultural and educational resilience at all levels. It requires investments in research and the use of technology to enhance multi-hazard Early Warning Systems (EWS), preparedness, response, recovery, rehabilitation, and reconstruction.

The four priorities for action under the Sendai Framework are:

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

India is a signatory to the Sendai Framework for a 15-year, voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders. It aims for the "substantial reduction of disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries." India will make its contribution in achieving **the seven global targets set by the Sendai Framework:**

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

The four priorities for action under the Sendai Framework have been incorporated into the DM plan of Railways is summarised below for quick reference:

Sendai Framework for DRR (2015-2030) Priority	**Chapters with the priority as its dominant theme**
1. Understanding disaster risk	Chapters 3, 12,13, 14, 16
2. Strengthening disaster risk governance to manage disaster risk	Chapters 3, 4, 5,6

3. Investing in disaster risk reduction for resilience	Chapters 3, 4, 5, 6, 7, 8, 9, 15
4. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction	Chapters 4, 7,15,16,17,18,19

1.2.7 Definition of a Disaster on Railways:

Based on the definition of the Disaster Management Act 2005, Ministry of Railways has adopted the following definition of Railway Disaster:

"Railway Disaster is a serious train accident or an untoward event of grave nature, either on railway premises or arising out of railway activity, due to natural or man-made causes, that may lead to loss of many lives and/or grievous injuries to a large number of people, and/or severe disruption of traffic etc. necessitating large scale help from other Government/Non-government and Private Organizations."

1.2.8 Nodal department for Policy Formulation on DM on Indian Railways:

The preparation of the Disaster Management Plans on Indian Railways and on the Zonal Railways in co-ordination with the different Departments of the Railway, other Central/State Govt. agencies, NGOs, Private agencies, etc. has to be done by the Safety department in the Railway Board, on the Zonal Railways and Divisions.

The Hospital DM plans and the Security arrangements (drills etc.) shall be prepared and coordinated by the Medical and the Security department respectively.

The Management of Floods, Cyclones, Earthquakes, Landslides, etc. and preventive action/mitigation shall be coordinated by the Civil Engineering Department.

The Rescue and Restoration centric DM including preparation of plans and procurement of specialized equipment and rescue centric training of personnel has to be coordinated by the Mechanical Department.

1.2.9 Authority to declare a Disaster on Railways:

Railway Board has nominated GM, AGM or PCSO (when GM/AGM are not available) of a Zonal Railway for declaring an untoward incident as Railway Disaster.Withthe adoption of the above definition of Railway disaster as envisaged in para 1.2.6, it needs to be appreciated that apart from serious train accidents, there may be many more Railway related events which may not even involve human lives,if not handled and managed properly for which necessary prevention and mitigation measures are to be taken by the Railways beforehand.

Western Railway through this Zonal Disaster Management Plan has tried to address risk assessment, risk reduction, prevention, mitigation, preparedness, rescue and relief related issues covering all types of disasters affecting railway system in detail. This should also be appropriately incorporated in the Divisional Disaster Management plans.

1.3 Rajkot division covers a large part of coastal Gujarat and lies on the type IV and type III zone on earthquake prone zone parameter. It covers three major district i.e. Rajkot, Jamnagar, Dev Bhum Dwarka, Morbi and Surendranagar of Saurashtra region of Gujarat.Two adjoining districts which are also of great importance in fighting against a disaster are Bhavnagar and Junagadh.Here the Railways deals with the running of both passenger trains and goods train.The major commodities of which Railways acts as a carrier arePetroleum products, Minerals, Cement, Salt, imported fertilizers, Coal.

Saurashtra region has long history of facing Floods, Breaches, Cyclones, Earthquake.Looking into the history of accidents and disasters faced by Railways, there is an imperative need for designing of contingency plans for dealing with all emergencies that may occur. It is said that Prevention is better than cure. As we cannot fight with the nature but its effects can be minimized.

Being a carrier service for passenger and goods, Railways have high potential for loss of railway property and precious human life. Many a times, the Railways has been criticized by the media for delay in relief operations in case of disaster or emergency which includes delay in medical relief to the injured,supply of food and water to injured/ stranded passengers and timely information regarding injured / dead and restoration.

To mitigate the disaster, Rajkot division has developed the Disaster Management plan in coordination with Government of Gujarat and important industries like GSFC, ESSAR and Reliancesothatallpossiblesteps/measuresmaybetakentominimizethe effect of disaster /accidents.

1.3.1 Some other definitions relevant to the emergency planning or Disaster management are givenbelow:

1. Accident is "an unplanned event which has a probability of causing personal injury or property damage or both. It may result in physical harm (injury or disease) to person(s), damage to property and loss to the company or any combination of theseeffects.
2. Emergencycouldbedefinedas"anysituationwhichpresentsathreattosafety of persons or / and property. It may require outside helpalso.

On Rajkot division the disaster management plan for disaster, concentrate on following emergencies:

(i) Fire
(ii) LPG / Oilemergency
(iii) Bomb Explosion / Terroristactivities
(iv) Earthquake
(v) Floods /Breaches
(vi) Cyclone /Storm
(vii) TrainAccidents.

1.3.2 Emergencyorganization:

A. Emergency organizationincludes

(i) Instantly available / Directlyavailable:
  (a) At Station- Station Master and otherstaff
  (b) On Train – Guard, Engine Crew, TTE, Pantry Car staff, On / Off duty Railway employee travelling bytrain
  (c) Local public residing nearby railway stations ortracks
  (d) Nearby EngineeringGang

(ii) Section Controller(ATNL)
(iii) Dy. TNL /CTNL
(iv) Safety Branch (Officers &Counsellors)
(v) Divisional BranchOfficers
(vi) ADRM / DRM
(vii) EmergencyControl

B. Emergencies cannot be controlled single handly by the Railways, so other key state departments or private industries to be involved in emergency:

(i) Firedepartment
(ii) Police
(iii) Civil hospital and privatedoctors
(iv) Electricity (PGVCL)department
(v) Transportdepartment
(vi) Oilcompanies
(vii) Chemical and fertilizercompanies.
(viii) National Disaster Response force(NDRF)
(ix) Armed Forces & ParamilitaryForces

1.3.3 Riskinvolved:

Riskis"thecombinationofthelikelihoodofanoccurrenceofahazardousevento exposure(s) and the severity of injury or ill health that can be caused by the event or exposure(s).

Incaseofaccidents/mishappenings/naturaldisaster, the raise ahugeriskinvolvedfor thefollowing:

(i) Precious humanlife
(ii) Railwayproperty
(iii) Essential socialservices
(iv) Communicationfacility

1.3.4 Objectives of emergency actionplan:

(i) To define and assess the emergencies, including risk and environmentaffect assessment.
(ii) To contain the incident and bring it under control by mobilizing the internal resources and with the help of available external or societalresources.

(iii) To safeguard thelives.
(iv) To cure the injured passengers and to provide immediate medical aid in GOLDENHOUR.
(v) To minimize the damage to property or / and neighbouringenvironment.
(vi) To inform employees, the public and the authority on the hazards / risks assessed, safeguardsprovidedandtheroletobeplayedbythemintheevent ofemergency.
(vii) Initiating and organizing evacuation of affectedpeople.
(viii) Medical preparedness for the probablecasualties.
(ix) Integration of resources under Off Site Emergency Action Plan of various district contingencyplans
(x) To secure the safe rehabilitation of affected areas and to restorenormalcy.
(xi) To work out a plan with all provisions to handle emergencies and to providefor emergency preparedness and the periodical rehearsal of theplan.

This disaster management plan comprises of geographical details of Rajkot division, facilities available, risk analysis and environmental impact assessment, fire protection, mutual aid arrangements, medical and safety services, key persons availablealongwiththeirphonenumbersandaddressesandotherrelevantinformation to combat theemergencies.

1.4 Rajkot division- vulnerability to disaster and introduction of physical feature of Saurashtraregion.

Note: Data supplied by GSDMA

Rajkot division mainly consists of 5 districts of Gujarat state viz. Surendranagar, Rajkot, Morbi, DevbhoomiDwarkaandJamnagar.Thischapterwillgivean introduction ofthephysicalfeaturesofthesedistrictscoveringonlocation,area,climate,riversand dams,ports&informationabouthazardzoneandvulnerabilitytovarioushazardswould also be givenfurther.

1.4.1 Surendranagar District: Location:

(i) In North - West corner of Gujaratstate.
(ii) Mainland extends between 22.8º - 23.3 º North latitude and 71º - 72º East longitude.
(iii) Bounded by the Banaskantha in North, Ahmedabad and Bhavnagar in the South, Morbi in the West and again partially bounded by the Ahmedabad in the East.
(iv) Coastline isNil.
(v) Area - 10488 sq.kms.
(vi) Population - 17, 55,357 (As per 2010Census).
(vii) Wadhwan town is DistrictHQ.8

(viii) The Climate of Surendranagar District can be regarded as one of extreme kind with hot summers & cold winters except in the coastalregion.

(ix) The temperature ranges from 40º C to 42º C highest in the summer and8º C to 10º C lowest in thewinter.

(x) The average annual rainfall is 548mm.

River, Dams & Ports:

(i) The District has no major rivers. There are seasonal rivers streams. These rivers are Bhogavo-1, Saburi, Bhogavo-1, Limbdi, Bhogavo-2, Nimbhani, Limbdi, Falku, Brahmani, Morsal, Triveni, Thanga, and Vansal. FlowoftheriversistowardstheGulfofKutchinthenorthandinnorth- west.

(ii) There are no major dams in Surendranagar District. There are 17 medium and minor dams controlled under state irrigation department and 33 minor dams controlled under the DistrictPanchayat.

(iii) No coastal boundary so no Portavailable.

Industries:

Only 1 medium scale industry Dhangadhra Chemical Works at Dhangadhra.

Roads & Railway:

(i) Thedistricthas2485kms, lengthofpuccaroadsconnectingto645villages/ townsinthedistrict, 3villagesareconnectedbykuccharoadsand3villages accessible only in fairweather.

(ii) Out of the total 648 inhabited villages, 642 villages are connected by state road transportfacilities.

(iii) Total length of railway track of Surendranagar District is 119km.

Health:

(i) The district has 3 Hospitals, 12 CHCs and 31PHCs.

(ii) Location of the CHCs and PHCs in different talukas are given in PartB.

Risk and Vulnerability Ranking:

All events or activities carry some risk and are associated with some level of vulnerability. Risk and vulnerability ranking is the process of assigning scores to the risk and possible impact of hazards to be able to compare the likely vulnerability and makeinformedmanagementdecisionsaboutwhichhazardsareofgreatestconcernand when planning and preparation efforts should bedirected.

Hazards	Probability Rating**	Impact Rating *	Vulnerability Ranking ***	Vulnerable Areas / Talukas
High Wind (Cyclone)	3	3	9 (Medium)	Run side area
Sea Surge	-	-	-	-
Drought	3	3	9	-
Fire	-	-	-	-
Industrial Accidents	2	2	4	-
Oil Spill	-	-	-	-
Earthquake	1	1	1	Zone III - Whole district
Heat Wave	3	3	9	-
Rail / Road Air Accidents	5	3	15 (Medium)	-
Flood	3	3	9	Low lying area of district
Terrorism	-	-	-	-
Failure of Critical Infrastructure	-	-	-	-
Boat Sinking	-	-	-	-
Mine Fires/ Collapse	1	1	1	-
Building Collapse	4	2	8 (Low)	-
Hail Storms	-	-	-	-
Land Slides / Mud Flows	-	-	-	-
Epidemics	-	-	-	-
Animal Disease	-	-	-	-
Food Poisoning	-	-	-	-
Dam Failure	1	1	1	-
Civil Unrest	-	-	-	-
War	2	4	8 (Medium)	Whole District

1.4.2 Rajkot District: Location:

(i) In North - West corner of Gujaratstate.

(ii) Mainland extends between 22.5º North latitude and 70.5º Eastlongitude.

(iii) Bounded by Junagadh in the West, Amreli & Bhavnagar in the South, and Surendranagar& Morbi in the Northeast.

(iv) Area - 11203 sq.kms.

(v) Population of Rajkot district - 37, 90,922 (As per 2011census).

(vi) Rajkot City is DistrictHQ.

(vii) TheClimateofRajkotDistrictcanberegardedasoneofextremekindwith hot summers & coldwinters.

(viii) The temperature ranges from 45º C highest in the summer and 6º C

lowest in thewinter.

(ix) The average annual rainfall is 515mm.

River, Dams & Ports:

(i) The District has 7 major rivers. These rivers are Dondi, Aji, Demi, Ghodadhroe, Bhadar, Moj, and Nyari.

(ii) There are no major dams in RajkotDistrict.

(iii) There are no port in RajkotDistrict.

Health:

(i) The district has 17 Hospitals (9 Government Hospitals), 14 CHCs and 33 PHCs with 109 Sub Centers in the District to cater thepeople.

(ii) Major hospitals are Padmakunvarba Hospital, Dasha Shrimali VanikMahajan TrustHospital, JalaramHospital, RasulkhanjiJananaHosptial, Swaminarayan Gurukul Hospital, and Govt. P't. Dindayal Upadhyay Medical College, Ranchhoddasji Ashram Hospital, Wockhardt Hospital, Sterling Hospital, SynergyHospital,ChristHospital,HCGHospital,H.J.DoshiHospital,Malaviya Nagar,DasturHospital,Dr.KoshiyaHospital,GokulHospital,GirirajHospital,G. T. Sheth Orthopedic Hospital, Sadhuvasvani Hospital, Krishna Hospital, Shanti Hospital Field Marshal Blood Bank, Rajkot Voluntary Blood Bank, Saurashtra Voluntary Blood Bank, Red Cross Blood Bank, P.D.U. Medical College Blood Bank and Life Blood Bank

(iii) Location of the CHCs and PHCs in different talukas are given inPart-B.

Risk and Vulnerability Ranking:

All events or activities carry some risk and are associated with some level of vulnerability. Risk and vulnerability ranking is the process of assigning scores to the risk and possible impact of hazards to be able to compare the likely vulnerability and makeinformedmanagementdecisionsaboutwhichhazardsareofgreatestconcern and when planning and preparation efforts should bedirected.

Hazards	Probability Rating **	Impact Rating *	Vulnerability Ranking ***	Vulnerable Areas / Talukas
High Wind (Cyclone)	3	3	9 (Medium)	Morbi, Maliya, Wankaner, Kotda, Paddhari, Tankara, Upleta, Rajkot, Jasdan, Gondal, Lodhika sangani, Jetpur, Dhoraji, Jam kandorna

Sea Surge	3	2	6 (Medium)	
Drought	4	3	12 (Medium)	Whole District
Fire				Mostly in urban pockets and industrial areas (including rural areas)
Industrial Accidents	4	4	16 (Medium)	
Oil Spill	1	2	2 (Low)	Maliya
Earthquake	3	4	12 (Medium)	**Zone-IV**: Maliya, Morbi, Paddhari, Tankara **Zone-III: (Severely affected)** Wankaner **Zone-III:** Rajkot,Jasdan,Sangani,Kotda, Lodhika, Gondal,Jetpur, Dhoraji,Upleta, Jamkandorna
Heat Wave	4	2	8 (Low)	
Rail / Road / Air Accidents	5	3	15 (Medium)	
Flood	5	4	20 (Medium)	May occur due to heavy rainfall, sea surge or dam failure
Terrorism	-	-	-	
Failure of Critical Infrastructure	-	-	-	
Boat Sinking	-	-	-	
Mine Fires/Collapse	-	-	-	
Building Collapse	4	2	8 (Low)	
Hail Storms	-	-	-	
Land Slides / Mud Flows	-	-	-	
Epidemics	3	1	3 (Low)	

Animal Disease	-	-	-	
Food Poisoning	5	1	5 (Low)	
Dam Failure	2	3	6 (Low)	District had one incident of major dams failure (Machhu-2) near Morbi Taluka in Aug.- 1979
Civil Unrest	2	2	4 (Low)	
War	2	4	8 (Medium)	Whole District

1.4.3 Jamnagar District: Location:

(i) In North-west corner of GujaratState.

(ii) Mainland extends between 21.42º and 22.58º North latitude andbetween 68.56º and 70.40ºlongitude.

(iii) Bounded by Gulf and Rann of Kutch in the north, Porbandar district in the south, Rajkot district in the east and Devbhomi District in thewest.

(iv) Area-14125sq.kms.accountingforabove7.21%ofthetotalstateland.

(v) Population - 12, 12,281 lakhs(Aprox) persons about 4.09 % of the total statepopulation.

(vi) Density of population - 111 persons per sq. km. About 70 % of the population lives in the rural area.

(vii) Jamnagar town is districtHQ.

(viii) The Climate is of extreme kind with hot summers & coldwinters.

(ix) The temperature rangesfrom42ºChigherinthesummerand4ºClowest in the winter.

(x) The average annual rainfall is 550mm.

River, Dams & Ports:

(i) TheDistricthasnomajorriver.Therear seasonal riversstreams.Amongst thesearetheriverAji,Und,Vartu,Ghee,Rangmati,Nagmati,Fulzar,Sasoi, Ruparel, Dhandhar, Demi, Sorthi, Sani, Kankavati, Falku, Shihan, Pandho. Flowof their veristowardstheGulfofKutchinthenorthandinnorth-west.

(ii) There are no major dams in Jamnagar District. There are 10 medium and minordamscontrolledunderstateirrigationdepartmentand18minordams controlled under the DistrictPanchayat.

(iii) Out of 1600 Kms length of Coastal line of Gujarat, the coastal belt of Jamnagar District is blessed with 355 Kms. There are 17 ports in the Jamnagar District. Viz. Vadinar, Bedi, Rozi are cargo ports and Salaya, Lamba, Sikka, Sachana, Jodiya are fisheriesports.

(iv) The floods can never be ruled out even if there are seasonal rivers orminor dams in thisregion.

Health:

(i) The district has 18 Hospitals, 30 PHCs, 06 CHCs and 207 SHCs in the District to cater thepeople.

(ii) Major hospitals are - Irwin Group of Hospital, Samarpan Hospital, AnandabawaEyeHospital.LocationoftheCHCsandPHCsindifferenttalukas are given inPart-B

Risk and Vulnerability Ranking:

All events or activities carry some risk and are associated with some level of vulnerability. Risk and vulnerability ranking is the process of assigning scores to the risk and possible impact of hazards to be able to compare the likely vulnerability and makeinformedmanagementdecisionsaboutwhichhazardsareofgreatestconcernand when planning and preparation efforts should bedirected.

Hazards	Probability Rating *	Impact Rating **	Vulnerability Ranking ***	VulnerableAreas/ Talukas
High Wind (Cyclone)	4	3	12 (Medium)	Very high damage risk zone B (50 m/s) : Jamnagar, Jamjodhpur, Dhrol, Jodiya, Lalpur, Khambalia, Dwarka, Kalyanpur, Bhanvad, Kalavad
Sea Surge	3	3	9 (Medium)	Coastal Talukas i.e., Jamnagar, Jodiya, Lalpur, Khambalia, Kalyanpur, Dwarka (Okhamandal)
Drought	3	2	6 (Low)	Whole District
Fire	5	4	20 (high)	Mostly in urban pockets and industrial areas (including rural areas)
Industrial Accidents	4	5	20 (High)	
Oil Spill	3	2	6 (Low)	

Earthquake	4	4	16 (high)	**Zone-IV:** Jamnagar,Dhrol,Jodiya, Lalpur, Dwarka, Khambalia,Kalyanpur **Zone-III:** Bhanvad, Jamjodhpur, Kalavad
Cold/ Heat Wave	4	2	8 (Medium)	
Rail/Road/Air Accidents	5	4	20 (High)	
Flood	5	4	20 (High)	May occur due to heavy rainfall, sea surge or dam failure
Terrorism	1	3	3 (Low)	
Failure of Critical Infrastructure	4	3	12	The hydrocarbon cross-country pipelines running from Jamnagar may beaffected.

Boat Sinking	4	2	8	
Mine Fires / Collapse	2	1	2 (Low)	
Building Collapse	4	3	12 (Medium)	
Hail Storms	1	1	1 (Low)	
Land Slides / Mud Flows	1	1	1 (Low)	
Command Dias easeEpidemics	3	3	9 (Medium)	
Animal Disease	2	3	6 (Low)	
Food Poisoning	3	3	9 (Medium)	
Dam Failure	1	1	1 (Low)	District has no major dams but having 17 medium / minor dams

Civil Unrest A	3	2	6 (Low)	
War	2	4	8 (Medium)	Whole District
Tsunami	2	4	8 (Medium)	Coastal Taluka's – Jamnagar, Jodiya, Lalpur, Kalyanpur, Khambhaliya, Dwarka

***Probability Rating:**

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

**** Impact rating:**

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

Impact	Scope	Description
Catastrophic	5	Massiv insecurity, substantiallossoflifelikely.Largeand generalizedassistanceurgentlyneededforlargesegments of population. Additional management, administrative, andtechnicalexpertiseurgentlyneeded.Largevolumesof materials inputsneeded.
Major	4	Security threatened for large segments of population; substantialimpactsonvulnerablegroup'slikely.Someloss of life likely. Life-saving programs likely needed tohandle impact of emergency situation. Large volumes ofmaterial inputs and additional administrative staff and technical expertise likely to be needed.
Moderate	3	Security is threatened for potential target groups, some interventions may be needed, particularly for groups who likelyfaceincreaseinvulnerability.Organizationcanlikely respond with existing country / regionalmanagement structures.

Minor	2	Momentary insecurity local groups able to respond adequatelytothoseinneed.Sometechnicalassistanceby organizationmaybehelpfultolocalrespondents, although not urgentlyneeded.
Insignificant	1	Little or no significant change in conditions, no expected loss of life, injuries or significant loss of property forusual target groups as the result of the hazard Normal operations continue.

***** Vulnerability ranking:**

Scores above 15 indicate high vulnerability; sores between 7 and 15 indicate medium vulnerability and scores below 7 indicate low vulnerability.

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

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

1.4.4 MorbiDistrict:

Morbi District a newly formed district of the state of Gujarat, India on August 15 2013 along with several other new districts on the 67th Independence Day of India. Morbi city is the administrative headquarters of the district. This district is surrounded by Kutch district in north, Surendranagar district in east, Rajkot district in south and Jamnagar district in west.

ThedistrictisnamedafterMorbicity.ThenameofthecityofMorbi(literallymeans the city of peacock) was probably derived from king ofBhooj.

Morbidistrictapprox.populationis10, 07,954.Morbidistrictis approx. 4871.5 km square and density is 207. District have five taluka, name- Morbi, Malia, Tankara, Wankaner

and Halvadtaluka.

River & Ports:

The District has 3 major rivers. These rivers are Aji, Demi, Machhu, Out of 1600 kms length of Coastal line of Gujarat, the coastal belt of Morbi District is blessed with 90 Kms in Maliya Taluka. There is 1 port (Navlakhi) in the Morbi District.

Health:

(i) The district has 7 Hospitals, 18 PHCs and 06 CHCs in the District to cater the people.

(ii) Major hospitals location of the CHCs and PHCs in different talukas are given in Part-B.

Risk and Vulnerability Ranking:

All events or activities carry some risk and are associated with some level of vulnerability. Risk and vulnerability ranking is the process of assigning scores to the risk and possible impact of hazards to be able to compare the likely vulnerability and makeinformedmanagementdecisionsaboutwhichhazardsareofgreatestconcernand when planning and preparation efforts should bedirected.

Hazards	**Probability Rating ***	**Impact Rating ****	**Vulnerability Rating *****	**Vulnerable Areas / Talukas**
High Wind (Cyclone)	3	3	9 (Medium)	Morbi, Maliya, Wankaner, Tankara
Sea Surge	3	2	6 (Medium)	
Drought	4	3	12 (Medium)	Whole District
Fire				Mostly in urban pockets and industrial areas (including rural areas)
Industrial Accidents	4	4	8 (Medium)	
Oil Spill	1	2	2 (Low)	Maliya
Earthquake	3	4	12 (Medium)	**Zone IV:** Maliya, Morbi, Paddhari, Tankara **Zone-III:** (Severely affected) Wankaner
Heat Wave	4	2	4 (Low)	

Rail / Road / Air Accidents	5	3	10 (Medium)	
Flood	5	4	10 (Medium)	May Occur due to heavy rainfall, sea surge or dam failure
Terrorism	-	-	-	Terrorism
Failure of Critical				Failure of Critical
Infrastructure	-	-	-	
Boat Sinking				
Mine Fires/ Collapse				
Building Collapse	4	2	4 (Low)	
Hail Storms	-	-	-	
Land Slides /	-	-	-	
Mud Flows	-	-	-	
Epidemics	3	1	3 (Low)	
Animal Disease	-	-	-	
Food Poisoning	5	1	3 (Low)	
Dam Failure	2	3	3 (Low)	District had one incident of major dams failure (Machhu-2) near district Morbi in Aug-1979
Civil Unrest	2	2	2 (Low)	
War	2	4	8 (Medium)	Whole District

1.4.5 Devbhoomi DwarkaDistrict:

Devbhoomi District is a district of India located on the southern coast of the Gulf ofKutchinthestateofGujarat.ItsheadquartersarelocatedinthecityofKhambhalia. The district created on August 15, 2013 from Jamnagardistrict.

Talukas (Administrative Divisions): Dwarka, Bhanvad, Kalyanpur, Khambhalia.

Devbhoomi Dwarka district has a population of 6, 94,719 area is 5,684 km square and density is 122.

Health:

(i) The district has 18 Hospitals, 24 PHCs, 06 CHCs and 161 SHCs in the District to cater thepeople.

(ii) Major hospitals are - Refral Hospital-Khambhalia, TATA Hospital-Mithapur. Location of the CHCs and PHCs in different talukas are given inPart-B.

Risk and Vulnerability Ranking:

All events or activities carry some risk and are associated with some level of vulnerability. Risk and vulnerability ranking is the process of assigning scores to the risk and possible impact of hazards to be able to compare the likely vulnerability and makeinformedmanagementdecisionsaboutwhichhazardsareofgreatestconcernand when planning and preparation efforts should bedirected.

Hazards	**Probability Rating***	**Impact Rating****	**Vulnerability Ranking*****	**Vulnerable Areas / Talukas**
High Wind (Cyclone)	4	3	12 Medium	Very high damagerisk zoneB (50m/s) : Khambalia,Dwarka, Kalyanpur,Bhanvad
Sea Surge	3	3	9 Medium	Coastal Talukas i.e., Khambalia, Kalyanpur, Dwarka (Okhamandal)
Drought	3	2	6 LOW	Whole District
Fire	5	4	20 (high)	Mostly in urban pockets and industrial areas (including rural areas)
Industrial Accidents	4	5	20 (High)	
Oil Spill	3	2	6 (Low)	
Earthquake	4	4	16 (high)	**Zone-IV:** Dwarka,Khambalia,Kalyanpur **Zone-III:** Bhanvad

Cold/ Heat Wave	4	2	6 (Medium)	
Rail/Road/Air Accidents	5	4	20 (High)	
Flood	5	4	20 (High)	May occur due to heavy rainfall, sea surge or dam failure
Terrorism	1	3	3 (Low)	
Failure of Critical				
Infrastructure	4	3	12	The hydrocarboncross-country pipelines running from Jamnagar
Boat Sinking	4	2	8	
Mine Fires / Collapse	2	1	2 (Low)	
Building Collapse	4	3	8(Medium)	
Hail Storms	1	1	1 (Low)	
Land Slides/Mud Flows	1	1	1 (Low)	
Command Disease Epidemics	3	3	9 (Medium)	
Animal Disease	2	3	6 (Low)	
Food Poisoning	3	3	6 (Medium)	
Dam Failure	1	1	1 (Low)	District has no major damsbut
Civil Unrest A	3	2	6 (Low)	
War	2	4	8 (Medium)	Whole District
Tsunami	2	4	8 (Medium)	Coastal Talukas - Kalyanpur

***Probability rating:**

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

**** Impact Rating:**

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

Impact	Scope	Description
Catastrophic	5	Massive insecurity, substantial loss of life likely. Large and generalized assistant urgently needed for large segment of population. Additional management, administrative and technical expertise urgently needed. Large volumes of materials input needed.
Major	4	Security threatened for large segments of population; substantial impact on venerable group likely. Some loss oflife likely. Life-saving programs likely needed to handle impact of emergency. Large volumes of material input additional administrative staff and technical expertise likely to be needed.
Moderate	3	Security is threatened for potential target groups, some interventions may be needed, particularly for groups who likely face increase in vulnerability. Organization can likely respond with existing country/ regional management structure.
Minor	2	Momentaryinsecuritylocalgroupsabletorespondadequately to those in need. Some technical assistance by organization may be helpful to local respondents, although not urgently needed.
Insignificant	1	Little or no significant change in conditions, no expected loss of life, injuries or significant loss of property for usual target groupsastheresultofthehazardnormaloperationscontinue.

***** Vulnerability ranking:**

Scores above 15 indicate high vulnerability; sores between 7 and 15 indicate medium vulnerability and scores below 7 indicate low vulnerability.

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

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

CHAPTER - 2
INSTITUTIONAL FRAMEWORK FOR DISASTER MANAGEMENT

2.0 National Level

The overall coordination of disaster management vests with the Ministry of Home Affairs (MHA). The Cabinet Committee on Security (CCS) and the National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with regard to disaster management. The NDMA is the lead agency responsible for the preparation DM plans and the execution of DM functions at the national level. Figure 2-1 provides a schematic view of the basic institutional structure for DM at national level. The figure represents merely the institutional pathways for coordination, decision-making and communication for disaster management and does not imply any chain of command.

In most cases, state governments will be carrying out disaster management with the central government playing a supporting role. The central agencies will participate only on the request from the state government. Within each state, there is a separate institutional framework for disaster management at the state-level. The DM Act of 2005 provides for the setting up of NDMA at national level, and the SDMA at the state level. The role, composition and the role of the key decision making bodies for disaster management at national-level are briefly described in the Table 2-1.

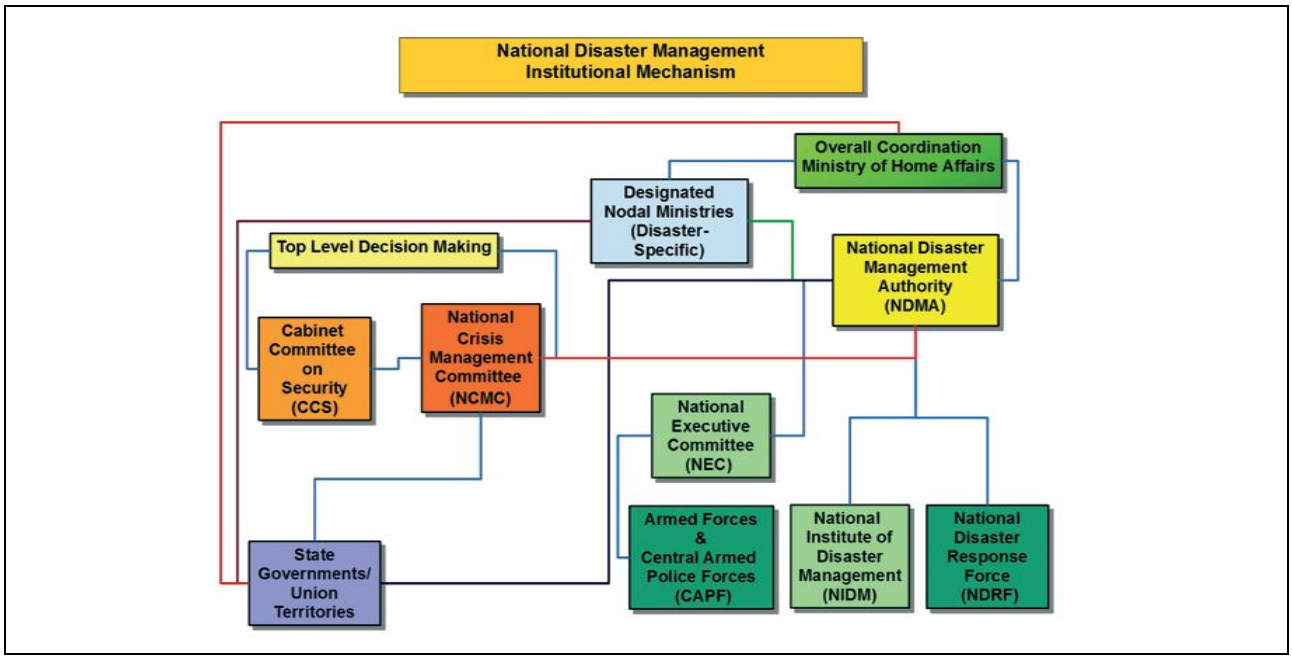


Figure 2-1: National-level disaster management - basic institutional framework.

Table 2-1: Key national-level decision-making bodies for disaster management

Sr. No.	Name	Composition	Vital Role
1.	**Cabinet Committee on Security (CCS)**	Prime Minister, Minister of Defence, Minister of Finance, Minister of Home Affairs, and Minister of External Affairs	• Evaluation from a national security perspective, if an incident has potentially security implications • Oversee all aspects of preparedness, mitigation and management of Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and of disasters with security implications • Review risks of CBRN emergencies from time to time, giving directions for measures considered necessary for disaster prevention,mitigation, preparedness & effective response
2.	**National Crisis Management Committee (NCMC)**	Cabinet Secretary (Chairperson) Secretaries of Ministries/ Departments and agencies with specific DM responsibilities	• Oversee the Command, Control and Coordination of the disaster response • Give direction to the Crisis Management Group as deemed necessary • Give direction for specific actions to face crisis situations
3.	**National Disaster Management Authority (NDMA)**	Prime Minister (Chairperson) Members(not exceeding nine, nominated by the Chairperson)	• Lay down policies, plans and guidelines for disaster management • Coordinate their enforcement and implementation throughout the country • Approve the NDMP and the DM plans of the respective Ministries and Departments of Government of India • Lay down guidelines for disaster management to be followed by the different Central Ministries, Departments and the State Governments

4.	**National Executive Committee (NEC)**	Union Home Secretary (Chairperson) Secretaries to the GOI in the Ministries/ Departments of Agriculture, Atomic Energy, Defence, Drinking Water and sanitation, Environment, Forests and Climate Change Finance (Expenditure), Health and Family Welfare, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources, River Development and Ganga Rejuvenation, The Chief of the Integrated Defence Staff of the Chiefs of Staff Committee, ex officio as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development,	• To assist the NDMA in the discharge of its functions • Preparation of the National Plan • Coordinate and monitor the implementation of the National Policy • Monitor the implementation of the National Plan and the plans prepared by the Ministries or Departments of the Government of India • Direct any department or agency of the Govt. to make available to the NDMA or SDMAs such men, material or resources as are available with it for the purpose of emergency response, rescue and relief • Ensure compliance of the directions issued by the Central Government • Coordinate response in the event of any • threatening disaster situation or disaster • Direct the relevant ministries/ Departments of the GOI, the State Governments and the SDMAs regarding measures to be taken in response to any specific threatening disaster situation or disaster. • Coordinate with relevant Central Ministries/Departments/Agencies which are expected to provide assistance to the affected State as per Operating Procedures (SOPs) Coordinate with the Armed Forces, Central Armed Police Forces6 (CAPF), the National Disaster Response Force (NDRF) and other uniformed services which comprise the GoI's response to aid the State authorities • Coordinate with India Meteorological • Department (IMD) and a number of other • specialised scientific institutions which constitute key early warning and monitoring agencies • Coordinate with Civil Defence

		Mines, Shipping, Road Transport and Highways and Secretary, NDMA are special invitees to the meetings of the NEC. *Railway not there in the list*	volunteers, home guards and fire services, through the relevant administrative departments of the State Governments
5.	**National Disaster Response Force (NDRF)**	Specially trained force headed by a Director General Structured and like paramilitary forces for rapid deployment	Provide assistance to the relevant State Government/District Administration in the event of an imminent hazard event or in its aftermath
6.	**National Institute of Disaster Management (NIDM)**	Union Home Minister; Vice Chairman, NDMA; Members including Secretaries of various nodal Ministries and Departments of Government of India and State Governments and heads of national levels scientific, research and technical organizations, besides eminent scholars, scientists and practitioners.	• Human resource development and capacity building for disaster management within thebroad policies and guidelines laid down by the NDMA • Design, develop and implement training programmes • Undertake research • Formulate and implement a comprehensive human resource development plan • Provide assistance in national policy formulation, assist other research and training institutes, state governments and other organizations for successfully discharging their responsibilities • Develop educational materials for dissemination • Promote awareness generation

From time to time, the central government notifies hazard-specific nodal ministries to function as the lead agency in managing particular types of disasters (see Table 2-2 for current list of disasters specific nodal ministries notified by Government of India).

Table 2-2: Nodal Ministry for Management / Mitigation of Different Disasters.

SN	Disaster	Nodal Ministry/ Department
1.	Biological	Min. of Health and Family Welfare (MoHFW)
2.	Chemical and Industrial	Min. of Environment, Forest sand Climate Change (MoEFCC)
3.	Civil Aviation Accidents	Min. of Civil Aviation (MoCA)
4.	Cyclone/Tornado	Min. of Earth Sciences (MoES)
5.	Tsunami	Min. of Earth Sciences (MoES)
6.	Drought/Hailstorm/Cold Wave and Frost/Pest Attack	Min. of Agriculture and Farmers Welfare (MoAFW)
7.	Earthquake	Min. of Earth Sciences (MoES)
8.	Flood	Min. of Water Resources (MoWR)
9.	Forest Fire	Min. of Environment, Forests, and Climate Change (MoEFCC)
10.	Landslides	Min. of Mines (MoM)
11.	Avalanche	Min. of Defence (MoD)
12.	Nuclear and Radiological Emergencies	Dept. of Atomic Energy (DAE)
13.	Rail Accidents	Min. of Railways (MoR)
14.	Road Accidents	Min. of Road Transport and Highways (MoRTH)
15.	Urban Floods	Min. of Urban Development (MoUD)

2.1 National Disaster Management Authority (NDMA):

The Government of India established the NDMA in 2005, headed by the Prime Minister. Under the DM Act 2005, the NDMA, as the apex body for disaster management, shall have the responsibility for laying down the policies, plans, and guidelines for disaster management for ensuring timely and effective response to disaster. The guidelines of NDMA will assist the Central Ministries, Departments, and States to formulate their respective DM plans. It will approve the National Disaster Management Plans and DM plans of the Central Ministries / Departments. It will take such other measures, as it may consider necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster. Central Ministries / Departments and State Governments will extend necessary cooperation and assistance to NDMA for carrying out its mandate. It will oversee the provision and application of funds for mitigation and preparedness measures.

NDMA has the power to authorise the Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster. The general superintendence, direction, and control of the National Disaster Response Force **(NDRF**) is vested in and will be

exercised by the NDMA. The National Institute of Disaster Management **(NIDM)** works within the framework of broad policies and guidelines laid down by the NDMA. The NDMA has the mandate to deal with all types of disasters – natural or human-induced. However, other emergencies such as terrorism (counter-insurgency), law and order situations, hijacking, air accidents, CBRN weapon systems, which require the close involvement of the security forces and/or intelligence agencies, and other incidents such as mine disasters, port and harbour emergencies, forest fires, oilfield fires and oil spills will be handled by the National Crisis Management Committee (NCMC). Nevertheless, NDMA may formulate guidelines and facilitate training and preparedness activities in respect of CBRN emergencies.

2.2 National Institute of Disaster Management (NIDM):

As per the provisions of the Chapter-VII of the DM Act, Government of India constituted the National Institute of Disaster Management (NIDM) under an Act of Parliament with the goal of being the premier institute for capacity development for disaster management in India and the region. The vision of NIDM is to create a Disaster Resilient India by building the capacity at all levels for disaster prevention and preparedness. NIDM has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation, and policy advocacy in the field of disaster management. The NIDM has built strategic partnerships with various ministries and departments of the central, state, and local governments, academic, research and technical organizations in India and abroad and other bi-lateral and multi-lateral international agencies. It provides technical support to the state governments through the Disaster Management Centres (DMCs) in the Administrative Training Institutes (ATIs) of the States and Union Territories. Presently it is supporting as many as 30 such centres. Six of them are being developed as Centres of Excellence in the specialised areas of risk management – flood, earthquake, cyclone, drought, landslides, and industrial disasters.

2.3 National Disaster Response Force (NDRF):

The NDRF has been constituted as per the Chapter-VIII of the DM Act 2005 as a specialist response force that can be deployed in a threatening disaster situation or disaster. As per the DM Act, the general superintendence, direction and control of the NDRF shall be vested and exercised by the **NDMA**. The command and supervision of the NDRF shall vest with the Director General appointed by the Government of India. The NDRF will position its battalions at different locations as required for effective response. NDRF units will maintain close liaison with the designated State Governments and will be available to them in the event of any serious threatening disaster situation. The **NDRF** is equipped and trained to respond to situations arising out of natural disasters and CBRN emergencies. The NDRF units will also impart basic training to all the stakeholders identified by the State Governments in their respective locations. Further, a National Academy will be set up to provide training for trainers in disaster management and to meet related National and International commitments. Experience in major disasters has clearly shown the need for pre-positioning of some response forces to augment the resources at the State level at crucial locations including some in high altitude regions.

2.3.1 General – First and Key Responders:

The role and importance of community, under the leadership of the local authorities, Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs), being the bedrock of the process of disaster response, is well recognized. For their immediate support, there are other important first responders like the police, State Disaster Response Force (SDRFs), Fire and Medical Services. The NDRF will provide specialist response training whenever required. In serious situations, the resources of all NDRF battalions, on an as required basis, will be concentrated in the shortest possible time in the disaster affected areas. Other important responders will be the Civil Defence, Home Guards and youth organizations such as NCC, NSS and NYKS. The deployment of the armed forces will also be organized on as required basis.

2.3.2 Location, Constitution and Functions:

These have been formed under the Disaster Management Act at 12 selected locations in the country for dealing with relief and rescue operations related to all types of disasters. The NDRF consists of battalions of Central paramilitary forces drawn from the Border Security Force(BSF), Indo-Tibetan Border Police(ITBP), Central Industrial Security Force (CISF)and Central Reserve Police Force (CRPF) for the purpose of specialist response in disaster situations. Each Battalion has 6 Companies comprising of 3 teams each. Team comprises of 45 men out of which 24 are for Search & Rescue and balance 21 for support functions. Short-listed & trained staff is on deputation in NDRF.The **Details of NDRF organization, 12 battalions &Locations of Regional Response Centres (RRC) of NDRF are brought out in Para 5.11 & 5.12 of Zonal Disaster Management Plan Part-2.**

As per the Disaster Management Act, various ministries and departments under Government of India should join hands for mutual assistance in case of a disaster. Assistance from local government and non-government agencies is invariably required by the railway administration for prompt relief and rescue operation in case of disasters affecting railways and, therefore, assistance of NDRF could be of great help to the railways. The rail infrastructure is not in an island away from the civil areas (of the Districts/States). In most cases of a disaster, other than a train accident, the State Governments as well as the Zonal Railways would, therefore, requisition the NDRF simultaneously (for the same disaster). Coordination amongst the affected agencies (many departments of the Central Government and the States) is very important before the help of NDRF is requisitioned.

2.3.3 Coordination with NDRF:

Zonal Railways should get in touch with NDRF offices at the nearby locations to have the first-hand knowledge of the resources available with them and also to familiarize them with railway related disaster situations and expose them to the issues relevant to the rescue and relief of passengers during railway accident. It has also been advised to associate NDRF in full scale exercise that is held once every year. There are no charges for availing the services of NDRF except the rail transportation which railways may provide at railways cost for attending to rail disasters. Railways may also have to provide rail transportation logistics for transporting NDRF team even in case of non-railway exigencies.

The Railway Board has empowered DRMs/CSOs to directly requisition the relevant NDRF battalion for relief and rescue operations depending on the gravity of situation so that their services could be made available expeditiously without any loss of time. NDRF Head quarter office, New Delhi will draw an annual calendar for zone/division-wise meeting between NDRF Battalion Commandants and Railway Safety officials for better coordination and management during disasters/major train accidents. NDRF battalion should carry out at least one or two mock exercises/coordination meeting with each zonal Railway in a year, for which an annual calendar will be issued by Board in consultation with NDRF HQs office.

2.4 State Level:

As per the DM Act of 2005, each state in India shall have its own institutional framework for disaster management. Among other things, the DM Act, mandates that each State Government shall take necessary steps for the preparation of state DM plans, integration of measures for prevention of disasters or mitigation into state development plans, allocation of funds, and establish EWS. Depending on specific situations and needs, the State Government shall also assist the Central Government and central agencies in various aspects of DM. Each state shall prepare its own State Disaster Management Plan.

The DM Act mandates the setting of a State Disaster Management Authority with the Chief Minister as the *ex officio* Chairperson. Similar system will function in each Union Territory with Lieutenant Governor as the Chairperson. At the district level, District Disaster Management Authority (DDMA), the District Collector or District Magistrate or the Deputy Commissioner, as applicable, will be responsible for overall coordination of the disaster management efforts and planning. Figure- 2-2 provides schematic view of the typical state-level institutional framework does not imply any chain of command.

2.5 State Disaster Management Authority (SDMA):

As per provisions in Chapter-III of the DM Act, each State Government shall establish a State Disaster Management Authority (SDMA) or its equivalent under a different name with the Chief Minister as the Chairperson. In case of other UTs, the Lieutenant Governor or the Administrator shall be the Chairperson of that Authority. For the UT of Delhi, the Lieutenant Governor and the Chief Minister shall be the Chairperson and Vice-Chairperson respectively of the State Authority. In the case of a UT having Legislative Assembly, except the UT of Delhi, the Chief Minister shall be the Chairperson of the Authority established under this section. The SDMA will lay down policies and plans for DM in the State. It will, inter alia approve the State Plan in accordance with the guidelines laid down by the NDMA, coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different Departments of the State to ensure the integration of prevention, preparedness and mitigation measures. The State Government shall constitute a State Executive Committee (SEC) to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government. The SEC will coordinate and monitor the implementation of the National Policy, the National Plan, and the State Plan. The SEC will also provide information to the NDMA relating to different

aspects of DM.

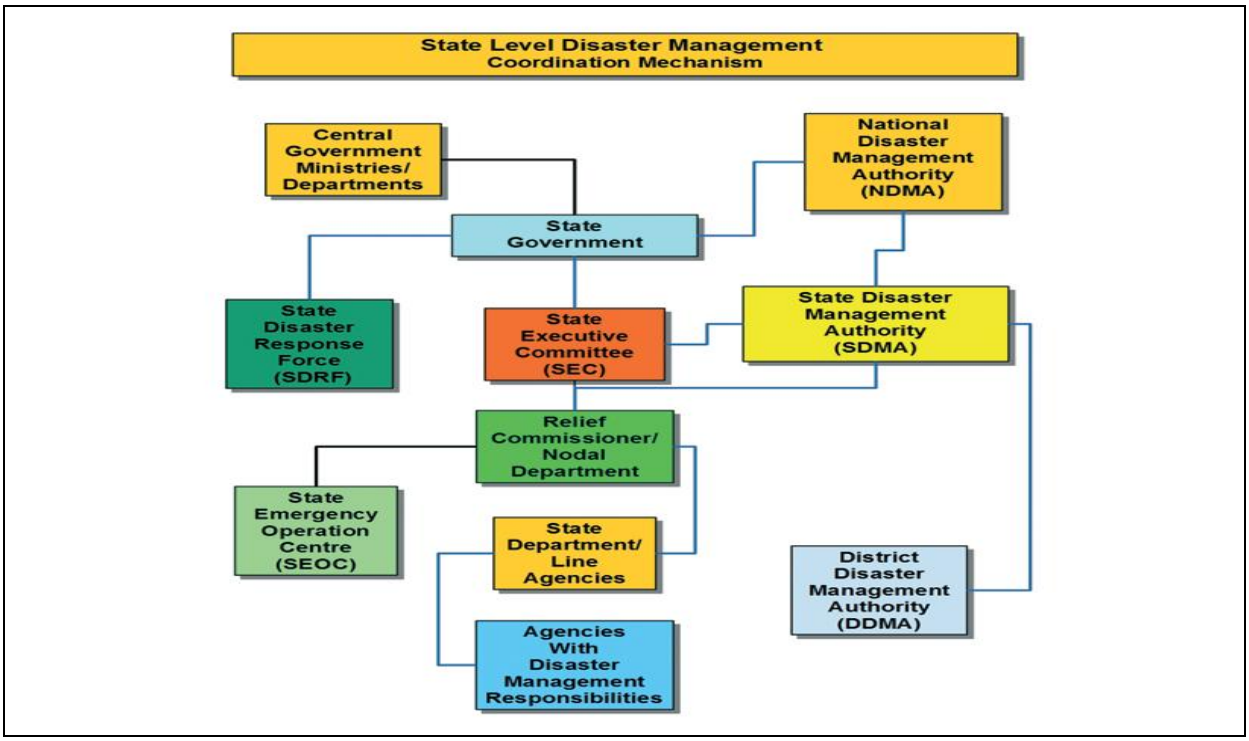


Figure 2.2: State level Disaster Management – Basic Institutional framework

2.6 Gujarat State Disaster Management Authority(GSDMA):

As per provisions in Chapter-III of the DM Act, each State Government shall establish a Gujrat State Disaster Management Authority (GSDMA) or its equivalent underadifferentnamewiththeChiefMinisterastheChairperson.IncaseofotherUTs, theLieutenantGovernorortheAdministratorshallbetheChairpersonofthatAuthority. For the UT of Delhi, the Lieutenant Governor and the Chief Minister shall betheChairperson and Vice-Chairperson respectively of the State Authority. In the case of a UT having Legislative Assembly, except the UT of Delhi, the Chief Minister shall be the Chairperson of the Authority established under this section. The GSDMA will lay down policies and plans for DM in the State. It will, inter alia approve the State Plan in accordance with the guidelines laid down by the NDMA, coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measuresandreviewthedevelopmentalplansofdifferentDepartments of theState to ensure the integration of prevention, preparedness and mitigation measures. The State Government shall constitute a State Executive Committee (SEC) to assist the GSDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government. The SEC will coordinate and monitor the implementation of the National Policy, the National Plan, and the State Plan. The SEC will also provide information to the NDMA relating to different aspects ofDM.

2.6.1 District Disaster Management Authority(DDMA):

As per provisions in Chapter-IV of the DM Act, each State Government shall establish a District Disaster Management Authority for every district in the State with such name as may be specified in that notification. The DDMA will be headed by the DistrictCollector, DeputyCommissioner, orDistrictMagistrateasthecasemaybe, with the elected representative of the local authority as the Co-Chairperson. The State Government shall appoint an officer not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner, as the case may be, of the district to be the Chief Executive Officer of the District Authority. The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelineslaiddownbytheNDMAandSDMA.Itwill,interalia,preparetheDMplanfor the District and monitor the implementation of the all relevant national, state, and districtpoliciesandplans.TheDDMAwillalsoensurethattheguidelinesforprevention, mitigation,preparedness,andresponsemeasureslaiddownbytheNDMAandtheSDMA are followed by all the district-level offices of the various departments of the State Government.

2.6.2 PlanImplementation

The DM Act 2005 enjoins central and state governments to make provisions for the implementation of the disaster management plans. In this respect, the sections of theDMAct2005applicablefornational, state, anddistrictDMplansare11, 23, and31. The Chapters V and VI of the DM Act spell out the responsibilities of the central, state, and local governments with respect to disaster management. The DM Act states thateveryMinistryorDepartmentoftheGovernmentofIndiashallmakeprovisions, in its annual budget, for funds for the purposes of carrying out the activities and programmes set out in its disaster management plan. The Act mandates that every Ministry and Department of the Government of India and every state must prepare a DMPinaccordancewiththeNDMP.Annually,respectiveDMauthoritiesmustreviewand updatetheirDMplans.Centralministriesandstategovernmentswillintegrate DRRinto their development policy, planning and programming at all levels. They must adopt a holistic approach and build multi-stakeholder partnerships at all levels, as appropriate, fortheimplementationoftheDMplans.Dependingonitsnature, differentcomponents oftheNDMPwillbeimplementedwith in aspanoffive, ten, orfifteenyears.Theplanis highly ambitious and the complete implementation of all elements across the country may take a very long time. Nevertheless, both central and state governments have already made considerable progress and they are expected to make sincere efforts for the implementation of the DM plans. The NDMA has prepared and published hazard- specific guidelines and reports covering various aspects of disaster management and including a separate one for response, details are listedbelow.

Table 2.3: NDMA's Guidelines on Disaster Management:-

1.	Management of Chemical Disaster(Industrial)	2007
2.	Management of Earthquakes	2007
3.	Formulation of State Disaster Management Plans	2007
4.	Management of Floods	2008
5.	Medical Preparedness & Mass Casualty Management	2008
6.	Management of Cyclones	2008
7.	Management of Biological Disasters	2008
8.	Management of Nuclear & Radiological Emergencies	2009
9.	Management of Chemical (Terrorism)Disasters	2009
10.	Management of Landslides and Snow Avalanches	2009
11.	National Policy on Disaster Management	2009
12.	Psycho- Social Support & Mental Health Services in Disasters	2009
13.	Incident Response System Guidelines	2010
14.	Management of Tsunamis	2010
15.	Management of Urban Flooding	2010
16.	Drought Management	2010
17.	National Disaster Management Information & Communication System	2012
18.	Scaling, type of Equipment and Training of Fire services	2012
19.	Guidelines for Seismic Retrofitting of Deficient Buildings and structures	2014
20.	Guidelines on Management of Hospital Safety	2016
21.	Guidelines on Management of School Safety	2016
22.	Management of heat wave	

TTABLE2.4

NDMA Reports (As Broad Guidelines) on disaster Management: -

1. Revamping of Civil Defence
2. NIDM's Functioning
3. Pandemic Preparedness Beyond Health
4. Disaster Response Training at the Centre & States
5. NDRF and SDRF
6. Strengthening Safety/Security in Transportation of POL Tankers
7. Threats to Municipal Water Supply and Water Reservoirs
8. Mechanism to Detect, Prevent and Respond to Radiological Emergencies
9. Management of Dead in the Aftermath of Disaster
10. Minimum Standards of Relief
11. Role of NGOs in Disaster Management
12. Pilot Project on Capacity Building for advanced Trauma Life Support in India
13. Capacity Building in Disaster Management for Government Officers and Representative of Panchayat Raj Institution and Urban District

Level

14. Training Regime for Disaster Response
15. Hand Book for Training and Capacity Building of Civil Defence and sister Organisations (part-I)
16. Hand Book for Training and Capacity Building of Civil Defence and sister Organisations (part-II)
17. Managing Crowd at Events and Venues of Mass Gathering
18. Cyclone Hudhud-Strategies and lessons for preparing better & strengthen risk resilience in coastal regions of India.

2.6.3 Salient features as per section of disaster management act2005:

A. **SECTION 35** provides that each department shall coordinate with the other departments of Government of India, State Governments, District Administration and NGOs etc. with regard to prevention and mitigation of disasters. The zonal Railwaysaccordinglyhavetoincorporatemeasuresforpreventionandmitigationof disaster with a similar action taken by other stakeholders and integrate these development plans / projects for capacity building to handle disasters. The CSOon each Zonal Railway have to ensure adequate allocation of funds by the respective PHODs of the Executive departments on the Zonal Railways for capacity building and increased preparedness in the prevention and mitigation ofdisaster.

B. **SECTION36**providesthateverydepartmentoftheGovernmentofIndiashalltake necessary measures for the prevention of Disasters, mitigation, preparedness and capacity building in accordance with the guidelines laid down by the NDMA. Every departmentshallrespondeffectively/promptlytoadisasterinaccordancewiththe guidelines issued by NDMA and assist to the NDMA and the State Governments for carrying out rescue and relief operations in the affected areas by making available its resources to theNEC.

C. **SECTION 37** provides that each department of the Government of India shall prepare a Disaster Management Plan, which shall mention all items as laid downin Section 35 and 36 of the Disaster managementAct.

PCSO on each Railway shall educate the PHODs as well as the DRMs to follow up the above as also monitor the action taken by them.

CHAPTER - 3
REDUCING RISK AND ENHANCING RESILIENCE

3.1 Background:

The Disaster Management Act, 2005 and the National Policy, 2009 marks the institutionalization of paradigm shift in disaster management in India, from a relief-centric approach to one of proactive prevention, mitigation and preparedness. The Policy notes that while it is not possible to avoid natural hazards, adequate mitigation and disaster risk reduction measures can prevent the hazards becoming major disasters.Disasterriskariseswhenhazardsinteractwithphysical, social, economicand environmental vulnerabilities. The National Policy suggests a multi-pronged approach for disaster risk reduction and mitigation consisting of thefollowing:

- Integrating risk reduction measures into all developmentprojects.
- Initiating mitigation projects in identified high priority areas through joint efforts of the Central and StateGovernments.
- Encouraging and assisting State level mitigationprojects.
- Paying attention to indigenous knowledge on disaster and coping mechanisms.
- Giving due weight age to the protection of heritagestructures.

In the terminology adopted by the "United Nations International Strategy for Disaster Reduction" (UNISDR), the concept and practice of reducing disaster risks involve systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. While both the terms "Disaster Reduction" and "Disaster Risk Reduction" (DRR) are widely used, the latter provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks. Mitigation consists of various measures required for minimizing or limiting the adverse impacts of hazards and related disasters.

The disaster risk reduction and mitigation plan integrates the global targets into thenationaleffortsandseekstostrengthensignificantlyIndia'sreliancetobothnatural andhuman-induceddisasters.TheDMAct2005defines"Mitigation"asmeasuresaimed at reducing the risk, impact, or effects of a disaster or threatening disaster situation. "Goal of mitigation is to minimize risks from multiple hazards and the threats from individual hazards need not always occur in isolation. At times, a hazardous event can trigger secondary events. For example, an earthquake can produce a tsunami or may createfloodingorlandslides.Similarly, cyclonesoftenleadtofloodingandvariousother cascaded events spread over an area wider than the primary event. In addition, demographics, nature of human settlements, and effects of global climate change can magnify the vulnerability of the communities at risk. The DM Plan, therefore, focuses on enhancing the mitigation capabilities for multiple hazards, their likely cascading effects.

Guiding principle of Sendai Framework states that disaster risk reduction requires responsibilitiestobesharedbydifferentdivisionsof governmentsandvariousagencies. The effectiveness in disaster risk reduction will depend on coordination mechanisms within and across sectors and with relevant stakeholders at all levels. For each hazard, the approach used in national plan incorporates the four priorities enunciated in the Sendai Framework into the planning framework for Disaster Risk Reduction under the five thematic areas foraction.

1. UnderstandingRisk
2. Inter-AgencyCoordination
3. Investing in DRR – StructuralMeasures
4. Investing in DRR – Non-StructuralMeasures
5. CapacityDevelopment

For each of these thematic areas for action, a set of major themes have been identified for inclusion in the planning framework.

3.1.1 UnderstandingRisk:

This thematic area for action focuses on understanding disaster risk, the Priority-1intheSendaiFrameworkintegratesintoitnumerousactionsneededforstrengthening disaster resilience. The major themes for action are: a) Observation Networks, Information Systems, Research, Forecasting, b) Zoning / Mapping, c) Monitoring and Warning Systems, d) Hazard Risk and Vulnerability Assessment (HRVA), and e) DisseminationofWarnings, Data,andInformation.Havingadequatesystemstop provide warnings, disseminateinformation, andcarryoutmeaningfulmonitoringofhazardsare crucial to disaster risk reduction, and improving resilience. They are also an integral part of improving the understanding ofrisk.

3.1.2 Inter-AgencyCoordination:

Inter-agency coordination is a key component of strengthening the disaster risk governance -Priority-2 of the Sendai Framework. The major themes for actionrequired forimprovingthetoplevelinteragencycoordinationarea)Overalldisastergovernance, b) Response, c) Providing warnings, information, and data and d)Non-structural measures.Thecentralministriesandagenciesmentionedarethosevestedwithhazard-specific responsibilities by the Govt. of India or those expected to play major roles in the thematic areas given in thematrix.

3.1.3 Investing in DRR – StructuralMeasures:

Undertaking necessary structural measures is one of the major thematic areasfor action for disaster risk reduction and enhancing resilience. These consist of various physical infrastructure and facilities required to help communities cope with disasters. The implementation of these measures is essential to enhance disaster preparedness, a component of Priority-4 of the Sendai Framework. It is also an important component of investing in disaster risk reduction for resilience, which is Priority-3 of Sendai Framework.

3.1.4 Investing in DRR – Non-StructuralMeasures:

Sets of appropriate laws, mechanisms, and techno-legal regimes arecrucial components in strengthening the disaster risk governance to manage disaster risk, whichisPriority-2oftheSendaiFramework.Thesenon-structuralmeasurescomprising of laws, norms, rules, guidelines, and techno-legal regime (e.g., building codes) framework and empowers the authorities to mainstream disaster risk reduction and disaster resilience into development activities. The central and state governments will have to set up necessary institutional support for enforcement, monitoring, and compliance.

3.1.5 CapacityDevelopment:

Capacity development is a theme in all the thematic areas for action. The Sendai Priority-2. (Strengthening DRR governance to manage DR) and Priority-3 (Investing in DRR for resilience) are central to capacity development. The capacity development includes training programs, curriculum development, large-scale awareness creation efforts, and carrying out regular mock drills and disaster response exercises. The capabilities to implement, enforce, and monitor various disaster mitigation measures has to be improved at all levels from the local to the higher levels of governance. It is alsostrengtheningtheDRRgovernanceatalllevelstobettermanageriskandtomake the governance systems moreresponsive.

3.1.6 Hazard-wise Responsibility Matrices for Disaster RiskMitigation:

For the DM plans to succeed, it is necessary to identify various stakeholders/agencies and clearly specify their roles and responsibilities. At all levels – fromlocaltothecentre-therelevantauthoritiesmust institutionalize programmesand activities at the ministry/department levels, and increase inter-ministerial and inter-agency coordination and networking. They must also rationalise and augment the existing regulatory framework and infrastructure. For each hazard, in the subsections thatfollow, themesforactionarepresentedinaseparateresponsibilitymatrixforeach of the five thematic areas for action. It must be noted that the role of the central agencies is to support the disaster-affected State or the UT in response to requests for assistance. However, the central agencies will play a pro-active role in disaster situations. In the domains of DM planning, preparedness, and capacity building, the central agencies will constantly work to upgrade Indian DM systems and practices as per global trends. This section covers the hazards relevant to Indian Railways listed below:

1. Accidents
2. Cyclone andWind
3. Floods
4. Seismic/Earthquakes
5. Tsunami

3.2 Understanding Disaster Risk, Investing, capacity development and Mitigation

Planning framework for Disaster Risk Reduction under the above five thematic areas mentioned in para 3.1 for all the six hazards mentioned in para 3.1.6 has been detailed in section 3.1.7 of Railway Board Disaster Management Plan under the head of Disaster Risk Reduction measures. This has been summarised as follows:

3.2.1 Train Accidents:

1. Collisions
2. Derailments
3. Fire
4. Manned & Unmanned Level Crossing

The "**Responsibility of Zone& Disaster Risk Reduction – Action Framework**" in these Type of Disasters mainly pertains to Implementation of "Board's Policies &Guidelines" laid down by the executive departments and Preparedness for facing these situations by conducting mock trials.

3.2.2 Natural Disasters:

1. Cyclone and Wind
2. Floods
3. Seismic
4. Tsunami
5. Landslides and Snow Avalanches

The "**Responsibility of Zone & Disaster Risk Reduction – Action Framework**" in Natural Disasters mainly pertains to:

i Preparation of Implementation of "Board's Policies & Guidelines" laid down by the executive departments
ii Adapting of Norms/ Codes.
iii Support & Coordination – for collection of warning Data
iv Preparation of detailed maps identifying vulnerable locations.
v Coordination with state authorities and disseminate early warning signals to Divisional Authorities.
vi Implementation of Disaster Management Plans
vii Training and orientation of all concerned staff.
viii Preparedness for facing these situations by conducting mock trials.

Railway Board's Disaster Management Plan (Chapter-3 Para 3.2 for Train Accidents & Para 3.3 for Natural Disasters) may be referred for detailed measures of Disaster Risk Reduction.

3.2.3 Disaster Risk ReductionMeasures:

(A) TrainAccidents:

S.No	Agency	Responsibility	DRR -Action frame work
1.	**Major Theme: Collision of trains - Understanding disaster Risk Investing, Capacity Development &Mitigation.**		
	S&T	Implementation of RB policies and guidelines for reliable signalling system. Proliferation of ATP andits maintenance	Implementation of RB policies and guidelines for reliable signalling system, Proliferation of 'Automatic Train Protection' (ATP) and its maintenance is being ensured
	Mechanical and Electrical.	Implementation of Board guidelines for reliable maintenance of locomotives. Training and monitoring ofcrew.	1. The availability and working of all safety items like Head light, flasher light, speedometer (ESMON), Horn, wipers, ACP, Cattle guard, wooden wedgesetc.arebeingensuredbefore shed out of locomotives fromsheds. 2. Regular training for maintenance of electric locomotives has been given to maintenance staff attraining centre & OEMpremises. 3. To arrest Accidents/ Collisions/ Derailments the Safety Drives were being launched regularly to enhance the knowledge & alertness of Loco Pilots/ Assistant Loco Pilots & Shunters. (a) Observance of any STOP signals rigidly &carefully (b) Not to leave locomotive/EMU/MEMU unmanned while onduty. (c) Counselling & Educating Loco Pilots in respect of clearing foulingmarks. (d) Whistling intermittently while passing Unmanned Level crossing Gates. (e) Frequently looking back for detecting any smoke, hot axle etc & safe running oftrain. (f) Timely detection of Flat wheels/Rail fractureetc. (g) Detecting any un-usual condition of the Track or in the vicinity ofTrack. 4. The utilization of Simulator for electric locomotives at ZETC, BRC is Being monitored regularly. No

S. No	Agency	Responsibility	DRR -Action frame work
			Running staff overdue Technical or Transportation Refresher coursesand overdue PME is booked on line. All Loco Pilots having "A" gradation are being booked for working Special trains. They are being adequately given Road learning (TC-310) & practical handling of locomotives before being deployed for working The trains on the section.
	Personnel	Implementation of Board Policies and monitoring performances ofthe Training centres.	Board Policies being ensured and Performance is undermonitoring.
	Safety	Monitoring and auditing safety systems.	1. One intra railway safety Audit has been carried out once in a year on Rajkotdivision 2. Conduction of mockdrills in all ART/ARME/ SPART and major divisional / zonal railwayhospitals. 3. One Divisional safety audit to be conducted.
	Operating	Preparing subsidiary rules and effective implementation of GR & SR during train operations.	1. The Instructions are incorporated vide Para 2704 & 2705 of Operating Manual 2008 and G & SR14.11. 2. Accident enquiry instructions have been incorporated in Para 1001 to 1039 of Chapter –X ofAccident Manual 2009
	Engineering	Training and monitoring of track machine operators. Propermaintenance of track machines	Training schedule of Staff and periodic maintenance schedules of machines are strictly adhered as per Railway norms
	Electrical (TRD)	Implementation of Board guidelines for reliable maintenance of tower wagons. Training and monitoring oftower Wagon operators.	Railway Board's guidelines for reliable maintenance of Tower Wagons and training of Tower wagon Drivers are being followed.
	Mechanical and Electrical (TL)	Implementation of Board guidelines for reliablemaintenance of coaches/wagons	A. Coaching: Proper functioning of brake system and adequate brake power in trains to prevent collisionof coaching trains areensured.

S.No	Agency	Responsibility	DRR -Action frame work
		EMUs/DEMUs/train sets.	B. Wagon: functioning of brake system, adequate brake power in trains and proper under gear examination to prevent collision of goods trains is ensured. DEMUs: Proper functioning of Conventional and EP brake system and 100% break power inDEMU Trains to prevent accidentoftrains.
2.	**Major Theme: Derailments - Understanding disaster Risk, Investing, Capacity Development & Mitigation.**		
	S&T	Implementation of RB policies and guidelines for reliablesignalling System.	RB policies and guidelines for reliable signalling system are being ensured
	Mechanical and Electrical.	Implementation of Board guidelines for reliable maintenance of locomotives and tower wagons. Training and monitoring ofcrew.	1. DPT/MPT and USFD tests have been carried out to detect even hair line crack or flaw at most of theloco equipment like wheel, TM nose stay, Axle, bogie mechanicalparts. 2. All brake rigging items are checked during TI to ensure worn out/defective items have been replaced. 3. Regular training for maintenance of electric locomotives has been given to maintenance staff attraining centre & OEMpremises. 4. In addition to the Simulator training, ALPs after completing their promotional course (for Driver Promotion) at ZETC, are given line training i.e. Loco/Train handling under the supervision of Loco Inspector in accordance with the Railway Board's letter No. 2004/ M (L)/466/7101Dated.31.08.09before being issued Gradation Card & Competency certificate by Sr.DEE (TRO). The instruction in this regard has been issued to all vide Technical Circular No.270. The revised policy for categorization/gradation of Loco Pilots issued by Railway Boardvide 97/Safety-I/23/15 dtd.29.03.07 has also been circulated to divisionsvide

S.No	Agency	Responsibility	DRR -Action frame work
			Technical circular No. 274 & 307. Instructions have also been issuedto Divisions in reference to CRB's letter No. 2009/Safety (A&R) /3/7 dtd. 13.08.09 for extensively & adequately monitoring all newly promotedLocoPilotsforaperiodof 2 to 3 months.
	Personnel	Implementation of Board Policies and monitoring performances ofthe Training centres.	Board Policies being ensured and Performance is undermonitoring.
	Safety	Monitoring and auditing of safety systems.	1. SAG officers Night foot plate inspections/Ambush checks/Surprise inspections has been carried out throughout the Zone covering all sections once in a month and the corrective actions/ Compliance monitored. 2. Safety Drives has been carried outas per Board Guidelines. 3. Safety inspections carried out throughouttheZonebyHeadQuarter safety officials and the Defects compliance monitor through SMS inspection Management Module for earlyCompliance. 4. Safetydrivescalendarisbeingissued and defects, deficiencies noted during drive monitoredfor Compliance.
	Operating	Preparing subsidiary rules and effective implementation of GR & SR during train operations.	1. The Instructions are incorporated vide Para 2706 & 2707 of Operating Manual 2008 and SR 3.39 (5) of G & SR 2. Accident enquiry instructions have been incorporated in Para 1001 to 1039 of Chapter –X ofAccident Manual 2009
	Commercial	Implementation of Board guidelines regarding loading of commodities.	The Preventive steps Being Taken to avoid any Possible Derailments owingto over Loading (revenue) etc including(1) Commodities are loaded as per prescribed Packing conditions.(2) Maximumeffortsshouldbetakentostop damage to commodities

S.No	Agency	Responsibility	DRR -Action frame work
	Engineering	Implementation of RB policies and guidelines for reliableengineering Assets.	RBsguidelinesforminimumstandardsof track structure are followed. Wherever these standards are not met with suitablerestrictionofspeedisimposedifapplicable.
	Mechanical and Electrical (TL)	Implementation of Board guidelines for reliable maintenance of coaches/wagons/ EMUs/DEMUs/train Sets.	**A. Coaching:** (i) Proper Rolling in/OutExamination (ii) Axle Box feeling/Recording of axle box temperature to avoid "Hot Box" onrun (iii) Proper examining of running gear, suspension gear, draw/buffinggear/ Brake gear of coaches during PM/ SM/Train examination of trains are ensured. (iv) USFD testing of axle is done in coaching stock regularly as stipulated. (v) Adequate and proper manpowerand infrastructure for examination of trains are ensured. **B. Wagon:** (i) Proper Rolling In/OutExamination (ii) Axle Box feeling/Recording of axle box temperature to avoid "Hot Box" onrun (iii) Proper examining of all under gear components of Wagons during CC, Premium & Intensive examinationof goodstrains. (iv) USFD testing of axle is done in Wagon stock regularly asstipulated. **C. EMU:** (i) Monitoring of vital safety inputs in areas like progress of critical safety works, availability of critical safety items, training, availability of infrastructure for maintenance requirement. (ii) USFDtestingofaxlesinEMUcoaches is done to detect flaws; this enables exhaustive analysis of defects and identifies those which are growingin size. (iii) Automatic flasher units have been provided on all EMU to enable automatic switching ON offflasher

S.No	Agency	Responsibility	DRR -Action frame work
			Lights in case of train parting/alarm chain pulling. This gives immediate indication to the driver of the train coming from the opposite direction in case of derailments etc. **D. DEMU:** (i) Proper Rolling In/OutExamination (ii) Axle Box feeling/Recording of axle box temperature to avoid "HotBox" on run areensured (iii) Proper examining of running gear, suspension gear, draw/buffing gear/Brake gear and Schaku coupler of DMU coaches during Primary Maintenance examination are ensured. (iv) Adequate and proper manpower and infrastructure forexamination.
	Security	Implementation of Board guidelines.	Board guide lines being ensured.
3.	**Major Theme: Fire - Understanding disaster Risk, Investing, Capacity Development& Mitigation.**		
	Mechanical and Electrical.	Implementation of Board guidelines for reliable maintenance of locomotives and tower wagons.	1. 2 nos. of fire extinguishers are provided in each cab of locomotive which are randomly checked and maintained as perschedule. 2. Safetyrelaysforthesafety, inworking condition are provided for all equipment &circuits. 3. Fire retardant materials like SBGF cleats for cables, resin and rubber grommets have been used at various place 4. Electrical fire sensing & extinguishing system is available only in Microprocessor based three phase locomotives. 5. Instructions for prevention of fire on electric locomotives has been given vide Technical Circular No. 230 dtd.30.10.06. 6. All the Staff working on electric locomotives has been trained to handle fire relateddisasters. **TRD:** Allthetractionsubstationsandswitching posts,OHEdepotsandPSIdepotsare

S.No	Agency	Responsibility	DRR -Action frame work
			Provided with DCP type fire extinguishers in accordance to chapter VI of ACTM Vol. I. It is ensured that these fire extinguishers are checked, testedandrefilledandthepersonalwere trained for operating offire Extinguishers.
	Personnel	Implementation of Board policies and monitoring performances ofthe Training centres.	Board Policies being ensured and Performance is undermonitoring.
	Safety	Monitoring and auditing of safety systems.	1. Safety seminars, Shunting melas, Nukednataks, hasbeencarriedoutall over the divisions Through Divisional safetyofficers. 2. Safety poster/Hand bills/ Pamphlets has been carried out in all divisions of ZonethroughDivisionalsafetyofficers
	Commercial	Implementation of Board guidelines regarding loading of commodities.	1. The Preventive steps Being Taken to avoid any Possible fire owing to over Loading-etc including (1) Commodities are loaded as per prescribed Packingconditions. (2) Maximum efforts should be taken to stop damage tocommodities 2. Pantryequipmenthealthiness has being ensure through JPO as perRB Extent guidelines.
	Engineering	Implementation of RB policies and guidelines for reliableengineering Assets.	Buildings and structures are constructed andmaintainedasperrailwaycodes and manuals which yield reliableengineering assets.
	Mechanical and Electrical (TL)	Implementation of Board guidelines for reliable maintenance of coaches/wagons/ EMUs/DEMUs/train sets to minimize fire hazards.	A**. Coaching:** (i) Use of fire retardant materials in passengercoaches. (ii) Provision of Fire extinguisher in AC/Pantrycar/Powercarcoachesas pernorms (iii) Provision of fire detectionand suppression systems in LHB power cars/Pantry cars

S.No	Agency	Responsibility	DRR -Action frame work
			(iv) ACP system should be invariably be in working condition when turned out after Primary Maintenance. **B. Wagon:** (i) Proper checking of tank wagons before loading by competent authority (ii) Certification by competent authority for no leakage of tank wagons after loading. (iii) If leakage of tank wagon detected during Run, quick actions are initiated through control message and allow for further movement after certification by competent authority. (iv) Spark-less tools are used during attention of loadedwagons. **C. EMU:** (i) Proper maintenance procedures are followed as per RDSO's guidelines (ii) Checking of critical equipments, safety items of driving cab such as fire extinguishers, short circuiting clips, wooden wedges is ensured in night stablingyards. (iii) Replacement & availability of Must change items is ensured during POH schedule. (iv) A special course on Disaster management training covering essential aspects of accidents & Crisis Management is provided to supervisors & Technicians during initialtrainingandrefreshertraining. **D. DEMU:** (i) Use of fire retardant materials in DEMU coaches. (ii) Provision of Fire extinguisher in DEMU coaches/power car (DPC) coaches as per norms (iii) ACP system in working condition in all DEMU coaches when turned out after Primary Maintenance is Ensured.
	Security	Implementation of Board guidelines.	Being ensured as per laid downRailway Board guidelines.

S.No	Agency	Responsibility	DRR -Action frame work
4.	**Major Theme: Manned level crossings - Understanding disaster Risk, Investing, Capacity Development & Mitigation.**		
	S&T	Implementation of RB policies and guidelines for reliable signalling system at InterlockedLCs.	Implementation of Railway Board policies and guidelines for reliable signalling system at interlocked LCs is being ensured.
	Mechanical and Electrical.	Implementation of Board guidelines of monitoring of crew.	1. The 'Safety Drives' are conducted from time to time in which Crew has been counselled to continuously blow the locomotive whistle while passing LC gates to alert road users. Instructions contained in SR 16.03(3) (b) pertainingto"soundingof enginewhistlewhileapproachinglevel crossing". Ambush checks were also conducted from LC gate or by travelling in the adjacent coach to monitor the crew in thisregard. 2. The compliance of the same has been ensured through field inspections by Officers & Loco Inspectors, surprise checks/ambush checks etc. fromLC Gates or by travelling in the adjacent coach.
	Personnel	Implementation of Board Policies and monitoring performances of the trainingcentres.	Board Policies being ensured and Performance is undermonitoring.
	Safety	Monitoring and auditing of safety systems.	1. Safety seminars, Nukkad Nataks, have been carried out on the division Through Divisional safetyofficers. 2. Safety poster/Hand bills/ Pamphlets has been carried out in all divisions of ZonethroughDivisionalsafetyofficers
	Operating	Preparing subsidiary rules and effective implementation of GR & SR during train operations.	1. The Instructions are incorporated vide Para2708&2709ofOperatingManual 2008andAnnexure–I, II, III, IV, Vof Appendix-A to Chapter XVI of G & SR 2008. 2. Accident enquiry instructions have been incorporated in Para 1001 to 1039 of Chapter –X ofAccident

			Manual 2009

S.No	Agency	Responsibility	DRR -Action frame work
			3. Road users are being counselled to take precaution while using level crossing. 4. International Level crossing dayis Being celebrated to improve awareness.
	Engineering	Implementation of RB policies and guidelines for Maintenance ofLCs.	All the relevant policies forconstruction, maintenance, elimination of LCs given by RB from time to time is adheredto.

(B) Cyclone and Wind:

(a) Cyclone and Wind : Understanding Risk				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Observation Networks, Information Systems, Research Forecasting.	Engineering Department	Support and coordination	Railway Coordinates with IMD for collection of warning Data from IMD local stations
2.	Zoning/ Mapping	Engineering Department	Preparation of detailed maps identifying vulnerable locations	Previous records of cyclone affected areas are used to establish vulnerable locations.
3.	Hazard Risk Vulnerability Assessment	Engineering Department	Preparation of detailed maps identifying vulnerable locations	Previous records of cyclone affected areas are used to establish vulnerable locations.
4.	Dissemination of warnings, data, and information	Engineering Department	To coordinate With state Authorities andto disseminateearly warning signals to Divisional Authorities.	Every division has tie up with local weather warning unit meteorological department and/or are informed by offices maintain RAT/RAW in case of any unusual circumstances affecting track due to RAT/RAW. Railway HQ also receives weather data from regional IMD officeduring Rough weather through email.

(b) Cyclone and Wind - Inter-Agency Coordination				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Overall Disaster governance	Engineering Department	Implementation of DM plans	Railwayshavecontactdetailsof state authorities at field level and at divisional level and HQ level to be contacted in case of any flood like situationand Cyclones.
2.	Response	Engineering Department	Implementation of DM plans	1. Railways keep updated contact details of all concerned district administration and other emergency services at all railway stations, Divisional HQ and railway HQ to be contacted for in case of Cyclone and wind disaster. Repairs to shelters, structures are coordinated with in various departments' ofrailways. 2. Railways have contactdetails of state authorities at field level and at Divisional leveland HQ level to beconfacted In case of all flooding / cyclone.
3.	Warnings, Information, Data	Engineering Department	To Coordinate with state Authorities andto disseminateearly warning signals toDivisional Authorities.	Railway relies heavily on IMD for information on Cyclone and wind. However IMD through its regional and local weather monitoring station advice railways of adverse whether Through e-mail.
4.	Non-structural measures	Engineering Department	Adapting the norms/codes	Norms and codes are already exists

(c) Cyclone and Wind : Structural Measures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Hazard resistant construction, strengthening and retrofitting of all lifeline structures and critical infrastructure	Engineering Department Electrical department	Adapting the norms/codes Adapting the norms/codes for TRD	Provision record of full affected, passed and standby for the tragedy precaution. Rly. Board's guidelines for reliable maintenance of Tower Wagons and training of Tower wagon Drivers are being followed.
(d) Cyclone and Wind: Non-Structural Measures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Laws Regulations Enforcement Mechanisms Techno-Legal regimes Institutional Arrangements Codes for disaster risk reduction Compliance Monitoring	Engineering Department	Adapting the norms/ codes	These are the matters of the State. Non structural Disaster Risk reduction codes do not Exist for railways. However precautionary track protection measures like patrolling & Deputing bridge guards are done on advice of Disaster warning from IMD
		Electrical department	Adapting the norms/ codes for TRD	Rly. Board's guidelines for reliable maintenance of Tower Wagons and training ofTower wagon Drivers are being Followed.
(e) Cyclone and Wind : Capacity Development				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Training	Civil and Personnel departments	Training and orientation of all concerned staff.	No Module so far formulatedfor Training in Cyclone & Wind by Railways
2.	Mock Drills/ Exercises	Civil Engineering department	Conducting mock drills.	No mock drill or exercise is yet designed or conducted for Cyclone and Wind

3.2.4 Brief history of most intense cyclones faced by Gujarat from 1970 to 2018:

SN	Name of Cyclone	Date and Year	Intensity (T-Number)	Observed/ Estimated Max. Wind After Landfall	Damage
1.	Severe Cyclonic storm over the Arabian sea	October, 19-24, 1975	N/A	97 Knots 180 kmph	85peopledied in the district of Junagadh, Jamnagar and Rajkot of Saurashtraregion. This cyclone caused considerable damage. Estimated to be about Rs. 75crores.
2.	Severe Cyclonic Storm over the Arabian sea.	May 31 – June 5, 1976	N/A	90 Knots 167 kmph	This Cyclone caused damage to property which was estimated to be about Rs. 3 Crore. 4 Burgeseach. Containing Rs. 5 Lakh and6 fishing boats were swept away. Mehasana, Bhavnagar, Kaira, Panchmahal, Rajkot and Broach districts of Gujarat State were most affected areas.
3.	Gujarat Cyclone	November 5-13, 1978	N/A	278 kmph	Damage to property Reported.
4.	Severe Cyclonic Storm over the Arabian sea	October 28 – November 3, 1981	T – 4.0 (as per US satellite)	65 Knots 120 kmph	Junagarh, Rajkot and Jamnagar of Gujarat state were most affectedareas, Total loss of damage to property was estimated to be about Rs. 52 Crores.
5.	Severe Cyclonic Storm over the	November 4-9, 1982	N/A	N/A	Saurastra Coast of Gujarat about 45 km east ofVeraval was affected very much by This storm. 507 peopledied

	Arabian sea				and 1.5 lakh livestock perished.
6.	Severe Cyclonic Storm over the Arabian sea	November 4-9, 1982	T – 4.0	50Knots 93kmph	50 fishermen were reported missing in Gujarat Coast.
7.	Severe Cyclonic Storm over the Arabian sea	June17-20,1996	T – 3.5	60 Knots 111 kmph	19 Districts of Gujarat State were affected. 33 people died. 27964 puccahouses were destroyed. Total estimated loss was Rs.1803.52 lakh.
8.	Very Severe Cyclonic Storm over the Arabian sea	June 4-10, 1998	T – 5.0	90 Knots 167 kmph	Gujarat & Rajasthan states were affected. Porbander of Gujarat state was the most affected area. Loss incurred due to storm was estimated to be about Rs.1855.38 Crores in Kandla. Numberof lines lost 1173 and number of persons missing 1774 in Gujarat.
9.	Very Severe Cyclonic Storm over the Arabian sea	May 16-22, 1999	T – 5.5	105Knots 195kmph	'This system caused severe damage in Kutch and Jamnagar districts of Gujarat. 453 people died. Loss of property was estimated to be about Rs. 80 crores. In Rajasthan one person died and 5104 cattle heads perished. 5133 houses were partially damaged.

3.2.5 Flood:

(a) Flood - Understanding Disaster Risk				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Observation Networks, Information Systems, Monitoring, and Forecasting	Engineering Department	Support and coordination	Flood survey of RAT/RAW is done yearly with state authorities to ensure the health of railway affecting works/tanks. The repairs are then carried out by the state authorities on theaffected RAT/RAW
2.	Zoning, mapping, and classification flood prone areas	Engineering Department	Preparation of detailed maps identifying vulnerable locations	Flood affected portion frompast history is recorded. Trendsfrom past history is taken as a clue for pre monsoonpreparation
3.	Hazard Risk Vulnerability Assessment	Engineering Department	Preparation of detailed maps identifying vulnerable locations	Previous records of cyclone affected areas are used to establish vulnerable locations.
4.	Monitoring, Forecasting and Warning Systems	Engineering Department	Support and coordination	Railway relay on information provided by IMD for risk mitigation. Railway precautionary patrolling of line and stationary bridge guards also supplement in providing information of real timeflood Position during rains.
5.	Dissemination of warnings, data, and information	Engineering Department	To Coordinate with state Authorities andto disseminateearly warning signals to Divisional Authorities.	Every division has tie up with local whether warning unit meteorological department and/or are informed by offices maintain RAT/RAW in case of any unusual circumstances affecting track due to RAT/RAW. Railway HQ also receives weather data from regional IMD office during rough weather through e mail. Railway HQ also receives WeatherdatafromregionalIMD

(a) Flood - Understanding Disaster Risk				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
				Office during rough weather through email.
(b) Flood Inter-Agency Coordination				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Overall disaster governance	Engineering Department	Implementation of DM plans	Norms and codes are already exists
2.	Response	Engineering Department	Implementation of DM plans	Railways have contact detailsof state authorities at field level and at divisional level and HQ level to be contacted in caseof any flood like situation
3.	Warnings, Information, Data	Engineering Department	ToCoordinate with state Authorities and to disseminate early warning signalsto Divisional Authorities.	Railway relies heavily on IMD for information on Cyclone and wind and floods. However IMD through its regional and local weather monitoring station advice railways of adverse Whetherthrough e-mail.
4.	Non-structural measures	Engineering Department	Adapting the norms/codes	Railways have contact detailsof state authorities at field level and at divisional level and HQ level to be contacted in case of any flood like situation. No separatenormsorcodesexist For non structural measures.

(c)Flood StructuralMeasures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Flood control measures such as construction of embankments and levees	Engineering Department	Adapting the norms/ codes	River training works wherever found fit had already beendone by railway within its boundary. However control measures to arrest flash floods are not managed withinrailway Boundary due to lack of space.
2.	Hazard resistant construction, strengthening , and retrofitting of all lifeline structures And critical infrastructure	Engineering Department	Adapting the norms/ codes	Structures are designed based on the flood data, Rainfall & catchment affecting the Structure. HFL, Linear water way and free boards are meticulously considered for Designing the structure.

(d) Flood Non-Structural Measures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	• Regulation and enforcement of laws, norms, regulations guidelines • Regulation of Reservoirs • Integrated Water Resources Management (IWRM)	Engineering Department	Adapting the norms/ codes	Correspondence & meeting with state authorities prior to monsoon wherever required is conducted for free flow of warning system from weather authorities & agencies maintain RAW/RAT works
2.	Regulations to promote flood Resilient	Engineering Department	Adapting the norms/ codes	Railways codes and manuals have adequate provision for designing structures

	buildings & infrastructure			Considering the past flood data of that area.

(e) Flood- Capacity Development				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Training	Civil and Personnel departments	Training and orientation of all concerned staff.	No Module so far formulatedfor Training in Floods by Railways
2.	Mock Drills/ Exercises	Civil Engineering department	Conducting mock drills.	No mock drill or exercise is yet designed or conducted for Floods

3.2.6 Seismic:

(a) Seismic: Understanding Disaster Risk				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	• Earthquake Monitoring Services • National Seismological Network • Real Time Seismic Monitoring Network (RTSMN)	Engineering Department	coordination	Railways is fully dependent on IMD for early warning of seismic risk. Reports from IMD are relayed to railway by local IMD whether monitoring stations.
2.	Earthquake Hazard andRisk Assessment (EHRA)	Engineering Department	coordination	Railways have its own inspection schedule of structures to determine the health of the structure.EHRA however is not covered underit
3.	Scientific Seismic Zonation	Engineering Department	coordination	Contacts of district and state administration for disaster management are maintained Byrailwayatallrailwaystation,

				divisional HQ controls to Coordinate for risk mitigation.
4.	Seismic Micro-zonation	Engineering Department	coordination	Contacts of district and state administration for disaster management are maintained byrailwayatallrailwaystation, divisional HQ controlstocoordinate for risk mitigation.
5.	Hazard Risk Vulnerability Assessment	Engineering Department	Preparation of detailed maps identifying vulnerable locations	Records of previous seismic affected locations are preserved at divisional levels for identifyingvulnerable Location.

(b) Seismic Inter-Agency Coordination				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Overall disaster governance	Engineering Department	coordination	Coordination effort are put up by railway in tandem district administration on receipt of seismic risk warning from IMD
2.	Response	Engineering Department	coordination	Coordination effort are put up by railway in tandem district administration on receipt of seismic risk warning from IMD
3.	Non-structural measures	Engineering Department	Adapting the norms/codes	Railwayshavecontactdetailsof state authorities at field level and at divisional level and HQ level to be contacted in case of any natural disaster like situation. No any Norms or codes exist for non structural measures.

(c) Seismic Non-Structural Measures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Regulations and model	Engineering Department	Adapting the norms/codes	Codes and By laws arefollowed While erecting structures in railwaycolony.

	codes for town planning, civil works and public infrastructure			
2.	Structural safety audit of lifeline structures and buildings Prioritization of lifeline structures and buildings for strengthening and seismic retrofitting	Engineering Department	Adapting the norms/ codes	A constant endive is made by railways to strengthen & replace structures which have outlived its codal life or has to be upgraded to bear additional loads by way of sanctioning various works in PB, LB & even Under revenue fund. Retrofitting is also adopted in selected bridges based on condition as per norms

(d) Seismic- Capacity Development				
SN	**Major Theme**	**Zonal Agency**	**Zonal Railways - Responsibility**	**DRR -Action Frame work**
1.	Training	Civil and Personnel departments	Training and orientation of all concerned staff.	No Module so far formulated for Training in Seismic Risk Mitigation by Railways
2.	Mock Drill/Exercise	Civil Engineering department	Conducting mock drills.	No mock drill or exercise is yet designed or conducted for Seismic Risk Mitigation

3.2.7 Tsunami:

(a) Tsunami Capacity Development				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Research and Development Efforts	Engineering Department	coordination	No R & D facility is available with railways for mitigating Tsunami risk
2.	Zoning/ Mapping	Engineering Department	coordination	No Zoning or Maping of Tsunami Risk is coordinatedin Rajkot division

(a) Tsunami Capacity Development				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
3.	Warning System Components and Instruments	Engineering Department	coordination	Tsunami warning as provided by IMD is relied upon by railway. IMD warnings are delivered to railway by email from local whether stations.
4.	Dissemination of warnings, data and information	Engineering Department signals to Divisional Authorities	To Coordinate with Local Authorities andto disseminateearly warning signals/ Information to	A railway is fully dependent on IMD for early warning of seismic risk. Reports from IMD are relayed to railway by local IMD whethermonitoring Stations.
5.	Hazard Risk Vulnerability Assessment	Engineering Department	Preparation of detailed maps identifying vulnerable locations	Locations of previous occurrences are referred to identify vulnerable location

(b) Tsunami Inter-Agency Coordination				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Overall disaster Governance	Engineering Department	Implementation of DM plans	Railway is coordinating with various departments within itself and other district, state & central admin for overall Disaster governance.
2.	Response	Engineering Department	Implementation of DM plans	Railway has no flood response teamfordeployment.Allhelpis sought from district &state administration
3.	Warnings, Information, Data	Engineering Department	To coordinate With state Authorities andto disseminateearly warning signals to Divisional Authorities.	Railwaysarefullydependanton IMD data for early warning. ThesewarningsaremadetoHQ & to divisions directly by IMD local weather stations. Additionallyrailwayalsoconvey theearlywarningreceivedfrom IMD through its controls totheconcerned
4.	Non-structural	Engineering Department	Adapting the norms/ codes	Codes and Norms for inter agency coordination for non

	measures			structural measures do not existforTsunamiinthisrailway
(c) Tsunami- Structural Measures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Strengthening of lifeline structures and high priority buildings	Engineering Department	Adapting the norms/codes	Standards of loading to be adopted or factors to be considered for Tsunami are yet to be formulated. Strengthening of structure can be considered thereafter only.
2.	Hazard resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure	Engineering Department	Adapting the norms/codes	Codes and Norms for Hazard resistance construction or strengthening or retrofitting for Tsunami is yet to be formulated

(d) Tsunami Non- Structural Measures				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Mainstreaming DM into Development Planning	Engineering Department Adapting the norms/ codes	Engineering Department – Adapting the norms/ codes	Codes and Norms for Main streaming DM intoDevelopment planning for Tsunami is yet to be formulated
2.	Regulation and enforcement of relevant Laws	Engineering Department Adapting the norms/ codes	Engineering Department – Adapting the norms/ codes	Regulation and enforcement laws not formulated under railwayforinvestinginDRRnon structural measuresfor Tsunami

3.	Safety audits and evaluation of all lifeline structures and important facilities	Engineering Department Adapting the norms/ codes	Engineering Department – Adapting the norms/ codes	In the absence of Codal norms for structural design the safety audit and life span evaluation for Tsunami is not feasible.

(e) Tsunami -Capacity Development				
SN	**Major Theme**	**Zonal Agency**	**ZonalRailways -Responsibility**	**DRR -Action Frame work**
1.	Training and Capacity Development of Professionals	Civil and Personnel departments	Training and orientation of all concerned staff.	NoModulesofarformulatedfor Training in Tsunami Risk Mitigation byRailways
2.	Mock Drills/ Exercises	Civil Engineering department	Conducting mock drills.	No mock drill or exercise is yet designed or conducted for Tsunami

3.2.8 Landslides and Snow Avalanches:

Not pertains to Rajkot Division as they are not occurred here.

CHAPTER – 4

PREPAREDNESS AND RESPONSE

4.1 Background:

Response measures are those taken immediately after receiving early warning from the relevant authority or in anticipation of an impending disaster, or immediately after the occurrence of an event without any warning. The primary goal of response to a disaster is saving lives, protecting property, environment, and meeting basic needs of human and other living beings after the disaster. Its focus is on rescuing those affected and those likely to be affected by the disaster. UNDRR United Nations Office for Disaster Risk Reduction) defines response as "the provision of emergency services and public assistance during or immediately after a disaster in order to save lives reduces health impacts, ensure public safety and meet the basic subsistence needs of the people affected."

Preparedness, as defined by UNISDR, consist of "the knowledge and capacities developed bygovernments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions." Based on the preparedness, the response process begins as soon as it becomes apparent that a disastrous event is imminent and lasts until the disaster is declared to be over. It is conducted during periods of high stress in highly time-constrained situations with limited information and resources. It is considered as the most visible phase amongst various phases of disaster management. Response includes not only those activities that directly address the immediate needs, such as search and rescue, first aid and temporary shelters, but also rapid mobilization of various systems necessary to coordinate and support the efforts. For effective response, all the stakeholders need to have a clear vision about hazards, its consequences, clarity on plans of action and must be well versed with their roles and responsibilities.

Any emergency requires a quick response to save lives, contain the damage and prevent anysecondary disasters. In most cases, first responders such as members of Incident Response Teams (IRT) of district, block, or other agencies (medical fire, police, civil supplies, municipalities) manage emergencies immediately at the local level. If an emergency escalates beyond their capabilities, the local administration must seek assistance from the district administration or the State Government. If State Government considers it necessary, it can seek central assistance.

The Cabinet Committee on Security (CCS) deals with issues related to defence of the country, law and order, and internal security, policy matters concerning foreign affairs that have internal or external security implications, and economic and political issues impinging on national security. CCS will be involved in the decision making if the disaster has serious security implications. The National Executive committee (NEC) will coordinate response in the event of any threatening disaster situation or

disaster where central assistance is needed. The NEC may give directions to the relevant Ministries/Departments of the GoI, the State Governments, and the State Authorities regarding measures to be taken by them in response to any specific threatening disaster situation or disaster as per needs of the State.

The NDMA is mandated to deal with all types of disasters; natural or human-induced. The general superintendence, direction and control of the National Disaster Response Force (NDRF) is vested in and will be exercised by the NDMA. The NCMC will deal with major crises that have serious or national ramifications. These include incidents such as those requiring close involvement of the security forces and/or intelligence agencies such as terrorism (counter-insurgency), law and order situations, serial bomb blasts, hijacking, air accidents, CBRN, weapon systems, mine disasters, port and harbour emergencies, forest fires, oilfield fires, and oil spills.

The immediate response in the event of a disaster lies with the local authorities with the support of the State Government. The Union Government supplements their efforts through providing logistic and financial support, deploying NDRF, Armed Forces, Central Armed Police Force (CAPF), and other specialized agencies like in case of CBRN disaster. It will depute experts to assist the State Government in planning and its implementation, during severe natural or human-induced disasters as requested by the State Government.

4.2 Institutional Framework

Chapter-2provided an overview of the institutional arrangements covering all aspects of disaster management. There are specific tasks, roles and responsibilities in the domain of response, which as mentioned before, is the most critical and time-sensitive aspect of disaster management. This section summarizes the function and responsibilities of Ministries and agencies that have a key role to play in disaster response as per current guidelines. The plan will be updated periodically to reflect any changes in the key roles envisaged to particular ministries or agencies.

No single agency or department can handle a disaster situation of any scale alone. Differentdepartments have to work together to manage the disaster with an objective to reduce its impact. Section 37(a) of the DM Act, 2005 mandates that Departments / Ministries of Central Government prepare disaster management plans keeping mitigation, preparedness and response elements into consideration. Sections 22(2), 24, 30 and 34 of the DM Act, 2005 have clearly laid down various duties relating to DM to be performed by various agencies.

The institutional arrangements for the response system consist of the following elements:

a) Nodal Central Ministries with disaster-specific responsibilities for national-level coordinationof the response and mobilization of all the necessary resources.
b) Central agencies with disaster-specific responsibilities for Early Warning Systems and alerts.
c) National Disaster Response Force (NDRF).

d) State Disaster Response Force (SDRF).

There will be National Emergency Operations Centre (NEOC) known as NEOC-1 under the MHA and NEOC-2 under the National Disaster Management Authority (NDMA). It will be connected to the following control rooms:

a) All agencies designated to provide early warning information about hazard events
b) State Emergency Operations Centre (SEOC)
c) District Emergency Operations Centre (DEOC)
d) NDRF
e) Integrated Defence Staff (IDS)
f) MEA
g) CAPFs

4.3 National Early Warning System:

4.3.1 Central Agencies Designated for Natural Hazard-Specific Early Warnings.

The GOI has designated specific agencies to monitor the onset of different naturalDisasters, set up adequate Early Warning Systems (EWS), and disseminate necessary warnings/ alerts regarding any impending hazard, for all those hazards where early warning and monitoring is possible with the currently available technologies and methods. These agencies provide inputs to the MHA, which will issue alerts and warnings through various communication channels. The agencies responsible for EWS will maintain equipment in proper functioning order and conduct simulation drills to test their efficacy.

The details of Central Agencies Designated for Natural Hazard-Specific Early Warnings is detailed below:

SN	Hazard	Agencies
1.	Avalanches	Snow and Avalanche Study Establishment (SASE)
2.	Cyclone	India Meteorological Department (IMD)
3.	Drought	Ministry of Agriculture and Farmers Welfare (MoAFW)
4.	Earthquake	India Meteorological Department (IMD)
5.	Epidemics	Ministry of Health and Family Welfare (MoHFW)
6.	Floods	Central Water Commission (CWC)
7.	Landslides	Geological Survey of India (GSI)
8.	Tsunami	India National Centre for Oceanic Information Services (INCOIS)

On theirpart, the relevant State Government and district administration shall disseminate such alerts and warnings on the ground through all possible methods of communications and public announcements.

4.3.2 Role of Central Agencies/ Departments

The National Emergency Operations Centre (NEOC) will act as the communication and coordination hub during this phase and it will maintain constant touch with early warning agencies for updated inputs. It will inform State Emergency Operations Centre (SEOC) and District Emergency Operations Centre (DEOC) through all the available communication channels and mechanisms. The DM Division of the MHA will communicate and coordinate with designated early warning agencies, various nodal Ministries, and State Governments. It will mobilise reinforcements from the NDRF, Armed Forces and the CAPFs and put together transportation plans for moving resources. The NDMA will support the overall coordination of response as per needs of MHA. The NDMA will be providing general guidance, and take decisions for the deployment of the NDRF. The NDRF will be deployed as required depending on the request from State Government. They will keep the force in operationalreadiness at all times.

4.4 Coordination of Response at National Level

At the national level, the Central Government has assigned nodal responsibilities to specific Ministries for coordinating disaster-specific responses. As described in Chapter-1, the NEC will coordinate response in the event of any threateningdisaster situation or disaster. The State Government will activate the IRTs at State, District, or block level and ensure coordination with the SEOC. The SDMA will provide the technical support needed to strengthen the response system.

It is essential that the first responders and relief reach the affected areas in the shortest possible time. Often, there are inordinate delays due to real constraints imposed by the location, nature of disaster and, most regrettably, due to inadequate preparedness. In many situations, even a delay of six to twelve hours will prove to be too late or unacceptable. To make matters worse, relief tends to arrive in a highly fragmented or uncoordinated form with multiple organisations acting independently of each other without a cohesive plan, without mechanisms to avoid overlaps and without proper prioritization of different aspects of relief such as shelter, clothing, food, or medicine. From an operational perspective, the challenges are similar across most hazards. The NDMA has formulated IRS Guidelines for the effective, efficient, and comprehensive management of disasters. The implementation of NDMA’s IRS Guidelines by the States will help in standardisation of operations, bring clarity to the roles of various departments and other agencies, which are common to most disaster response situations.

The details of Central Ministries for Coordination of Response at National level are tabulated below:

SN	Disaster	Nodal Ministry/ Dept./ Agency
1.	Biological Disasters	Min. of Health and Family Welfare (MoHFW)
2.	Chemical Disasters and Industrial Accidents	Min. of Environment, Forests and Climate Change (MoEFCC)
3.	Civil Aviation Accidents	Min. of Civil Aviation (MoCA)
4.	Cyclone, Tornado, and Tsunami	Min. of Home Affairs (MHA)
5.	Disasters in Mines	Min. of Coal; Min. of Mines (MoC, MoM)
6.	Drought, Hailstorm, Cold Wave and Frost, Pest Attack	Min. of Agriculture and Farmers Welfare (MoAFW)
	Earthquake	Min. of Home Affairs (MHA)
	Flood	Min. of Home Affairs (MHA)
	Forest Fire	Min. of Environment, Forests and Climate Change(MoEFCC)
	Landslides and Avalanche	Min. of Home Affairs (MHA)
	Nuclear and Radiological Emergencies	Dept. of Atomic Energy, Min. of Home Affairs (DAE,MHA)
	Oil Spills	Min. of Defence/Indian Coast Guard (MoD/ICG)
	Rail Accidents	Min. of Railways (MoR)
	Road Accidents	Min. of Road Transport and Highways (MoRTH)
	Urban Floods	Min. of Urban Development (MoUD)

The state and district administration shall identify sites for establishment of various facilities as mentioned in the IRS guidelines such as Incident Command Post, relief camp, base, staging area, camp, and helipad, for providing various services during the response. The state and local administration must widely disseminate and publicise information about these arrangements as mandated in the SDMP and DDMP. Since disaster response operations are multifaceted, time sensitive, extremely fast-moving, and mostly unpredictable, it requires rapid assessment, close coordination among several departments, quick decision-making, fast deployment of human resources and machinery as well as close monitoring. In order to prevent delays and to eliminate ambiguities with regard to chain of command, the SDMP and DDMP must clearly spell out the response organisation as per IRS. These plans must clearly identify the personnel to be deputed for various responsibilities in the IRT at various levels of administration along with proper responsibility and accountability framework. Provision for implementation of unified command in case of involvement of multiple agencies such as Army, NDRF, CAPF, and International Urban Teams Search and Rescue must be spelt out in the SDMP. From time to time, the DM plan must be tested and rehearsed by carrying out mock exercises.

4.5 Fire and Emergency Services (FES):

The primary role of Fire and Emergency Service (FES) is of responding to fire incidents. However, besides fire-fighting, FES attends to other emergencies such as building collapse, road traffic accidents, human and animal rescue, and several other emergency calls. FES also takes part in medical emergencies. The role of FES has become multi-dimensional. The role of FES extends to the domain of prevention, especially in urban areas. FES is an integral part of the group of agencies responding to disaster situations. FES is one of the first responders during the Golden Hour after a disaster and plays a vital role in saving lives and property. Therefore, it is imperative to adequately equip and develop the capacities of FES. Further, continuous training should also be provided to the fire staff in using and maintaining the equipment.

Fire and Emergency Service is a key element in the emergency response system. It comes under the 12thschedule of the Constitution dealing with municipal functions. At present, States and UTs, and ULBs are managing the FES. The MHA and NDMA will render technical advice to the States, UTs, and Central Ministries on fire protection, prevention, and related legislation. While in several States, FES is under the jurisdiction of Municipal Corporations, in others it is under the respective Home Department. Only a few States have enacted their own Fire Act. As on today, there is no standardization with regard to the scaling of equipment, the type of equipment, or the training of their staff. In each State it has grown according to the initiatives taken by the States and the funds provided for the FES. Government of India has taken many initiatives to strengthen the techno-legal regime for fire safety. Apart from initiating major legal changes, Government is also reviewing many laws that have to be amended. Government of India has also taken steps for institutional reforms and organizational restructuring of FES. However, it is the responsibility of the State Governments to implement the major changes for the modernization of the FES to make them more effective.

4.6 Responding to Requests for Central Assistance from States:

Catastrophic disasters like earthquakes, floods, cyclones and tsunami result in a large number of casualties and inflict tremendous damage on property and infrastructure. The Government of India has established a flexible response mechanism for a prompt and effective delivery of essential services as well as resources to assist a State Government or Union Territory severely hit by a disaster. Disaster management is considered as the responsibility of the State Governments, and hence the primary responsibility for undertaking rescue, relief and rehabilitation measures during a disaster lies with the State Governments. The Central Government supplements their efforts through logistic and financial support during severe disasters as requested by the State Governments. Responding to such emergencies stretches the resources of district and State administration to the utmost and they may require and seek the assistance of Central Ministries/Departments and agencies like the NDRF, Armed Forces, CAPF, and Specialized Ministries/ Agencies.

4.7 Management of Disasters impacting more than one State:

At times, the impact of disasters occurring in one State may spread over to the areas of other States. Similarly, preventive measures in respect of certain disasters, such as floods, etc. may be required to be taken in one State, as the impact of their occurrence may affect another. The administrative hierarchy of the Country is organized in to National, State and District level Administrations. This presents challenges in respect of disasters impacting more than one State. Management of such situations calls for a coordinated approach, which can respond to a range of issues quite different from those that normally present themselves – before, during and after the event. The NCMC(National Crisis Management Committee) will play a major role in handing such multi-state disasters. The NDMA will encourage identification of such situations and promote the establishment of mechanisms for coordinated strategies for dealing with them by the States and Central Ministries, departments and other relevant agencies.

4.8 Major Tasks and the Responsibilities - Centre and State:

While there are disaster-specific aspects to the post-disaster response, the emergency functions are broadly common to all disasters and there are specific ministries, departments, or agencies that can provide that emergency response. Besides, very often, there are multiple hazards and secondary disasters that follow a major disaster. Hence, response intrinsically follows a multi-hazard approach. Therefore, all the response activities have been summarized in a single matrix applicable to all types of disasters. The response responsibility matrix specifies the major theme of response. It specifies the agencies from the Central and State Government responsible for the major theme of response. All agencies responsible for response should follow the NDMA's IRS guidelines, which will help in ensuring proper accountability and division of responsibilities. Different ministries and departments have to provide specialized emergency support to the response effort. Certain agencies of CentralGovernment will play a lead role, while others will be in a supporting role. The SDMA, CoR, or the Dept. of Revenue is the nodal agency at the state level for coordination of response. The DDMA is the nodal agency for coordination of response at District level. Various central ministries, departments, agencies, and state governments have to prepare their own hazard specific response plans as per guidelines of the NDMA and in line with the NDMP. They need to ensure preparedness for response at all times and must carry out regular mock drills and conduct tests of readiness periodically, and the ministries/ departments must report the status to the NDMA. The major tasks of response given in the responsibility matrix is:

1. Early Warning, Maps, Satellite inputs, Information Dissemination
2. Evacuation of People and Animals
3. Search and Rescue of People and Animals
4. Medical care
5. Drinking Water / Dewatering Pumps / Sanitation Facilities / Public Health
6. Food & Essential Supplies
7. Communication

8. Housing and Temporary Shelters
9. Power
10. Fuel
11. Transportation
12. Relief Logistics and Supply Chain Management
13. Disposal of animal carcasses
14. Fodder for livestock in scarcity-hit areas
15. Rehabilitation and Ensuring Safety of Livestock and other Animals, Veterinary Care
16. Data Collection and Management
17. Relief Employment
18. Media Relations

4.9 Responsibility Matrix for Preparedness and Response

Preparedness and Response								
Sr.No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
1.	**Early Warning, Maps, Satellite inputs, Information Dissemination**	**Lead Agencies:** IMD, CWC, INCOIS, SASE, GSI,BRO, MoIB, MoES, MoWR, MoAFW, **Support Agencies:** SoI, NRSC, DoT, MHA, NDMA, MoCIT, hazard specific nodal ministries	• Issue forecasts, alerts, warnings • Provide early warnings (where ever possible) to reduce loss of life and property. • Disseminating warnings and information to all Central Ministries/ Departments/Agencies and State Government • Use of satellite imageries and other scientific methods for risk assessment and forecasting	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, all other relevant Department/ Agencies	• To disseminate early warning signals to the district administration, local authorities, and the public at large in the areas likely to be affected by a disaster so as to reduce loss of life and property • Dissemination of warnings and information up to the last mile • Ensure appropriate compilation/analysis of received data • Use of satellite imageries and other scientific methods for risk assessment and forecasting	CE Directorate - Co-ordination with the Ministries and Railway Zones.	Engineering Department – To Coordinate with state Authorities and to disseminate early warning signals to Divisional Authorities.	Engineering Department– To Coordinate with Local Authorities and to disseminate early warning signals/ Information to last mile.

Preparedness and Response								
Sr. No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
2.	**Evacuation of People and Animals**	**Lead Agency:** MHA **Support Agencies:** MoD, CAPF, MoRTH, MoR, MoCA, ministries/ depts. with hazard specific responsibilities, NDRF, Civil Defence	• On request, support the affected state government in evacuation of people and animals from areas likely to be affected by major disaster. **Special situations:** • Evacuation of large numbers of people from far flung areas and islands (e.g., Andaman and Nicobar Islands, Lakshadweep Islands, etc. in cases of cyclone) • Evacuation of visitors/ pilgrims stranded in remote Himalayan regions on account of inclement weather, landslides, flash floods &avalanches • Evacuation of fishermen from the high seas in case of a cyclone	State/UT, SDMA, Revenue Dept., CoR, SEOC, FES, DDMA, all other relevant Departments /Agencies, SDRF, Civil Defence	• Quick assessment of evacuation needs such as the number of people and animals to be evacuated and mode of evacuation • Mobilize transport and resources for evacuation • Identify and prepare sites for temporary relocation of affected people and animals • Identify requirements of resources for evacuation such as helicopters, aircrafts, high-speed boats and ships to be provided to the affected state government. • Request for central resources, if needed • Coordinate with central agencies to mobilise required resources • Monitor the situation Earmark resources/ units/ battalions of SDRF for quick deployment • Prepare	TT Directorate - Co-ordination with the Ministries and Railway Zones	Operating Department – Coordinate with RB andState Authorities	Operating Department – Coordinate with HQs and Local Authorities

					handbook/manuals and SOP for evacuation of people and animals • Undertake review and revise DMPs and SOPs after each major incident • Prepare evacuation plan taking into account local conditions and periodically update it • Undertake mock/simulation drills • Prepare operational checklists • Prepare list of agencies/ organizations who could assist in evacuation • Web-based resource inventory and its regular updates			

Preparedness and Response								
Sr. No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**Responsibility Centre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
3.	**Search and Rescue of People and Animals**	**Lead Agencies :** MHA, NDMA, NDRF **Support Agencies :** MoD, CAPF, MoHFW, MHA, MoRTH, MoCA, MoR, ministries/ departments with hazard specific responsibilities, Civil Defence	• Fail safe communication between early warning agencies and EOC of Central and State/ District, Central Min. • Adequate NDRF support in a state of readiness to move at a short notice • MoU with suppliers for blankets, tarpaulins, tents, boats, inflatable lights, torches, ropes, etc. with a condition that they will be supplied at short notice (usually within 24hours) from the placement of order • SOPs for sending rescue/ relief material from other adjoining States to the affected state immediately • Support of Armed Forces and CAPF as per requirement	State/UT, SDMA, Revenue Dept., CoR, SEOC, SDRF, FES, DDMA, all other relevant Departments /Agencies, Civil Defence	• Various positions of IRTs (State, District, Sub-division &Tehsil) are trained and active for response at their respective adminis-trative jurisdiction • SDRF teams are trained, equipped & ready to move at a short notice. • Strategic stationing of state-of-the-art equipment for search rescue& response with dedicated trained manpower MoU with suppliers for blankets, tarpaulins, tents, boats, inflatable lights, torches, ropes, etc. with a condition that they will be supplied quickly (usually within 24 hours) •Nodal officer selected for coordination is in touch with MHA/NDMA for additional requirements	Safety Directorate - Coordination with NDRF/ NDMA Mechanical directorate – Policy/ Planning of rescue centric equipment and training of staff. Establishment – Developing and conducting training modules.	Safety Department – Coordination with NDRF/ SDRF Mechanical Department – Upgrading/ Maintenance of ARTs/ ARMVs rescue equipment, training of ART/ARM V staff in rescue operations. Personnel Department – Organising and monitoring rescue centric training to ART/ARMV staff.	Safety Department – Coordination with NDRF/SDRF Mechanical Department – Rescue of passengers, Maintenance of ARTs/ARMVs rescue equipment and training of ART/ARMV staff in rescue operations. Personnel Department – Organising and monitoring rescue centric training to ART/ARMV staff.

Preparedness and Response								
Sr.No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**Responsibility Centre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
4.	**Medical Care**	**Lead Agencies:** MoHFW **Support Agencies:** MoD, CAPF, MoR	• Medical assistance to the affected state in response to its request for postdisaster emergency medical care. • Mobile Field Hospitals similar to the military field units that have trauma-care for the disaster-affected and serve as a temporary substitute for the collapsed local generalmedical and surgical facilities in the disaster zone. • Gradualimprovement of the field hospital to conform to global standards. • Mobile medical care units with OT facility, power sources, dedicated trained staff of doctors, and paramedics who could be immediately summoned at the time of emergency • Mobile medical support units	State/UT, SDMA, Revenue Dept., CoR, SEOC, SDRF, FES, DDMA, Health Dept., all other relevant departments, Civil Defence	• Health & Family Welfare Dept. works with the logistic section of the state. • IRT to provide effective services (Medical Unit) to the field level IRTs for response. • District repository of hospitals (both Government and Private), availability of beds, doctors, paramedics & other trained staff available along with other infrastructure details & update it on a regular basis Include the hospital wise information in the DM Plans at local levels • Tie-up with the companies for easy availability of common medicines during the emergency situations • Hygienic conditions are prevalent at all times in various facilities established as well as hospitals to curb the spread	**Health Directorate –** Policy/ Planningof medical equipment in ARMVs and Hospital for trauma care in disasters, Coordination with MOHFW, Monitoring of hospital Disaster Management plans and training of staff. Establishment Directorate – Establishment – Developing and organising training modules for Doctors and Paramedics in Trauma Care.	Medical Department – Upkeep of Hospitals and ARMVs, Implementation of Hospital disaster Management plans and training of Doctors and paramedics. Personnel Department -Organising training modules for Doctors and Paramedics in Trauma Care.	Medical Department – Rescue and relief of effected passengers, Upkeep of Hospitals and ARMVs, Preparation and Implementation of Hospital disaster Management plans and training of Doctors and paramedics. Personnel Department - Organising training modules for Doctors and Paramedics in Trauma Care.

			stocked with medicines usually needed such as those for BP, diabetics, heart problems, common ailments, etc. as well as provisions such as: bleaching powder, chlorine tablets; nutritional supplements catering to specialized groups such as lactating mothers, elders, and children below 6. • Timely technical support to the State Governments for restoration of damaged hospitals as well as infrastructure • Ensure strict compliance with minimum standards of relief as per Section 12 of DM Act 2005		of diseases • Establishment of sound protocols for coordination between state's health Dept. and the central agencies • Ensure strict compliance with minimum standards of relief as per Section 12 of DM Act 2005.			

Preparedness and Response								
Sr. No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
5.	**Food and essential supplies**	**Lead Agencies:** MoCAFPD, MoFPI **Supporting Agencies**: MoRTH, MoCA, MoR, MoSJE, MHA, FCI	• Ensure availability of adequate and appropriate food supplies to the disaster affected areas • Immediate availability of ready-to-eat/ precooked food/meals • Deploying transport with essential supplies at strategic locations • MoU with suppliers to provide required quantities of family packs of essential food provisions • Special provisions to address the needs of infants/small children (baby food) • FCI godowns are able to supply required food grains as per requirement of disaster-affected areas.	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, Food and Civil. Supply Dept., all other relevant Departments, Civil Defence	• Dept. of Food & Civil Supply works with the logistic section of the state level IRT to provide effective services to the field level IRTs for response • Agreements/MoUs with trusts, firms& organisations setting up community kitchens in the affected areas • Depending upon the requirement, coordinate with the relevant Central Ministry to make sure that supplies reach the site on time. Deploy a dedicated team at the local level to receivethe supplies, maintain log, and distribute them at required locations •Food godowns have sufficient food materials and not situated at vulnerable locations	TC - Coordination with Zonal Railways and issue policy guidelines. TT Directorate - Coordination with the Ministries and Railway Zones for movement of supplies.	Commercial department – Coordinate with Divisional authorities. Operating Department – Coordinate with RB and State Authorities for movement of supplies.	Commercial department – Arrangement of food and water to the passengers. Operating Department – Coordinate with HQs and Local Authorities for movement of supplies.

Preparedness and Response								
Sr. No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
6.	**Communication**	**Lead Agencies:** MoCIT, DoT **Support Agencies:** MoR, MoCA, MoD, Telecom Providers	• Detailed plans for fail safe communication with all the early warning agencies (such as IMD, CWC, etc.) and Control Rooms (Central/State) for getting accurate information at regular intervals. Restoration of emergencyCommunication in disaster affected areas Emergency response teams to be in place with detailed technical plans to restore Communication after the occurrence of a disaster • Provide a dedicated radio frequency for disaster communications	State/UT, SDMA, Revenue Dept., COR, SEOC, DDMA, Information Dept., all other relevant departments	• Failsafe communication plan is prepared with all early warning agencies • Logistic section of the state level IRT coordinates with central agencies to provide effective communication support to the field level IRTs for response. • State and district EOCs are equipped with satellite phones/ VHF/ HF as a backup to the landline. All communication equipment, especially the satellite phones are in good working condition 24 X 7 on all days through regular testing.	Telecommunication Directorate – Coordination with Zonal Railways and Policy guidelines effective communication at disaster site.	Signalling & Telecommunication department – Coordination with division and implementation of RB policy guidelines.	Signalling& Telecommunication department – Provide effective communication, Provide and maintain communication equipment in ARTs/ARMVs

Preparedness and Response								
S.No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
7.	**Transportation**	**Lead Agencies:** MoRTH, MoR, MoCA **Support Agencies:** MHA, MoD, NHAI, IWAI, NDRF, MoHFW	• Adequately address the post-disaster transport-tation needs to ensure that the emergency response and recovery efforts are carried out in a timely manner; restore the public transport; resumption of the movement of essential goods. • Pool heavy-duty earth moving machineries, tree cutters, fork lifters and other required equipment either at strategic locations or centralized. Quick deployment of resources and equipment for quick repairs/restoration of rescue and relief teams with their supplies. • Operational plans are in place to transport heavy machinery (like dewatering pumps, boats, etc.) through road in close coordination with the relevant Ministries. • Operational plans are	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, Transport Dept., Forest/ Environment Dept., PWD, Railways, Airport officer, all other relevant departments	• Requirement of transport for the sending the relief material, responders are arranged • Need of the transport of various activated section of the IRT as per Incident Action Plan is fulfilled • Indian Railway works with the logistic section of the state level IRT to provide effective services (Ground Support Unit) Restoration of railway tracks and functioning of railway at the earliest • Coordinate with Central Govt. for transportation of relief materials • Within and near Airports: AAI works with the logistic section of the state level IRT to provide effective services (Ground Support Unit) and also provide Nodal Officer for coordination of the relief operations • Restoration of	TT Directorate - Coordination with Railway Zone for quick restoration of train services and planning for relief trains for stranded passengers.	Operating Department – Coordinate with RB for regulation/ diversion and cancellation of trains, coordinate with division for quick restoration of train services and planning for relief trains for stranded passengers.	Operating Department – Movement of relief trains to Disaster site quickly, Coordinate with HQs for regulation/ diversion and cancellation of trains.

			in place for quick restoration or train services, providing additional railway wagons, containers and passenger coaches for movement of relief supplies/rescue equipment and personnel and shifting affected population to safer places/shifting stranded passengers in consultation with State Government. Availability of diesel locomotives and drivers in disaster affected areas where power is disrupted/shut as a preventive measure; maintain a live roster of such emergency support systems which can be mobilized at very short notice by periodic review of readiness. • Establishment of emergency services group within the railways with staff having experience of working in disaster situations. • Contingency plan is in place to deploy rail coaches as makeshift shelters if required.		Airport at the earliest involving specialised response force of the central government • Coordination with state and district administration to provide air support • Cater to the needs of transporting affected people if required.			

			Activation of railway hospitals/ mobile rail ambulances to shift/ treat injured patients in consultation with the Health Ministry. • Easy availability of heavy equipment available with the Railways for search and rescue. • Plan is in place for quick restoration of airport runway and restoration of air traffic for facilitation of transport or relief teams/supply/ equipment, stranded passengers, etc. • Control room gets activated for smooth coordination in receiving and dispatching resources and equipment in close coordination with the State Government. Availability of trained manpower for making night landing during emergencies. •Availability of Air Ambulances at strategic locations with trained manpower and equipment in close coordination with the Health Dept.					

Preparedness and Response								
S.No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
8.	**Relief Logistics and Supply Chain Management**	**Lead Agencies:** MHA, ministries with hazard specific responsibilities, NDMA **Support Agencies:** MoD, MoR, MoRTH, MoCA, MoCAFPD, MoFPI, MoAFW	• Coordinate transportation (air, rail, road, water) for other Central ministries/ departments/ agencies • Locate, procure and issue resources to Central agencies involved in disaster response, and supply to the affected state	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, all other relevant department/ Agencies	• Establish mobilization centre at the airport/railway station for the movement of relief supplies within the state • Deploy special transport mechanism for the movement of relief supplies within the state • Make arrangements to receive and distribute relief and emergency supplies received from different parts of the country Coordinate transportation (air, rail, road, water) with Central Ministries/depts./ agencies • Arrange alternative means of transportation to send relief supplies to the affected locations if normal transport cannot reach.	TT Directorate - Coordination with the Ministries and Railway Zones	Operating Department – Coordinate with RB and State Authorities	Operating Department – Coordinate with HQs and Local Authorities

Preparedness and Response								
S. No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**ResponsibilityCentre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
9.	**Rehabilitation and Ensuring Safety of Livestock and Other Animals, Veterinary Care**	Lead Agency: MoAFW, DoAHDF Support Agencies: MoRTH, MoR	• Support the setting up of livestock camps/ shelters for animals in distress due to disasters, including drought • Provide assistance for care of animals in the camps/ shelters • Assist State/UT in the proper management, and running of livestock camps/ shelters • Assist in proper rehabilitation of animals • Supplement the needs of State/UT to provide veterinary care to disasteraffected livestock, including drought-hit areas	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, Forest/ Environment Dept., Agriculture Dept., AHD, Animal Welfare Organizations	• Include provisions for evacuation, safety, and rehabilitation of animals in SDMP • Set up of livestock camps/ shelters for animals in distress due to disasters, including drought • Organize proper care of animals in the camps/ shelters • Ensure proper management and running of livestock camps/ shelters Proper rehabilitation of animals • Provide veterinary care to disaster affected livestock, including in drought areas	TT Directorate – Coordination with other Ministries and Railway Zones.	Operating Department – Coordinate with RB and State Authorities	Operating Department – Coordinate with HQs and Local Authorities

Preparedness and Response								
S. No.	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**Responsibility Centre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
10.	**Data Collection and Management**	**Lead Agencies:** MHA, NDMA **Support Agencies:** NIDM, MoIB, MoCIT, MoST, MoES, MoWR, MoEFCC, ministries/ departments with hazard specific responsibilities	• Maintain proper records of all the essential services needed for rescue, response and relief phases, both by the State Governments and by the Central Ministries/ Departments • Establish a sound reporting mechanism to meet the information needs of both Central and State Governments about the disaster response	State/UT, Revenue Dept./ SEOC/ CoR, SDMA, DDMA, Bureau of Economics and Statistics, all other relevant Departments	• Representative of SDMA works with the planning section at state level for making of IAP and dissemination of information. • Creation of a cell at the District level (preferably as part of DEOC) and place dedicated resources to collect/ update data on all essential services (as per the template given in the IRS guidelines) which will help during the response phase for effective reporting and compilation.	Safety Directorate - Coordination with Mechanical and TT directorate – for maintaining record of Accidents and essential services needed for rescue, response and relief.	Safety Department – Coordination with Mechanical and operating Department – for maintaining record of Accidents and essential services needed for rescue, response and relief.	Safety Department – Coordination with Mechanical and operating Department– for maintaining record of Accidents and essential services needed for rescue, response and relief.

S. No	Major Theme	Central/State Agencies and their Responsibilities						
		Centre	**Responsibility Centre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
11.	**Media Relations**	**Lead Agencies:** MoIB, MHA, NDMA **Support Agencies:** MoCIT, MoST, MoES, MoWR, MoEFCC, ministries/ departments with hazard specific responsibilities	• Collect, process and disseminate information about an actual or potential disaster situation to all stakeholders so as to facilitate response and relief operations; update information on disaster and disaster victims; maintain contacts with mass media; inform public regarding the impact of disaster and the measures taken for the welfare of the affected people • Ethical guidelines for disaster coverage by media as per accepted global standards respecting dignity and privacy of the affected communities and individuals and work with media to adopt the guidelines through self- regulation as well as oversight by relevant regulatory institutions • Mechanisms for broadcasting warnings, do's and don'ts etc. to media and public before (if applicable), during and after the disasters. • Proper schedule for media briefing(once/twice/thrice daily depending on the severity of the disaster) and designate a nodal officer for interacting with media on behalf of the Government.	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, Information Dept., all other relevant Departments	• Dept. of Information and Public Relations works with the Command staff as Information and media officer of the state level IRT to provideeffective services • Ethical guidelines for coverage of disaster is prepared and shared with all media agencies • Plan is prepared for providing/ broadcasting warnings, do's and don'ts etc. to media and ensure its dissemination	Director Public Relations (DPR) and Director Information and publicity (DIP) - For information to the representative of media.	Chief Public Relation Officer (CPRO) for information to the representat-ive of media.	Public Relation Officer (PRO) -for information to the representative of media.

Preparedness and Response								
S. No	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**Responsibility Centre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
12.	**Fodder for livestock in scarcity-hit areas**	**Lead Agency:** MoAFW, DoAHDF **Support Agencies:** MoRTH, MoR	• When required, mobilize fodder and cattle feed to meet shortages, as in drought or scarcity conditions • Transport fodder from storage facilities or distant areas to the scarcity hit areas Organize fodder resource and mobilizationcentres • Enlist PSUs and private agencies for	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, Forest/ Environment Dept., Agriculture Dept., AHD, Animal Welfare Organizations	• Mobilize fodder and cattle feed to meet shortages, as in drought or scarcity conditions • Transport fodder from storage facilities or collection centres to the scarcity-hit areas • Organize collection centres for fodder and cattle feed	Traffic Commercial dte - Coordination with Zonal Railways and issue policy guidelines. TT Directorate - Co-ordination with the Ministries and Railway Zones for movement of supplies.	Commercial department – Coordinate with Divisional authorities. Operating Department – Coordinate with RB and State Authorities for movement of supplies.	Commercial department – Arrangement of food and water to the passengers. Operating Department – Coordinate with HQs and Local Authorities for movement of supplies.

Preparedness and Response								
S. No	**Major Theme**	**Central/State Agencies and their Responsibilities**						
		Centre	**Responsibility Centre**	**State**	**Responsibility-State**	**R.B.**	**Zonal HQ**	**Divisional HQ**
13.	**Fuel**	**Lead Agencies:** MoPNG **Support Agencies:** MoD, MoR, MoRTH, MoCA	• Petrol pumps are functional and adequate petrol, oil and diesel are available to Government for relief, rescue and general public • Adequate supply of petrol, diesel, kerosene and LPG Gas in the affected areas in close coordination with the State Government for general public as well as emergency responders/equipment • Quick mobilization of fuel in hilly areas to avoid delays caused by complex supply chain to such areas	State/UT, SDMA, Revenue Dept., CoR, SEOC, DDMA, Civil Supply Dept.,all other relevant Departments	• Logistic section of the state level IRT to coordinate with the relevant departments/ agencies to provide effective services (Ground Support Unit) to the field level IRTs for response • Assess and indicate clear requirement of fuel to the Central Ministry and coordinate the delivery of fuel through local arrangements. • Ensure sufficient availability of tankers/ other vehicles for local transportation through the relevant Dept. • Establish mechanism for stocking the fuel at strategic locations with relevant agencies.	Traffic Commercial dte - Coordination with Zonal Railways and issuepolicy guidelines. TT Directorate - Co-ordination with the Ministries and Railway Zones for movement of supplies.	Commercial department – Coordinate with Divisional authorities. Operating Department – Coordinate with RB and State Authorities for movement of supplies.	Commercial department – Arrangement of Fuel. Operating Department – Coordinate with HQs and Local Authorities for movement of supplies.

4.10 DISASTER PREPAREDNESS- RESOURCES:

The primary responsibility of disaster management rests with the divisions and they should be in full preparedness for effective management of disasters.
Railways are generally self-reliant in carrying out rescue and relief operations as a result of having a well-organized set up including ARMEs and ARTs. However, major accidents involving heavy casualties in remote areas or in difficult terrain or under adverse weather conditions are possible to be managed efficiently only by mobilizing non-railway resources.DisasterManagement mechanism in Railways can be maintained at a high level of preparedness and efficiency by keeping all resources readily available and in good fettle.

4.10.1 Resources:

Resources imply both railway and non-railway men and material including medical, personnel, transport, volunteers, police and fire services. Details of these resources, their location, contact numbers and other details have been identified, compiled and placed in a 'Data Bank'. This Data Bank is available in the divisional DM Plans of Mumbai Central, Vadodara, Ahmedabad, Ratlam, Rajkot and Bhavnagar Divisions respectively. These are also being put on WR's Web Site (www.wr.railnet.gov.in) for ready access. Further, Western Railway Zonal as well as all Divisional Disaster Management plans have also been uploaded on Safety Information Management System site of Railway Board.

Resources available in case of a major accident have may be grouped into 4 different units, depending on the time frame within which these can be made available after an accident. These are as follows:

1. Resource Unit I – Railway and non-railway resources available on the train, and at nearby surroundings.
2. Resource Unit II – Railway resources available at ARME/ART depots and elsewhere within the division.
3. Resource Unit III – Railway resources available at ARME/ART depots and elsewhere on adjoining Zones and Divisions.
4. Resource Unit IV– Non-railway resources available within or Outside the division.

4.10.2 Resource Unit – I:

(a) **On trains carrying Passengers following resources are available:**
- (i) First Aid Box available with the Guard.
- (ii) First Aid Box available with Train Superintendent and in the Pantry Car.
- (iii) Portable Telephones.
- (iv) Portable Telephones in Locomotives.
- (v) Fire Extinguishers in Brake Van, AC/ SleeperCoaches, & Pantry cars.
- (vi) Walkie-Talkie/ CUG mobile phones with Guard and Loco Pilot.
- (vii) Cell Phones/Mobile communications with Passengers.
- (viii) Information collected by Train Superintendent/Travelling Ticket Examiner about Medical Practitioners travelling on the train.

(ix) Information collected by TS/TTE about Railway Officers travelling on the train.
(x) Railway Staff travelling on the train- either on duty (RPF, C&W, Electrical etc.) or on leave as passengers.
(xi) Passengers travelling on the train who volunteer their help for rescue and relief work.

(b) **Non-railway resources available nearby:**

(i) Volunteers from nearby villages and towns.
(ii) Transport facilities available at site or passing through nearby LC Gates.
(iii) Tractors with trolleys from nearby villages both for transport purposes and for lighting up the accident site.
(iv) Station staff and local railway administration should requisition help from non-railway sources before railways own rescue team arrives.
(v) NGOs working in that area.
(vi) Private doctors,hospitals,clinics,PMC's in the vicinity
(vii) Police and other agencies of state Governments
(viii) Army or paramilitary establishments near by
(ix) Coolies and vendors of nearby stations
(x) Station staff and local Railway administration should requisition help from non-railway resources before railway own rescue team arrives
(xi) Such local networks are most effective in rushing assistance immediately, especially with regard to:
- Medical succour,
- Additional manpower,
- Rescue equipment,
- Lighting arrangements,
- Transport services,
- Firefighting tools etc.

(c) **Railway resources available nearby:**

(i) Engineering gangs.
(ii) OHE staff and signal staff available.
(iii) Other resources such as medical facilities, communication facilities.

(d) **At adjoining Stations:**

(i) Staff available at adjoining or nearby stations.
(ii) Railway resources as given in respective Divisional DM Plans.
(iii) Non-railway resources as given in respective Divisional DM Plans.
(iv) Resources should be mobilized to send medical team at short notice as given in the respective Divisional DM Plans.

4.10.3 Resource Unit – II:

(i) AMREs, ARTs with 140T crane are stabled at nominated stations.
(ii) Railway medical and departmental resources.

4.10.4 Resource Unit –III:

(i) AMREs, ARTs with 140T crane based on adjoining Zones/Divisions.
(ii) Resources of men and material available on adjoining Zones/Divisions.

4.10.5 Resource Unit –IV:

(i) Non-railway resources available within the division- as given in the data bookand included in the Divisional DM Plan.
(ii) Non-railway resources available outside the division- as given in the data bank and included in the Divisional DM Plans of adjoining Zones/Divisions.

4.11 DISASTER PREPAREDNESS: DIFFERENT DEPARTMENTS:

Natural disaster in general like floods, cyclones can be forecast whereas other natural disasters like earthquakes, landslides are difficult in nature to forecast. But preparedness for floods & cyclone will help in tackling situation for other natural disasters also.

4.11.1 Engineering Department:

- Shall identify Risk zones prone for natural disasters like floods, cyclones or earthquakes with the help of meteorological department.
- Shall identify detailed inventory of major infrastructures like tracks, bridges should be kept readily available and analysis of its strength to withstand such disasters.
- The action plan for Weather and Cyclone warnings shall be followed according to the Joint Engineering/ Operating Circular No. W.556/1/Vol.V 2007.
- Shall ensure arrangement of essential items like empty bags, sand, dust, cinders etc. ready to be moved to vulnerable location of needs. Intensified patrolling at vulnerable location.

4.11.1.1 The yardstick for engineering materials:

The details of the yardstick for engineeringmaterials to be kept in Accident Relief trains are given below:

4.11.1.2 Track Material:

Track materialssufficient to lay 500 m of track should be kept loaded on to the BFRs. These BFRs (BRNHS) should be kept stabled at a suitable central place in the division so that the same can be moved anywhere in the division in the shortest possible time. In addition to the track materials loaded in the BFRs, the following track material should be keptas a reserve stock. These materials should preferably be stacked close

to a siding, so that they can be loaded easily for dispatch:

(a) Track materials for laying 500m of track.
(b) Switches Left Hand and Right Hand, one set each, 1 in 12 as well as 1 in 8.5 turnouts, along with crossing and lead rails etc.
(c) One set of fan shaped turnout concrete sleepers for 1 in 12 as well as 1 in 8.5 turnouts.
(d) One set of SEJ along with the concrete sleepers.
(e) One set of concrete sleepers for level crossings including check rails & corresponding fittings etc.
(f) Adequate number of bridge timbers depending upon the type, number and span of the existing bridges in the division.

4.11.1.3 Labour:

- Details in respect of P.Way labour, their addresses and how to contact them –The details to be kept with ADEN/SSE (P.Way) & SE (P.Way).
- The details in respect of temporary labour - availability and how to get them – The details to be kept with ADEN/SSE (P.Way) & SE (P.Way).
- The details in respect of contractors labour working in the Division with the numbers at each side - The details to be available with each Sr.DEN/DEN/ADEN for the whole division.

4.11.1.4 Mobility:

- The Divisions have been authorized to hire trucks on regular basis for use of SSE (P.Way) & SSE (Bridges). The contract agreement for hiring such trucks should have a provision for hiring additional number of trucks at short notice in the event of an emergency.
- Each SSE (P.Way) should have a plan for movement of labours and materials to the site of restoration with various alternatives like movement of the same by rail/road. For this, a complete road map should be prepared showing connections to the track through level crossings or canal roads or the nearest points to track where the truck can reach.

4.11.1.5 Equipment and Miscellaneous:

- The details in respect of heavy earth moving machinery available in the nearby areas, their contact persons, the telephone numbers etc. must be kept with ADEN/DEN /Sr.DEN.
- Areas such as ghat sections may need use of explosives in the restoration process. The Divisions having such areas will also keep the details in respect of availability of explosives in the nearby areas, the contact address and telephone numbers etc. readily available. Use of explosives also needs availability of duly authorized persons approved by the Govt. Authorities and therefore, the contact details of such authorized persons should also be kept handy.
- The details of availability of tentage in the nearby areas, the contact numbers etc. should be kept handy. This is in addition to the availability of the tentage in the relief train as per prescribed scale.

- Suitable arrangements need to be made for supply of drinking water for the labour working at site. Therefore, the addresses and contact numbers of the agencies who could supply drinking water may be kept handy with ADEN/SSE (Works) of the sub-division.
- Needless to mention, that the small track machines like rail cutting, drilling welding equipment etc. are already forming part of the equipment of each relief train. In case, the same is not kept in the relief train, these equipment/small track machines must be procured and kept in the relief train in adequate numbers.
- All SSE (P.Way) should have an arrangement of portable generators for lighting so that the dependence of Electrical Department even for small magnitude emergencies can be avoided.

The above are only guidelines. The Division may keep these in view while Formulating the detailed Action Plan for their jurisdiction.

4.11.2 Mechanical Department:

- Shall ensure that ART, ARME/ SPART are equipped with sufficient tools to handle cutting of trees etc. and availability of portable generator set, gas lamps etc.

4.11.3 Medical Department:

- Shall ensure availability of adequate medicines in first aid box, POMKA's and materials or disinfectants etc. at health unit/hospitals near the forecast warned places.
- Shall take enough measures to prevent epidemics in co-ordination with engineering department for sanitation and drainage and disinfection.

4.11.4 Electrical Department:

- Shall ensure availability of stand-bye power (generator) and strategic locations.
- Tower wagons with quick mast erection facilities, sufficient spares should be kept ready at Tower wagon shed.

4.11.5 Telecommunication Department:

- Shall ensure proper communication with adequate facilities like wireless communication, satellite phones V-Sat and arrangement for drone recording etc.

4.11.6 Transportation Department:

- Requirement of essential staff and then deployment shall be assessed bySr.DOM of respective division.
- SMs of the warned area station shall ensure all station equipment are in good condition in co-ordination with respective department like Generator, Emergency light, VHF sets, First Aid equipment etc.

- SMs will also ensure proper securing of stabled coaches/wagons as per extant instructions. This should be informed to control.
- PCOM of the Railway will issue instructions regarding regulation, diversion or cancellation of trains in the warned/affected section with information to CPRO.

4.11.6.1 Ensuring full complements of Brake van equipment:

(a) At the originating and interchanging points of all passenger carrying trains, it must be ensured that these trains run with full equipment of brake van as prescribed byG&SR and other special instructions.
(b) The Officers and Senior Subordinates of the Traffic, Mechanical, S&T, Electrical, and CivilEngineeringDepartments must examine these equipment regularly and take necessary action to ensure that they are in good working condition.
(c) The first Aid Box and the stretchers should also be examined for this purpose by the concerned Medical Officers.
(d) The Guards of the passenger carrying trains while taking over the charge of this equipment should also ensure that they are in good working condition.

4.11.7 Commercial Department:

- Shall alert arrangements to open enquiry offices at areas likely to be affected.
- Shall ensure arrangement for food, water and other requirement at vulnerable places.

4.11.8 Security Department:

- To ensure alertness of security personnel to accompany relief material trains
- To help vulnerable station in handling public enquiries to move to location vulnerable.

4.11.8.1 Disaster Management Team of RPF:

There should be a Disaster Management Team of RPF on each Division of IR composing about 15men in different ranks. This team shall be specially trained in providing necessary support for disaster management over the Division/neighbouring Division. RPF should play an active role in managing law and order at site.

4.11.8.2 Equipment for RPF:

This Disaster Management team of RPF should have the following equipment available withthem:

(i) Torches and other lighting arrangements.
(ii) Nylon ropes and poles for segregating the affected area from unwanted visitors and spectators.
(iii) Loud-hailer for making announcements.
(iv) Stretchers and first aid equipment
(v) Wireless sets for inter-communication.
(vi) Cameras for photographing the scenes.

4.12 Helicopter Requirements:

Zonal Railways have been delegated powers to requisition helicopter/ airplane for expeditious action in the event of serious accidents vide Railway Board's letter No. 86/Safety-1/24/47 dated 13.03.87 & 19.07.89. The subject matter has been reviewed by the Board and the following revised powers are delegated to the Zonal Railways.

(i) GMs have been delegated the powers to requisition helicopter/airplane to reach the site of serious accident for rescue operation expeditiously. In addition, powers are also delegated to requisition air support to dispatch the rescue teams to the site of the accident.
It is difficult to stipulate exactly the circumstances under which they may exercise these powers. It has been decided to leave thisto the discretion of GMs. However, broadly these may cover the following type of cases:

(a) Where more than 10 casualties (deaths-cum-serious injuries) are feared and it is difficult to these officers to reach the site within reasonable time;
(b) Where heavy damage is caused to railway installations in sensitive and tension filled areas (e.g. wreckage of track, bridges, etc. through bomb blast, other means of sabotage, etc.);
(c) Where public reaction in case of late arrival of senior officers at site is likely to be highly adverse.

Normally, in case of an accident only one helicopter should be requisitioned by a Zonal Railway, except when there is a serious passenger train accident involving several casualties when it is essential for both the General Manager and the Divisional Railway Manager to reach the site at once to satisfy the public and the Press. However, for dispatching the rescue teams to the site of the accident, separate helicopter/airplane may be requisitioned, if so needed.

The GMs may exercise the above powers personally and may not delegate these powers.

(ii) Zonal Railways are further empowered to requisition helicopter/airplane to evacuate injured and dead in the event of serious accident. GMs may personally exercise these powers and may not delegate these further.

The above instructions on the subject supersede all the previous instructions issued vide above referred letters.

This issues with the concurrence of the Finance Directorate of the Ministry of Railways. (Railway Board's letter No. 2002/ Safety-1/1/6/6 dated 13.06.2004)

4.13 Railway Hospitals

Each Railway Hospital/Hospital Units should similarly maintain a display containing information about other Govt. / Private Hospitals nearby, Govt. /Pvt. Doctors, Social

Organizations having ambulance facilities, details of voluntary organizations in the nearby locality, Blood bank and blood donor details. All these details must be available in the respective stations also.

4.14 General:

- Apart from the above, each PHOD/DRM shall nominate an officer to monitor warned location and order arrangement.
- A monitoring cell shall be formed by all departments concerned at Divisional/Zonal level to ensure proper co-ordination and planning.

4.15 DISASTER PREPAREDNESS – ARMEs/ARTs:

4.15.1 ARME Scale I- Equipment stored in Special Medical Relief Vans stabled in separate sidings:

The target time for turning out of ARME & SPART (SPARME) is 20" and 30" inclusive of dispatch time for double exit and Single exit sidings respectively from the time of sounding siren.

(i) One key of the van is available with the Loco Foreman or the Station Master in a glass fronted case.
(ii) Other key is with the doctor in charge of the ARME
(iii) Medicines and equipment are provided as per Railway Board norms.
(iv) Keys of all locks inside the ARME are also in duplicate. One set of keys are with the Medical officer in charge of the ARME and the other set of keys are kept in a glass-fronted case inside the ARME.

4.15.2 Location of ARME/SPART scale- I:

(i) RJT: ARME (ii) HAPA: SPART

4.15.3 Locations of ARME Scale –I on adjoining Zones/ Divisions:

As per Annexure 5

4.15.4 Section wise chart for requisitioning of ARMEs from adjoining Zones/Divisions from both ends:

As per Annexure 5

4.15.5 ARME Scale-II: Equipment stored in boxes in special room on platform at station:

(i) The medical equipmentare sealed without any lock.
(ii) The scale-II room have duplicate keys.
(iii) One is with Medical Officer and the other is in Station Master's Office.
(iv) These are to be taken out and rushed to the site of an accident by any train or available road vehicle.

4.15.6 Location of ARME scale-II:

(i) SUNR (ii) OKHA(iii) MVI

4.15.7 ACCIDENT RELIEF TRAIN:

(i) The target time for tuning out of ART is 45" by day and 60" by night & for SPART is 20" and 30" inclusive of dispatch time for double exit and Single exit sidings respectively irrespective of day and night from the time of sounding siren.

(ii) ART formation is to be stabled complete on separate siding having double exit for faster movement in both directions.

(iii) Rescue/Restoration equipment are kept as per Railway Board's instructions.

(iv) Brake Down special keys are with the following Officials:
- Engineering Tool Van – SSE/SE/JE/Permanent Way.
- Mechanical Tool Van – SSE/SE/JE/Mechanical.
- O.H.E. Tool Van - SSE/SE/JE/OHE-TRD.

(v) Crane Supervisors will ensure availability of adequate fuel and water in the crane at all times.

(vi) On getting Emergency call, the Crane Supervisors shall check and ensure:
- Correct marshalling of Crane according to site requirement.
- Alert the standby Crane Operator of 140T Crane.

(vii) In case of road approach is faster, prevailing equipment may be moved by road as required.

4.15.8 Location of ARTs:

(i) RJT: ART (ii) HAPA: SPART

4.15.9 Location of ART on adjoining Zone/Division:

As per Annexure 4

4.15.10 Section wise chart for requisitioning of ARTs with 140T crane from adjoining Zones/Divisions from other end.

As per Annexure 4

4.16 USE OF ACCIDENT ALARM SIGNALS- SOUNDING OF ENGINE WHISTLE/ HOOTER/ STATION BELL:

4.16.1 Long Range Electric Sirens:

(i) In case of an emergency when ordered by Divisional Control Office, take out the siren key by assigned staff.

(ii) If required break open the glass fronted case to take out the key and sound the siren.

(iii) The delayed action switch (the tabular lever switch marked 'accident warning') is used to give call of 3-4-minute duration each with half-minute interval between two successive calls. This switch shall be switched on and left in that position for a period of approximately 20 minutes to give the emergency call and then switched off.

(iv) If there is a failure of delayed action switch, manually operate the check switch to give calls of 3-4minute duration with half-minute interval between two successive calls for a period of approximately 20 minutes.

4.16.2 At stations where electric sirens is either not provided or failed:

(i) Give 5 whistles/hooting or calls of 1-minute duration each with half-minute interval between two successive whistles/hooting using an engine if available. This shall be repeated twice at an interval of 3 minutes.

(ii) If an engine is not available ring the station bell continuously.

(iii) SM to advise Transportation, Medical, Mechanical, Electrical, Engineering and other staff.

4.16.3 Authority to order movement of ARME & ART to site:

(i) On receipt of information about serious accident involving casualties, ARMEs and ARTs shall be ordered immediately.

(ii) This decision for ordering would be taken by the PCR/Mech. Officer and Dy. CTNL on duty.

(iii) After sounding of siren the ARME/SPARME and ART/SPART should be turned out within the stipulated target time.

4.17 DISASTER PREPAREDNESS – ON BOARD RESOURCES:

4.17.1 PORTABLE TELEPHONE:

4.17.1.1 Types of Portable Telephones:

a. Portable Telephones are available in Brake van of Passenger carrying Trains.

b. Telephones presently in use are of the 4-wire/2-wire type, which can be used in RE area and in overhead communication territory.

c. There are two types of Portable Telephones
   (i) Land line type (Overhead Telephone line transmission)
   (ii) Socket Type (Underground cable transmission)

d. In overhead territory additional poles are to be carried by Guards for connecting phones to the overhead lines.

4.17.1.2 Use of Portable Telephones:

a. **Overhead type:**
   (i) Fix "Y" bracket on the poles.
   (ii) Use required number of poles available.
   (iii) Connect the two wires to phone terminals.

(iv) Circuit on Red colour bracket side connects the section controller telephone line.
(v) Circuit on the Green colour bracket side connects the Deputy Chief Controller telephone line.
(vi) Link "Y" bracket on the circuit and rub it for clear communication.

b. Underground cable type:

(i) Look at Receiver Arrow sign for socket location on Over Head Equipment mast/location post and move towards the Arrow pointing direction.
(ii) On reaching EMC Socket location, open the socket by using the key kept in the phone box where required.
(iii) Plug in the phone terminal properly for communication.
(iv) In electrified section this phone connects the Traction Power Controller and then link to section controller. (In non-electrified section it goes directly to section controller).

4.17.1.3 WALKIE-TALKIE SETS:

(i) Ensure that the set is charged.
(ii) Check that the proper channel is selected for communication.
(iii) Do not intervene when the channel is engaged.

4.17.1.4 USE OF BSNL/CELL PHONE/MOBILE PHONES:

(i) BSNL phone numbers with STD code for Railway Stations in a Division are given in WTTwhich is availablewithGuard, Driver, Assistant Guard.
(ii) Refer WTT for nearest Station contact number.
(iii) BSNL Phone Numbers of Important stations are available in Public Time Table.
(iv) CUG mobile Phones have been provided to Loco Pilots and Guards.

4.17.1.5 EMERGENCY TRAIN LIGHTING BOX:

(i) This box is available in the Brake Van of Passenger carrying trains.
(ii) Open the box by removing the seal.
(iii) Fix the crocodile clip of hand Torch to the coach power supply terminal and use it for searching/surveying.
(iv) Fix the flood light to the Tripod Stand and connect its crocodile clip to the power supply terminal.

4.18 DISASTER RESPONSE –OVERVIEW:

4.18.1 Golden Hour:

"If a critical trauma patient is not given definite medical care within one hour from the time of accident, chances of his ultimate recovery reduce drastically, even with the best of Medical attention thereafter. This one-hour period is generally known as <u>The Golden Hour.</u>"

During this Golden Hour period every effort should be made to:

(i) Render definite medical care to the extent possibleby qualified medical practitioners.
(ii) Stop bleeding and restore Blood Pressure.
(iii) Persons under shock should be immediately relieved of shock.
(iv) Transport casualties to the nearest hospital
(v) For being effective, any Disaster Management system should aim at recovering as many critical patients as possible and rushing them to hospital within this period.

4.18.2 Disaster Syndrome:

A victim's initial response following a Disaster is in three stages. These initial reasons are called Disaster Syndrome.

(i) **Shock stage:** In which victims are stunned, dazed and apathetic.
(ii) **Suggestible stage:** In which victims tend to be passive but open to suggestions and willing to take directions from rescue workers and others.
(iii) **Recovery stage:** In which individuals may be tense and apprehensive and may show generalized anxiety.

4.18.3 Different phases of Disaster Response:

Disaster Response in case of a railway accident consists of 3 phases. These 3 phases are determined both by the time factor, as also by the extent of specialized assistance available.

Firstly, it begins with the spontaneous reaction of men available on the train at the time of the accident. Thereafter the second phase continues with contributions made in rescue and relief work by men and material available locally in nearby areas of the accident site. The third and longest phase consists of meticulously planned action by trained DM teams who arrive at the accident site to carry out rescue and relief operations.

The first phase is of shortest duration, last for about half an hour. It is an amateurish, poorly equipped effort, but is nevertheless the most important phase. In most cases, this is the only help available for a major part of the **'Golden Hour'.**

The second phase which is of 2-3 hrs. Duration is comparatively less amateurish andmuchbetter equipped. Theircontribution isvital since the'Golden Hour' period comes to an end during the working of this group. How many critically injured passengers can finally be saved depends solely on the efficiency of this group.

The last and final phase of Disaster Response by railway's DM team continues for a few days. It comes to an end not only with the restoration of traffic but also with the departure of most relatives and next of kin from the accident site and disposal of all bodies. Few of the grievously injured that continue to be hospitalised for comparatively longer spells are then the sole responsibility of railway's medical department.

With the above scenario in mind, it is necessary to take firm and quick decisions to

save lives and property. To achieve these objectives Railways have a well-defined action plan that is successfully executed by the coordinated efforts of different disciplines, all of who function as a team. The three groups which are active during the above mentioned 3 phases of Disaster Response, may be classified as follows:-

i) Instant Action Team (IAT).
ii) First Responders (FR).
iii) Disaster Management Team (DMT).

4.18 .4 First Aid in Emergency

a) Order of priority for dealing with and helping injured passengers should be as follows:
- Unconscious.
- Bleeding excessively.
- Having breathing problems.
- Grievously injured.
- In a state of shock.
- Having fractures.
- Simple injured.

b) For assessing and handling injuries, acronym DR ABC is to be followed.

(i) **D-DANGER:**
Look for danger; Make sure that no further danger exists either for the patient or for the First Aider.

(ii) **R-Response:**
Check for consciousness. Call by his/her name, slap, and pinch and shake gently. If there is no response, then it means that the patient is unconscious.

(iii) **A-AIR WAY:**
Clear the airway (Trachea) if patient is unconscious, then the airway may be narrowed or blocked making breathing impossible. This occurs due to several reasons. Mass food particles or foreign body in the air passage, or the tongue may have sagged back and blocked the air passage.
To open the airway lift the chin forward with the fingers of one hand while pressing the forehead backwards with the other hand, now thetongue comes forward and the airway is cleared. To clear the other objectsin the mouth press the Jaw, open the mouth put your fingers or a clean cloth in the mouth and clears the things. Now the air passage is clear.

(vi) **B-BREATHING:**
Check for Breathing. Keep the back of your fingers near the nose of the patient. You can feel the warm air (or) keep your ear near the nose and look for the movement of chest, listen to the sound from the throat and feel the warm air from the nose.

(v) **C-CIRCULATION:**

Check the pulse. Normally we check the pulse at the wrist: however, sometimes it is not felt because of severe bleeding. So, it is better to check the pulse at neck (Carotid Pulse).
After checking DR ABC, there may be two possibilities.

a) If patient is breathing and has circulation but is unconsciousness, immediately turn him to Recovery position and transport to hospital.
b) If the patient has failure of breathing and circulation, then immediately start CPR (CARDIO PULMONARY RESUSCITATION) the important life saving technique in First Aid.

To revive the lungs you have to give artificial respiration by mouth to mouth (Kiss of Life) method. Lift the chin forward and press the jaw open the mouth with one hand and close the nose with other hand keep your mouth on the casualty's mouth and blow.

To revive the heart you have external chest compression. The casualty should be made to lie down on a hard surface. Keep heel of the palm on the chest (pit of stomach) of the casualty and keep the other palm over that hand and compress.

Mouth to mouth ventilation and external chest compression should be given in the ratio of 2:5. This should be continued up to the revival of life or till reaching the hospital. Once life starts, immediately turn the casualty into recovery position and transport to hospital. (Recovery position or three quarter prone position means turn to one side, better to right side).

(vi) **Recovery position:**
Recovery position is the safest position for unconscious patients. Normally we keep the patient in a supine position. However, in case of unconscious patients, it is a very dangerous position because the tongue can fall back and close the airway or saliva and other secretions may get into windpipe. To avoid that, turn the casualty into recovery position and transport to hospital.
Sometimes, you may not be in a position to do First Aid due to tense situation. In such circumstances turn the casualty to Recovery Position, to save many precious lives

4.19 DISASTER RESPONSE – INSTANT ACTION TEAM:

4.19.1 Instant Action Team comprises:

(i) The Guard, Crew, TS, TTEs, AC coach attendant, Asst. Guard, RPF and other railway staff on duty on the accident involved train.
(ii) GRP staff travelling on the train on duty.
(iii) Railway staff travelling by the accident involved train either on duty or on leave as passenger.
(iv) Doctors travelling by the train.
(v) Passengers travelling on the train who volunteer for rescue and relief work.
(vi) Railway staffs working at site or available near the site of the accident.

(vii) Non-Railway personnel available at or near the accident site.
(viii)

4.19.2 Duties of Instant Action Team:

Detail duty list of Guard and Loco Pilot are laid down in the Accident Manual of Zonal Railways. However duties of Guard,

4.19.2.1 Guard:

(i) Switch on the Flashing Tail Lamp if provided, in, in the rear of brake van.
(ii) Secure the train and prevent escaping of vehicles.
(iii) Protect line of accident and adjacent line/lines if required as per GR 6.03
(iv) Note the time of the accident and the location.Inform Loco pilot/ Station Master on Walkie-talkie set if possible.
(v) Make a quick survey of accident magnitude and roughly assess casualty, damage and assistance required.
(vi) Send information through quickest means to Control Office and SMs on either side of the block section by CUG Mobiles / Walkie-talkie/ field telephone/ other line train crew/ Assistant driver or Assistant guard may be sent to the next station to convey information/ one of the railway staff on duty on the train should be sent on foot to the nearest station.
(vii) Utilize Emergency Train Lighting box to facilitate medical aid.
(viii) Render First Aid and save lives.
(ix) Call for Doctors and seek their assistance.
(x) Seek assistance of railway staff and other volunteers from train to rescue injured or entrapped passengers.
(xi) Direct railway staff and other volunteers from train for attending to injured.
(xii) Ensure that railway staff constantly man field telephone.
(xiii) Arrange protection of passengers' belongings and railway property with the help of railway staff, volunteers on train, RPF and GRP.
(xiv) Stop running trains on adjacent line and utilize resources on that train.
(xv) In electrified section if OHE is affected, take steps to switch off OHE supply.
(xvi) Arrange for transportation of injured to hospital.
(xvii) Record evidence or statements, if any, given by passengers.
(xviii) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed.
(xix) Log your activities. Do not leave the spot unless a competent authority relieves you.

4.19.2.2 Loco Pilot:

(i) Note the time of the accident and location.
(ii) Switch ON the 'Flasher Light' and give 4 short whistles.
(iii) Inform Guard on walkie-talkie set.
(iv) Inform Station Master on CUG mobile phone / walkie-talkie set, if possible.
(v) Protect the obstructed/adjacent line as per GR 6.03.

(vi) Take necessary action to prevent Loco/Vehicles/Wagons from rolling down.
(vii) Make a quick survey of accident magnitude and roughly assess casualty, damage and assistance required.
(viii) Send information through quickest means to Control Office and SMs on either side of the block section by Walkie-talkie/ Field telephone / train crew on the other line/Assistant driver or Assistant guard may be sent to the next station to convey information/ one of the railway staff on duty on the train should be sent on foot to the nearest station.
(ix) Render all possible assistance to the guard.
(x) Preserve all clues and evidence regarding probable cause of the accident.
(xi) Log your activities; Do not leave the spot unless you are relieved by a competent authority.
(xii) If necessary detach Loco and take it to inform SM.

4.19.2.3. Assistant Loco Pilot:

(i) Assistant Loco Pilot should work under the control of the Loco Pilot with the same duty list of the Loco Pilot. Loco Pilot and Assistant Loco Pilot should divide the work so that the duties are carried out in the shortest possible time.
(ii) To provide First Aid to injured. First Aid box is available with Guard.
(iii) If necessary use fire extinguishers of Ac coaches/brake van/loco.
(iv) In case if the Loco Pilot is dead or injured, Asst. Loco Pilot will perform all the duties of Loco Pilot.

4.19.2.4 Train Superintendent / Travelling Ticket Examiners:

(i) Preserve reservation charts of each coach containing names of passengers who actually travelled and in which berth no.
(ii) Avail services of Doctors travelling by the train and render Medical Aid.
(iii) Render First Aid to injure.
(iv) Collect particulars of injured passengers and prepare a list showing their position coach wise from Train Engine to Brake Van and handed over to railway doctors when ARME arrives.
(v) Prepare a separate list of dead passengers with address and ticket particulars, if available.
(vi) Take assistance of local people and other volunteers at site.
(vii) Transport injured passengers by road vehicles, if available, to the nearest hospital.
(viii) Inform stranded passengers about alternative transport arrangement.
(ix) Record Evidences or statement given by passengers / other at site.

4.19.2.5 Mechanic / Attendant:

(i) Switch off the power supply to avoid short-circuiting.
(ii) Assist the TS/TTEs in their duties at the accident site.
(iii) Report to the guard of the train for assistance.
(iv) In case of fire assist the operations by using fire extinguishers provided in the

AC coaches.

(v) Assist in providing lighting in affected coaches.

(vi) Blankets and linen of the AC coaches is to be made available for use by grievously injured/dead. The record of the same should be kept.

4.19.2.6 RPF/GRP Staff:

i) Try and rescue as many passengers as possible from the accident involved coaches.

ii) Render First Aid to injure.

iii) Arrange to shift injured persons to the nearest hospital.

iv) Protect passenger's luggage and railway property.

v) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed.

4.19.2.7 Railway staff travelling on the accident affected train:

i) Whenever a train is involved in a serious accident with casualties/injuries to passengers, all railway staff travelling on the train either on duty or on leave is deemed to be on duty with immediate effect.

ii) Under no circumstances should any of them leave the accident site unless and until divisional officers arrive, take over charge of rescue and relief operations, and permit them to leave.

iii) Railway staff on train/at site shall volunteer themselves to render assistance and report to TS/TTE/Guard of the Train.

iv) The senior most officers travelling on the train will assume charge as Officer-in-Charge Site (OC Site).

i) Normally the senior most officers will be travelling in either the 1AC or in 2AC coach, and most probably in the Emergency Quota section of the coach. The Emergency Quota section of 2AC is invariably in the centre of the coach (berth nos. 19-22). In any case the TS/TTE would know whom are the railway officers travelling in 1AC or 2AC.

ii) Similarly, other railway staff will be travelling in 3AC coach, and most probably in the Emergency Quota section of the coach. The Emergency Quota section of 3AC is also in the centre of the coach (berth nos. 25-30).

iii) Similarly, some Group 'D' railway staff may be travelling in Sleeper coach, and probably in the Emergency Quota section of the coach. The Emergency Quota section of a Sleeper coach is located in the centre of the coach (berth nos. 33-40).

iv) In the absence of any officer, the TS or senior most TTE/Guard will discharge duties listed out for OC site.

4.20 Duties of OC Site – Immediately after the accident:

i) Note down the time of accident.

ii) Ensure protection of traffic by Guard and Driver.

iii) Ensure reporting of accident to nearest Station/Control.

iv) Roughly assess the extent of damage and likely number of casualties.

v) Collect railway staff and volunteers from amongst the passengers and form different groups. Each of these groups should be assigned work.

vi) Maintain a log of events.

vii) Till Divisional Officers arrive and take over charge of the situation, continue to discharge duties of OC site.

viii) After Divisional Officers arrive, fully brief the DRM and hand over charge to him.

ix) The on-board OC site should ensure issue of a detailed message with following information before leaving the site of the accident.

- Time/Date of accident.
- Location Km./between stations.
- Train number and description.
- Nature of accident.
- Approximate number of killed/injured.
- Extent of damage.
- Assistance required.
- Condition of the adjacent line, if any.
- Whether OHE is involved.
- From here onwards, the DRM of the accident involved division takes over Charge as OC site.

4.21 Formation of Groups comprising members of Instant Action Team:

i) OC Site shall immediately collect all Railway staff on train/at site and form separate groups.

ii) Passengers travelling by the same train that volunteer for rescue and relief work should also be drafted into these groups.

iii) Passengers from accident-involved coaches should be directed toward their own coach.

iv) Passengers from coaches, which are not affected, can be distributed amongst other accident-involved coaches.

v) In the absence of OC site, TS/TTE shall take steps to form such groups.

vi) In the absence of TS/TTE the Guard/Assistant Guard shall take steps to form such groups.

vii) 5 or 6 groups should be formed depending on number of coaches involved.

viii) Ideally, one group should be formed for handling each coach.

ix) In case sufficient numbers of officers are present, then one officer should be made in charge of each group.

x) Otherwise, Sr. Supervisors travelling by the accident-involved train should be nominated as in-charge of each group to co-ordinate its working.

xi) In case sufficient numbers of Sr. Supervisors are also not present, one TTE should be nominated as in-charge of each group to co-ordinate its working.

xii) Each group should rescue injured, entrapped passengers.

4.21.1 Duties of on board railway staff:

i) Don’t panic.

ii) Inform the divisional control office immediately about the accident.

iii) Observe the position of coach standing upright/ turned upside down/ lying on its side/stopped on bridge/on level ground.

iv) In case the coach is on a bridge or very high embankment or in case it is raining heavily, then wait for some time.

vi) Search your coach with your torch and try to determine the general position.

vii) See that passengers don’t panic either. Try to calm them and build up their confidence.

viii) Ascertain whether passengers are injured/ trapped/ pinned down inside the

debris.

ix) Call out aloud to find out for any doctors present& any railway staff present

x) Ask Doctors if available to attend and help injured passengers.

xi) Ask the Railway staff if available to attend and help other passengers.

xiii) Form a core team comprising of railway staff available, doctors and 3 or 4 uninjured passengers and take the lead in helping remaining passengers.

4.21.2 Duties of members of Instant Action Team – Till arrival of Divisional Officers:

i) If a person is bleeding and loosing blood, or if he is unconscious, then in that case you have to act quickly send him to nearest hospital with in golden hour.

ii) If not possible to send hospital when in golden hour immediately administer First Aid to the injured passenger and try and stop further loss of blood and them as early as possible to nearest hospital.

iii) Persons trained in first aid may do 'Cardio Pulmonary Resuscitation."

iv) If the door is open and is accessible, then uninjured passengers should be helped to come out from the door.

v) In AC coaches the windows panes should be broken in order to let in fresh air for the occupants, and thereafter to evacuate them.

vi) Non-AC coaches have one emergency exit window on each side. The position of this emergency window is 5th from the left when facing the line of windows from inside the coach. They are opposite berth nos. 23 and 57. In case the door is locked and jammed, try and open these windows so that some of the uninjured passengers can come out through the emergency exit.

vii) Special care should be taken while evacuating the old, infant and children in order to ensure that they are not separated from their family.

viii) Extrication of critically injured should be done under medical supervision as far as possible.

ix) In case medical supervision is not available, then critically injured passengers should be made to lie down on a bed sheet and thereafter taken out by 4 persons holding the four corners. This will ensure that no further damage takes place (Bed sheets will be available in AC coaches).

x) Passengers who are bleeding from open cuts should be tied up with strips of cloth so as to reduce if not stop the bleeding altogether.

xi) Firstly, passengers both injured and uninjured should get preference in this evacuation process.

xii) After passengers have been evacuated from coach, cross cheek with the reservation chart and note down injury list.

xiii) After all passengers have been evacuated; water and eatables can be taken out gradually.

xiv) Building up confidence of injured passengers by suitable advice is of great importance.

xv) After helping evacuate all passengers from one coach go over to the other/unreserved coaches and provide similar help to passengers.

xvi) Railway officials from divisional Headquarters generally arrive at the site of the accident within 2 to 3 hours, depending on the distance of the accident site from the divisional Headquarters. Wait for them to come and make further arrangements.

xvii) Grievously injured passengers who are bleeding or those who are unconscious require immediate hospitalisation. In case some local people have arrived by that time, their help should be taken in shifting the grievously injured to the

nearest hospital.

xviii) In case your train has been involved in an accident but neither has your coach derailed nor any passengers of your coach injured, then you should go to the unreserved coaches and carry out the duties as listed above.

4.21.3 Duties of the Instant Action Team – In case of a fire:

i) In case of fire pull the Alarm Chain and stop the train immediately.
ii) Try and put out the fire before it becomes a big blaze by using either water or blankets etc.
iii) More people expire due to suffocation from smoke rather than due to actual burning.
iv) Advise passengers to take a cloth, wet it in their drinking water and cover their nostrils.
v) Instruct passengers to go to the other end of the coach, which is away from the fire, and if possible cross over to the next coach through the vestibule.
vi) Insist that passengers should save themselves first and not to bother about their luggage which can be retrieved later on.
vii) Make sure that no passenger lies down on the floor.
viii) After train has stopped, passengers should come down from the coach immediately.
xi) Building up confidence of injured passengers by suitable advice is of great importance.

4.21.4 Duties of OC site – till arrival of divisional officers:

Having formed different groups consisting of available railway staff on the train and volunteers from amongst passengers, the rescue and relief work should be got started in right earnest. This entire exercise would take about 30" time. Once the rescue and relief work by the **Instant Action** Team has got underway, the OC site should then devote his attention to contacting **First Responders**.

(a) Locating nearby villages:

(i) Look for villages nearby, either visible or out of sight.
(ii) In most cases, villagers turn up on their own having heard the sound of the disaster.
(iii) In case none of the above is possible, then speak to either the control office or the nearest station and find out the location of nearby villages.
(iv) Location of nearby villages with their general direction will be available in the Divisional DM Plans.
(v) Send messengers (preferably railway staff) to inform villagers and seek their assistance.

(b) Locating the nearest manned level crossing gate:

(i) The train driver is the fastest source of information regarding location of the nearest manned level crossing gate in either direction.

(ii) Send a messenger (preferably a railway staff) to the gate for contacting the gateman.
(iii) The gateman will be able to give location of nearby villages.
(iv) The messenger can take help of a passing vehiclesto inform villagers and seek their assistance

(c) Organizing assistance from local people in nearby villages:

(i) Villagers should be asked to make an announcement from their loud speaker (generally available in the local temple, mosque, gurudwara, church etc.) informing others regarding the accidents.
(ii) Everybody should be asked to rush to the accident site with following:
- Tractor trolleys (both for transportation as also for general lighting).
- Cutting implements, hammers, chisels Ropes, Ladders, etc. as are available.

(iii) Ask doctors or Para-medical staff of village to reach the accident site.
(iv) The messenger should stay back and try and organize opening of a big building (preferably a school) for sheltering of injured passengers and/or preservation of dead bodies.

4.22 DISASTER RESPONSE – FIRST RESPONDERS:

4.22.1 Role of First Responders – Local people:

4.22.1.1 At accident site:

(i) Tractors, which arrive, should be lined up in a row facing the track with their headlights switched ON for illuminating the accident site.

(ii) Tractors should be so spaced out that they illuminate the entire length of the accident site. Such spacing would also depend on number of tractors that have arrived.

(iii) Rescue and relief work should now be mounted under the available light.

(iv) Villagers arriving for rescue and relief work should be formed into separate groups for handling individual coaches.

(v) Group leaders of IAT who were earlier conducting rescue and relief work should co-ordinate with the local people and guide them.

(vi) Grievously injured passengers extricated from coaches should be sent to the nearest hospitals in tractor trolleys.

(vii) Passengers who have suffered trivial injuries and uninjured passengers should stay back at accident site and wait for arrival of railways DM team who would take charge of them.

(vii) As a thumb rule, any injury requiring hospitalisation of more than 48 hrs. is grievous, hospitalisation of less than 48 hrs. is simple, and any injury not requiring hospitalisation at all is trivial.

(viii) The following priority should be adhered to while sending such grievously injured passengers:
- Unconscious,
- Bleeding excessively,
- Having breathing problems,
- Grievously injured,
- In a state of shock,
- Having fractures,
- Simple injury,

(x) Dead bodies, if extricated should be kept alongside the coach but away from the track for proper tagging etc. before being dispatched for preservation.

(xi) Bodies should be kept in separate lots, coach wise, so that they do not get mixed up.

(xii) Tagging of dead bodies should indicate the coach number and also the cabin number, if possible, (For example NCR 98127, cabin number containing berths 9-16).

4.22.1.2 In villages/towns:

(i) A big building, preferably a school building should be got vacated and made ready for keeping of dead bodies and unclaimed luggage of passengers.

(ii) They should be asked to bring the following to the accident site for train passengers:
- Tea and refreshments,
- Warm clothing, if required.

(iii) Look after injured passengers who have been taken to the village.

(iv) Take injured passengers to the nearest hospital by means of any transport available. For this purpose, apart from tractor trolleys, even trucks passing on the highway can be utilized.

4.22.2 Duties of First Responders – Railway Staff:

The First responders from Railways will normally include the staff present at the vicinity/ Station. However, all other Staff available/ posted at the station are to report to the Station master at the earliest. Detailed duties of each of the staff are brought out in the Divisional Disaster Management Plans. Some Staff available include the below:

1. Gang Staff
2. Gatemen
3. Cabin man/Panel Station Master
4. Pointsman
5. Station Superintendent in charge
6. Station Master / Assistant Station Master
7. Safaiwalla:
8. Station Master at adjoining station: SM of adjoining Station plays an important role at the time of Disasters. They duties Include:

9. Duties of TI/PWI/SI/CWI/LI:

4.22.2.1 Gang Staff:

(i) On double/multiple line section stop any other train approaching the accident area by showing hand danger signal.
(ii) Ensure that track alignments or lines are not disturbed.
(iii) Report to OC Site and assist in rescue and relief work.
(iv) Assist in extricating injured passengers from coaches.
(v) Assist in transporting them to nearest hospitals.

4.22.2.2 Gate man:

(i) Keep gate closed if the train has not cleared the gate.
(ii) Arrange to inform SM immediately under exchange of private number regarding the nature of the accident.
(iii) Collect men and material available nearby and direct them to site.
(iv) In case the gate is involved in an accident, which obstructs and fouls the track and the gate is provided with the gate signals, then the signals shall be put to ' ON' position immediately.
(v) If the Boom / Wing is broken he shall close the gate with Safety Chain. Keep gates closed if the train has not cleared the gate.
*(vi) Immediately fix Red Banner Flag in Daytime and Red Lamp in Night time on **wooden staff** at both ends of the gate 5 meters away from the obstruction on either side.*
(vii) On Double / Multiple line section he shall stop any train approaching the accident area by showing Danger Hand Signals.
(viii) Rush with Detonators, Red Flag by Day and Red Hand Signal by night in the direction of the approaching train and place one detonator at a distance of 400 Mts. on MG & 600 Mts. on BG line. Thereafter he shall proceed to a distance of 800 Mts. on MG & 12000 Mts. on BG section and place three detonators on the track 10 Mts. apart. After that he shall return to the level crossing gate picking up the intermediate detonator on his way back. Thereafter he shall proceed towards the other direction and place the detonators similarly.
(ix) On returning to the gate he shall not meddle with the clues and evidences of accident & also not tamper with the interlock system.
(x) Avail services of road vehicles waiting or passing through LC Gate.
(xi) Send message to nearby village, informing them regarding the accident.
(xii) On double/multiple line section stop any other train approaching the accident area by showing hand danger signal.
*(xiii) Parting of Trains**:** Ifa gateman notices that a train has parted he shall not show a stop hand signal to the pilot, but shall endeavour to attract the attention of the pilot and guard by shouting gesticulating and displaying a Green Flag by Day and white light by night in Up & Down Vertically as High & Low as possible.*

(xiv) Gateman shall not leave his gate unless other gateman has taken charge of it. If it is necessary to leave his gate in an emergency, before doing so, he should close and lock the gates against the public road and must inform and get permission to do so.

4.22.2.3 Cabin man/Panel Station Master:

(i) In case of an accident first he shall put back the related signals to ' ON' position immediately and put stop collars on the relevant points.
(ii) Reverse the points against the train involved in the accident.
(iii) Not tamper with the interlocking system.
(iv) Preserve clues and evidences.
(v) Keep readily available all the cabin records and do not tamper the entries made in Train passing records.
(vi) Be in close contact with SM/ ASM on duty and strictly obey the orders / instructions.
(vii) Not leave the cabin without his reliever and without the permission of the competent authority.

4.22.2.4 Pointsman:

(i) In case of an accident he shall be in close contact to follow the instructions of In charge SS or On duty SMs / ASMs.
(ii) Help / assist the passengers in every rescue & relief operation.
(iii) Report promptly / quickly if any defects is noticed in points, track, S&T gear, rolling stocks involved in the accident which may endanger safety.
(iv) Pilot the first train while dispatching on accident as per the instructions given by on duty SS / SM / ASM.
(v) Report the position of the adjacent line whether it is fouled or not and also ensure clearance of fouling mark or not.
(vi) If the train involved in an accident caught fire, he shall first ring the bell continuously to inform 'ON' & 'OFF" duty staff and then use Fire Extinguishers, water buckets, sand buckets provided at the station to extinguish the fire.

4.22.2.5 Station Superintendent in charge:

(i) Quickly& promptly convey all type of information to adjoining stations and section control.
(ii) Arrange protection of traffic by keeping relative signals at 'ON' position and also arrange to preserve the clues/evidences of accident.
(iii) Call for the 'On' duty & 'OFF' duty staff at the site of all departments including RPF & GRP staff.
(iv) Communication with civil authorities, Village, Town, Cities, NGO Representatives/Volunteers for possible relief assistance.
(v) Call for assistances for medical aspects from civil/private doctors and Army medical hospitals. Mobilise local medical team and injured passengers to hospitals. Quickly transport of ARME Scale II equipment.

(vi) Passenger assistance: Arrange drinking water beverages and refreshment free of cost either from refreshment room and local resources. Open emergency counter and display necessary information regarding dead/injured passengers and convey it. Make frequent announcement about diversion, cancellation and regulation of train services and arrange for refund of fares as per extent rules.

(vii) Transport assistance: Arrange transporting injured passengers to nearest hospitals apart from tractors, trolleys, Trucks, Buses passing on the Highways/nearby can be utilised or by hiring road vehicles.

(viii) Security assistance: Arrange RPF/GRP/State police to provide security to passengers there belongings and RLY. Properties. They should also be asked to assist in rescue and relief work.

*(ix) Communication Assistance**:** Direct passengers to PCO booths availablenearby and issue free telegram and make available STD phone to relatives of dead/injured.*

(x) Sending manpower: Proceed to site of the accident by quickest means with trolleys, coolies, lamps, vendors and any other equipment that is considered necessary.

(xi) Preservation of clues and evidences: Secure records related to accident in the Station/Cabin. Seal slides, levers, knobs and Relay room, if accident takes place within the Station limit.

(xii) Protection: Protect adjacent lines then protect the same line on either side. Note the position of points etc., and clamp the points against the line on which the train is affected. Put "Line Blocked" lever collar in cabin / SM's slide control from where the lever is operated.

(xiii) He shall not relive the site of accident till the Traffic Inspector or Divisional Officers relieves him.

4.22.2.6 Station Master / Assistant Station Master:

(i) Quickly& promptly convey information to adjoining stations and section control.

(i) Arrange protection of traffic by keeping relative signals at 'ON' position and preserve the clues/evidences of accident.

(ii) Prepare the relevant Authority to send the first train on occupied section and nominate one Pointsman to pilot the train / vehicle.

(iii) Call for the 'ON' duty & 'OFF' duty staff at the site of all departments including RPF & GRP.

(iv) Communicate with civil authorities, Village, Town, Cities, and NGO Representatives/Volunteers for possible relief assistance.

(v) Call for assistances from civil/private doctors and Army medical hospitals. Mobilise local medical team and injured passengers to hospitals. Quickly transport of ARME Scale II equipment.

(vi) Passenger assistance: Arrange drinking water beverages and refreshment free of cost either from refreshment room and local resources. Open emergency counter and display necessary information regarding dead/injured passengers and convey it. Make frequent announcement about diversion, cancellation and regulation of train services and arrange for refund of fares as per extent rules.

(vii) Transport assistance: Arrange transport to injured passengers to nearest hospitals by available means, passing on the Highways/nearby or by hiring road vehicles.

(viii) Security assistance: Arrange RPF/GRP/State police to provide security to passengers their belongings and Railway property.They should also be asked to assist in rescue and relief work.

*(ix) Communication Assistance**:** Direct passengers to PCO booths availablenearby and issue free telegram and make available STD phone to relatives of dead/injured.*

(x) Sending manpower: Proceed to site of the accident by quickest means with trolleys, coolies, lamps, vendors and any other equipment that is considered necessary.

(xii) Preservation of clues and evidences: Secure records related to accident in the Station/Cabin. Seal slides, levers, knobs and Relay room, if accident takes place within the Station limit.

(xiii) Protection: Protect adjacent lines then protect the same line on either side. Note the position of points etc., and clamp the points against the line on which the train is affected. Put "Line Blocked" lever collar in cabin / SM's slide control from where the lever is operated.

(xiv) Not leave the site of accident till the Traffic Inspector or Divisional Officers relieves him.

(xv) Obey the orders of higher authorities from time to time.

(xvi) Work as per the instructions laid down in G&SR, Accident Manual and SWR during accident.

4.22.2.7 Safaiwalla:

(i) Follow the instructions of the Team leader of the Rescue operations.

(ii) Preserve Dead bodies under the instructions of the team leader & Doctors.

(iii) Do all sanitation work at the site?

4.22.2.8 Station Master at adjoining station:

4.22.2.8.1 Conveying of information:

(i) Arrange protection of traffic by keeping all signals at ON position.

(ii) Report the accident to Station Master at the other end. He should be asked to call all OFF DUTY staff at his station and send them to the accident site.

(iii) Report the accident to Section Controller.

(iv) Control to be advised regarding –

- *Time and nature of accident.*
- *Brief description of accident.*
- *Adjacent lines position.*
- *Damage to rolling stock/ Track/OHE/Signal & Telephone installation.*
- *Approximate number of dead and injured (grievous, simple) from the TS/TTEs.*

(v) Following functionaries should be advised regarding the accident:

- *All OFF DUTY railway staff posted at that station.*

- *SS of Junction stations at either end.*
- *TI, CMI.*
- *P.Way Supervisors – SSE/JE etc.*
- *TRD Supervisors – SSE/JE etc.*
- *C&W Supervisors – SSE/JE etc.*
- *S&T Supervisors – SSE/JE etc.*
- *SI/RPF, SHO/GRP.*

(vi) Nearest Fire Station.Inform civil authorities, village/town/city representatives and volunteers for possible relief assistance.

(vii) Supervisory Station Manager of the nearest Jn. station shall proceed to accident site.

4.22.2.8.2 Medical assistance:

(i) Call for assistance from local Doctors, St.JAB, Civil and Army Hospitals, Civildefence, Scouts and guides or any such organisation.

(ii) Arrange adequate number of First Aid boxes and stretchers.

(iii) Mobilize local medical team and send it to site to render First Aid to the injured.

(iv) Quickly transport ARME Scale – II equipment to the site of the accident.

4.22.2.8.3 Passenger assistance:

(i) Arrange drinking water, beverages and refreshments, either from Refreshment Room or local sources.

(ii) Supply beverages and refreshments free of cost to stranded passengers.

(iii) Open emergency counter and display necessary information.

(iv) Obtain reservation charts and display it.

(v) Collect information of dead/injured and convey it whenever asked for.

(vi) Make frequent announcements about diversion, cancellation, and regulation of train services.

(vii) Arrange for refund of fares as per extant rules.

4.22.2.8.4Transport assistance:

(i) Arrange for transport from local resources, for transporting injured passengers to nearest hospitals by fastest possible means.

(ii) Apart from tractor trolleys, even trucks passing on the highway can be utilised.

(iii) Stranded passengers to be transported from the accident site by train/hiring road vehicles.

4.22.2.8.5Security assistance:

(i) Advise RPF/GRP/State Police to provide security to passengers, their belongings and railway property.

(ii) They should also be asked to assist in rescue and relief work.

4.22.2.8.6Communication Assistance:

(i) Direct passengers to PCO booths available nearby.

(ii) Issue free telegrams and make available STD phone to relatives of dead/injured.

4.22.2.8.7Sending manpower for site:

(i) Proceed to the accident site by quickest means with trolleys, coolies, lamps, vendors and any other equipment that is considered necessary.

(ii) Till relieved by a Traffic Inspector or Divisional Officers be in charge of site and carryout rescue/relief operations.

4.22.2.8.8Preservation of clues and evidences:

(i) Preserve clues and evidences.

(ii) Secure records related to accident in the Station/Cabin.

(iii) Seal slides, levers, knobs and Relay room, if accident takes place within the Station limit.

4.22.3 Duties of TI/PWI/SI/CWI/LI: A para to be included

4.22.3.1 Rescue and relief

(i) Organise maximum number of men to go to the accident site along with their equipment & proceed by quickest available means to the accident site.

(ii) Ensure that the obstructed line is protected.

(iii) Direct all staff to assist in rescue and relief work.

(iv) Work as per directions of OC Site.

(v) Assess casualties and arrange to render First Aid.

(vi) Shift injured to nearest hospital.

4.22.3.2 Joint measurements

(i) Collect and record all evidences relating to the accident such as:

- Condition of track, with special reference to alignment, gauge, cross levels, super elevation, point of mount and drop and any sign of sabotage etc.
- Condition of Rolling stock with reference to Brake Power and braking gear.
- All marks on sleepers, rails, locomotives and vehicles etc.
- Position of derailed vehicles.
- Prima facie cause of accident.

(ii) Seize and seal the Train Signal Register, Log book, Private Number Book, Line Admission Book, Speed Recorder Chart and other relevant records.

(iii) Note down the position of panel switches, indication, block instrument, condition of relay room, status of data logger, etc. Condition of switches, ground connections, point locking, occupancy of track circuit, details of damage to outdoor signal/point gears should be noted down

(iv) Collect and record all evidences relating to the accident such as:

- Condition of track, with special reference to alignment, gauge, cross levels, super elevation, point of mount and drop and any sign of sabotage etc.
- Condition of Rolling stock with reference to Brake Power and braking gear.
- All marks on sleepers, rails, locomotives and vehicles etc.
- Position of derailed vehicles.
- Prima facie cause of accident.

(v) Seize and seal the Train Signal Register, Log book, Private Number Book, Line Admission Book, Speed Recorder Chart and other relevant records.
(vi) Note down the position of panel switches, indication, block instrument, condition of relay room, status of data logger, etc.
(vii) Condition of switches, ground connections, point locking, occupancy of track circuit, details of damage to outdoor signal/point gears should be noted down.
(viii) Seize and seal the Speed Recording Graph and all other registers and repair logbook of the locomotive.
(ix) Record details of Brake Power and other aspects of Rolling stock as per Performa.
(x) Joint measurements of Rolling stock, Note down observations, measurements of Loco etc. at site. If it is not possible arrange for taking the reading at shed.
(xi) These can also be recorded on a video or digital camera subject to the availability.
(xii) Details of all readings taken and position of all equipment noted should be jointly signed by supervisors of all 5 departments at accident site.
(xiii) Obtain statement of staff involved in the accident.
(xiv) CWS/DCWI shall prepare a sketch showing position of Rolling stock.
(xv) PWI shall prepare a final sketch indicating the position of track, w.r.t alignment, point of mount, point of drop, OHE mast, point number etc.
(xvi) Survey the situation, assess assistance required and issue message to Divisional Control Office.
(xvii) Take charge of the situation pertaining to your own department and remain till Divisional officers arrive at the site.

4.22.3.3 Preservation of clues/evidences

4.23 Intimation of Accident

4.23.1 Divisional Control Office:

- In the Divisional Control Office, information regarding an accident is generally received either by the Section Controller or the TPC.
- In most cases, the First Information Report also intimates the approximate number of coaches involved and a rough estimate of the likely number of casualties (such as 'heavy casualties expected').
- Accidents involving a passenger carrying train where the first information says that heavy casualties are expected, should prima-facie be treated as a Disaster?
- The moment information regarding an accident involving a passenger carrying train is received in the divisional control office; the accident bell in the control room should be sounded for alerting all on-duty functionaries.
- After all on-duty functionaries gather around the section control board, they will be briefly informed about the accident.
- Each functionary will thereafter resume his position and take steps to set in motion activities required of him.

- TPC will switch off OHE in case it has not tripped. OHE will not be restored even on adjacent line unless confirmation has been received from site that adjacent line is not obstructed and OHE is alright.
- PCR will undertake the following action in the given order of priority:
  - Give orders to Loco Foreman/SSE Loco for sounding the siren for ARMEs and ARTs.
  - Order movement of ARME and ART (with 140T crane) from adjoining divisions for approaching the accident site from the other end
  - Thereafter he will inform his departmental officers and supervisors.
- Dy. CTNL (Punctuality.) will first inform Hospital Casualty. Thereafter he will inform officers and supervisors as given below:
- Each departmental functionary will inform divisional officers and supervisors of his department about the accident as detailed below:

Functionary	Officers and Supervisors
Dy. CTNL (Op.)	Operating & Safety. Stores, Personal &Accounts
Dy. CTNL (Punctuality)	CMS/Nominated Medical Officer(Whenever ARME is ordered),Sr.DSO (Sr.DOM(G)/DOM(G)/AOM(G), In absence of Sr. DSO), DRM(ADRM in absence of DRM),Sr.DOM(DOM/AOM in absence of Sr. DOM)
TPC	Electrical,
S&T Control	S&T
Engineering Control	Engineering
PCR	Mechanical
Commercial Control	Commercial, Public Relations
Security Control	RPF

- All functionaries working in the divisional control office will have a ready list of telephone numbers (Railway, BSNL and Mobile) of all officers and supervisors of their departments.
- After Dy. CTNL (Punctuality) has informed Hospital Casualty, DRM, ADRM and Medical Doctors, he will then inform Dy. CTNL (Punctuality) or Dy. CTNL (Op) in Headquarters, Emergency Control regarding the accident.
- Branch Officers will inform their respective PHODs who in turn will inform their respective Board members IN case PHOD is not available in HQ,then the next Senior most officer of that department will inform his Board member.
- CSO / Dy. COM(S) will inform GM and CRS and nodal Officer of Safety Directorate of Rly.Board.
- GM will inform CRB regarding the aboveaccident.
- Dy. TNL (Punctuality) will thereafter inform Divisional Emergency Control office Regarding running out of 1st special train carrying DRM and other Branchofficers.
- Functionaries of different departments will also inform their respective departmentalofficers regarding timing of 1st special train carrying DRM and other branch officers to the accident site.

4.23.2 Duties and responsibilities of controlstaff:

- **SectionController:**

- Order for ARME/SPART and ART so that it reaches within the minimumtime.
- He shall advise the Dy. TNL / CTNL and note important details in dairy and chart.
- He shall advise the TI, PWI, CSI, CMI, AEN, and Rly. Doctor etc. of the section immediately.
- Heshallkeeplooplinesofadjacentstationsofaffectedsectionclearoftrains.
- Stop movement of trains on both the directions of singleline.
- Collection of information andreporting.
- He will act as a guide to the staff working at affectedsite.
- In case of forecast regarding change in weather, will apprise the incharge of the team working at affectedsite.
- Arrange to send the extra crew to relieve crew at affected site by first availablemeans.

- **DY. TNL /CTNL:**

- He shall inform all concerned officers (DRM / ADRM, Sr. DSO, Sr. DOM, Sr. DME, CMS, Sr. DEE (P), Sr. DEE (TRD), Sr. DEN(HQ), Sr. DSTE, Sr. DCM, DSC & Sr.DPO).
- He shall order ARME/SPART / ART atonce.
- He shall inform police officials and collector concerned whereverrequired.
- He shall inform HQ Emergencycontrol.
- He shall maintain Accident Log Register in chronological order ofinformation received on right side page and information / instruction passed on / out on left page of theregister.
- Help in coordinating the movement of relief trains / materialtrains.

4.23.3 Intimation of Accident – Railway Doctors:

Dy. CTNL (Punctuality) will inform the Hospital Emergency of Railway Hospital regarding details of the accident; Railway doctor on emergency duty shall undertake the following:

- Note down time of receiving message.
- Inform CMS, MS, and other Doctors & Para medical staff and instruct them to reach the ARME immediately.
- Collect necessary Medical team in the hospital.
- Inform CMD about movement of ARME/SPART.
- Alert blood donors, St.JAB, Civil defence, Scouts and guides or any other such organisation.
- Bare minimum medical team should remain in the hospital; rest of the doctors should be rushed to the accident site.

- Arrange to move Emergency box from ARME/SPART Scale-II locations to the accident site.
- In case the accident site is far off and going by air would be faster, then either helicopters or special Air Force planes may be organized from the nearby IAF Base by Secy. toGM.

4.23.4 Intimation of Accident – Head Quarters Emergency Control Office:

- In Head Quarters Emergency Control Office also, the accident bell in control room should be sounded for alerting all on-duty functionaries.
- After all gather around the CTNL/Dy.TNL they will be briefed about the accident.
- Each functionary will thereafter resume his position and take steps to set in motion activities required of him.
- Each departmental functionary will inform HQ Officers of his department about the accident as detailed below:

• Dy. TNL (Op).	Operating, Safety. Engineering, Personnel, Accounts.
• Dy. TNL (Punctuality)	GM, Medical.
• TPC	Electrical,
• S&T Control	S&T
• PCR/CCR	Mechanical, Stores
• Commercial Control	Commercial, Public Relations, RPF

- All functionaries working in the Emergency control office will have a ready list of telephone numbers (Railway, BSNL, and Mobile) of all officers and supervisors of their departments.
- After Dy. TNL (Punctuality) has informed GM and Medical Doctors, he will inform Safety Directorate's Emergency Cell in Railway Board.
- GM will inform CRB regarding the above accident.
- PHODs will inform their respective Board Members. In case PHOD is not available in Head Quarters, then the next senior most officer of that department will inform to his Board Member.
- CSO/Dy. CSO (T) will inform CRS.
- Dy.TNL (Punctuality) will thereafter inform BCT Division control office regarding running out of 1st Special train to the accident site carrying GM and other HQ Officers.
- Functionaries of different departments will also inform their respective departmental officers regarding timing of 1st special train carrying GM and other Head Quarters officers to the accident site.

- In case the accident site is far off and going by air would be faster, then either helicopters or special Air Force planes may be organized from the IAF Base at Gandhinagar by Secy. to GM or by private hiring.

4.23.5 Informing Non-Railway Officials by the Division:

The portion having details relating to Disaster management plan i.e. relevant information such as details of civil authorities to be contacted whenever required or assistance during serious accidents (disasters) shall be dealt with by Operating Department (Chief Operations Manager) of the Railway concerned. (Rly. Bd's Letter No. 2002/Safety (A&R)/19/29 dated 31.12.08).

- DM, SP and CMS of the district within which the accident site falls should be informed regarding the accident by the CTNL of the concerned Division.
- ADRM will inform the following regarding the accident:
    - IG/GRP
    - ADG/GRP,
    - Divisional Commissioner.
    - Home Secretary.
- In case POL rake is involved, then IOC/BPC/HPC officials should also be informed.
- In case Mailbags of RMS are involved, then postal officials should also be informed.
- Telephone numbers of all DM, SPs, CMSs on Divisional Commissioners & IOC, BPC and HPC officials are available in Divisional DM Plans.

Telephone numbers of ADG/GRP, IG/GRP, and Home Secretary etc of Maharashtra, Gujarat, Madhya Pradesh and Rajasthan given in DMP Part-II.

- Telephone numbers of IOC / BPC / HPCL / Reliance/ Essar / GSFC officials are also available in the Divisional Disaster ManagementPlans.
- Telephone numbers of ADG/GRP, IG/GRP, and Home Secretary etc. of Gujarat are given in DMP part II.

4.23.6 Divisional Officers required to go to site:

- All concerned divisional officers should proceed to the accident site by the ARME.
- Road vehicles should also be sent to accident site from Divisional Head Quarters.

- Target time for turning out Medical Relief Van from the siding and their dispatch from the stations.
- DRMwillproceedtotheaccidentsite; ADRMshallstaybackatdivisionalHead Quarters for co-ordinationwork.
- All Branch Officers should proceed to the accident site. Officers heading different branches within the same department are referred as Branch Officers.
- The second senior most officer of each branch should stay back at divisional HeadQuarters.
- Of the remaining officers from each branch, a majority of both Senior and junior scale officers should also proceed to the accidentsite.
- Once it has become clear that the accident is a Disaster, then the 80/20 rule shouldbefollowed80%ofallofficersshouldgototheaccidentsite, andonly 20% should stay back at HeadQuarters.
- Divisional DM Plans should specifically spell out, department wise, designations of officers & Supervisors who will be required to go to site, and those who will be required to stay back in HeadQuarters.
- Arrangements of Road Vehicles to proceed to accident site, indicating alternative vehicles as well, shall be indicated in Divisional DMPlans.
- Arrangements of vehicle drivers including spare drivers shall also benotified.

4.23.7 Supervisors required going to Accident Site:

- At the divisional level 80% of all supervisors available in divisional Head Quarters should proceed to the accident site.
- All other supervisors available in the field at other stations should also proceed to the accident site.
- Divisional Control Office should issue a computerized recorded control message from DRM to all Supervisors for proceeding to the accident site immediately by fastest possible means.

4.23.8 Head Quarters Officers required to go to site:

- All Head Quarters officers required to go to the accident site should proceed by the 1st special train, which will be carrying GM and other officers from Head Quarters.
- Mumbai Divisional Control Office shall arrange this special train, in consultation with Head Quarters Emergency Control. Their departmental functionaries in Head Quarters Emergency Control will inform schedule departure time to Head Quarters officers.
- GM will proceed to the accident site. COM shall stay back at Zonal Head Quarters for co-ordination work.
- Department wise, designations of officers who are required to go to site, and those who will be required to stay back in Head Quarters is given below:

Department	Site	Headquarters
Medical	PCMD	Dy .CMD
Commercial	PCCM, CCM (PM), Dy .CCM (FM)*	Dy. CCM (PM) Dy .CCO
Mechanical	PCME, CRSE (F&O)**	CRSE, 1 JA Grade
Civil	PCE, CTE, CBE, 3 JA Grade	1 SAG + 1JA Grade
Electrical	PCEE, CELE, 2JA Grade	1 SAG + 1JA Grade
S&T	PCSTE, CSE, CCE Dy. CSTE (Tele)	1 SAG+1JA Grade
Operating	*	PCOM, CFTM,CPTM, Dy. COM (Chg)& Dy. COM (R)
Safety	PCSO, Dy. CSO	**
Security	PCSC & Sr. DSC/DSC of the Division	Addl. CSC
Personnel	PCPO*	CPO(Adm.)
Accounts	PFA, FA&CAO (Tfc)	Dy .FA&CAO (F&B)
Stores	PCOS, PCMM	CMM (M&G)
Public Relation	Sr. PRO/ PRO	CPRO
IT	CPRO	Sr. EDPM

**All other Dy. CSOs.
* All other JA Grade, Senior and Junior Scale officers.

- PHODs should issue local instructions based on the above regarding supervisors required to go to the accident site.
- Only 3 Supervisors of each department should stay back in Headquarters.
- All other should go to the accident site.

4.24 Disaster Management Team:

Nominated officials from various departments arriving at site by ARMEs and ARTs form part of the Disaster Management Team. Officials representing each department are responsible to ensure that assigned duties of their respective departments are efficiently carried out. Senior officers of each department will also ensure that their work is synchronized with that of functionaries of other departments for quick rescue, relief and restoration operation.

4.24.1 Members of the Disaster Management Team:

Disaster Management Team normally comprises members of following departments:

(i) Trained railway men from Medical, Commercial, Safety, Electrical, S&T, and Mechanical, Engineering, Security, Personnel and other departments.
(ii) In case of fire accidents, trained fire service personnel shall form part of this unit.
(iii) In case of an accident on water body, divers and naval cadets will also be part of the team.
(iv) Incase of sabotage or bomb explosion, bomb disposal squads and GRP/Local Police will also be involved.
(v) Various rescue units shall accompany ARMEs, ARTs, SPARTs or move by road

as quickly as possible.

(vi) Identifying railway personnel and they should be supplied with orange coloured armbands to be kept in ARMEs/ARTs, SPARTs. Adequate number of armbands, gloves and facemasks should also be provided in the ARMEs/ARTs, SPARTs.

(vii) Communicating with railway personnel in the crowd through Microphones/loud speakers provided in ARMEs/ARTs. These should be used both for crowd control as also for giving instructions to railway personnel working at accident site.

(viii) Once initial rescue operations have got underway, arrangements have to be made for water and food for railway staff working at site. Contract arrangement should be made for supply of food.

(ix) Spare coaches should be stabled at nearby stations where watering and charging facilities are available for stay of staff.

4.24.2 Rescue, Relief and Restoration Operation:

DM Team on arrival by ARMEs and ARTs shall undertake followingactions:

i) Crowd Control and Law and Order.
ii) Rescue operation.
iii) Relief operation.
iv) Video coverage of accident site.
v) Installation of communication Network.
vi) Clearance from State Police for restoration.
vii) Preservation of clues and Evidence.
viii) Media Management at site.
ix) Salvage Operation.
x) Restoration operation.

4.24.3 Formation of two teams at accident site for round the clock working:

(i) At the accident site, departmental officers available from both Head Quarters and division shall be formed into two teams for round the clock working in 2 shifts, preferably 8 hrs. To 20 hrs. And from 20 hrs. to 8 hrs.

(ii) PHODs shall be available on duty during the daytime.

(iii) PHODs shall take on the spot decision regarding composition of the team for night shift for their respective department. This composition should not normally be changed during the 3-4 day stay at the accident site.

(iv) Branch Officers shall be available on duty during the daytime.

(v) Branch Officers shall take on the spot decision regarding composition of the team for night shift for their respective department. This composition should not normally be changed during the 3-4 day stay at the accident site.

(vi) Similarly, the supervisors available from both Head Quarters and divisions shall also be put in two teams.

4.24.4 Officer-in-charge of Site (OC Site):

On arrival of ARME at accident site DRM shall take over as OC site from the senior-most officer of the accident involved train. On arrival of 1st Special train carrying GM and other headquarter Officers, GM shall be OC site. In the absence of GM the senior most officers shall be OC Site. He will be responsible for forming Core Groups

as required and direct them to carryout efficient rescue, relief and restoration operations.

4.24.5 Photography:

Prior to starting restoration work of an accident site, divisions should undertake suitable video film coverage to the extent feasible. Still photography by digital camera should also be undertaken extensively for its obvious advantages. The photograph should be taken from a vantage point and from as many angles as possible so as to give a bird's eye view as also close up photographs.

(i) Such photographs should clearly indicate: (a) Severity of the accident.(b) Illustrate the damage to P. Way, Rolling stock, Signal, OHE and other structures and equipment.
(ii) Separate set of photographs to be taken to preserve clues and evidence of sabotage is suspected.
(iii) Victims and unidentified bodies should also be extensively photographed.

4.24.6 OC Site:

- Ensure setting up of UCC, CAC and LCCs at the earliest.
- Collect information from OC site of IAT.
- Take stock of the situation and plan for efficient rescue operation.
- Estimate quantum of assistance required for each department from:
  - Within the division,
  - Adjoining divisions of WR,
  - Adjoining zones,
  - Non-railway agencies,
- Channelize local resources to supplement available railway resources.
- Ensure that duties of various functionaries of different departments as laid down in WR's Zonal/ Divisional DM plan are carried out.
- Ensure co-ordination among all departments for efficient rescue, relief and restoration operation.
- Ensure information to SP Police and District Magistrate.
- In case of sabotage, direct RPF to obtain quick clearance from State Police.
- In case of serious explosions or fire, clearance from Controller of Explosives is to be obtained.
- Give prima facie cause of the accident along with forecast of expected date and time of restoration.
- Ensure timely information on the progress of rescue, relief and restoration work every 3 hrs. with following details:
  - Number of coaches searched.
  - Number of injured passengers recovered.
  - Nature of injuries to passengers.
  - Number of bodies recovered.
  - Number of bodies identified.

- Number of coaches dealt with.
- Supplementary assistance required, if any,
- Forecast for completion of each activity mentioned below should also be firmed up. These target dates and times should be communicated to all officers and supervisors at accident site:
  - Re-railment.
  - Track fitness.
  - OHE fitness.
  - Points and inter-locking.
  - Clearance of section.
  - Movement of first train.

4.24.7 Duties of Divisional Railway Manager:

(i) Ensure that functionaries of different branches at the accident site carry out duties assigned to them as per Zonal and Divisional DM Plan.
(ii) Co-ordinate with Divisional Emergency Cell regarding assistance required.
(iii) Co-ordinate with Civil Authorities especially with regard to:
- Requisitioning of buses from State transport authorities, with drivers for round the clock duty.
- Waving off of post Mortem formalities.
- Positioning of Municipal Officials in the CAC for issuing of Official Death Certificate.

(iv) Ensure that proper assistance is rendered by each department.
(v) Ensure that in addition to one vehicle available in Control Office round the clock, sufficient numbers of vehicles are available along with particulars of the Drivers.
(vi) Immediately decide which officer should go by road/ART/ARME.
(vii) Nominate the officer to man Control Office.
(viii) Depute ADRM as in charge in Control Office if proceeding to the site.
(ix) Arrange to advise the Home Secretary / Chief Secretary or other Officers of the state in case of sabotage for prompt attendance of the S. P.
(x) Function as the senior most officer and as "Accident Manager'.
(xi) Arrange a preliminary enquiry by Divisional Officers, in cases where an enquiry by the CRS/SAG Officers is to be held but immediate investigation of certain matters is necessary.
(xii) Appoint two officers as reporters of serious accidents.
(xiii) Arrange for taking joint observation/ reading by supervisors.

4.25 Duties& Responsibilities of Various departments:

For efficient Disaster Management, responsibilities of various departments are to be executed by deputing responsible officers and supervisors. Important duties of such officers/ supervisors are enlisted as follows:

4.25.1 OPERATING DEPARTMENT:

i) General (on Receipt of Information):

Immediately after getting the information:

- All sectional TI s and Supervisory SSs should be directed to reach the accident site by first available means.
- Similarly additional RG/LR staff from the section should be sent to 3 stations on either side so that SMs can be free for going to accident site.
- Since considerable amount of shunting is required to be performed at adjoining stations, 2 traffic supervisors in 2 shifts should be posted at adjoining stations on each side.
- Ensure that special trains are sent into the accident affected block section according to the sequence.
- Ensure proper marshalling of crane while proceeding to the accident spot in the block section.
- Ensure that Engineering vans of the ART are placed nearest to the accident site. For this purpose, Engineering van/wagon should be placed closest to site of accident by sending it in pushing condition.
- Ensure prompt clearance of standard passengers at the site in coordination with the Divisional Emergency Cell.
- Regarding running of special trains, keep in touch with Divisional Emergency Cell and give requirement from site.

ii) Duties of Sr. DOM(At the site):

- Ensure that ARME and ART reach the site without delay.
- Plan for trains for the prompt transport of stranded passenger at site and clearance of passenger held up at other stations.
- Plan for regulation of Passenger, Mail/Express trains, cancellation, diversion, and termination short of destination in consultation with Headquarters.
- Check that information regarding passengers, dead, injured (grievous and simple) is verified by Railway Doctor and approved by senior most officer at the site.
- Details of the dead, injured (grievous or simple) their originating and destination station, ticket No. Hospitals to which sent for treatment and also particulars of next kith and kin to be obtained from the site and relayed to Emergency Control, CSO etc.
- See that chronological log of all items of information and action taken connected directly or indirectly with accident is maintained properly.
- Keep liaison with adjacent Divisions, Site and Headquarters.

iii) Traffic Inspector / Divisional TrafficInspector:

- Hewillensurethatthejointmeasurementsofthetrack, rollingstocks, cabin, Panel are taken andrecorded.
- He will seize all train passing record of station, ifwarranted.
- He will take statements of all on duty operating staff related with the accidents.
- He will keep liaison with control and ensure reception of ARME/SPART &ART atsiteandallnecessaryshuntingrequiredtobedoneatsite/stationisdone smoothly in the minimumtime.
- Seal block instrument, relay rooms and note positions of levers, knobs, slides, indication etc. as the case maybe.
- Any other duty allotted by Sr. DSO /DOM (G).

iv) Duties of staff at controllingstations:

Division has a system of nominating controlling station for each section. The Station Master of such nominated controlling stations, should immediately onreceiving adviceofanaccident, reachthesitewithsufficientstaffdrawnfromallthedepartments at his station and take all necessary steps for rescue and relief operations. Staff of all departments must following the directions of the controlling Station Masters in this regard and render all help and assistance necessary for tackling the disastersituation.

Sr. DSO / RJT's letter T.5/0 Vol. 5 of 10-10-1989 & reiterated time to time. Board's letter No. 89/Safety/1/4/3 of 4-8-1989.

Sr. No.	Nominated Controlling Stations	Controlling Area
1	OKHA	OKHA area up to Bhatel (Incl.)
2	HAPA	Bhopalka to Hadmatiya
3	RAJKOT	Chanol to Amarsar (BKNG)
4	WANKANER	Wankaner to Chamaraj
5	MORBI	Makansar to Navlakhi and WWA
6	SURENDRANAGAR	Surendranagar to Vani Road

4.25.2 SAFETY DEPARTMENT:

i) Duties of Safety Department:

- Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed till police clearance is received.
- Ensure that video/still photographs by digital cameras are taken as required.
- Ensure that joint measurements, observations are recorded in the prescribed Performa before restoration work begins.
- Ensure that unaffected rolling stock is moved away from the site and thereafter stabled at convenient location for further examination during accident inquiry.
- Ensure that evidence of train staff; station staff and public are recorded on the spot.
- Addresses of passengers willing to give statements later should also be obtained.
- Ensure that special trains are sent into the accident affected block section according to the sequence.

ii) Duties of Sr.DSO (At the site):

- *Proceed to the site of accident by first available means.*
- *Inform to CSO and NDRF/SDRF after assessment of Requirement.*
- *Ensure marshalling of the crane before the ART reaches site.*

- *Ensure joint measurements etc. in prescribed Performa.*
- *The required affected vehicles are kept for enquiry as per rules.*
- *Plan for efficient movement of ART, engine, tower wagon, etc. between site and station for quicker restoration.*
- *Ensure that the log diary at the site is maintained properly with details and that the Field telephone is manned.*
- *Produce public witnesses and advise S.P. and DM in time, issue press notification in local press when advised by CSO, in case of CRS Enquiry.*

iii) Sr. DSO / ADSO /DOM(G):

- In case of Major Accident Sr. DSO / ADSO / DOM(G) will accompany ART/ ARME/SPART or faster mode of transport to reach thesite.
- He will inspect the site and preserve the clues for accidentenquiry.
- He will ensure the photograph / videography of thesite.
- He will ensure that the measurement in the standard format is taken atthe accident site as per AccidentManual.
- He will ensure that proper log diaries are maintained at accident site and field telephone is manned.
- He will keep liaison with the control to ensure early clearance of front and rear portion of the accident involvedtrain.
- He will assist the officer in charge of the site regarding marshalling of ARME/SPART and receiving ART at siteetc.
- Address of passengers, who are willing to give statement later, should also beobtained.
- Ensure evidence of train staff, station staff and public is taken on thespot.

iv) Safety Counsellor(Traffic):

- He will assist Sr. DSO and DOM(G) in the followingactivities.
- He will note down diary and timings of each event atsite.
- Hewillassistinclearingtheunaffectedportionoftheaccident-involvedtrain both in rear andfront.
- He shall ensure the manning of the telephone atsite.
- Hewillassistinkeepingliaisonwithcontrolofficeandanyotherdutiesgiven by Sr. DSO /DOM(G).
- Hewilltakethestatementofguards/operatingstaffandpassengersifany in connection with theaccident.
- Relay Room Key Register to bechecked.

v) Safety Counsellor(Loco):

- He will note down the bio-data, statement of Engine Crew of the affected train and also ensure that the 'SWITCH OFF OF MEMORY CHIP' of speedometer & if necessary breathalyzer test to be carriedout.
- He will also take charge of engine repair book in case of derailment of locomotive.

- Any other duty given by Sr. DSO /DOM(G).

vi) Safety Counsellor (C &W):

- He will make thorough inspection of the involved rolling stocks and assist Sr. DSO / DOM(G) in findings out the probable cause of theaccident.
- HewillensurethejointmeasurementsofrollingstocksandwillreporttoSr. DSO /DOM(G).
- HewillalsocheckupthebrakepowercertificateandvalidityoftheinvolvedRolling stock and also seizes thesame.
- Any other duties assigned by Sr. DSO /DOM(G).

vii) Safety Counsellor (PermanentWay):

- He will ensure that the joint observations / measurement of the track are taken in the standard proforma as per the AccidentManual.
- He will go through the track observations & measurements and will assist Sr. DSO / DOM(G) in ascertaining the probable cause of the accident.
- He will ensure that proper sketch of the site is being prepared & jointly signed&notedownonthespotstatementoftheP.Waystaffworkingatthe site if necessary.
- He will also seize the gang diaries & charts, curve register & other related documents from the concernedPWIs.

viii) Safety Counsellor (S &T):

- He will inspect the site, particularly, if points & crossing & signal gears are involved.
- He will assist Sr. DSO / DOM(G) in ascertaining probable cause of the accident.
- Also joint observation of cabin / panel, position of points & all levers / push buttons along with Traffic Inspectors / SS in the ASM rooms of thestation.
- Relay Room Key Register to bechecked.
-

4.25.3 MEDICAL DEPARTMENT:

i) General on Receipt of Information:

- On receipt of information regarding the accident where casualties are expected, the doctor on emergency duty in the hospital casualty would inform all other doctors and Para medical staff concerned.

ii) Formation of two teams:

- Two teams of Doctors and Para medical staff would be formed. Team 'A' and Team 'B'. In case the accident site is far away from divisional Head Quarters and injured passengers are unlikely to be brought back to the divisional hospital for treatment keep bare minimum number of doctors in Team 'B' and all remaining available doctors should be rushed to accident site as part of Team 'A'.
- Team 'A' – headed by CMS/MS in charge will rush to the accident site by ARME along with Team-A (12-15 doctors and 15-20 paramedics).
- Team 'B' – headed by the senior most doctor amongst them will stay back at the divisional hospital; and perform duties as given below:

iii) Duties of Team 'B':

- Establish an Emergency Cell in the Casualty Unit of Railway Hospital.
- Contact adjoining divisions and organise movement of 2 more ARME to accident site, one from each end.
- Contact local hospitals (Railway/Govt./Private) near the accident site to and ask them to rush their road ambulances along with necessary medical team to the accident site.
- Ask the local hospitals to be in readiness to receive and provide medical treatment to injured passengers.
- Data Bank of medical facilities along the track section wise is available in Divisional DM Plans. Copy of Divisional DM Plans should be available in the Hospital Emergency of Railway Hospital.
- Arrange to send backup logistic support (more medical teams, Safaiwalas, health workers, St.JAB, Scouts and Civil Defence personnel) to the accident site in the 2nd and 3rd Special trains carrying from each end:
- Co-ordinate with MS/CMD of adjoining Divisions/Zones to send their medical teams to the accident site by any means.
- Arrange and send adequate number of items such as Body bags, Polythene covers for dead bodies, Coffins, Dry ice.etc for handling of dead bodies.
- Keep one doctor in Divisional Emergency Cell to liaison with UCC and the medical team at the accident site for Requirement of medicines either at the accident site or in various patients admitted hospitals.
- Prepare Railway Hospital to receive and provide treatment to inured passengers, when they are brought back from accident site.
- Arrange to send anti snake venom 4 vials and other items in cold chain carrier.

iv) Duties of CMS/Sr.DMO/MedicalOfficer:

Collect all staff that can be spared and proceed to site with necessary equipmentfromthehospitalthatcanbequicklyget-togetherwhilst waiting forARME/SPART:

- Arrange for a message to be sent to his seniorOfficer.

- Report his time of arrival to the SM onduty.
- Rough notes are recorded at the site of the accident but very detailed confidential notes including X-ray reports of the injuries sustained should be kept, after arrival at the hospital or healthunits.
- Make a note in respect of the log of events and actiontaken.
- Ensure that a qualified person will accompany theARME/SPART.
- Write Injury report on the prescribed form for each case of injury. List of dead/injured and nature of injury to be advised immediately from thesite.
- Alert blood donors clubs and Local Hospitals about arrival ofinjured.
- Alert all Civil Defence, NGO, Red Cross Society and Ambulance Organizations.
- Doctor(s) shall proceed to site by ARME/SPART or other faster mode of transport. Vehicle can behired.
- The emergency boxes from health unit to be moved to thespot.
- Check all equipment in Medical ReliefVan.
- Get operation theatreready.
- Make out a list ofinjured.
- List out thedead.
- Detailsofinjured/dead/Unconsciousshouldberecorded-Name, Sex, Age, Identification Mark, Address, Ticket No., Originating station, Destination.
- Submit reports indicating the progress of injured including those receiving treatment at non-Railway Hospitals, to the CMS/ DMO/ CMO daily during the first week and weeklythereafter.

v) Duties of Medical Department at Site (Team A):

- *Main functions of the Medical department can be broadly classified as:*
- *Taking out injured passengers from accident involved coaches.*
- *Attending to injured passengers and giving them First Aid.*
- *Preparing list of injured passengers.*
- *Classification of their injuries.*
- *Transporting them to hospitals and getting them admitted.*
- *Taking an initial round of hospitals and assessment of situation.*
- *Post admittance hospital care of the injured.*
- *Dealing with dead bodies.*
- *Preservation of dead bodies.*

vi) General(On Arrival at the Site):

- *Ensure collecting blood and urine samples of train crew in case the same is necessary.*
- *Organize as many road ambulances as possible at the accident site.*
- *Data Bank of Divisional DM Plans has names, telephone numbers and other details of hospitals near the accident site. They should be contacted on phone for sending road ambulances along with team of doctors.*
- *Set up Medical Counter in UCC and CAC for passenger assistance.*
- *Set up First Aid Posts in LCCs.*

vii) Site Management:

- *Leader of Team 'A' (Normally CMS/MS In-charge of the Division) would take control of the site, co-ordinate relief measures and distribute duties amongst doctors available as below:*
- *Different teams and groups will be formed discharging various duties of the Medical department. Each team should consist of 4-6 members and each group should consist of 3-5 teams, depending upon requirement.*
- *One group of doctors will take a round of various hospitals where injured passengers have already been admitted.*
- *One group consisting of 4-5 teams of doctors and Para-medics will take out injured passengers and dead bodies from accident involved coaches.*
- *One team will attend to injured passengers and give them First Aid and other medical treatment.*
- *One team will prepare list of injured passengers, note down details of their injuries and classify them.*
- *One team would be in-charge of transporting injured passengers to hospitals and getting them admitted.*
- *One team would be in-charge of post admittance hospital care of the injured.*
- *One team will deal with dead bodies after these have been extracted from coaches. They will prepare a list and arrange for their preservation.*
- *In case sufficient doctors are available then more groups should be formed for rescue operations.*

viii) Taking out injured passengers:

- *Maximum number of doctors should be deputed for this activity.*
- *This group should consist of at least 4-5 teams. If numbers permit, more such teams should be formed.*
- *Teams involved in rescue operation should ensure rapid access to all injured passengers.*
- *They should take assistance of Mechanical/Engineering/RPF staff to extricate injured passengers.*
- *Each team will join up with teams of Mechanical staff who would also be involved in extracting dead and injured from coaches.*
- *Maximum number of coaches should be tackled simultaneously, except those that have climbed on top or have telescoped into one another.*
- *Coaches should be thoroughly searched including lavatory and vestibule portions before abandoning further search and moving on to the next coach.*

ix)Attentions to injured passengers:

- *One team will be asked to provide medical treatment to injured passengers immediately after their evacuation from coaches.*
- *Ensure stabilization of condition of injured passengers already taken out from coaches, before they are dispatched to hospitals by road.*

- *In case of patients in critical condition where stabilization of condition at site is not possible, they should be moved immediately by road ambulance or shifted to ARME*

x) Preparing list of passengers:

- *Collect list of injured passengers prepared by TS/TTEs/Train Conductors and assess the situation.*
- *Separate lists to be prepared coach wise.*
- *The list should contain following details:*

- *If found Conscious: Name, sex, age, identification marks, address, and ticket number, originating and destination station.*
- *If found Unconscious: Approximate age, sex, identification marks, ticket number and other particulars if relatives and friends are available.*
- *Once the preliminary list of injured passengers has been prepared, the list should be signed by the CMS/MS In charge and a copy handed over to Commercial department.*
- *The list of injured passengers will thereafter be updated periodically, as rescue and relief work continues.*

4.25.3.1 Classification of Injuries:

Injuries are classified as: - (A) Grievous (B) Simple

(A) ***'Grievous' injuries*** *for the purpose of these statistics should be taken as injuries as defined in Section 320 of Indian Penal Code reproduced below for ready reference. (Section 320, Indian Penal Code 45 of 1860)*

Following kinds of hurt only are designated as 'Grievous':
(i) Emasculation.
(ii) Permanent privation of the sight of either eye.
(iii) Permanent privation of the hearing of either ear.
(iv) Privation of any member or joint.
(v)Destruction or permanent impairing of the power of any member or joint.
(vi) Fracture or dislocation of a bone or tooth.
(vii) Any hurt which endangers life, or which causes the sufferer to be, during the space of twenty days, or in severe bodily pain or unable to follow his ordinary pursuits.

(B) ***Simple Injuries:*** *-*
(i) A person will be considered to have incurred simple injuries, if these injuries incapacitate the injured person to follow his customary vocation during 48 hours after the occurrence of the accident.
(ii) A Railway servant is considered to have been injured if he/she is prevented from returning to work as a result of injuries for a period of 48 hours, after the

occurrence of the accident.

(C) Trivial Injuries: - These include injuries other than grievous hurt or simple injuries as defined above.

***Note:** A person is not to be considered as 'injured' when the injuries received are petty abrasions or bruises or injuries which in the opinion of the reporting officer, do not incapacitate the injured person from following his customary vocation, or mode of life for a period of more than two days. These are to be considered as 'Trivial Injuries'. While reporting figures of DEFINITIONS 6 casualties in respect of train accidents, however, information in respect of injured persons should also be communicated, while giving the first information report about the accident. This is to be repeated in the detailed reports and in the enquiry proceedings.*

It is to be emphasized, however, that such trivial injuries are not to be taken into account, while compiling final statistics of persons injured/killed in an accident.

4.25.3.2 Transporting injured passengers to hospitals:

i) One team will be asked to arrange transport of injured passengers to nearby hospitals.
ii) Ensure expeditious transportation of injured either to ARMEs or to nearby hospitals.
iii) Critically injured passengers should be transported by means of road ambulances and other by means of ordinary road vehicles.
iv) Commercial staff should also be associated with transfer of injured passengers to hospitals.
v) Before doctors and supervisors leave the accident site for hospital duty, they should note down the DOT and Mobile Telephone No. of the accident site, CMS, MS and other doctors at the site for quick communication.
vi) Doctors going to different hospitals should have separate vehicles.
vii) In case sufficient numbers of railway vehicles are not available, they should hire taxis for their movement by withdrawing cash from station earnings.
viii) Airlifting of Passengers.
ix) Hiring of Skilled swimmers / Divers for under water rescue.

4.25.3.3Taking an initial round of hospitals:

i) Separate doctors will be deputed to visit each hospital where injured passengers have already been shifted.
ii) One commercial Officer will also accompany doctors and make a general assessment.
iii) At the hospital, they should collect information about dead/injured persons, their name age, sex, address, telephone number, name and telephone no. of relatives /friends, nature of the injury etc.
iv) These information should be immediately communicated to CMS/MS at accident site by using PCO/Cell phone etc.
v) Prepare a list of person's dead/injured already in hospitals in three copies by using carbon paper.
vi) The list thus prepared is to be signed by railway doctor on duty in the hospital. One copy is to be handed over to the Commercial Department.

vii) 2nd copy to be kept with the doctor in charge as office copy and the 3rd copy to be given to paramedical staff to get multiple photocopies for further distribution.

viii) One copy should also be sent to CAC for being fed into the PC provided in the CAC.

ix) The initial list prepared should be updated at regular intervals, as and when any change occurs.

4.25.3.4 Post admittance hospital care:

i) One railway doctor, one commercial supervisor and one welfare inspector should be deputed round the clock at each hospital.

ii) Normally one doctor should look after one hospital, along with a commercial supervisor and WLI.

iii) If large no. of hospitals are involved 2/3 hospitals may be given to one doctor. In that case, the doctor, in consultation with CMS/MS should station himself at the hospital where maximum no. of patients are admitted.

iv) Make an assessment about capabilities of the hospital to handle the injured persons. Decide whether the patient needs to be shifted to other hospital with better facilities and arrange to shift the patient.

v) In case any injured passenger succumbs to his injuries in the hospital, then the doctor in charge of that hospital should update this fact to the medical counter at CAC.

4.25.3.5 Dealing with dead bodies:

i) Problem faced by rescue teams is regarding dealing of dead bodies.

ii) In case of a major disaster, the usual complement of medical staff in any ARME is grossly inadequate for undertaking work of this magnitude.

iii) Adequate number of Safaiwalas and other health workers who have come to the accident site should be mobilized for this purpose.

iv) Often rescue and relief operations continue for more than 48 hours.

v) Dismembered bodies begin emitting foul odour after two days. Carrying out this task under such circumstances become a real problem.

vi) Target should be to extricate all dead bodies within 24 hrs.

vii) Dead bodies should be dealt with coach wise; otherwise bodies taken out from different coaches' get mixed up.

viii) Bodies taken out from coaches should be stacked at quite some distance from the track in front of respective coaches, in separate lots, coach wise. While this may slow down the work initially, in the long run it is more systematic since bodies don't get mixed up.

ix) Shift dead bodies from coaches to a nominated place at the accident site with the help of paramedical staff, SJAB, Scouts, Civil Defence personnel, other railway staff and non-railway volunteers available at site.

x) Put dead bodies in body bags.

xi) Put label written by Marker pen on each dead body in the pocket provided in body bag.

- Date _____
- Dead body Serial No._____
- Name _____

- Age _____Sex_____
- Coach No._____

xii) In case of unidentified dead bodies, against the item 'name' it should be written as unidentified-1/unidentified-2 etc. Approximate age should be estimated from the appearance, such as between 35-45 years.

xiii) 5 Photographs preferably by digital camera should be taken of each dead body. Two should be close up of face from in front and sideways, third should be of full length of the body.

xiv) If possible each body should also be video photographed.

xv) After photographs have been taken, each body should be placed inside a plastic bag with zip having proper labelling system where same information is also to be provided.

xvi) After this, bodies will be handed over to GRP or Local Police for safe custody.

xvii) Take necessary steps to handle unhygienic condition that may arise due to decomposed/mutilated bodies.

4.25.3.6 Preservation of dead bodies:

i) Numbering and photography of bodies should be done even when relatives are on hand to claim the body.

ii) Arrangements have to be made for a more permanent location for them till such time as the next of kin arrive to claim these bodies.

iii) In all such accidents passengers are invariably separated from their belongings. As such in many cases there are no tickets or other identification papers on their persons.

iv) This problem is further compounded in unreserved coaches where no reservation charts are available.

v) Identification problems come up in case of mutilated bodies also. In such cases, photographs are better means of identification.

vi) Arrange for hiring of a couple of big halls, for keeping bodies.

vii) Rooms should preferably be at a single location so that relatives do not have to go around from mortuary to mortuary.

viii) A large building having number of rooms would be ideal for storing them. Best option would be to take over a school building temporarily.

ix) Arrange to move dead bodies to nominate buildings being used as temporary mortuaries. Bodies likely to be hold for more days should be embalmed.

x) Bodies should be neatly lined up with their numbers prominently displayed, and kept in different rooms, coach-wise.

xi) Notice Board outside the building should display the room nos. where bodies extracted from a particular coach have been kept.

xii) These details should also be posted on a notice board outside each room.

xiii) This will prevent unnecessary handling of bodies, which in any case would be in an advanced state of decomposition.

xiv) For dead bodies whose relatives are not readily available and delay is expected, arrange for their preservation by dry ice etc.

xv) Procure Shrouds, Polythene bags, Coffins, Dry ice from local market for dealing with dead bodies if required.

xvi) 4 Commercial supervisors should be put on round the clock duty in the building housing the temporary mortuary for guiding relatives as and when they come.

4.25.4 COMMERCIAL DEPARTMENT:

4.25.4.1 **General (on Receipt of Information):Sr. DCM should proceed to accident site along with all otherCommercial Officers by withdrawing sufficient money from station earnings.DCM will be available in Divisional Control Office for providing backup support.**

- **General:**

- Before Sr. DCM proceeds to accident site he should arrange withdrawal of sufficient cash from stationearnings.
- Attheaccidentsite, handpickedcommercialsupervisorsshouldbedeputed for manning commercial counters in UCC andCAC.
- Each commercial counter in CAC is to be manned by one group. Co-ordination with other departments during the process of salvage ismust.
- Different teams and groups will be formed for discharging various duties of the commercial department. Each team should consist of 4-6 members' andeachgroupshouldconsistof3-5teams, dependinguponrequirement.
- Separate teams and groups should be formed as detailed below, headed by a commercialofficer.
- One team will hire road vehicles for use and other relatedactivities.
- One group will arrange beverages and food both for injured as also for uninjured.
- One team will take an initial round of hospitals along with doctors and assess the situation.
- One group should take care of uninjured passengers who have to be cleared from the accidentsite.
- One group will assist Medical department in preparing a list of injured passengers input the same into the PC inCAC.
- One group will assist Medical department in shifting injured passengersto hospitals.
- One group will assist the Medical department in preparing a list of dead bodies and looking afterthem.
- One team will make ex-gratia payment to injured passengers and next of kin ofdead.
- Oneteamwilldealwithrefundcasesandclaimscompensationformalities.
- Onegroupwillbein-chargeofunclaimedluggageandotherconsignments.
- Onegroup will be in-chargeofpostadmittancehospitalcareofinjuredand taking care of relatives as detailed in Chapter titled "PassengerCare".

4.25.4.2Responsibilities of Sr. DCM /DCM:

- Proceed to thesite.
- Assistance to thepassengers.
    - Drinking water, cateringetc.

- Issue of complimentarypasses.
- Information regarding alternative means of transport to the destination.
- Assistance in protection of their luggage, valuables.
- Assistance to ladies, children and theinjured.
- Arrange reservation of strandedpassengers.
- Arrange for busses etc., ifrequired.

- Parcel, Mail, Goodsetc.
  - Arrange stacking,protection.
  - Preserve documents, cashetc.
  - Arrange tarpaulins if necessary.
- Ex-gratia payment.
  - Arrange Ex-gratia payment on the spot to the injured and next of kin of dead as per extantrules.
  - Display list of injured and dead at a prominent place at the station/stations. Also pass on information to thecontrol.
  - Announcement through public address system regarding arrangements for diversions of trains, regulation, probable time of arrival of the relief train with stranded passengersetc.
  - Ifthereisanimportantstationen-route, openinformationbootheven if the accident has occurred elsewhere. Depute TCs etc., on special duty.
  - Keep in touch with the progress of patient inhospitals.

4.25.4.3 Duties of SR.DCM:

1) Ensure drinking water, tea and snacks are promptly supplied.
2) Take charge of injured person's luggage.
3) Luggage of the dead passengers should be deposited with the Railway Police after proper records and acknowledgement.
4) Issue advice to the next of kin of the injured and dead and furnish details to control office.
5) Arrange for Ticket collectors, Porters and Vendors.
6) Arrange for ex-gratia payment as per rules.
7) Arrange for refunds to passengers.
8) Assist the stranded passengers during transhipment.
9) Arrange inventory of the parcels damaged and advise the CCO.
10) Arrange buses for stranded passengers and keep record of the buses destination wise with the number of passengers.
11) Provide the Railway doctors with assistance of Ticket collectors/Porters. Compile the figures of injured and dead from all sources.
12) Issue advice to the Control Office/Stations for issue of free passes to the next kin of the dead and injured.
13) Keep in touch with the progress of patients in hospitals and increase the ex-gratia payment suitably in case simple injuries turn grievous/deaths.

4.25.4.4 Duties of DCM & ACM:

1) Send sufficient Ticket Collectors, Porters, and RPF to the site.
2) Arrange drinking water, tea snacks quickly.

3) Arrange for refund at important stations.
4) Issue press handouts after prior approval of the DRM.
5) Open Enquiry offices with proper staff at important stations.
6) Arrange for buses if required.
7) Arrange for reservation of stranded passengers by advising the stations concerned and CCM (PM) where Other Railways /Divisions are involved.
8) Arrange labour for loading/unloading of luggage/parcels/goods.

4.25.4.5 Transportation of men and material to accident site:

As soon as the ARME/ART siren sounds, Available TTE/TC & Licence Porters (preferably each 50 TTEs/TCs and licensed porters) in uniform should be collected together and rushed to the accident site either by ART or first available means. ART/ARME should not be detained on this account.

- *The on duty commercial supervisor at the station should ensure that they proceed by the ART itself.*
- *The 2nd and 3rd Special trains carrying backup logistic support to accident site, from each end, can send more TTEs/TCs (80% TCs/TTEs from the entire division) also by utilising from the Divisional squad if required.*
- *2nd and 3rd Special trains should carry Sufficient cooks and catering staff from departmental catering/catering contractor (including IRCTC) with 2 Gas stoves, 4 gas cylinders, 1000 mineral water bottles, provisions for making puries, vegetables, tea, etc. would be rushed to the site for arranging tea, biscuits, packed meals to the stranded passengers, railways working force and other officials at site.*
- *Sr. DCMs should prepare section nominations of catering agencies both departmental and private for rushing to site. This should be available in Divisional DM Plans.*

4.26 Helpline Enquiry Booths at stations:

4.26.1 General

(i) Helpline Enquiry Booths within WR would be opened as below:
- Originating and destination stations of the accident involved train.
- All junction stations within the jurisdiction of WR falling on the route of the train.
- Divisional Head Quarters.
- Zonal Head Quarters.
- Any other station as may be decided.

(ii) Helpline Enquiry Booths would normally be opened at following stations, depending on the route of the accident involved train:
- Mumbai Central –Surat, Nandurbar.
- Vadodara-Anand, Godhra, Bharuch
- Ahmedabad, Mehsana, Palanpur, Gandhidham
- Ratlam-Indore, Ujjain, Nagda, Neemuch,
- **Rajkot, Surendranagar, Okha**
- Bhavnagar, Porbandar, Veraval, Junagadh

(iii) Helpline Enquiry Booths on other Zonal Railways would also be openedas follows:

- Originating and destination stations of the accident involved train.
- All junction stations falling on the route of the train.
- Divisional Head Quarters of originating and terminating divisions.
- Zonal Head Quarters of originating and terminating Zonal Railways.
- Any other station as may be decided.
- All Helpline Enquiry Booths shall have DOT phones with STD, dedicated help line **No. 1072**. Railway Telephones with STD/fax, PC with printer & Internet connection.
- Computer literate Sr. supervisors of commercial department would man Helpline Enquiry Booths round the clock.
- Helpline Enquiry Booths within the accident-affected division should keep in touch with the Divisional Emergency Cell.
- Divisional Emergency Cell will collect updated information of the accident from the UCC and pass on the same to: All Help line Enquiry Booths within the division, Emergency Cells of other divisions of WR & Head Quarters Emergency Cell.

(iv) Such information should be received from UCC by E-Mail and transmitted by E-Mail to all concerned.

(v) Similarly, Helpline Enquiry Booths outside the accident affected division, but within WR jurisdiction should keep in touch with Divisional Emergency Cell of their respective divisions.

(vi) Headquarters' Emergency Cell will collect updated information regarding all aspects of the accident from the UCC and pass on the same to: Emergency Cells opened on other division of WR, Emergency Cells opened on originating and terminating Zonal railways & Safety Directorate's Emergency Cell in Railway Board.

(vii) Helpline Enquiry Booths should not contact the accident site or the UCC directly.

4.26.2 Accident details to be available:

(i) Accident details would include number of dead and injured.

(ii) Break up of type of injuries, such as grievous, simple etc.

(iii) Disposal of injured passengers in various hospitals.

(iv) Names of injured passengers.

(v) Officials in-charge of Helpline Enquiry Booths would display the list of injured passengers on the notice board.

(vi) For this purpose Computer printout of E-Mail received should be takenout and Displayed at number of places at the station.

(vii) Normally, list of injured passengers is available quickly since most injured passengers are conscious and are in a position to give details of their names, addresses etc.

(viii) Identification of dead bodies takes much longer since either:

- *They were travelling alone, or*
- *Their companions are injured and are not in a position to identify them; or*
- *Their companions have also perished.*

(ix) Under such circumstances it is possible to identify dead bodies only when relatives come from their hometown.

(x) This aspect of identification of dead bodies and reasons for delay should be explained to the public.

(xi) Number of dead bodies identified, and their names should be available.

- *This information would continue to be updated once every 3 hours and would continue to be accessed for the next 4 to 5 days.*

4.26.3 Information regarding running of trains:

(i) Departure of unaffected portions of the accident involved train, its diverted route, and expected time of arrival at destination.

(ii) Expected date and time of starting of relatives special from originating and destination stations of the accident involved train, its stoppage en-route and its expected time of arrival at intermediate stations.

(iii) Free passes to be given to relatives of dead and injured for going to the accident site. These passes will be issued by WLI who should be drafted into Helpline Enquiry Booths.

(iv) Details of other trains that were scheduled to run on the accident affected section, but have been Delayed, Regulated, Diverted, Rescheduled, Short terminated and cancelled.

- Above information regarding running of trains would be required for initial 24 hrs. Thereafter, number of enquiries regarding train running would be very few and far between.

4.26.4 Refunds:

(i) Booking counters at stations should be augmented for granting of refund to large number of passengers who have been unable to either complete or commence their journey as a result of the accident.

(ii) Refund of money should be granted for trains Delayed, Regulated, diverted, rescheduled, Short terminated and cancelled.

(iii) Staff manning Refund counters should be thoroughly familiar with rules for granting of refunds under such circumstances.

(iv) Sufficient amount of cash should be available at these Refund counters for this purpose.

4.26.5 Site management:

- At the accident site, handpicked commercial supervisors should be deputed for manning commercial counters in UCC and CAC.
- Each commercial counter in CAC is to be manned by one group.
- Different teams and groups will be formed for discharging various duties of the commercial department. Each team should consist of 4-6 members and each group should consist of 3-5 teams, depending upon requirement.
- Separate teams and groups should be formed as detailed below, headed by a commercial officer.
- One team will hire road vehicles for use and other related activities.
- One group will arrange beverages and food both for injured as also for uninjured.

- One team will take an initial round of hospitals along with doctors and assess the situation.
- One group should take care of uninjured passengers who have to be cleared from the accident site.
- One group will assist Medical department in preparing a list of injured passengers input the same into the PC in CAC.
- One group will assist Medical department in shifting injured passengers to hospitals.
- One group will assist the Medical department in preparing a list of dead bodies and looking after them.
- One team will make ex-gratia payment to injured passengers and next of kin of dead.
- One team will deal with refund cases and claims compensation formalities.
- One group will be in-charge of unclaimed luggage and other consignments.
- One group will be in-charge of post admittance hospital care of injured and taking care of relatives under 'Passenger Care".

4.26.6 Main Functions of Commercial Department at the site:

Main functions of the Commercial department can be broadly classified as:

- Withdrawal of cash from station earnings.
- Hiring of road vehicles.
- Catering to injured and uninjured passengers.
- Initial round of hospitals and assessment of situation.
- Preparing list of injured passengers.
- Transporting them to hospitals and getting them admitted.
- Payment to ex-gratia to injure and next to kin of dead.
- Dealing with refund and claims compensation formalities.
- Taking charge of luggage and consignments.
- Post admittance hospital care of the injured.
- Taking care of relatives.
- Payment to staff if required

4.26.6.1 Withdrawal of cash from station earnings:

Procedure

i) In order to meet accident related expenditure, officers can withdraw money from station earnings duly following the procedure incorporated in Commercial Manual Vol. II Rule No. 2425.

ii) Departmental expenditure necessitated by floods, accidents or Earthquakes, etc.(sub rule 8).

iii) Ex-gratia payments to persons involved in train accidents. (Sub rule 22).

iv) Before SR. DCM leaves for accident site, should withdraw sufficientlylarge amount of cash from station earnings to meet with immediateRequirements at the site.

v) A Commercial supervisor should be nominated for this purpose and he should withdraw Rs. 5 lakhs and carry it with him, duly escorted by RPF personnel.

vi) *The nominated supervisor in charge of the department concerned may alone withdraw from station earnings through a requisition in respect of the above items specified in rule 2425 of the IRCM.*

vii) *This requisition should be made in the form appended below indicating the officials making such withdrawal, the departmental officer concerned and the purpose of withdrawal.*

From *To*
Name of Supervisory Official *Station Master*
Designation *Station*
Please arrange to pay from Station Earnings an amount of Rs._____(Rupees _____) towards _____
(Purpose to be indicated). This is one of the authorised items of withdrawal from station Earnings. The expenditure is chargeable to the head_____.
Accounting Authority _____
Controlling Officer _____
Designation _____
Station _____
Payment made from Station Received an amount of Rs._____
Earning amount: *from station earnings*
Signature of *Signature:*
SM/SS *Designation*

viii) *Requisition is required to be prepared in triplicate. 1st to be kept as record, 2nd to be presented to SM for arranging payment against proper acknowledgement and 3rd should be sent to Sr. DAO concerned duly countersigned personally by the Divisional Officer of the department.*

ix) *Any failure by the supervisory official withdrawing cash to follow above instructions or any other irregularity will render him personally responsible and liable for action under Discipline and Appeal Rules.*

4.26.6.2Account:

i) *Branch Officer concerned shall forward requisitions received from stations to the Divisional Accounts Office indicating circumstances under which the withdrawal was necessitated.*

ii) *The countersigned requisition shall be accompanied by relevant supporting paid vouchers. The Branch Officers shall monitor timely submission so that they reach Accounts Office within 15 days from the date of withdrawal.*

iii) *Executive Officer concerned shall furnish full particulars of the amount withdrawn, details of payments made, reasons for the payment, the rate and period for which payment is made and the total amount paid with the acquaintance of the payee with necessary revenue stamp wherever due to Sr. DFM.*

iv) *Sr. DCM will compile a monthly statement of all withdrawals pertaining to his division obtaining a statement from various executives in his division and send it to CCM*

v) *A monthly return of requisitions issued during the period should be submitted to the Accounts Office by Executive Officers.*

4.26.6.3Hiring of Vehicles & Mobile Phones:

- *A large number of road vehicles are required at an accident site for following*

Purposes:

- *Taking injured passengers to hospitals.*
- *Taking doctors and other railway officials to hospitals.*
- *Clearance of uninjured passengers.*
- *Taking dead bodies to mortuaries.*
- *Bringing men and materials, etc. to accident site.*
- *Taking unclaimed luggage for being kept in safe custody.*
- *Taking relatives to hospitals and mortuary.*
- *For this purpose apart from whatever number of railway vehicles may be Available, extra road vehicles should be hired.*
- *All road vehicles should be hired along with standby drivers for round the clock Duty.*
- *At least 10 road vehicles should be attached to CAC for taking relatives to Hospitals, mortuaries etc.*
- *Nominated railway staff to be attached to each hired vehicle round the clock (Evengroup 'D' would suffice) so that optimum use can be made of the vehicle.*
- *Buses from state transport authorities should also be requisitioned along with Extradrivers for round the clock duty.*
- *One railway staff should be put in charge of each bus on round the clock duty, Whowill accompany the bus wherever it goes and bring it back in time (even Group 'D'would suffice).*
- *In case hospitals are in different towns, then road transport buses should be put onfixed time round trip schedule for shuttling relatives from CAC to various locationsand back to CAC.*
- *All hired vehicles and requisitioned buses should have stickers pasted on their front and rear windscreens indicating "RAILWAY ACCIDENT DUTY".*

4.26.6.4Catering arrangement:

i) Arrangements for supply of food and beverages to not only injured but also to other passengers of the accident-involved train should be swiftly organized.
ii) Food and beverages should be supplied free of charge.
iii) These may be arranged from railway sources or outside sources as necessary, including IRCTC or their contractors.
iv) To supplement Railway catering arrangements nearby dhabas and hotels should be contacted and arrangements made for opening up stalls at the site.

4.26.6.5 Clearance of uninjured passengers:

i) First of all, arrangements for water and food for stranded passengers should be made.
ii) Announcement should be made for registering names of safe passengers.
iii) Clearance of accident-affected passengers from accident site should be planned along with Operating branch that will provide the empty coaching rake.

iv) Make announcement through PA system informing passengers regarding their clearance from site either by:

- *Front portion of the accident involved train.*
- *Rear portion of the accident involved train.*
- *Empty coaching rakes that have been brought to the accident site.*
- *Road bridging that has been arranged.*

v) Arrange adequate coolies for carrying passengers' luggage while they transfer to the new train.

vi) In case of road bridging, arrange road transport to clear stranded passengers, record details of passengers dispatched and relay particulars to Divisional Emergency Cell.

vii) Senior-most official at site shall have powers to arrange conveyance for affected passengers free of charge by any available mode of transport and also incur expenditure for carriage of passengers' luggage, etc.

4.26.6.6 Preparing list of injured passengers:

i) Collect list of injured passengers prepared by TS/TTEs/Train Conductors and assess the situation along with Medical department.

ii) Separate lists to be prepared coach wise by Medical department.

iii) The list should contain following details:

- *If found Conscious: Name, sex, age, identification marks, and ticket number, originating and destination station.*
- *If found Unconscious: Approximate age, sex, identification marks, ticket number and other particulars if relatives and friend are available.*

iv) Once the preliminary list of injured passengers has been prepared, the CMS/MS in charge should sign the list and a copy handed over to commercial department.

v) This list should be input into the PC available in the CAC.

vi) The list should also be E-Mailed to the Divisional Emergency Cell and Headquarters' Emergency Cell.

vii) The list of dead and injured that is initially fed into the PC will thereafter be updated periodically, as rescue and relief work continues.

4.26.6.7 Amount of Ex-Gratia payable:

i) The amount of ex-gratia relief payable to injured passengers or to dependants of dead is as under:

- *In case of death – Rs. 5,00,000/-*
- *Grievous injury – Rs.2,50,000/-*
- *Simple injury – Rs.50,000/-*

ii) The amount of ex-gratia relief admissible to road users who meet with an accident due to Railway's prima facie liability at manned level crossing gate accidents will be as under

- *In case of death – Rs. 5,00,000/-*
- *Grievous injury – Rs.2,50,000/-*
- *Simple injury – Rs.50,000/-*

iii) Payment of ex-gratia will be made on the basis of categorization of their

injuries made out by doctors at site.

iv) No ex-gratia payment would be admissible to trespassers; persons electrocuted by OHE and road users at unmanned level crossings.

v) Ex-gratia payment should also be made to railway staff killed or injured by a moving train while performing their duty, for example, Gangmen working on track run-over accidentally by a moving train.

vi) Ex-gratia amount is to be paid in cash.

vii) In case of injured passengers, ex-gratia should be paid to the injured passenger himself or in case he is too ill to his relative in his presence.

viii) In case of death cases where relatives identify and claim the body, following precautions are to be taken:

a) Photograph the face of the body from in front and from the side.

b) Photograph the person taking the ex-gratia payment.

c) Record the relationship of the person claiming the body along with details of proof, if any.

d) In case the HON'BLE MR announces enhanced ex-gratia, then the enhanced amount should be paid by cheque by Accounts department.

e) Ex-gratia paid is not to be adjusted against claims compensation payable as decreed by RCT subsequently.

ix) Payment should be arranged preferably on the spot by a senior scale officer nominated by GM/DRM after making such enquiries as can be reasonably made on the spot after immediate needs by way of medical attendance etc. to injured persons have been attended.

x) For payment of ex-gratia and to meet other expenses at site, one commercial inspector authorized by Sr.DCM shall withdraw Rs. 5 lakh from station earnings of a nearby station, and shall be available at site duly escorted by RPF personnel.

xi) Sr. DCM/DCM will ensure availability of sufficient cash for payment of ex-gratia/refund.

4.26.6.8 Liability of the railway for compensation:

The railways are liable to pay compensation for death / injury of a passenger in train accident as defined under Section 124 of the Railway Act, 1989. Similarly the railways are also liable to pay compensation for death / injury to a passenger and platform ticket holder in untoward incidents as defined under section 124-A of the Act, such as terrorist acts, violent attack, robbery, dacoits, rioting, shoot out or arson by any person in train or within the precincts of a railway station or accidental falling of a passenger from train.

4.26.6.9 Compensation:

Claims for compensation for death / injury of a passenger in train accident or untoward incident are decided by Railway Claims Tribunal having jurisdiction over the site of accident.

The Tribunal having jurisdiction over Rajkot Division with their address is as follows:

S.No	Tribunal	Address

1	RCT / Ahmedabad	PRS building, Ahmedabad railway station. Phone: 079-22171550

4.26.6.10 Who can claim.

An application for compensation under section 124 or 124-A may be made to the Claims Tribunal –

- By the person who has sustained the injury or suffered any loss,or
- By any agent duly authorized by such person in this behalf,or
- Where such person is a minor, by his guardian,or
- Where death has resulted from the accident / untoward incident, by any dependant of the deceased or where such a dependent is a minor, by his guardian.
- Every application by a dependant for compensation under this section shall be for the benefit of every otherdependant.

4.26.6.11 Procedure for filing application:

- The claimant or his agent or his duly authorized legal practitioner should present the application in FormII *in triplicate* to the Registrar of the Tribunal having jurisdiction over the place of accident / untoward incident. The application can also be sent by registered post to the Registrar of the Bench concerned.
- Where the number of respondents is more than one, as many extra copies of the application as there respondents, together with unused file size envelopes, bearing the full address of such respondents, shall be furnished by the applicant.
- The applicant may attach to and present with his application a receipt slip in Form IV which shall be signed by the officer of the Registrar receiving the application on behalf of the Registrar in acknowledgement.
- Every application including any miscellaneous application shall be typed legibly in double space on one side on thick paper of goodquality.

4.26.6.12 Particulars required for filing claims in Railway ClaimsTribunal:

- Name and father's name of the person injured / dead (husband's name in the case of married woman orwidow)
- Full address of the injured /dead
- Age of the person injured /dead
- Occupation of the person injured /dead
- Name and address of the employer of the deceased, if any

- Brief particulars of the accident indicating the date and place of accident and the name of the train involved.
- Class of travel, and ticket / pass number, to the extent known
- Nature of injuries sustained along with medical certificate
- Name and address of the Medical Officer/Practitioner, if any, who attended on the injured / dead and period oftreatment
- Disability for work caused, if any.
- Details of the loss of any luggage on account of the accident
- Has any claim been lodged with any other authority? If so, particulars thereof.
- Name and permanent address of the applicant.
- Local address of the applicant, if any.
- Relationship with the deceased /injured.
- Amount of compensation claimed.
- Where the application is not made within one year of the occurrence of the accident, the grounds thereof.
- Any other information or documentary evidence that may be necessary or helpful in the disposal of theclaim.

4.26.6.13Refunds and Claims Compensation:

- *Refund of fares must be granted in the CAC for unfinished journey as per rules.*
- *Injured passengers and next of kin of deceased passengers must be supplied with blank claims compensation forms along with Claims Booklet explaining complete procedure.*
- *Photocopy of a filled up Claims Compensation form may also be given along with the blank form so as to help them in filling it up*

4.26.6.14 Luggage and Consignments:

i) As and when unclaimed luggage and personal belongings are taken out from coaches, a list should be made coach wise, and each item should be tagged with coach no.
ii) A list of each item with distinguishing marks should be made.
iii) If possible, the cabin number inside the coach should also be indicated.
iv) Luggage claimed should be handed over on satisfactory proof of ownership.
v) Unclaimed luggage and personal belongings of injured/dead passengers should be taken possession of for safe custody.
vi) Unclaimed luggage should be stored in a safe place, preferably, part of the same school building which is being used for preserving dead bodies.
vii) These should be stored in separate rooms coach wise so that it is easy for relatives to identify.
viii) A list should be displayed outside each room indicating the coach no. Whose luggage is stored there?
ix) It is the responsibility of Commercial department to take charge of all unclaimed luggage etc. These should be taken over from the charge of RPF.
x) Booked luggage, parcels and consignments available in SLRs, VPUs etc. should

be taken out and sent by road to nearest Jn. Station for safe custody.

xi) Booked perishables available in SLRs, VPUs should be taken out and either auctioned at site or sent by road to nearest Jn. Station for being auctioned.

xii) RMS consignments on the train should be shifted to school building for safe custody till Postal Authorities come and take over custody.

4.27 MECHANICAL DEPARTMENT:

On Receipt of Information Sr. DME as well as AME should proceed to site of accident. DME will be available in Divisional Control Office for providing backup support.
CME, CRSE (F&O) from Head quarters will proceed to accident site.

- Sr. DME and such other officers as decided by Sr. DME from Rajkot HQ will proceed to accidentsite.
- ADME will be available in Divisional Control Office for providing backup support.
- Break downSpl. Without Crane should be requisitioned from adjoining divisions also so that additional rescue equipment such as cutters, spreaders, hydraulic jacks, generators, lighting equipmentetc.
- The aim should be to ensure one ART with140Tcrane along with one Break down Special at each end of the accident site.
- In addition to above, Break down Special should be sent from other base stations within WR, so that additional rescue equipment such as cutters, spreaders, hydraulic jacks, etc are available.
- Provision should be made for availability of standby crane Loco Pilot on each ART working at site, so that ARTs can work round theclock.
- Sr. DME will order for Crane in consultation with CME /CMPE.

4.27.1 Duties of Sr. DME:

1) Supervise working of cranes and clearance/rescue operation.
2) Ensure that Speedo graphs, engine repair Books etc. are seized/sealed.
3) Note down observations, make arrangements to record measurements if loco is involved in accident. If it is not possible for all types of measurement to be taken on the spot then these should be taken to the shed. All relevant records should be sealed in shed.
4) Record the details regarding brake power and other aspects of Rolling stock as per prescribed Performa.
5) Have the joint measurements of the rolling stock taken.
6) Check the fitness of the stock supposed to move from the site.
7) Assisting clearance/Rescue operation.

4.27.2 Responsibilities of Sr. DME /ADME:

4.27.2.1 ARME/SPART – Headed by Sr.DME

- Sr. DME / ADME will ensure the ARME/SPART starts to site at the earliest. Supervise HRD operations.

- DCWI will co-ordinate with other department and help to passenger for distributing available water and beverages in ARME/SPART.
- Ensure that freezing switch of Memory chip is in 'OFF' condition, engine repair book are seized &sealed. Notedown observations, make arrangement to report measurement of Loco involved in accident.

Note: Maintenance of ART/ARME/SPART rolling stock and its equipment will be the responsibility of Mech.Deptt.

4.27.2.2 ARTstaff:

- Proceed to site of accident. Assist in evacuating passengers if any, trapped under / inside coaches involved inaccident.
- Record the details regarding brake power and other aspects of the rolling stock as per prescribed proforma.
- Should have the measurement of the rolling stock taken as per the prescribed procedure /Performa.
- Should check the fitness of the stock, which are supposed to move from the accidentsite.
- Should ensure that loco / coaches / wagons re-railed are in a fit conditionto be taken from the accidentsite.
- Plan for efficient movement of ART, Engine etc. between site and station for quicker restoration.
- Ensure safe and efficient working of cranes, Hydraulic re-railing equipment and other rescue devices.
- Ensure that the log / diary regarding restoration at the accident site are maintained properly.

4.27.2.3 Rushing of men and material to site:

- *2 ARTs with 140 Crane should be moved to the accident site, one from each end.*
- *In addition to above, Brake down Special should be sent from other base stations within WR, so that additional rescue equipment such as cutters, spreaders, hydraulic jacks etc. are made available.*
- *BD Special without Crane should be requisitioned from adjoining divisions also so that additional rescue equipment such as cutters, spreaders, hydraulic jacks, generators, lighting equipment etc. are available.*
- *The aim should be to ensure one ART with 140T crane along with one BD special at each end of the accident site.*
- *Provision should be made for availability of standby crane driver on each ART working at site to work round the clock.*
- *Road cranes of sufficient capacity should be arranged.*
- *Trucks should be arranged for carrying BD equipment near to accident coaches, so that work centres can be opened up simultaneously from both ends.*

4.27.2.4 Duties of Mechanical Department On arrival at Site:

Restoration is the prime responsibility of Mechanical Deptt. For discharging the dual

responsibility of extricating injured passengers and dead bodies form coaches and toppling those coaches whose search has been completed, 2 separate groups will be formed at each end for purposes of 'search and rescue' and 'off tracking of coaches'.

Once 4 ARMEs, 2 ARTs and 2 Break Down specials have arrived at the accident site from both ends, normally no more mechanical equipment will be required from anywhere else. The main work will then consist of using of these resources effectively and efficiently.

Different teams and groups will be formed for discharging the dual responsibilities of the Mechanical department. Each team should consist of 4-6 members and each group should consist of 3-5 teams, depending upon requirement.

One Sr. Supervisor should be in-charge of each team conducting 'search and rescue' at the site. All such 'search and rescue' groups at each end of the accident site would function under directions of an AME.

Similarly, one Sr. Supervisor should be in-charge of each team working on 'off tracking of coaches' at the site. All such 'off tracking of coaches' groups at each end of the accident site, would function under directions of another AME. The second AME concerned would also be in-charge of the crane at that end.

(i) Take precautions in electrified section that power supply is switched off before commencing rescue/relief work.
(ii) Use necessary safety equipment like hand gloves, helmet etc.
(iii) If spillage of inflammable substances is suspected, then only cold cutting equipment should be used.
(iv) In case of suspected sabotage, ensure minimum interference to clues. Safe lives and extricate passengers after video and digital photographs have been taken.
(v) Be cautious in using rescue tools like gas cutters, cold cutters, spreaders, hydraulic jacks etc. so that passengers trapped inside or buried under the debris do not get hurt.
(vi) Ensure marshalling of ART according to site requirement before it is sent into the accident involved block section.
(vii) For efficient extrication of entrapped passengers take assistance of Medical/Engineering departments.
(viii) Each team will join up with Medical teams who would also be involved in extracting dead and injured from coaches.
(ix) Maximum number of coaches should be tackled simultaneously, except those that have climbed on top or have telescoped into one another.
(x) Road cranes of sufficient capacity should be arranged so that these cranes can start working from the centre while the 140 T cranes can continue working from either end.
(xi) Trucks should be arranged for carrying BD equipment near to accident involved coaches, so that number of coaches can be simultaneously approached and more work centres can be opened up.
(xii) Examine unaffected or re-railed rolling stock and certify their fitness for further movement.

4.28 SECURITY DEPARTMENT:

On receipt of Information Sr.DSC will proceed to the site by ARME along with maximum number of RPF personnel, only one officer will stay back at divisional Head Quarters.
CSC/RPF will also proceed to the accident site along with Dy.CSC. CSC/RPF will assume control and take necessary steps for discharging duties allotted to security department.

4.28.1 Duties of Security department on arrival at site:

Main functions of the Security Department can be broadly classified as:

- Co-ordination with GRP and Local Police.
- Crowd management.
- Protection of luggage and parcel.
- Protect of RMS material till RMS officials claimedit.
- Protection of railway property.

4.28.2 Responsibilities of DSC:

- Proceed to the site by the quickest means.
- Liaison with local Police at site.
- Ensure security of Passengers belongings.
- Security of parcel, damaged goods / parcel vans.
- To follow any instructions as given by the officer in charge at the accident spot in connection with item No. 1 to 3 above.
- Segregate the area of incident by establishing temporary barriers by use of nylon ropes or any other makeshift device available at the scene. It should been ensured that the on-lookers and spectators do not enter the affected area to disturb the scene or hamper the rescue operations.
- Baggage of passengers should be isolated and protected and consigned goods should be taken care of till they are handed over to claim or over by railway authorities. The security of the personal belongings of the dead / injured passengers should also been assured.
- RPF personnel should respond to any call for assistance to rescue victims and transport them to the nearest hospital, record of causalities sent to hospital should be maintained.
- Hourly stirrups will be sent by the officer at the scene of incident to the Divisional / Zonal Control room giving the latest situation.
- Temporary RPF ASSISTANCE POST with proper Board should be established at a conspicuous location so that people needing help could approach the RPF.If the operation continues for longer period, efforts should be made to install a temporary telephone connection through the Railway Telecom Department, so that the information is passed onquickly.
- A log book should be opened and minute to minute progress of action of RPF on the lines indicated above, recorded.

- The senior most officers available at the scene of incident will also ensure proper documentation about the number of persons injured or dead, giving their identity and address, ifavailable.
- In case the friends or relatives of the injured / deceased make any queries they should be properly guided.
- Reinforcement: Efforts will be made to get the information from the neighbouring posts / outposts, reserve line, Divisional HQ or Zonal Reserve. In case any RPF battalion or company is located in the vicinity, personnel can be requisitioned from there for dealing with such emergent situations till additional force is available from other sources.

4.28.3 Duties of DSC (RPF):

1) Post adequate number of RPF staff at the accident site and other place where assistance is required.

2) Ensure security of passenger's belonging, security of parcels, damaged goods and parcels vans etc.

4.28.4 Rushing of men and material:

(i) On receipt of first information the nearest RPF Post should muster maximum available manpower within the shortest possible time and dispatch them to the accident site by fastest available means.

(ii) The Post/Outpost in charge would requisition additional manpower form adjoining RPF posts.

(iii) Pass on the information to Local Police and Police Control Room, local Fire Brigade, Hospitals, local voluntary organisations at the earliest.

(iv) Divisional Security Control shall get reinforcement from neighbouring posts /outposts, reserve line, divisional headquarters or Zonal reserve and send them by the ART. If they could not be sent by the ART then definitely send them by the 2nd and 3rd Special trains carrying backup logistic support to the accident site.

(v) If any RPF battalion/Company is located in the vicinity, men can be requisitioned from there for dealing with emergent situations till additional force made available from other sources.

(vi) Additional RPF personnel from Zonal headquarters should be shouldered and sent to accident site.

(vii) Additional RPF personnel available throughout the division should be alerted and sent to the accident site by the 2nd and 3rd special trains carrying backup logistic support of men and material.

(viii) While sending reinforcement, the divisional Security Control shall ensure that the necessary equipment required for rescue, recovery and protection of the scene of incident are provided as follows:

- *Torches (1 per person) and other lighting arrangements.*
- *Nylon ropes (1 Km) and poles for segregating the affected area.*
- *4 loud speakers for making announcements.*
- *10 stretchers and first aid equipment.*
- *10 wireless for inter-communication.*
- *Digital Camera for photographing the scene (both on negative/ slide films).*
- *Video recording of rescue and salvage operations and connected arrangements.*

4.28.5Duties of Security Department on arrival at site:

Main functions of the Security Department can be broadly classified as:
(a) Co-ordination with GRP and Local Police.
(b) Crowd management.
(c) Protection of luggage.
(d) Protection of railway property.

4.28.5.1 General:

(i) RPF personnel should respond to any call for assistance to rescue victims and transport them to the nearest hospital.
(ii) 3 – hourly stretch will be updated by field personnel at the scene of incident to the RPF functionary in the UCC giving the latest situation.
(iii) RPF Assistance Post will be established within the CAC so that people needing help can approach RPF.

4.28.5.2 Co-ordinate with Local Police:

Maintain constant liaison with IG/GRP and ADG/GRP for following:
(i) Rushing all available GRP personnel to the accident site.
(ii) Obtain additional manpower from the local police for purpose of crowd control.
(iii) Issue necessary instructions to local police for expeditious clearance & Restoration.
(iv) Issue necessary instructions to SP of the district for waiving off formalities of Post Mortem on dead bodies.
(v) In case of sabotage, liaison with Local Police & officials of district administration and get early clearance.
(vi) Clearance should be obtained as expeditiously as possible, for starting restoration work.
(vii) Additional manpower should be requisitioned from local police officials and district administration for purpose of crowd control.
(viii) Exemption should be obtained from SP of the district for waiving off formalities of Post Mortem of dead bodies.
(ix) Obtain assistance from GRP and Local Police as and when required.

4.28.5.3 Crowd Management:

The first problem at an accident site is that of surging crowd. Carrying out any kind of rescue and relief operation becomes next to impossible. Railwaymen who try to undertake any kind of rescue and relief work become victims of mob fury.
(i) Cordon off the site and prevent unauthorized entry of outsiders.
(ii) Segregate the area of accident by putting up temporary barriers using nylon ropes or any other makeshift device available at the scene so that outsiders do not disturb the site or hamper rescue operations.
(iii) These barriers should be at quite some distance away from the track, so that UCC, CAC and LCCs are inside the cordoned off area.
(iv) Provided barricade and ask for additional force to control crowd during VIP visit

4.28.5.4 Protection of luggage:

(i) Protect unclaimed luggage of passengers till these are duly taken over by commercial department for safe custody.
(ii) Unclaimed luggage of passengers should be isolated and stacked coach-wise, with proper labelling indicating coach no., from which recovered.
(iii) If possible, the cabin number inside the coach should also be indicated.
(iv) All such unclaimed luggage should be protected till they are handed over to claimants or taken over by commercial department.
(v) Unclaimed luggage should be stored in a safe place, preferably, part of the same school building which is being used for preserving dead bodies.
(vi) These should be stored in separate rooms coach wise so that it is easy for relatives to identify.

4.28.5.5 Protection of railway property:

(i) Protect Railway consignments/goods/parcels till these are duly taken over by commercial department and dispatched to nearest station for proper disposal.
(ii) Guard perishables till they are auctioned off at site or till they are dispatched to nearest station for being auctioned.
(iii) RMS consignments on the train should be shifted to school building for safe custody till Postal Authorities come and take over custody.
(iv) Provide security for the cash withdrawn for payment of ex-gratia by the commercial department.
(v) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed.
(vi) Ensure that no railway staffs tampers with any track fittings, or rolling stock parts.
(vii) Anybody found moving under suspicious circumstances should be questioned.
(viii) No railway staff should be allowed to move about near the accident site with loose or piece meal equipment.

4.29 ELECTRICAL DEPARTMENT:

On receipt of Information Sr.DEE (P), AEE (P) Sr.DEE/TRD as well as AEE/TRD should proceed to site of accident.
CEE and CEDE and other JAG officers from Head Quarters will proceed to accident site.

If EMU/DMU/MEMU or Electrical Locomotive is involved, Sr DEE (TRO) should proceed to the site with adequate number of breakdown staff by quickest available means. (Call the relief train, if required)

(i) DEE(P) and DEE/TRD will be available in Divisional Control Office for providing backup support.
(ii) Maximum number of electrical staff should be send by the 2nd and 3rd special trains for installation and operation of electrical equipment.
(iii) Officers staying back in divisional headquarters shall maintain constant liaison with site and arrange assistance required by way of men and material from Railway sources within the division, from adjoining divisions and zones and from Non-Railway sources within the division.

4.29.1 Responsibilities of Sr. DEE /ADEE:

- Adequate lighting arrangements are made at the site.
- DG sets for augmenting the power supply to be hired.
- In case of fire in coaches, any evidence of passenger should be recorded and other clues preserved.
- If some passengers are willing to give evidence later on, their names and addresses should be recorded.

Note: Maintenance of Electricity equipment kept in ART / ARME/SPART will be responsibility of Electricity Dept.

4.29.2 Duties of Sr. DEE (Power):

- *Arrange for adequate illumination at the accident site.*
- *In case of fire in coaches, immediately arrange to collect/record evidence of passengers.*
- *Jointly examine the coach to ascertain the cause and damage.*

4.29.3 Duties of Sr. DEE (TRD):

1) *Arrange for adequate number of OHE breakdown staff, tower wagon and proceed to accident site by the quickest available means.*
2) *Ensure that OHE is made dead and OHE is slewed as per requirement.*
3) *Arrange and supervise restoration of OHE, expeditiously.*
4) *Record all relevant information concerning the accident.*

4.29.4 Duties of Sr. DEE (TRO):

1) *Depute officer in the control office.*
2) *Note down joint observation regarding the Loco/ EMU/DMU/MEMU*
3) *Ensure that measurements of the Loco/ EMU/DMU/MEMU are taken on the spot /wherever possible otherwise in Car/Loco shed.*
4) *Ensure that records for maintenance of LOCO / EMU/DMU/MEMU repairs are sealed in the shed.*
5) *Ensure prompt and sufficient arrangements for clearing the line.*

4.29.5 Duties of Electric Department on Arrival at site:

For discharging the dual responsibility of providing illumination at site and managing the OHE, 2 separate units will be formed at each end of the accident site consisting of 'General Branch' officers & staff and TRD officers & staff.

Once 4 ARMEs, 2 ARTs and 2 BD specials have arrived at the accident site from both ends, normally no more electrical equipment will be required from anywhere else. The main work will then consist of using of these resources effectively and efficiently.

Different teams and groups will be formed for discharging various duties of the Electrical Department. Each team should consist of 4-6 members and each group should consist of 3-5 teams, depending upon requirement.

4.29.5.1 Site illumination:

One Sr. Supervisor should be in-charge of each group working at the site. All 'General Branch' teams at each end of the accident site would function under directions of an AEE (P).

(i) Senior most electrical officer at site would make a quick assessment of the electrical requirement of the site.
(ii) This would be done keeping in mind the geographical spread of the site, the size of UCC, LCCs, CAC and any other requirement as necessary.
(iii) Thereafter, he would assess the quantity of electrical fittings and generating sets available in ARMEs and ARTs.
(iv) In order to set up adequate illumination facilities, all generating sets and lighting fixtures available in ARMEs and ARTs would be used.
(v) First priority for lighting would be the accident site along the track where rescue, relief and restoration work is going on.
(vi) Next priority would be given to lighting up of UCC, CAC and LCCs.
(vii) Additional requirements of generators and lighting fixtures, if any, should be called for immediately from other railway sources within the division, well in time.
(viii) In case divisional sources are inadequate, then sources from other divisions should be tapped.
(ix) Officer at site should hire additional generating sets, lighting fixtures etc. as required from non-railway sources available nearby. List of such sources are given in Divisional DM Plan.
(x) Once generators and lighting fixtures have been setup, efforts should be made to tap direct power supply from some nearby sources, if available.
(xi) In case power supply is not available nearby and illumination has to continue on generator supply, then sufficient quantity of petrol and diesel should be procured and kept in stock.

4.29.5.2 OHE at site:

One Sr. Supervisor should be in-charge of each group working at the site. All TRD teams at each end of the accident site would function under directions of an AEE/TRD.

(i) In case OHE is to be brought down, then the same should be done immediately so that working of crane does not get held up on account of OHE.
(ii) In case slewing of OHE suffices for some sections, then the same should be done quickly so that working of crane does not get held up on account of OHE.
(iii) Sr. DEE/TRD shall arrange movement of 6 Tower Wagons along with men and material from adjacent depots from both sides of accident site.
(iv) In case more tower wagons are required these should also be requisitioned from other depots along with men and material.
(v) An assessment should also be made of the extent of damage to OHE masts, and other equipment.
(vi) Additional requirement of materials, if any should be called for immediately from other railway sources within the division.
(vii) In case divisional sources are inadequate, then sources from other divisions should be tapped.
(viii) In case other divisional sources are also inadequate, then sources from other zones should be tapped.

(ix) Availability of OHE masts is a long lead item. Requirement of masts should be quickly worked out so that these can be moved immediately.
(x) Ensure temporary portals are erected without delay.
(xi) In case damage to OHE is extensive and a wiring train is considered to be more efficient, then the same should arrange for from other zone after discussion with RE organisation.
(xii) Ensure that the section is earthed before staff starts working near OHE.
(xiii) OHE should not be charged until all staff, tower wagons, cranes etc. have cleared the block section.

4.30 SIGNAL & TELECOMMUNICATION DEPARTMENT:

On receipt of Information Sr. DSTE as well as ASTEs should proceed to site of accident. DSTE will be available in Divisional Control Office for providing backup support.

CSTE along with HODs and other JAG officers from Head quarter will proceed to accident site.

- Main responsibility of S&T Department will be for providing effective and adequate means of communication.
- Rushing of men and material to site:
- Arrangement of communication at site:
- Communication at Headquarters and Divisional Emergency Cell:
- Communication at Helpline Enquiry Booths:
-

4.30.1 Signal & TelecommunicationDepartment:

- Sr. DSTE as well as ASTEs should proceed to site of accident. DSTE will be available in Divisional Control Office for providing backup support.
- Provision of portable telephone to be connected directly to Sectional Control through emergency socket.
- Provision of auto telephone of nearest Rly exchange through Disaster Management pairs at emergency socket.
- Provision of communication through satellite telephone.
- BSNL telephones to be provided.
- Rushing of men and material to site:
- Sr. DSTE along with ASTE will carry the following to the accident site:
    - Satellite phone,
    - FAX cumprinter,
    - Two 25W VHF sets along with antenna and battery,
    - 10 numbers 5W walkie-talkiesets.
- He will be accompanied by at least two TCI and twoTCM.
- 6 more TCI / TCM, SI of the section and maximum number of telecom staff should be sent for installation and operation of telecom equipment. They should go to the site of accident either by ART or latest by 2ndand 3rd special trains carrying backup logistic support to the accident site, from each end.

- Satellite phones of HQ RJT and one FAX machine will be carried in DRM special by at least one TCI and oneTCM.
- All mobile phones available with the Division should also be rushed to site for emergency use.
- Sufficient number of spare batteries and battery charges for these mobiles should also be taken to accidentsite.
- Main responsibility of S&T Department will be for providing effective and adequate means of communication and activate the helpline booths.
- For proper connectivity to ensure adequate number of SIMs of various telecom serviceprovider.

4.30.2 Responsibilities of Sr. DSTE /ASTE:

- To proceed to site by the quickest meansavailable.
- Ensure portable telephone/emergency telephone set is provided at site and in wor king condition.
- Whenever feasible, wireless sets to be installed at accident site for communication with divisional HQs. and Zonal Rly.HQs.
- Walkie-talkie sets, megaphone hailers to be deployed asnecessary.
- DOT telephone with STD facility to be arranged at the temporary enquiry office opened at site and nearest location whereverpossible.
- Render such assistance as required by the guard / incharge of accident site in attending to the accident victims and stranded passengers.
- Seal block instrument, relay rooms and note positions of levers, knobs, slides, indication etc. as the case maybe.
- Arrange for early restoration of signalling and telecom equipments as soon as such restoration is permitted.
- Extending communication facilities at the site without wasting anytime:
  - TCI-Test Room shall inform to Sr. DSTE / ASTE about the accident.Sr. DSTE shall immediately attend the testroom.
  - He will inform to concern SSE (T), who in turn, will proceed to the site of accident.
  - He will inform the TCI / TCM at auto exchange RJT for coordinating extension of CCG emergency number in the control office.
  - He will inform the concerned/JE in charge of the section to proceed with DD equipments and emergency telephone with extensioncable.
  - He will inform SE/JE of the adjoining section, if site of accident is away from the HQ of the section for proceeding to site with necessary material for provision of communication facility.
  - TCM / Test room incharge shall proceed for the site of accident with IMARSET by first availablemeans.
  - Concerned staff on duty at RJT exchange will board the ARME/SPART with sufficient extensioncable.
  - SE (Auto) RJT will manage the staff at RJT.
  - SE of the testroom will remain in the testroom for providing assistance required at site and also manage the staff in testroom.
  - All the staff proceeding to site should be in constant touch with test room.

Note: Maintenance of S&T equipments kept in ARME/SPART / ART will be

responsibility of S&T department.

4.30.3 Rushing of men and material to site:

(i) Sr. DSTE ,ASTE along with two TCI and two TCM will carry the Satellite phone , FAX, Two 25W VHF sets along with antenna and battery, 10 numbers 5W walkie-talkie sets to the accident site.

(ii) 6 more TCI/TCM, SIs of the section and maximum number of telecom staff should be sent for installation and operation of telecom equipment by either ART or latest by 2nd or 3rd special trains to the accident site for carrying backup logistic at the accident site.

(iii) Satellite phones of HQ and Mumbai Central division and one FAX machine will be carried in GM special by at least two TCI and two TCM of Mumbai division.

(iv) All mobile phones along with sufficient number of spare batteries and chargers available with the Division should also be rushed to site for emergency use.

4.30.4 Arrangement of communication at site:

(i) DSTE/ASTE in the division will immediately come to divisional control office and ensure setting up of all communication arrangements as required.

(ii) DSTE will keep a record of the numbers of Railway telephones, BSNL telephones, INMERSAT phones provided at site and telephones provided at Helpline Enquiry Booths. This information shall be passed on to the Divisional Emergency Cell. All satellite telephone no. should be displayed at Divisional control and Central Emergency Control.

(iii) DSTE/ASTE should liaison with BSNL officials in the area for immediate provision of additional BSNL telephone at the accident spot, nearest station and at Helpline Enquiry Booths duly utilising assets under his disposal.

(iv) Map of the division showing areas where cell phone connectivity is operative is available in Divisional DM plan. This should also be displayed in divisional control.

(v) Should have standing arrangement to hire sufficient cell phones and send them to accident site.

(vi) Obtain E-mail addresses of Emergency Cells set up on other Divisional and Zonal headquarters.

4.30.5 Communication at Headquarters and Divisional Emergency Cell:

(i) Communication arrangements are required to be provided at Western Railway headquarters' Emergency Cell immediately.

(ii) One BSNL Telephone having ISD/ and three BSNL telephone having STD facility should be made available in the Headquarters' Emergency Control. Dynamic locking code of the telephone should be available with CTNL/Emergency. FAX machine should also be provided on one BSNL telephone in the Emergency control.

(iii) Four other BSNL telephone numbers (2 with STD facility) and 2 Railway telephone numbers with STD facilities should be made available in headquarters' Emergency Cell for use by Chief Emergency Officer. These should be temporarily transferred from officers' chambers.

(iv) Similar Communication arrangements should also be provided in the Divisional

Emergency Cell.

4.30.6 Communication at Helpline Enquiry Booths:

(i) Helpline Enquiry Booths are to be opened at all important stations en-route of the affected trains.

(ii) Location of these Helpline Enquiry Booths will be on Platform No.1 of their respective stations.

(iii) One BSNL STD phone, 2 Railway Phones, One FAX machine, Photocopier, PC with Internet connection (if feasible) and printer should be identified and kept pre-wired to the Helpline Enquiry Booths so that this can be energised at short notice. An especially dedicated no. of 1072 should also be provided at such identified station.

(iv) Stations at which such arrangements are to be made and telephones, which are to be utilised, should be identified by Sr. DSTE with approval of DRM.

4.30.7 Duties of Sr. DSTE:

1) Ensure that a detailed record is made of all evidence bearing on the accident so far as S & T and interlocking are concerned.

2) Preserve clues and seal the relevant equipment/documents if required.

3) Restore the signalling and interlocking for normal working immediately.

4.30.8 Duties of Signal & Telecommunication Department at accident site:

Duties of S&T department consist of providing sufficient and reliable meansof communication at the accident site and other work centres.

4.30.8.1 Types of communication facilities& Locations:

The communication facilities to be provided at (i) UCC,(ii) CAC, (iii)LCCs, (iv)Hospitals,(v) Mortuary, and any other locations as decided and facilities to be are (i)Satellite telephones.(ii) BSNL telephones.(iii) Mobiles, in case the area is under mobile coverage.(iv) Walkie – Talkie sets. (v) Railway telephones.(vi) PA System.

4.30.8.2 Numbers to be provided:

(i) Satellite telephones – 5 to be provided. 2 in UCC, 1 in CAC, 2 for passengers.

(ii) BSNL telephones – 2 in UCC, 3 in CAC and 1 in each hospital.

(iii) Mobiles – as many as can be arranged in UCC and CAC. In addition to above at least 2 in each hospital.

(iv) Walkie – Talkie sets – each functionary should be covered.

(v) One 25W VHF set shall also be provided in UCC.

(vi) One 25W VHF set shall be installed in a road vehicle so that mobile communication can be set up, upto a range of about 15-20 Kms.

(vii) Railway telephones – each functionary in UCC, CAC and LCCs should be covered.

(viii) In RE area emergency sockets will be utilised for extending communication to the accident site and in non-RE area where 6 Quad cables is available the

same will be utilised for providing communication.

(ix) PA system – at UCC, CAC and LCCs.

4.30.8.3 Public Address System:

(i) PA system should be provided in UCC, CAC and LCCs.

(ii) These are also to be provided for communicating with passengers and for giving directions to railway staff. For this purpose, additional PA systems may become necessary depending upon the requirements at accident site.

(iii) Mega mikes available in ART will also be utilised for twin purpose.

(iv) Volume of PA system in UCC, CAC and LCCs should be so adjusted that announcements made over one of them reaches only those areas which are under its jurisdiction. It should not interfere with announcements being made by other PA system.

4.30.8.4 Other accessories:

(i) Ensure availability of adequate copies of Disaster Management telephone directory containing important telephone numbers.

(ii) Adequate number of Mobile Battery Chargers should be provided in UCC, CAC and LCCs along with number of spare batteries.

4.31 ENGINEERING DEPARTMENT

On Receipt of information: Sr.DEN/DEN concerned will proceed to the site of accident by ARME. In the absence of Sr. DEN (HQ), the next senior most Sr.DEN/DEN of the division will proceed along with the concerned DEN. In the absence of Sr.DEN/DEN of the section, Sr.DEN/DEN of the adjoining section will proceed by ARME.

PCE along with HODs and other JAG officers from Head quarter will proceed to accident site.

It is expected that ADEN and Permanent Way Inspector of the Section would have already reached the accident site before arrival of ARME. In case, where the Permanent Way Inspector and ADEN are based at divisional headquarter, they should move along with staff by ART. At least, 2 SSE/Works and 1 SSE/Bridge should move along with their staff by the ART.

4.31.1 Rushing men and material to accident site:

(i) The Division shall arrange 500 nos. worksmen for reaching site along with 10 PWIs and 10 Black Smiths. For this purpose, labour specials will be run from the specified destination as decided by the Divisional Emergency Control.

(ii) ½ KM of rails, sleepers and fittings and one set of 1 in 12 and 1 in 8 ½ turnouts are available in the ART. The mechanical and Operating Departments will ensure that part 'C' of ART (consisting of additional Engineering Material Wagons) shall follow the ART. The additional half km. of matching materials and one set of 1 in 8 ½ and 1 in 12 turnouts shall be kept in the Track Depot of the Division. For loading of this material, 2 BFRs and 2 BCX wagons should be immediately placed in the Track Depot. This material should be loaded within 3 hours and dispatched to the site of accident. This will be ensured by

the SSE(P.Way) Track Depot and Divisional Engineering Control.

(iii) At least two nos. of JCBs available with the ballast depot contractor shall be immediately moved.
(iv) The bulldozer, if available, in ART will be moved by special train.
(v) Sr.DEN/DEN in Divisional Emergency Control will request concerned authority (Army/State Govt. Department) for bulldozer/earthmoving machine in the area.

4.31.2 Duties of SR.DENs/DENs:

1) Ensure joint measurements are taken and sketches of the accident site are accurately drawn out.
2) Ensure collection of adequate labour and material and their proper deployment for speedy restoration.
3) Depute one DEN/ADEN in control Office for planning, reinforcement of labour, material and staff.
4) Ensure that inspection notes and diary of AEN, PWI, gang charts, maintenance records etc., are seized and secured.
5) Assistant other Departments in clearance of line and ensure that track is rendered fit and certified at the earliest.

4.31.3 Responsibilities of Sr. DEN(HQ) /ADEN(W):

- All Engg. Officials shall report to the senior most officers at site.
- Arrange Divers with proper equipment for under water rescue, if necessary.
- Guarding and preservation of clues till Police or RPF personnel arrive at site and take charge.
- Arrange for water supply at accident site by drawing from adjoining station.
- Cutting equipment available with PWIs & BRIs and in workshop are moved to site for supplementing ones available in ART.
- Utilization of bridge gangs for rescue work whenever the need arises.
- Assisting in transhipment of passengers and their luggage.
- Provision of tents and other temporary shelter at the site for protection against elements ofweather.
- Ensure joint measurement of track, coaches, wagon & sketch of accident site in accuratedrawing.

4.31.4 Duties of Engineering Department at the site:

(i) AEN/SSE (P. Way /Bridge) shall collect men, rescue tools and arrive at site by fastest means possible.
(ii) Setup UCC, CAC and LCCs at the accident site.
(iii) Assist medical/Mechanical Department in rescue work.
(iv) If necessary contact Army/Navy/Air Base and collect required personnel like Divers for rescue operation.
(v) If necessary hire Private Road Cranes, Bulldozers, Earth movers etc.
(vi) 2 Engineering specials, one from each end, carrying engineering material and Gang men from the section.
(vii) Additional requirement of track materials, if any, should be called for immediately from other railway sources within the division, well in time.
(viii) In case divisional sources are inadequate, then sources from other divisions should be tapped.

(ix) 500 additional workmen are required who are to be moved from adjoining divisions/zones.
(x) Each such division sending assistance should move 250 men along with 5 artisans and 5 PWIs.
(xi) One DEN and one AEN each should also move to the site of accident from each such division.
(xii) Plan for co-ordinated working and movement of track machine for quick restoration in consultation with TRD and operating officials.
(xiii)Sketch diagram of accident site and joint observation to be recorded by SSE/ SE (P-Way).

4.32 IT DEPARTMENT:

The following should be arranged by Sr. EDPM/EDPM in HQ:-

(i) Disaster Management Cell, which will be used as Headquarters' Emergency Cell, should be provided with additional PCs and should be connected to Rail net and the E-Mail addresses already configured into them should be activated.
(ii) Similarly additional PCs in divisional control office nominated for being used in Divisional Emergency Cell should also be shifted and should be connected to Rail net and the E-mail addresses already configured into them should be activated.
(iii) PCs in various Helpline Enquiry Booths at different stations should all be made functional, connected to Rail net and made ready for receiving and sending E-mails.
(iv) Sr. EDPM in association with PRO should be uploaded below information on to Western Railway's Website **www.westernrailwayindia.com** as quickly as possible:

- List of injured and deceased passengers.
- Names of stations where Helpline Enquiry Booths have been opened along with their telephone numbers.
- Accident details would include, number of injured passengers rescued.
- Break up of type of injuries, such as grievous, simple etc.
- Disposal of injured passengers in various hospitals.
- Names of injured passengers – coach wise.
- Number of dead bodies recovered.
- Number of dead bodies identified.
- Names of deceased passengers.
- Details of diverted, regulated, short terminated, cancelled or rescheduled trains.
- Details of Passenger special trains for passengers to be run: (a) front portion of accident involved train. (b) Rear portion of accident involved train. And (c) Relatives special from originating and terminating station of the accident involved train.

4.33 ACCOUNTS DEPARTMENT:

(i) Making available sufficient amount of cash for meeting emergent expenses.
(ii) Opening of current account in a local bank and getting permission for over

draft facilities so that large amount of cash is not required to be carried from far off stations.

(iii) Issue of cheques for making of enhanced ex – gratia payment, if so announced at accident site by Honourable MR.

4.34 PERSONAL DEPARTMENT:

(i) Sr.DPO shall proceed to accident site along with all WLIs.
(ii) Assist Doctors in collecting details of injured/dead and shifting them to hospital.
(iii) WLIs shall be available round the clock in shift duty to look after the welfare of injured persons in each hospital.
(iv) Issue complimentary return journey passes to relatives for escorting injured and taking them back home.
(iv) Man personnel branch counters in CAC and discharge duties listed out For those counters.

4.34.1Staff matters:

- First problem is of identifying railway personnel.
- They should be supplied with coloured arm bands to be kept in ARMEs/ SPARTs /ARTs.
- Adequate number of armbands, gloves and face masks should also be provided in the ARMEs/ SPARTs /ARTs.
- Second problem is of communicating with railway personnel in the crowd.
- Microphones / loud hailers provided in ARMEs/ SPARTs / ARTs should be used both for crowd control as also for giving instructions to railway personnel working at accident site.
- Once initial rescue operations have got underway, arrangements have to be made for water and food for railway staff working at site. Contract arrangement should be made for supply of food. Personnel department will coordinate Commercial department regarding this.
- To ensure that Spare coaches stabled at nearby stations where watering and charging facilities are available for stay of staff are ready foruse.

4.34.2Duties and responsibilities of Sr. DPO / DPO/APO:

- Welfare Inspector should be posted round the clock in shifts duty to look after the welfare of the injured persons in thehospital.
- CWLI/WLI should ensure that passes are issued to the relatives and escort of injured for visiting them in the hospital and taking them backhome.
- Sr.DPO/DPO shall depute Welfare Inspector to assist the ADMO, in taking down the names and addresses of the dead and injured and in shifting them to the hospital.
- CWLI / WLI should also be deputed to the hospitals where the deadbodies or injured has been transferred. Such information should be passed on to Sr. DCM / DCM by quickestmeans.

4.35 DISASTER RESPONSE – CO-ORDINATION CENTERS:

4.35.1 Rushing of ARMEs & ARTs to accident site:

(i) After ARMEs and ARTs have been ordered, PCR should locate diesel powers for these ARMEs and ARTs.

(ii) First available diesel powers should be nominated, even by temporarily detaching from a Mail/Express train on run, if necessary.

(iii) If diesel power is not readily available and OHE is functional up to the next junction station, then ARMEs and ARTs should be moved out by Electric loco and diesel powers can be changed en-route.

(iv) In case a diesel power is not available on the division, then it should be requisitioned from adjoining division.

(v) Requisitioning of diesel power should be done from following sections in the given order of priority:

(a) Mumbai Central Division:

- *Main line sections of Mumbai Central division.*
- *Mumbai division of Central Railway.*
- *Bhusaval division of Central Railway.*
- *Vadodara division.*
- *Ratlam division.*
- *Ahmedabad division.*

(b) Vadodara Division:

- *Main line section of Vadodara division.*
- *Anand – Godhara section.*
- *Ratlam division.*
- *Ahmedabad division.*
- *Mumbai Central division.*

(c) Ahmedabad Division:

- *Ahmedabad-Viramgam section.*
- *Vatva Diesel shed.*
- *Ahmedabad-Nadiad section.*
- *Other sections of Ahmedabad division.*
- *Rajkot division.*
- *Ajmer division (NWR)*
- *Vadodara division.*
- *Ratlam division.*

(d) Ratlam Division:

- *Godhara-Ratlam section.*
- *Ratlam-Nagda section.*
- *Nagda-Ujjain-Indore section.*
- *Ujjain-Bhopal section.*
- *Ratlam Diesel Shed.*
- *Vadodara division.*
- *Kota division (WCR)*
- *Bhopal division (WCR)*

(e) Rajkot Division:

- *Rajkot-Viramgam section.*
- *Rajkot-Okha section.*
- *Wankaner-Dahinsara-Gandhidham section.*

- *Bhavnagar division.*
- *Ahmedabad division.*
- *Vadodara division.*
- *Ajmer division (NWR)*

(f) Bhavnagar division:

- *Surendranagar-Bhavnagar section.*
- *Dhola-Pipavav section.*
- *Rajkot-Veraval section.*
- *Porbandar-Lalpurjam section.*
- *Rajkot division.*
- *Ahmedabad division.*

(vi) Movement of ARME and ART should never be clubbed together. ARME should be started first and moved separately for faster movement.

(vii) ARMEs and ARTs should be dispatched from the base station, within the target time stipulated. Departure of ARMEs and ARTs should not be delayed on any account including arrival of doctors or officers. Anybody who is left behind can proceed later on either by GM special or by next special train or even by road.

(viii) ARMEs must be run out within the target time, even without full complement of doctors, if necessary. This will ensure that other doctors who are available at accident site can utilise facilities of ARME after its arrival at site.

(ix) ARMEs and ARTs should be moved on top priority taking precedence over all other trains. They should not be stopped anywhere en-route for picking up any one.

(x) Running lines at 7 stations on either side of the accident affected block section should be kept clear of all trains. In case there are any stabled loads, the same should be lifted.

(xi) Freight trains on run towards accident site should be reversed and returned.

(xii) Fresh stabling, if any, should be done beyond 7 stations on either side.

(xiii) Even for stabling beyond 7 stations, both up and down loop lines should not be blocked at the same station.

(xiv) For stabling beyond 7 stations, up loop and down loop should be blocked, at alternate stations.

4.35.2 Movement of Passenger Trains:

(i) The moment information is received about the accident, all Mail/Express trains on run towards the accident involved section should be stopped. They should not be advanced beyond the last Jn. from where they can be diverted.

(ii) They should be regulated at convenient stations before a decision is taken regarding their further movement. This decision should normally be taken within the next one hour.

(iii) Trains should preferably be regulated at stations where food can be arranged.

(iv) Too many trains should not be simultaneously brought to a Jn. station for regulation, since it may create law and order problems.

(v) Keep them moving slowly so that passengers do not agitate. In such cases, a caution order may be served to the driver to proceed at 30 KMPH.

(vi) Passenger trains can be run out to the next convenient location and thereafter

terminated so that their rakes are available for use.

(vii) Head quarter's Emergency Cell shall decide the Diversion, Regulation, Short termination, Cancellation, and Rescheduling of trains in consultation with adjoining Railway and Coaching Directorate of Railway Board:

(viii) The above decision regarding diversion etc. should be taken in about an hour's time after ARMEs, ARTs, GM special have been run out and there is a slight lull in the information flow.

(ix) As far as possible, trains, which are already on run, should be diverted. They should not be short terminated, since this will create problem of dispersal of passengers.

(x) Trains should be diverted from the last possible Jn. station onwards so that maximum number of passengers can detrain at their proper destination stations.

(xi) Sr. DEE/TRO would be in charge of co-ordination with operating department regarding requirement and availability of crew.

(xii) Sr. DEE/TRO will take into consideration changing traffic requirement and plan crew deployment accordingly.

(xiii) Adjoining divisions should be informed about these diverted trains to sent spare crew to interchange points.

(xiv) Necessary road learning should be arranged for diverted train's crew.

(xv) Drivers nominated for working these diverted trains should be empanelled for working Mail/Express as per Railway Board's instructions.

(xvi) Crews should also be planned for diesel engines sent to the accident site working ARMEs, ARTs, other special trains and likely to be held up there for next 2-3 days.

(xvii) A total of about 10 diesel powers would be deployed in the accident-affected section on different special trains at any point of time.

(xviii) 3 sets of diesel crews should be planned for each diesel loco deployed at the accident site.

(xix) If required necessary diesel crew should be arranged from adjoining divisions.

(xx) In the absence of Sr. DEE /TRO, DEE/AEE (TRO) will perform this function.

4.35.3 Running of Special trains:

Following special trains will be required to be run in the given order of priority:

(i) ARME

(ii) ARME from the other end.

(iii) Two additional ARMEs from adjoining divisions, one from each end.

(iv) ART.

(v) ART from the other end.

(vi) Two additional BD Specials one from each end.

(vii) 1st special train carrying GM and other officers from Headquarter and some left over officers from division (in case it passes through the divisional headquarter).

(viii) Unaffected front portion of the accident involved train in case the same can be moved.

(ix) Unaffected rear portion of the accident involved train in case the same can be moved.

(x) In case the front and rear portions cannot be moved, then they should be left as they are.

(xi) Two empty coaching rakes, one from either end for clearing unaffected passengers of the accident involved train.

(xii) 2nd and 3rd special trains for accident site, one from each end, carrying logistic backup support, material and additional manpower from junction stations. These should normally be run out 2-3 hours after arrival of ARME carrying DRM and other divisional officers at the accident site.

(xiii) Before these 2nd and 3rd special trains run from each end, railway staff at all stations en-route should be informed regarding running of these trains so that supervisory staff of all departments, from Jn. stations can go to the accident site on these trains.

(xiv) Two light engines should be stationed, one at each station on either side of the accident involved block section.

(xv) Two Engineering specials, one from each end, carrying engineering material and Gang men from the section.

(xvi) Running of 2 passenger specials for carrying relatives to the site of accident. These trains will be started from the originating and destination stations of the accident involved train and will be given same stoppages as the accident involved train for picking up relatives'en-route. This is to be co-ordinated by Headquarters' Emergency Cell in consultation with Railway Board.

(xvii) Arrangement for the visit of MR/MOSR, CRB and other Board Membersto the accident site should be made in coordination with the SafetyDirectorate and Secretary, Railway Board.

(xviii)Two empty coaching rakes, one from either end for being stabled at convenient locations where watering and charging facilities are available. These stabled rakes will be used for housing the staff working at accident site.

4.35.4 Sequence of movement of ARMEs and ARTs into the accident effected block section:

(i) The sequence of sending and taking out various trains into and out of the accident affected block section should be planned carefully.

(ii) Except for 140T cranes and Engineering specials, all other trains should be sent into the block section with engine leading so that they can reach faster.

(iii) If the unaffected front and rear portions of the accident involved train can be pulled out, then these should be withdrawn before sending in ARMEs into the block section.

(iv) After the unaffected front and rear portions have been pulled out, both portions should be augmented by being patched up with extra coaches at the first Jn. station en-route.

(v) In case the front and rear portions cannot be pulled out then they should be left as they are.

(vi) After the 1st pair of ARMEs reaches adjacent stations from either side, they should be sent into the block section, one from each end.

(vii) BD specials without cranes that have arrived should be pushed into the block section after the ARME so that additional cutters, spreaders, hydraulic jacks etc. can be made use of.

(viii) After all equipment from BD specials have been unloaded at accident site and staff has detrained, both BD specials should be withdrawn. These should then be kept 4 stations beyond.

(ix) The 2nd pair of ARMEs that have been requisitioned should also be moved on top priority. After BD specials have been withdrawn, these ARMEs should be sent into the block section while the first ones are still there.

(x) In case 2nd pair of ARMEs arrive before BD special, then item no (ix) should be

carried out before item no (vii) and (viii).

(xi) *Both ARTs with 140T cranes should be regulated at least 1 station before so as not to clutter up the adjacent station.*

(xii) *Empty coaching rakes that have been sent for clearing uninjured passengers should be sent into the block section thereafter, while both ARMEs are still there.*

(xiii) *After transhipment of passengers, both empty coaching rakes should be pulled out and run out as passenger special to the original destination of the accident involved train.*

(xiv) *After the work of ARMEs is over, all of them should be withdrawn and returned back.*

(xv) *The front and rear portion of the accident-involved train should now be withdrawn by sending diesel light engines into the block section.*

(xvi) *Last of all both ARTs with 140T crane should be marshalled as per site requirement and sent into the block section with crane leading, one from each end.*

(xvii) *Tower wagons should be sent in from each end following the ART.*

4.35.5. Setting of Divisional Emergency Cells:

(i) *Divisional Emergency Cell shall be opened immediately after receipt of information of the accident at Divisional Control Office.*

(ii) *This unit will exercise control, co-ordinate and arrange supplementary assistance to the accident site.*

(iii) *It shall function in a separate cubicle at Divisional Control Office provided with centralised communication networks, hot line to the site and Headquarter.*

(iv) *Sr.DOM will be over all incharge of the Divisional Emergency Cell and will function as the Divisional Emergency Officer for the purpose of managing relief and restoration operations from divisional level.*

(v) *In case Sr.DOM is not available, DOM will be the Divisional Emergency Officer.*

(vi) *In case both officers are not available, any other officer nominated by DRM will take over charge.*

(vii) *Requirements of all departments for movement of men and materials to the accident site shall be conveyed to the Divisional Emergency Officer, who shall arrange their movement.*

(viii) *Timings of 2nd and 3rd special trains to be moved from each end to the accident site, carrying backup logistic support will be conveyed to all concerned beforehand.*

(ix) *Divisional Emergency Cell will maintain:*

- *Telephone and FAX numbers, functionary wise available in UCC.*
- *Telephone and FAX numbers, functionaries available in CAC.*
- *Telephone and FAX numbers of Helpline Enquiry Booths at various stations on the division.*
- *E-Mail addresses of UCC, CAC, Helpline Enquiry Booths and Headquarters' Emergency Cell. E-Mail addresses of some of them are given in Annexure-5.*
- *Names and phone numbers of hospitals where injured have been admitted/shifted, along with number of patients.*

(x) *Divisional Emergency Cell will collect updated information regarding all aspects of the accident and pass on the same either telephonically or by E-Mail to:*

- *All Helpline Enquiry Booths within the division.*
- *Headquarters' Emergency Cell.*

(xi) Divisional Emergency Officer on duty shall chronologically record all information and instructions received or given in a logbook.

(xii) For Mumbai Central and Ahmedabad divisions similar Emergency Cell will also be opened at Valsad/Gandhidham/Mehsana Control Office. ARM-Valsad, ARM-Gandhidham and ARO-Mehasana will function as Emergency Officer and discharge all duties listed above respectively.

(xiii) In addition to the Division where accident has taken place similar Emergency Cells will be opened in other Divisional Control Offices of Western Railway that are involved in restoration and relief operations. Chief Emergency Officer will decide divisions where Emergency Cells are to be opened.

(xiv) Helpline Enquiry Booths outside the accident affected division, but within Western Railway jurisdiction should keep in touch with Divisional Emergency Cell of their respective division.

(xv) If necessary, similar emergency cells will be opened at other major terminals as decided by Chief Emergency Officer.

(xvi) After relief, rescue and restoration work is completed, winding up ofDivisional Emergency Cells shall be decided by DRM.

4.35.6 Setting of Headquarter Emergency Cell:

(i) Headquarters' Emergency Cell shall be opened immediately after receipt of information of the accident at HQ office.

(ii) This unit will exercise control, co-ordinate and arrange supplementary assistance to the accident site.

(iii) It shall function from a separate room in Western Railway HQ office provided with centralised communication network.

(iv) COM's room in Western Railway HQ office should be converted into Headquarters' Emergency Cell for the duration of the disaster.

(v) CFTM will be over all incharge of the Headquarters' Emergency Cell and will function as Chief Emergency Officer for the purpose of managing relief and restoration operations from HQ level.

(vi) In case CFTM is not available, Dy.COM/Goods will be Chief Emergency Officer.

(vii) In case both officers are not available, any other officer nominated by COM will take over charge.

(viii) Requirements of all departments for movement of men and materials to the accident site from adjoining zones and division shall be conveyed to the Chief Emergency Officer, who shall arrange their movement.

(ix) Headquarters' Emergency Cell will maintain:

- Telephone and FAX numbers, functionary wise available in UCC.
- Telephone and FAX numbers, functionary wise available in CAC.
- Telephone and FAX numbers of Helpline Enquiry Booths at various stations on adjoining zones.
- E-Mail addresses of UCC, CAC and Helpline Enquiry Booths and Divisional Emergency Cell setup on other Divisions of WR.
- E-Mail addresses of some of them are given in Annexure-5.
- E-Mail addresses of Emergency Cells opened on train originating/terminating Divisions & Zones and Safety Directorate Emergency Cell in Railway Board.
- Names and phone numbers of hospitals where injured have been admitted/ shifted along with number of patients.

(x) Headquarters' Emergency Cell will collect updated information regarding all

aspects of the accident and pass on the same either telephonically or by E-Mail to:

- Emergency Cells opened on other divisions of WR.
- Emergency Cells opened on originating and terminating Zonal Railway.
- Safety Directorate's Emergency Cell in Railway Board.

(xi) Headquarters Emergency Cell will monitor movement of ARMEs/ARTs etc. coming from adjoining Zones/divisions.

- Assistance from Defence, Para military establishments, State Govt. should be coordinated by Headquarters' Emergency Cell as and when required.

(xii) Chief Emergency Officer on duty shall chronologically record all information and instructions received or given in a logbook.

(xiii) Chief Emergency Officer shall monitor various important media channels to keep track of media reporting. Suitable corrections/clarifications may also be issued, if required.

(xiv) After relief, rescue and restoration work is completed, winding up of all Emergency Cells on WR shall be decided by COM.

4.35.7 Manning of Divisional/Headquarters' Emergency Cell:

(i) Divisional/Headquarters' Emergency Cell shall be manned round the clock by officers.

(ii) In addition to officers of the Operating Department, there will be officers of Engineering, Mechanical, S&T, Electrical, Commercial, Medical, Security, Safety and Personnel departments in the Divisional/Headquarters' Emergency Cell round the clock.

(iii) Divisional Emergency Cell will be manned by Senior Scale/Junior Scale officers of all departments in 12 hours shift duties round the clock (8 hours to 20 hours day shift and 20 hours to 8 hours night shift).

(iv) Headquarters' Emergency Cell will be manned by JA grade/Senior Scale officers of all departments in 12 hours shift duties round the clock.

(v) Senior most officer of each department who is available in the Division/ Headquarters' shall be on duty in the Divisional/Headquarters' Emergency Cell during the day shift only. (8 hrs. to 20 hrs.)

(vi) Senior most officer of each department shall issue a 12 hours roster for his own department for the night shift. (20 hrs. to 8 hrs.)

(vii) Round the clock roster of 12 hours shift duty should cover both officers and supervisors.

(viii) Same officers and supervisors should be repeated each day without any change or rotation, for the next 4-5 days. This will maintain continuity and will ensure that experience gained on the first day can be gainfully used on subsequent days.

4.35.8 Liaison with Railway Board:

Headquarters' Emergency Cell will maintain constant liaison with Safety Directorate's Emergency Cell in Railway Board regarding following activities:

(i) Movement of additional ARMEs and ARTs from adjoining zones.

(ii) Movement of additional diesel powers from adjoining zones.

(iii) Diversion, Regulation, Short termination, Cancellation and Rescheduling of Mail/ Express trains.

(iv) Arrangement of men and material as required from adjoining zones and their

expeditious movement.

(v) Opening of Helpline Enquiry Booths on other Zonal Railways at:
- Originating and destination stations of the accident involved train.
- All junction stations falling on the route of the train.
- Divisional Headquarter of originating and terminating divisions.
- Zonal Headquarter of originating and terminating Zonal Railway.
- Any other station as may be decided.

(vi) Movement program for visit of MR/MOSR, CRB and other Board Members to the accident site.

(vii) Assistance required from Defence, Para military organisation, State Govt. should be conveyed to Railway Board who shall coordinate the same.

(viii) 3 hourly progress report on the rescue and relief work shall beCommunicated to Safety Directorate's Emergency Cell in RailwayBoard.

4.35.9 Duties of Additional Divisional Railway Manager:

(i) Undertake making of announcements over local TV channel and Cable network for all supervisory staff to rush to the accident site.

(ii) Ensure that functionaries of different departments in Divisional Emergency Cell carry out duties assigned to them as per Zonal DM plan.

(iii) Monitor movement of assistance from other division/zones.

(iv) Co-ordinate with State Govt.

(v) Co-ordinate with Defence and Para Military authorities.

(vi) Monitor various important media channels to keep track of media reporting. Suitable corrections/clarifications may also be issued, if required.

4.36 DISASTER RESPONSE – ASSISTANCE FROM ADJOINING DIVISIONS/ZONES:

4.36.1 Necessity of assistance from adjoining Divisions/Zones:

(i) No division can be equipped to handle a disaster of such a large magnitude like Ferozabad or Gaisal.

(ii) Assistance has to be sought from adjoining Divisions/Zones.

(iii) A division is normally expected to handle an accident of the magnitude involving up to 50 injuries (Grievous). Threshold levels have been given in terms of injuries, because initially it is difficult to estimate number of casualties.

(iv) Whenever number of injuries is estimated to go beyond 50, assistance should be sought for from adjoining Divisions/Zones.

(v) This is to be co-ordinate by the Chief Emergency Officer in Head Quarter's Emergency Cell.

4.36.2 Assessment of assistance from adjoining Divisions/Zones:

(i) DRM after reaching the accident site should make an immediate assessment of likely injuries.

(ii) Quick assessment is an absolute must in order to ensure that assistance from adjoining divisions can be rushed at the shortest possible time.

(iii) Assessment made by DRM should be based on number of coaches involved.

(iv) As a thumb rule, for each coach that has capsized, 30 injuries should be estimated.

(v) Total injuries estimated would be (no. of coaches) x 30.
(vi) This should be conveyed to Sr.DOM in Divisional Emergency Cell and Chief Emergency Officer in Head Quarter's Emergency Cell.
(vii) Based on the above figures, decision should be taken and assistance rushed from adjoining division and zones.

4.36.2.1 Scale of assistance from adjoiningDivisions:

- As a thumb rule, assistance of 1 team should be sought from adjoining division for every 50 additional injuries, beyond 50injuries.
- Incaseofalldisasters,followingshouldbeusedasanapproximateguideline for deciding level of assistance required:

Threshold level	50 to 100 Injuries	100 to 150 injuries	Above 150 Injuries
No. of teams	1team	2 teams	3teams
ARMEs/ SPARTs	2	2 + 1	2 + 2
140 T crane	2	2+1 breakdown	2+2 breakdown

- Complement of staff in each team sent by adjoining divisions / zones will be as per norms givenbelow:

Officer in charge	Senior Scale
Doctors	5
Para – medical staff	10
Commercial officers	2
Commercial supervisors	10
Commercial staff	20
Personnel Supervisors	5
Group 'D' staff	20
RPF	1 Platoon

- Assistance should be sought from following divisions in the given order ofpriority:

Name of division	No. of Teams
ADI Division	2
BVP Division	1
BRC Division	1

AII Division (NWR)	1
Total	5

4.36.2.2 Departmental assistance from adjoining Divisions:

(i) S&T Department:

- Satellite telephones from ARTs of 5 remaining divisions of Western Railway.
- 5existing Mobile Telephones from 5 remaining divisions(25Mobiles inall) should be sent to site.

(ii) ElectricalDepartment:

- Generators from ARTs of adjoiningdivision.
- Lighting equipments from ARTs of adjoiningdivision.
- Portals and OHEmasts.

(iii) CivilEngineering:

- 500 additional workmen are required to be moved from adjoining divisions/zones.
- Each such division sending assistance should move 250 men along with 5 artisans and 5PWIs.
- One DEN and one AEN each should also move to the site of accident from each suchdivision.

4.36.3 Scale of assistance from adjoining Divisions/Zones:

(i) As a thumb rule, assistant of 1 team should be sought from adjoining division for every 50 additional injuries, beyond 50 injuries.

(ii) In case of all disasters, following should be used as an approximate guideline for deciding level of assistance required:

• Threshold level	100 > Injuries > 50	200 > Injuries > 100
• No. of teams	1 team	3 teams
• ARMEs	2	2 + 2
• 140 T Crane	2	2 + 2 (Break Down)

(iii) Complement of staff in each team sent by adjoining divisions/zones will be as per norms given below:

Officer in charge	Senior Scale
• Doctors	5
• Para-medical Staff	10
• Commercial Officers	2
• Commercial Supervisors	10
• Commercial Staff	20
• Personnel Supervisors	5
• Group 'D' Staff	20
• RPF	1 Platoon

(iii) In case of RJT division, assistance should be sought from following divisions in the given order of priority:

Name of Division	No. of Teams	
• ADI division	2	
• BVP division	1	
• BRC division	1	
• Ajmer division	1	North Western Railway
	5	Total

4.36.4 Assistance from Defence& Para Military Forces:

As per Disaster Management Act 2005, various Ministries and departments under Government of India should join hands for mutual assistance in case of Disaster. Assistance from Local Government and Non- Government agencies is invariably required by the Railway Administration for prompt relief and rescue operation in case of Disasters affecting Railways. Assistance of NDRF could be of great help to the Railways in major Railway Disasters.

(i) Assistance should be sought from nearest army & Para – military establishments.
(ii) Railway staff no matter how dedicated and loyal, are not experts in extricating dead bodies, handling injured passengers, their evacuation etc.
(iii) Army has the necessary expertise and are trained and equipped to handle such a war like situation.
(iv) Therefore, divisional/Zonal headquarters should get in touch with thenearest NDRF commandant and request for necessary assistance. Asper Boards letter No.2003/ Safety(DM)/6/3 dated 05.08.2010.
(v) Select telephone numbers of Army and Para – military establishments are given in Zonal Disaster Management Plan Part-II.
(vi) Additional telephone numbers of Army are given in Divisional DM plan.

4.36.5. Departmental assistance from adjoining Divisions/Zones:

4.37 SITE MANAGEMENT PLAN:

There are 2 aspects of Disaster Management work at an accident site. Firstly, rescue, relief and restoration operation, which is carried out by one set of functionaries. Second aspect pertains to rehabilitation of accident involved passengers, taking care of dead bodies, dealing with their relatives etc. for which a different set of functionaries are required. For managing these 2 distinct aspects of DM work that are required to be discharged by railways, two separate establishments should be setup at an accident site. The outline schematic plan of accident site is given at **Annexure – 1.**

4.37.1 Unified Command Centre (UCC):

(i) Unified Command Centre (UCC) should be set up at the accident site.
(ii) This will be some kind of a control office to be located near the centre of the accident site.
(iii) This is basically meant for catering to operational needs of railway in rescue, relief and restoration work.
(iv) Detail schematic plan of UCC is given at **Annexure – 2.** UCC is to be manned by staff of relevant departments such as: Medical, Commercial, Operating,

Safety, Security, Public Relations, Mechanical, Electrical, S&T and Civil.

(v) UCC will be provided with all facilities similar to a control office.

(vi) Adequate lighting with generator backup should be provided in the UCC.

(vii) Adequate number of telephonic links to Divisional Emergency Cell and Headquarters. Emergency Cell should be provided. Preferably each department in the UCC should be given an independent telephone.

(viii) Satellite telephone should be installed in the UCC.

(ix) UCC should be provided with FAX, loudspeakers, P.A. system with conference facility for press briefing to be arranged by S&T Deptt. Mech. Deptt should arrange photocopier and PCs. in consultation with Sr. EDPM.

(x) PC/Laptop should be connected to Internet (if feasible) for E-mailing of details update to all concerned, including Divisional Emergency Cell, Headquarters' Emergency Cell and Helpline Enquiry Booths.

(xi) A big banner displaying 'UNIFIED COMMAND CENTER' should be put up at a prominent place at the entry to the shamiana.

(xii) Similarly there should be sufficient number of signage's indicating the way to UCC on approach roads etc.

(xiii) UCC at the site will be manned by Sr. Supervisors on round the clock basis in 12 Hrs. shift duty.

(xiv) Officers will not be permanently stationed in UCC. They will move about the entire accident site supervising and monitoring working of their department at different activity centres. However, they will keep coming to the UCC off and on and will kept in touch with their departmental functionaries in UCC.

(xv) Various functionaries in the UCC will monitor and co-ordinate the working of their departments, and assistance required by them, if any.

(xvi) Each functionary at the UCC will maintain a logbook. Flow of information both incoming and outgoing would be recorded along with the time and names of officers/staff that were given the message.

(xvii) UCC will basically supervise the working of 2 LCCs and co-ordinate with Divisional and Headquarters' Emergency Cell.

(xviii) Functionaries of different departments in LCCs should provide updated information regarding progress of work to their counterparts in UCC.

(xviii) This updated information should be provided once in every 3 hours starting from 1.00 hrs, throughout the day.

4.37.2 Local Command Centres (LCC):

(i) Depending on the spread of the accident site, Local Command Centres (LCC) on the same pattern as the UCC should be setup.

(ii) If the site is spread out over 300-400 metres 2 LCCs should be setup.

(iii) Detail schematic plan of LCCs would be similar to that of UCCs as given at A**nnexure –2.**

(iv) Representatives of same departments as in UCC should be present in LCCs also. However, they should be either one or at most 2 men per department.

(v) LCCs will serve as co-ordination centres for various teams that are working spread out over different geographical locations.

(vi) Each LCC will oversee the working of DM teams at one end of the accident site.

(vii) Jurisdiction of each LCC will extend to all men and materials belonging to 2 ARMEs, BD special and 1 ART at that end of the accident site.

(viii) One SAG officer of Mechanical department will be overall incharge of each LCC.

(ix) LCCs should be provided with loudspeakers for making announcements.
(x) LCCs should be provided with direct telephone links to UCC.
(xi) However, LCCs should not be provided with telephone links to either Divisional Emergency Cell or Headquarters' Emergency Cell. This will ensure that there is minimum telephonic disturbance from outside to teams, which are actually working at the accident site. It will also ensure that outflow of information from accident site goes out from UCC only.
(xii) Members of different teams of each department working at the accident site in rescue, relief and restoration work should provide updated information regarding progress of work to their respective functionaries at the LCC.
(xiii) This updated information should be provided once every 3 hours as detailed at 4.11.1(xx) above.

4.37.3 Combined Assistance Centre (CAC):

4.37.3.1 Need for setting up of Combined Assistance Centre:

(i) Relatives of passengers who arrive at an accident site are already traumatized by the tragedy.
(ii) They arrive at an unknown location with no place to stay, no friend or acquaintances and not knowing whom to turn to.
(iii) The problem is made even more challenging since many relatives and next of kin come from far-flung areas in some other state.
(iv) Being semi – literate and from different parts of the country some of them are not even familiar with the local language. For them even communicating becomes a problem.
(v) In addition to above, complex legal formalities & multiplicity of paper work is required to be completed before dead bodies are handed over to their next of kin.
(vi) For taking care of relatives of passengers, providing them with succour in their hour of agony and for guiding them sympathetically, some kind of an assistance centre is required.

4.37.3.2 Formalities required to be completed by relatives of passengers:

4.37.3.2.1 Sequence of formalities that are required to be completed by relativesof injured passengers includes:

(i) Locating the name of the passenger on reservation charts, in case passenger was travelling in reserved accommodation.
(ii) Going through the list of injured and dead passengers to find out whether the name appears.
(iii) In case the name is not available in the list, then taking a round of different hospitals to find out whether their relative has been admitted in one of them in an unconscious state.
(iv) Hospitals are generally at separate locations, sometimes even in different towns; and commuting becomes a problem.
(v) In case the passenger can be located in one of the hospitals, they have to find out the severity of injuries, likely period of hospitalisation, etc.
(vi) Collect the ex – gratia paid by railways.
(vii) Try and locate missing luggage of the injured passenger. For this they have to

take a round of the building where all unclaimed luggage have been kept.

(viii) Next they have to arrange for a place for them to stay.

(ix) Arrange for medicines/diet etc. and payment of hospital bills, if required.

(x) Thereafter, they have to keep in touch with the hospital and get their relative released.

4.37.3.2.2 Additional formalities that are required to be completed by next of kin of dead passengers include:

(i) In case the passenger could not be located in any of the hospitals, then they have to go to the building where unidentified dead bodies have been kept.

(ii) Take a round of various rooms where bodies have been kept, examine each body and try and locate their near and dear one.

(iii) Identify the dead body, if the same has been extracted by then.

(iv) Otherwise wait for all bodies to be extracted and try and identify their relative.

(v) In case they fail to identify the same then they have to go through photographs of unidentified bodies taken at site.

(vi) After the body is finally identified, they have to produce proof of relationship for railways to entertain their claim.

(vii) Obtain medical death certificate from the railway doctor.

(viii) Obtain post mortem report, from the Govt. Doctor who has performed post mortem on the body.

(ix) Obtain official death certificate from the local municipality.

(x) Accept of ex – gratia payment from railways.

(xi) Collect forms for lodging claim for compensation in RCTs.

(xii) Take over custody of dead body from the local police.

(xiii) Perform last rites at the same place or take back the body to their native place, depending on circumstances.

(xiv) Make arrangements for their return journey back to their native place.

4.37.4 Problems encountered by relatives:

(i) Each of these formalities are under the jurisdiction of a different agency, either railway or police or civil administration or local administration.

(ii) In such a situation the level of co-ordination between these various agencies leaves much to be desired.

(iii) Sometimes it even takes up to 48 hours before these entire documentary formalities can be completed.

(iv) In most cases relatives have to run from pillar to post for completing all these formalities and the bitter experience leaves them permanently antagonised towards railways.

(v) For this purpose a single window clearance system should be available for relatives and next of kin.

4.37.5 Combined Assistance Centre (CAC):

(i) The UCC should have a Combined Assistance Centre (CAC) located towards the rear side, away from the track, for rendering help to passengers and their relatives. Outline schematic plan of UCC/CAC is given at **Annexure-1.**

(ii) This is basically meant for catering to requirements of passengers and their relatives/next of kin, and for providing a single window clearance for all types of formalities.

(iii) Combined Assistance Centre (CAC) should be separate from the UCC so that it does not interfere with normal rescue and relief work.
(iv) Detail schematic plan of CAC is given at **Annexure-3.**
(v) CAC will be manned by staff of relevant departments such as: Operating, Medical, Commercial, Security and Personnel.
(vi) There should be only one such CAC, and all railway resources should be pooled into it.
(vii) LCCs should not have any small CAC located in the rear. It is likely to create logistic problems.
(viii) A big banner displaying 'COMBINED ASSISTANCE CENTRE' should be put up at a prominent place at the entry to the shamiana.
(ix) Similarly there should be sufficient number of signage's indicating the way to CAC on approach roads etc.
(x) Railway staff fluent in the language of relatives should be posted for doing work of interpreters.
(xi) Post mortem formalities should be waived off so that one reduces number of formalities.
(xii) Different counters should be provided in sequence for each of these formalities, so that the entire exercise can be completed in about an hour.
(xiii) Functionary concerned from the local Municipality who issues Official Death Certificate should be made to come and sit in the CAC so that these certificates can be issued immediately without any delay.
(xiv) CAC should have different counters for various purposes in following sequence:
  (a) Reservation Chart for locating the name.
  (b) List of dead and injured along with name of hospital. The name of passenger involved should be checked up from the list of dead or injured if available, and their current status informed.
  (c) Counter for providing commercial supervisor or WLI as escort along with a vehicle, for accompanying the relative and going to hospital or mortuary.
  (d) Railway doctor for issue of Medical Death Certificate.
  (e) Govt. Doctor for issue of Post Mortem Certificate, in case the same is necessary.
  (f) Municipality official for issue of Official Death Certificate.
  (g) Local police for issue of authority for handing over of dead body.
  (h) Claims counter – payment of ex-gratia and issue of Claims Compensation form.
  (i) Counter for helping performance of last rites in case relatives decided to cremate the body there itself.
  (j) Pass counter for issue of return journey pass.
  (k) Return journey facilitation counter for making arrangements for return journey.
(xv) CAC will provide updated information to UCC, initially once every half an hour and later once every hour.

4.37.6 First Aid Posts:

(i) Medical Posts should be provided in both UCC and CAC.
(ii) Medical Post in UCC will provide first aid to injured passengers after extrication, assess their injuries and make arrangements for sending them to nearby hospitals.
(iii) Medical Post in CAC will keep all records of injured and dead passengers,

names of hospitals where they have been admitted etc.

(iv) First Aid posts should be provided in LCCs.

(v) This will be meant for treating passengers and classifying their injuries before they are sent for admission to various hospitals.

4.37.7 Setting up of UCC, LCC and CAC:

(i) One SSE/Works shall be exclusively responsible for setting up of these facilities. He shall undertake the following:

- Move along with sufficient staff for setting up of these facilities.
- Immediately start setting up of the tentage accommodation after taking out tents and shamianas provided in ARTs.
- In addition, he should also requisition agencies, which provide tentage accommodation on contract. Details of such agencies have been given in Divisional Disaster Management Plan.

(ii) Bridge Line staff will assist in setting up tent age and above-mentioned facilities. Dy. CE/Bridge will also move to the site and in case, bridge is not involved, he will take full charge of tent age arrangements.

(iii) Bridge Unit will take with them sufficient Manila ropes, wire ropes, survey instruments, binoculars, helmets, life jackets, ladders and other equipment. Nylon ropes should be sufficient in length to ensure barricading at sites and camping areas.

(iv) Sufficient facilities for erecting temporary stage/scaffolding etc. should also be organised, if required at site.

(v) Few temporary toilets should be provided at one location in addition to number of urinals at 3 or 4 places.

(vi) Water Tankers will be ordered for supplying water at site and arrangements shall also be made for drinking water.

(vii) Temporary kitchen in tents/shamianas is to be setup so that catering unit or IRCTC can provide cooked food to staff working at accident site.

(viii) About 100 folding chairs should also be arranged.

(ix) Bridge Line staff will have list of divers who in case of emergency can be hired for rescue or restoration operations wherever site is surrounded by deep water.

(x) Signage's for both UCC and CAC should be provided at prominent locations.

4.37.8 Collection and Dissemination of Information – Channel of Communication:

The following would be the responsibility and channel both for collection as also dissemination of information. Before each shift goes off duty, details of work done should be updated in the LCC.

The LCC should in turn update the UCC regarding the latest progress. This updated information would be conveyed to Divisional Emergency Cell every 3 hours.

4.37.8.1 Number of dead and injured – Medical Department:

(i) Medical department at site should confirm the number of dead.

(ii) Doctors in charge of various teams working on different coaches should give 3 hours report to Medical counter in LCC who in turn will inform UCC.

(iii) Number of injured passengers.

(iv) Type of injuries, whether grievous, minor or trivial.
(v) Names of injured, and names of various hospitals where injured have been sent.

4.37.8.2 Identification of dead bodies – Commercial Department:

(i) Ex – gratia paid to injured.
(ii) Number of dead bodies identified.
(iii) Ex – gratia paid to dead.
(iv) No. of bodies handed over to relatives.

4.37.8.3 Number of coaches dealt with – Mechanical Department:

(i) No. of coaches thoroughly searched.
(ii) No. of coaches made off track.
(iii) No. of coaches yet to be dealt with.
(iv) Time required for restoring track for traffic use.

4.38 PASSENGER CARE:

4.38.1 Hospitalisation of the injured:

(i) General policy in case of railway accidents in which casualties occur is that of rapid evacuation to railway hospital after rendering immediate and necessary first-aid treatment. In following cases, injured may be taken to a Private Hospital.

- *When there is no railway or Govt. hospital available within a radius of say 8 Kms. of the site of accident or,*
- *When the attending doctor certifies in writing that the treatment in private hospital is necessary in the interest of the patient,*
- *Except where railway doctor certifies, such injured passenger should normally be eligible to the lowest class of accommodation in private hospitals where different scales are available,*
- *Where the family of the injured person desires to be provided with a higher-class accommodation, the family should give in writing to pay the extra cost involved directly to hospital authorities.*

(ii) For this purpose, each division should make out a working arrangement with such private hospitals as may be necessary in areas served by them so that in an emergency injury cases can be referred without loss of time to the hospitals concerned.To facilitate matters and to avoid misunderstanding, CMD should draw up a list of such private hospitals bearing in mind Railway and non-railway hospitals in existence in the vicinity.CMD should also settle charges to be paid to the hospitals for such cases for each class of accommodation/diet etc.

(iii) Bills by such private hospitals should be submitted through CMD who will certify the correctness of charges payable, before passing for payment by FA&CAO.Payments to private hospitals under this Para can be arranged locally by the Railway and Ministry of Railway approval is not necessary.
(Extract of Para 701(1) & Para 712 of Chapter VII of IRMM and Para 1421 of Indian Railway Establishment Manual and M.O.R's letter No. MH.59/MES/96/

Medical dated 18.12.1959.)

(vi) *When injured are admitted in non-railway hospitals, railway doctors should be deputed to these hospitals to render necessary assistance, including supply of medicines as required which may not be available in these hospitals.They should also carefully monitor the condition of injured and maintain an updated list with all details. If more than one hospital is involved, apart from deputing doctors to individual hospitals, a railway doctor should also be deputed to coordinate and maintain centralised updated position.*

4.38.2 Catering Arrangements:

(i) *The affected passengers and their relatives are to be treated with utmost courtesy, concern and sympathy to alleviate their trauma and discomfort. Commercial officers and supervisors should be assigned to talk too injured to ascertain from them whether they wish to call relatives. Free passes can also be given to the relatives.*

(ii) *Arrangements for supply of meals, drinking water, tea, coffee etc., to not only the injured but also to other passengers of the affected train/trains should be swiftly organized.*
Inthisconnection, Boards instructions vide their letter No. 89/safety-I/4/3, dated 22.09.89 is reproduced.

(iii) *Refreshments, food and beverages may be supplied free of charge to the affected passengers, injured/or stranded. These may be arranged from the railway and/or outside sources as necessary.*

(iv) *The senior most official at the site shall have the powers to arrange conveyance of the affected passengers free of charge by any available mode of transport and also incur expenditure for carriage of passengers, luggage, etc.(Boards letter No.93/safety-I/6/1,dtd 02.11.93).*

4.38.3 Facilities to be made available in hospital:

(i) *A reception counter with a chart (ward, name, bed no, coach number of patient) should be manned by commercial supervisor/WLI at the hospital for dealing with patients relatives.*

(ii) *Commercial staff at the hospital should carry a list indicating the name, address and telephone no, of relatives as given by the patient.*

(iii) *Arrangements should be made to inform the next of kin or a relative.*

(iv) *Complete medical care of all passengers including payment of medical bills till their final discharge should be provided.*

(v) A chart should be displayed at this reception counter indicating wardnos. Where accident patients are admitted along with their names, coachno.wise.

(vi) At the entry to each such ward, a second list should display the name ofthe patient, coach no. and the bed no. inside theward.

(vii) As each relative arrives, his name should be marked in the list againstthe passenger'sname.

(viii) Reception counter should be provided with BSNLtelephone with STD facility.

(ix) There should be 2 mobile telephones for being taking to patients inside wards for making outgoing calls.

4.38.3.1 Arrival of relatives:

- After a few hours, next of kin of deceased and relatives of injured passengers start arriving at the accident site.
- Adequate number of display boards should be available on ARMEs/SPARTs / ART for being put up at accident site.
- By and large these display boards should indicate the direction towards the CAC.
- These indication boards should be displayed near those areas where incoming relatives arrive andcongregate.
- Periodic announcements on loud speakers should also be made for guiding them to theCAC.
- CAC should have different counters for various purposes as detailed below in Section7.

4.38.3.2 Performance of lastrites:

- In many cases relatives decide to perform last rites at the place of accident itself instead of taking the body back to their nativeplace.
- The last rites is mostly on accountof:
  - Bodies beingmutilated.
  - Bodies being in a state ofdecomposition.
  - Native place being faroff.
  - For overcoming logistic problems of taking the bodyback.
- In such cases railways should render appropriate assistance to relatives for performing last rites as per their custom andreligion.
- Railways shouldlocate:
  - The nearest cremation or burial ground as the case maybe.
  - Shopkeepers who supply necessary material for funeralrites.
  - Priest for performing the ritesceremony.
- Information about performance of last rites of the deceased would be conveyedtotherelatives&transportwillbeprovidedforcarryingthebody.
- Above duties are to be performed by Personneldepartment.
- Assistance will be rendered by WLI and Commercialsupervisor.
- Commercial Supervisor or WLI who has been deputed for relatives of a particular passenger should them out in thisendeavour.

4.38.3.3 Departure of relatives of dead and injured:

- CAC should have counters for helping relatives regarding their return journey.
- Personnel branch staff at the CAC should be available for issuing complimentary passes for their returnjourney.
- Reservationofberthsshouldbeprovidedontrains.Suchreservationshould be provided only from the accident siteonwards.

- Extra coaches should be attached to trains going to these destinations for the next 2 or 3 days. These extra coaches should be brought in locked condition from the originatingstation.
- Reserved space in luggage portion of SLRs for some of them to carry back bodies in coffins etc. in case they sodesire.

4.38.4 Communication:

(i) STD equipped telephone should be made available to passengers to communicate with their relatives. (Boards letter No. 93/Safety-I/6/1 dtd.02.11.93)

(ii) BSNL/Railway Telephones available at adjoining Stations/Cabins/Gates shall be extended to the accident site.

(iii) If feasible PCO telephones and other BSNL phones in nearby localities/villages/towns shall also be extended to the accident site by persuading owners of these phones.

(iv) SM should can hire a few mobile phones in case passenger train accidents to meet the needs of stranded passengers wherever cellular phone connectivity available. Stranded passengers should be permitted to use these phones free of charge. Boards letter No.2002/Tele/TN/1 dtd 12.05.03).

4.38.5 Taking care of relatives:

(i) A hired vehicle should be provided relatives of affected passenger for carrying them to various hospitals and mortuary.

(ii) The commercial supervisor or WLI should stay with the relative until he has been able to either find the injured passenger or identify the dead body.

(iii) Thereafter, they should help him in completing all formalities in the CAC.

4.38.6 Single window clearance:

(i) CAC should have provision of single window clearance for all legal formalities & multiplicity of paper work.

(ii) Counters provided in CAC should have facilities for following items in the given sequence as indicated in **Annexure – C:**

(a) Reservation chart, for locating the name.

(b) List of dead and injured along with name of hospital. The name of passengers involved should be checked up from the list of dead or injured, if available, and their current status informed.

(c) Counter for providing commercial supervisor or WLI as escort along with a vehicle, for accompanying the relative and going around to various hospitals or mortuary.

(d) Railway doctor for issue of Medical Death Certificate.

(e) Govt. Doctor for issue of Post Mortem Clearance, in case the same is necessary.

(f) Municipality official for issue of Official Death Certificate.

(g) Local police for issue of authority for handing over of dead body.

(h) Claims counter – payment of ex - gratia and issue of Claims Compensation From.

(i) Counter for helping performance of last rites in case relatives decide to cremate the body there itself.

(j) Pass counter for issue of return journey pass.
(k) Return Journey facilitation counter will make arrangements for return journey.

4.39 MANAGEMENT OF FIRE IN TRAINS:

Fire on a running train is more catastrophic than on a static one, because the fanning effect may spread the fire very quickly to other coaches and in panic the passengers may jump out of a running train as it had happened in past train accidents. Under such situation, every railway servant available on the train or at the site shall immediately try and stop the train and plunge into action to save lives and property. In this context, the railway servants are expected to have a basic knowledge on fire and fire fighting methods.
Continuous heating due to brake binding, hot axles etc. May also cause a fire.
Split liquid fuel can catch fire quickly than the liquid in bulk.

4.39.1 Main causes of fire in Trains:

(i) Carrying stoves, sigris, gas cylinders, kerosene oil, petrol, fireworks etc. in passenger compartments.
(ii) Making fire/using fire near paper, wood, petrol or such other inflammable articles.
(iii) Lighted match sticks, cigarette ends carelessly thrown.
(iv) Short circuit in electrical wirings.
(v) Using naked light during authority token delivery to the driver, shunting of inflammable loads, sealing of inflammable wagons.
(vi) Use of open fire, smoking near gas/petrol tank.

All railway staff and passengers should take all possible precautions to avoid any of the above mistakes so that possibility of fire breaking out can be minimized. In general fire originates in a small level. When burning materials with adequate supply of air surround it, fire spreads.

4.39.2 In the event of a vehicle on a train being on fire:

(i) Stop the train immediately
(ii) OHE supply cut immediately.
(iii) Don't panic.
(iv) Evacuate passengers from burning coaches.
(v) Protect property, valuables & mails.
(vi) Locate fire extinguishing substances viz, water bucket with water/sand, fire extinguishers etc.
(vii) Use fire extinguisher if any and put out the fire.
(viii) Use water from the coaches and extinguish the fire.
(ix) Throw earth or sand, if available, on the fire.
(x) Ascertain the type of fire viz, dry, oil gaseous, electric and use the right type of extinguishers.
(xi) Isolate the burning vehicle from other vehicle by uncoupling.
*(xii) Train to be protected by Driver and Guard at both ends according to the provision of **G&SR 6.03.***
(xiii) Report it to the nearest station/control/fire station.

(xiv) Every effort shall be made to extinguish the fire and to save the wagon labels, seals and contents of the vehicle.

(xv) In case fire is discovered when the train is near a tank or watering station, the Guard and Driver shall use their discretion to proceed there but no such attempt shall be made until the portion of the train in rear of burning vehicle has been detached.

(xvi) Inform all concerned to assist in extinguishing the fire.

(xvii) In case of fire from electrical short circuit switch off the source.

4.39.3 In the event of fire on an Electric engine/EMU:

(i) Loco Pilot/Motormen shall immediately switch off the circuit and lower the pantograph. The train shall then be brought to a stop at once.

(ii) After disconnecting the electric supply to affected circuits, Loco Pilot/Motormen shall take necessary action to put out the fire.

(iii) If fire cannot be extinguished by the above means Loco Pilot/Motormen shall advise TPC through emergency telephone to arrange for the affected section OHE to be made dead.

(iv) The guard and any other staff available shall render all possible assistance to the Loco Pilot/Motormen in putting out the fire.

(v) Ordinary fire extinguishers or water from a hosepipe shall on no account be used to extinguish fire on live wire or electrical equipment. If services of fire brigade are required, fire brigade shall not be allowed to commence operation until all electrical equipment in the vicinity of the fire has been made dead.

4.39.4 In the event of a fire on a Diesel Engine/DMU stock:

(i) The Loco pilot/Motorman shall immediately switch off the circuit breaker and shut down the engine. The train shall be brought to stop at once.

(ii) The Guard shall give all possible assistance to the Loco pilot/Motorman in putting out the fire.

(iii) Fire extinguishers of approved type shall be provided on each diesel locomotive and motor coach of DMU when these are turned out from the home shed. The Foreman/CWS in charge of the shed shall inspect the fire extinguishers and ensure that these are in good working condition.

4.39.5 When a person is on fire:

(i) Approach him holding the nearest available wrap in front of you.

(ii) Wrap it round him.

(iii) Lay him flat and smother the flames.

(iv) He may roll on the floor, smothering the flames.

(v) On no account should he rush out in the open air.

(vi) Call for assistance.

4.39.6 Fire caused by Petrol or other inflammable liquids, acids or gases:

(i) Segregate the affected wagon, coach or area involved.

(ii) On opening a wagon do not enter it immediately. You would thus, avoid fumes, which may be dangerous.

(iii) Use foam type fire extinguishers and sand and not water or soda acid type fire extinguishers.

(iv) Do not bring naked lights near the site of fire.

(v) Warn the people living in the surrounding areas within one Km. Radius.
(vi) Stay away from ends of tanks, as tanks normally burst from the ends.
(vii) Cool tanks that are exposed to flames with water from the sides only after the fire is put out.
(viii) Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire.
(viii) Inform the nearest Fire Station intimating that Petrol or any other inflammable liquids, acids or gases, have caused the fire.

4.39.7 In case of fire due to Explosives/Inflammables/Dangerous Goods:

(i) Extinguish by closing the valve or isolating LPG feed to fire by other suitable controls.
(ii) Following steps may be taken if no undue risk is involved:
(a) Move unheated cylinders to a safe place after ensuring closing of valves.
(b) Cool the hot cylinders by spraying water from a safe position. The person directing the spray should take up a position where he would be protected from possible explosion.
(iii) If cylinder containing inflammable/ toxic gas develops leak during transportation, remove it to an isolated open place away from any source of ignition and advise the filler or consigner as required.
(iv) Inform the Chief Controller of Explosives by fax/telephone.
(v) Inform officer in charge of nearest police station.
(vi) Inform department officers concerned.
(vii) Pending the visit of the Chief Controller of Explosives/his representative, the wreckage and debris shall be left undisturbed except to save lives.
(viii) After getting information from the Chief Controller of Explosives that he does not wish any further investigation, the restoration work may be commenced.

4.39.7.1 Dry chemical powder type fire extinguisher (DCP):

These types are suitable for tackling petroleum, gas, electrical fire and controlling fires of textile fibres. Sodium based chemical powder is used on a fire which undergo chemical reaction.

4.39.7.2 How to Use Dry chemical powder type fire extinguisher (DCP):

(i) Carry to the place of fire and keep it up right.
(ii) Remove the safety clip.
(iii) Strike the knob located in the cap.
(iv) Sealing disk of the cartridge gets broken and allows carbon dioxide gas to escape to the main shell and powder is pushed out.
(v) Direct the steam of the powder at the base of the flame.
(vi) For effective result stand at about 1.5 to 2.5 metre near the seat of the fire.
(vii) Move forward with moving the nozzle rapidly from side to side in sweeping motion.
(viii) When using on outdoor fires operate from the up wind side for effective spray.

4.39.7.3 Building Evacuation:

When the building fire alarm sounds:

(i) Immediately evacuate using building emergency plan procedures.
(ii) Walk to nearest exit/stairwell (close doors behind you)
(iii) Don't use elevators.
(iv) Proceed to the designated gathering area outside the building.
(v) Do not re-enter building until cleared by authority personnel.
(vi) Assist with evacuation of individuals with special needs.

4.39.7.4 Suspicious substance in Railway premises:

(i) Clear and isolate the contaminated area. Do not touch or disturb anything.
(ii) Call police/fire service/bomb squad.
(iii) Wash your hands with soap and water.
(iv) Identify individuals who may have been exposed to the material.
(v) Do not leave premises until disposed by authority.

4.40 Other Accidents:

4.40.1 Bomb threat/Blast:

Person receiving call regarding bomb threat should:

(i) Attempt to gain as much information as possible from the caller like type of device, time set, location, reason/purpose of the act, dialect mannerism and identity of the caller.
(ii) Inform and alert the disaster management team (Bomb detection squad)
(iii) Alert police, fire brigade and explosive department.
(iv) Pass on the information to all departments concerned.
(v) Take initiative for evacuation of all persons from premises.
(vi) Persons noticing a bomb like object, should bring it to the notice of the nearest available officer.
(vii) Inform GRP, RPF, and bomb detection squad.
(viii) Ensure all persons are away from the spot and avoid unnecessary crowding

near the area.

(ix) Inform control to take further steps for regulating train services.

(x) Wait for clearance from the police department to restore normal working.

(xi) Utilise "Caller ID" facility if provided to trace the caller.

4.40.2 Radiation Emergency:

4.40.2.1 Personal injury involving radioactive material contamination:

(i) Render first aid immediately for serious injuries, as trained.

(ii) Call bomb squad, fire station.

(iii) If possible, without causing harm to the victim, monitor the injured; remove contaminated clothing and gross personal contamination.

4.40.2.2 Radioactive contamination of personnel:

(i) Remove and bag all contaminated clothing.

(ii) Call fire station, bomb squad, and police.

(iii) Skin contamination should be cleaned using mild soap and tepid water. Use portable survey meter to monitor for remaining contamination. If not free of contamination, re-wash and re-survey.

4.40.2.3 What to do upon receipt of suspicious letter/package:

(i) Handle with care.

(ii) Don't shake or bump.

(iii) Isolate and look for indicators.

(iv) Don't open, smell or taste.

(v) Treat it as suspect.

(vi) Call Police/Fire service/Bomb squad.

4.40.2.4 If parcel is Open and/or Threat is identified:

4.40.2.4.1 For a bomb:

- *Evacuate immediately and Call Police/ Fire service/Bomb squad.*

4.40.2.4.2 For Radiological:

- *Limit exposure- don't handle and Evacuate area.*
- *Shield yourself from the object and Call Police/ Fire service/Bomb squad*

4.40.2.4.3 For Biological or Chemical:

- *Isolate – don't handle and Call Police/ Fire service/Bomb squad.*
- *Wash your hands with soap and water.*

4.40.2.4.4 Tampering of Railway fittings causing accident & placing of foreign

particle on track to cause disruption to traffic:

(i) A staunch vigil should be kept by introduction of special patrolling over the area as and when warranted.

(ii) Some persons to be trained specially and to be drafted for duty over the area if required.

CHAPTER-5

SOP OF Fire accident

(A) OPERATING DEPARTMENT:

The following stations have been provided with Fire extinguishers.

Sr.	Station	Available fire extinguisher		Type		Working condition	Remark
		Station	S&T room	Optg (6KG)	S&T (4.5KG)		
1	OKHA	12	02	DCP	CO 2	working	adequate
2	BMRN	02	02	DCP	CO 2	working	adequate
3	DWK	08	05	DCP	CO 2	working	adequate
4	GRJA	02	05	DCP	CO 2	working	adequate
5	OKD	02	03	DCP	CO 2	working	adequate
6	BHTA	02	04	DCP	CO 2	working	adequate
7	BPKA	02	04	DCP	CO 2	working	adequate
8	BHTL	02	04	DCP	CO 2	working	adequate
9	KMBL	02	05	DCP	CO 2	working	adequate
10	MDPR	02	04	DCP	CO 2	working	adequate
11	KNLS	02	10	DCP	CO 2	working	adequate
12	PPLI	02	5	DCP	CO 2	working	adequate
13	LKBL	02	6	DCP	CO 2	working	adequate
14	JAM	53	7	DCP	CO 2	working	adequate
15	HAPA	12	7	DCP	CO 2	working	adequate
16	ALB	02	5	DCP	CO 2	working	adequate
17	WTJ	02	5	DCP	CO 2	working	adequate
18	JALD	02	5	DCP	CO 2	working	adequate
19	HM	02	4	DCP	CO 2	working	Adequate
20	CX	02	4	DCP	CO 2	working	Adequate
21	PDH	02	4	DCP	CO 2	working	Adequate
22	KHDI	02	4	DCP	CO 2	working	Adequate
23	RJT	166	7	DCP	CO 2	working	Adequate
24	BKNG	04	4	DCP	CO 2	working	Adequate
25	BLWR	02	4	DCP	CO 2	working	Adequate
26	KHC	02	4	DCP	CO 2	working	Adequate
27	KNKT	02	4	DCP	CO 2	working	Adequate
28	SDD	02	4	DCP	CO 2	working	Adequate
29	AXA	02	4	DCP	CO 2	working	Adequate
30	WKR	20	4	DCP	CO 2	working	Adequate
31	LXR	02	5	DCP	CO 2	working	Adequate
32	DL	02	5	DCP	CO 2	working	Adequate
33	LMC	02	5	DCP	CO 2	working	Adequate
34	THAN	02	5	DCP	CO 2	working	Adequate
35	VD	02	5	DCP	CO 2	working	Adequate
36	RA	02	5	DCP	CO 2	working	Adequate
37	MOL	02	5	DCP	CO 2	working	Adequate
38	DXR	02	5	DCP	CO 2	working	Adequate
39	CJR	02	5	DCP	CO 2	working	Adequate
40	SUNR	56	12	DCP	CO 2	working	Adequate

Sr.	Station	Available fire extinguisher		Type		Working condition	Remark
		Station	S&T room	Optg (6KG)	S&T (4.5KG)		
41	BLRD	02	5	DCP	CO 2	working	Adequate
42	BRGP	02	5	DCP	CO 2	working	Adequate
43	LTR	02	5	DCP	CO 2	working	Adequate
44	KXZ	02	5	DCP	CO 2	working	Adequate
45	LPR	02	5	DCP	CO 2	working	Adequate
46	BMM	02	5	DCP	CO 2	working	Adequate
47	SR	02	5	DCP	CO 2	working	Adequate
48	VNRD	02	5	DCP	CO 2	working	Adequate
49	MU	02	4	DCP	CO 2	working	Adequate
50	MVI	10	4	DCP	CO 2	working	Adequate
51	BRL	02	4	DCP	CO 2	working	Adequate
52	WWA	02	4	DCP	CO 2	working	Adequate
53	DAC	02	4	DCP	CO 2	working	Adequate
54	LUN	02	4	DCP	CO 2	working	Adequate
55	NLK	02	4	DCP	CO 2	working	Adequate
56	WML	04	0	DCP	CO 2	working	Adequate
57	MTKD	02	4	DCP	CO 2	working	Adequate
58	SIKA	02	4	DCP	CO 2	working	adequate
59	ATS	05	0	DCP	CO 2	working	adequate
60	TI DWK	20	0	DCP	--	working	adequate
61	TI JAM	20	0	DCP	--	working	spare
62	TI RJT	25	0	DCP	--	working	adequate
63	TI MVI	20	0	DCP	--	working	spare
64	TI SUNR	20	0	DCP	--	working	spare

Note:-

1. As per fire safety measures at Railway stations vide Railway board letter no. 2012/Safety (DM)/6/12/2 dated 16-11-2015 no. of fire extinguishers calculated for station.
2. In S&T building like relay room battery room fire extinguishers provided by S&T department as per their requirement.
3. Fire Mock drills are being conducted at stations for demonstration, counseling and testing of alertness of staff once in every three months.
4. Staff are being given training at ATC-RJT and ZRTI-UDZ regarding fire fighting.
   Fire alarm system is installed at stations CJR, DXR, MOL, RJT, MTKD, SIKA, HAPA, and OKD. The working procedure has been incorporated in corresponding SWRs.

(B) ELECTRICAL DEPT:

- Power Maintenance depots are situated at OKHA, HAPA, RAJKOT, and WANKANER& SURENDRANAGAR Stations on RAJKOT Division.
- Coaching Maintenance depots are situated at OKHA, HAPA, RAJKOT stations on RAJKOT Division.

(C) SECURITY DEPT:

Point No. 01- In case of major fire incidents, prompt action will be taken by calling the local fire brigade/fire tender and coordinating with them. During this, proper arrangements will be made in coordination with the concerned local authorities and sister departments of railway.

Point no. 02- A total of 20 fire extinguishers are available at ALL RPF post and a total of 11 fire extinguishers are available in the Divisional Security Commissioner's office and when need these extinguisher are utilized for the small fire incident.

Point No- 03- There are a total of 06 teams in Rajkot division related to disaster management, in which 01 team has

been formed at the divisional level and 05 teams have been formed at the post level. Which takes quick action in case of any kind of incident, the name and mobile number of the teams is attached.

S.N.	Name of officer and staff	Posting	Mo. No.	Available equipments
			Divisional level	
01	IPF Pushpendra Singhr+SIPF-1, HC/CT-06 Total-08	R.Coy	9724094706	**With R-Coy:** Nylon rope-06, Crow Bar-05, Iron poll-10, first aid box-05, helmets-17, Polycarbonate Lathi- 37, caution tape-6000mtr., Dragon search light -13, megaphone-01
			Post level	
02	IPF –K.P. Singh+ ASI-01, HC/CT-06 Total= 08	RJT	9724094704	**With RJT Post :** Nylon rope-05, , Iron Post poll-10, first aid box-04, Polycarbonate Lathi-35, caution tape- 5000mtr., Dragon search light -10, megaphone-01, Queue manager-30
03	IPF- Shaktisinh Vala + ASI-01, Post HC/CT-04, Total=06	DWK	9724094702	With DWK Post : Nylon rope-02,, first aid box-01, Polycarbonate Lathi-18, caution tape- 2000mtr., Dragon search light -07, megaphone-01, Queue manager-30
04	IPF-Hariprakash Verma + SIPF-01, HC/CT-04 Total=06	JAM	9724094703	**With JAM Post :** Nylon rope-09, frst aid box-01, Polycarbonate Lathi-54, caution tape- 2000mtr., Dragon search light -09, megaphone-01, Queue manager-30,
05	IPF-Vinod kumar Sharma +, HC/CT- 04 Total=05	SUNR	9724094705	**With SUNR Post:** Nylon rope-07, first aid box-02, iron pole-20, Dragon search light -10, megaphone-01, Queue manager-30, helmet with light-06
06	IPF-Anil Kumar Bundela HC/CT-05 Total=06	WKR	9724094792	**With WKR Post :** Nylon rope-02, first aid box-01, Polycarbonate Lathi-10, caution tape- 2000mtr., Dragon search light -02, megaphone-01, Queue manager-10

(D) SAFETY DEPT:

Standard Operation Procedure of fire accidents will be as per Railway board letter No. 2018/Safety(DM)/12/1/SOP, New Dehli, dated 17.05.2021issued by ED/Safety II/ Railway board to GMs of IR and Copy to CSOs of Zonal Railway.

ACTION TAKEN AGAINST FIRE IN TRAIN:

(i) CHAPTER 4 – NECESSITYOFIMMEDIATEACTION:

Incaseoffire ontrain, typicaltimeavailablefor rescue is afew minutesbefore smoke fills up and passengers start getting disoriented. Smoke (toxic/non-toxic)can causesuffocationand lossofconsciousness in twominutes.Fire inpersonal clothing causes loss of consciousness in 10-15 seconds and Death orincapacitation (followed by death) can happen in five minutes. A fire in train destroysthetrain carriage(s)completelyinafewminutes.

In most of the cases, relief reaches a burning train after the carriages arecompletely burnt and passengers dead or badly burnt. Under such situation, role ofon-board Railway officials becomes vital and they should get into action to save theprecious lives on priority. On-board officials who accompany trains need to reactimmediately to put-off / extinguish fire and rescue passengers / save the railwayproperty.

All on-board Railway officials need to have basic knowledge on fire, firefighting methods, and handling of Fire Extinguishers and operation of Fire Suppressionsystem now being introduced in Coaches. They have to be imparted hand onpracticeinthemethodsofrescuethroughvarioustrainingprogrames.

In case of LHB rakes, coupling unlocking key may be provided to Guard and LP fordetachment of coachesif required.

A Railway servant noticing a fire, likely to result in loss of life or cause damage to property, shall take all

possible steps to save life and property, toprevent itfromspreadingandtoextinguishit.

InstantActionTeam (IAT)

An instant action team comprising of all or some of the following personnelasavailable onthe trainmay be immediatelyformed:

- Traincrew(AssistantLocoPilot, Locopilots, and Guard).
- TrainSuperintendent, TTEsandother commercial lon-boardstaff.
- ACCoachattendants/mechanics, PowerCarstaff, otherelectricalon-boardstaff.
- TXRstaff, On-boardHousekeepingStaff(railwayand/orcontractor).
- S&Ton-boardstaff.
- RPF/GRPstaff.
- Pantrycar(railwayand/orcontractor)staff.
- OnboardRailwayemployeeseitherondutyoronleavetravellingaspassengers.
- Doctorstravellingbythetrain.
- Passengerstravellingonthetrainwhovolunteerforrescueandreliefwork.
- Railwaystaffworkingatsiteor availablenearthesite of the fireincident.

Allon-boardstaffincludingRPF/GRP/ACandMechanicalStaffincluding Contract staff needs to share the details with mobile number withTTE - IAT in-ChargeandGuardforbettercoordinationincaseofanyemergency.Similarly, IAT in-charge mobile numbers may be shared withpassengersthroughSMS.

RoleofmembersofInstantActionTeam

The members of instant action team should carry out the following task bydistributingthe work amongthem:

- Donot panic.
- Pull the Alarm Chain and stop the train immediately. Inform the Loco PilotandGuard of the train.
- Informallconcerned about the fireandseektheirassistanceinextinguishingthe fire.
- Do not wait for others to arrive or help to arrive. Start with rescue and firecontrollingimmediately.
- Inform the local administration, local hospital and take help of local people, ifavailable.
- Report it to the nearest station/control/fire station. (fire services: 101, it canbedialedbymobilealso),DisasterHelplineno.139&SecurityControlno.182
- Openemergencywindows/breakglassesforevacuationofthepassengers.
- Responsibility may be assigned to certain specific members of team forkeeping thedoorwayand vestibulesclearofobstructions.
- Evacuatepassengerstocoacheswhichareawayfromfirethroughvestibules, iffireisnotextinguished.Aftercompleteevacuation, rollingshutters of coaches on fire to be closed to contain spread of fire to othercoaches.
- More people expire due to suffocation from smoke rather than due to actualburning.
- **DuringFire, thepoisonousgasessuchasCarbonMonoxide(CO), CarbonDi-oxide (CO_2) etc. beinglighter inweightcirculatesin theupper part of coach/space while oxygen is present in the lower part ofthe space. While running or walking, passengers may inhale poisonousgasesquicklyandthusresultingsuffocationandasphyxiation.Passengers should be advised to crawl on the floor instead of running.Theyshouldalsobeadvisedtotakeawetclothandcovertheirnostrils. This reduces the smoke inhalation & subsequently its badeffects.**
- Insist that passengers should save themselves first and not to bother abouttheirluggage which can beretrievedlateron.

- Advisepassengerstoremaincalmandnotpanic.
- Isolatetheaffectedcoaches/wagonsfromothercoaches/wagonsbydecouplingbothMechanical&Electriccouplers. Create andmaintainadequatedistancebetweentheaffectedcoachandothercoachessothatfiredoesnotspread toothercoaches duetoproximity.
- Locate fire extinguishing equipment viz, fire extinguishers, water bucket withwater/sand, etc. and use these to extinguish fire. Use water from coaches toextinguishfire.
- Whenever alarm is triggered through Automatic Fire Detection system incoaches (Powercar/SLR, Pantrycar&ACcoaches)fitted withFireDetectionSystem(Manual/Automatic), extinguishfireaspertheinstructionspastedin coaches.
- Tryandputouttheverysourceofthefirebeforeitbecomesa bigblaze.
- Turn off Electrical Appliances. In case of fire from electricity, switch off thesource.
- In case of the fire is discovered when the train is near the tank or a wateringstation, the Guard and Loco Pilot shall use their discretion to proceed there, but no such attempt shall be made until the portion of the train in rear ofburningvehicle hasbeen detached.
- Provide wheel skids to prevent roll back of isolated coaches and train aswell.TrainshallbeprotectedbyLocoPilotandGuardatbothendsaccordingto theprovisionof GR & SR.
- Loco Pilot to put flasher light of loco “ON” or make all possible efforts toattract attention of Loco Pilot of crossing train to stop his train and ask himfor assistance.

WhenaPerson isonFire

- Approachhimholdingthe nearestavailablewrapin front ofyou.
- Wrapitroundhim.
- Layhimflatandsmothertheflames.
- Hemayrollonthefloor, smotheringtheflames.
- Onnoaccountshouldherushintotheopenair.
- Callforassistance.

HandlingofInjuredPassengers

- Building up confidence of injured passengers by suitable advice is of great importance.
- Firstaidshouldberenderedtotheinjuredpassengers.
- Ordinarily give nothing ORALLY to injured one, but if medical treatment isdelayed more than 4 hours, give Oral Rehydration Solution (ORS) drinkspreferablybio carbonated soda.
- In serious case, remove the patient quickly to hospital as the injured mayrequirean aesthetic, medicalsoothing.

(ii) CHAPTER 5 - GENERAL SAFETY INSTRUCTIONS AND ROLE OF VARIOUS STAKE HOLDERS:

Crew(LocoPilot/AssistantLocoPilot/Co-Pilot/Guard)

- Stop the train immediately and switch on the flasher light after observing fireor on receiving intimation about fire. Arrange to stop the train coming fromother direction so as topoolhelpto tacklefire.
- In the event of fire in a tunnel or over a bridge, the LP/ALP will not stop thetrain in the tunnel or over the bridge as far as possible. The LP/ALP, however, should slow down the train while clearing the tunnel/bridge. The stoppingdistance in case of LHB rakes after Alarm Chain Pulling is less and the LocoPilot has little scope of stopping beyond a tunnel or bridge in case of fire. Insome cases, the railway bridges are not having any pathway. Thus the LocoPilot should apply his best judgment in case of handling such an eventualitywhilepassingthrougha tunnelorbridge.
- Loco Pilot & Guard will immediately inform the control directly by mobiletelephoneortalkingtonearestStationMasteronwalkie-talkieabouttheincidentof fire andpreliminary details about thefire.

- Guard and Loco Pilot will protect their train, as per provisions of GR & SR, securethetraintopreventrollingdownandprotectionofadjacentline,ifany.
- Arrange for isolating the affected coaches from other coaches by decouplingboth Mechanical&Electric couplers.
- The vehicle behind the one on fire shall be detached and the front portionofthetrainmovedforwardsoastopreventtherearvehiclescatchingfire.
- As soon as the front portion of the train has moved forward a sufficientdistance, tosecurethedesiredobject, theburningvehicleshallbedetached and the vehicles in front of it shall then be moved forward to asafe distance.
- If required hand shunting may be carried out by taking help of passengers&railway staff travellingin the train.
- Provideanti-rollingarrangementsonisolatedcoachesandtrainaswellbytakinghelp ofrailway staff travellingin train&passengers.
- Reportittothenearestst ation/control/firestation, civilpolice, RPF/GRPControlpostthrough mobile telephone.
- Useavailablefireextinguishers, sand, looseearth, water, blanketsetc.toextinguishthe fireand helppassengerstrapped in fire.
- Guardofthetraintoarrangestretcherandfirst-aidboxforprovidingassistanceto theinjured passengers.
- Renderfirstaidtoinjuredpassengers, byobtainingassistanceoftherailway staff, doctors and/or volunteers on the help of ambulance service, meansavailable.
- If the fire cannot be controlled, inform the traction power controller throughthe emergency telephone or any other mode of communication to arrangethe affected section of the over-head equipment to be made dead afterisolating theaffectedcoaches.
- In case of fire in Freight train, in addition to action to be taken on relevantpointsabove, thecrewshallcarryout thefollowing;
- Thetrainwillbecontrolledimmediatelyandbroughttothenearestst ation/yard in the loop line or yard line in consultation with the nearestst ation&Section Controller.
- The affected wagon or wagons shall be separated from the rest of thetrain.
- Provideanti-rollingarrangementontheisolatedwagonsandtrain.
- Guard and Loco Pilot shall try to extinguish the fire from nearby tank orwatercolumns at stations.
- Guardofthetrainshouldlodgea FIR,ifrequired.
- IntheeventoffireonelectricengineLoco Pilot shall immediately switch off the circuit breaker and lower the pantograph hasprovidedin GR&SR.
- Thelocomotiveshouldbeseparatedfromtherestofthetrainaftersecuringthetraintoavoidrollingdownofthetrain.Anti-RollingArrangement should be provided in locomotive after moving adequatedistancefromrest of the train.
- In the event of fire on EMU/MEMU, in addition to above mentioned action,followingisalso tobe carried out;
- Thetrainshallthenbebroughttoastopatonce.
- The Loco Pilot/Motorman shall immediately switch off the circuit andlower the pantograph.
- The Guard shall give all possible assistance to the Loco Pilot in puttingout the fire, isolate the other coaches from the affected coach and helpthepassengers.

TrainsSuperintendent/TTEsandothercommercialstaff:

- Pull the Alarm Chain and stop the train immediately. Inform the crew of thefireincident.
- ObserveanyalarmorbuzzerfromsmokedetectorsprovidedinACcoaches.In case of any buzzer from smoke detectors, find out wheresmokeorfireis from
- Report to the Commercial Control immediately and also dial 101 to call fireservice people & 108 for medical help in emergency by giving the location as Km No. & Train No.Also call 139Helplinetoarrange rescue&relief onwarfooting.
- Use fire extinguishers available in coaches to extinguish fire or use wateravailablein coaches.
- Evacuate passengers to the adjacent coaches which are away from the firethrough vestibules, if fire is not extinguished. After complete evacuation, rolling shutters of coaches on fire to be closed with the help of availablerailwaymen andpassengers tocontain spreadof fire.

- Advice passengers to take a cloth, wet it in their drinking water and covertheirnostrils.Thisreducessmokeinhalationandsubsequentlyitsbadeffects.
- Insist that passengers should save themselves first and not to bother abouttheir valuables/luggagewhich canberetrievedlateron.
- Takeassistanceofvolunteersfrompassengers, travellingRailwayemployees, doctor'sontrains, onboardcontractorstaffetc.inrescueoperation.
- Call the doctor after checking the charts & advise him about the passengersaffected byfire.
- Take the help of other railway staff including RPF and GRP and Samaritanpassengers to help the doctor in providing first aid and other aid to theaffectedpassengers.
- Arrangestretcher andfirstaidboxfor theinjuredpassengers.

PantryCar Staff:

- Incase offireinpantrycar -
- Immediatelypullchaintostopthetrain.
- InformTTEs etc of thefireincident andseek assistance.
- Immediatelyswitchoffallelectricalappliancesandisolatethemelectrically.
- Closeallcookinggasappliancesinthepantryandremovethegascylindersintothe open away fromfire.
- Protecttheinflammablematerialavailableatpantrycar.
- Extinguishfirebyusingfireextinguishersavailableat pantry car.
- Inallothercasesoffire, followtheinstructionslaiddownaboveforinstantactionteam.
- ProvidenecessaryassistancetoTTEsandotherstaffinextinguishingthefireandextricating the trapped passengers.
- Cookinginpantryshouldnot bedoneunlessspecificallypermitted.
- Storageofgascylindersinpantrycarsshouldnotbedoneunless specifically permitted.

C&WStaffandOnBoardHousekeepingStaff:

- Openthedoorsofboth sides ofcoaches.
- OpenEmergencyWindowsforEvacuationofthepassengers.
- Evacuate the passengers to the adjacent coaches which are away from thefire through the vestibules; if the fire is not extinguished. After completeevacuation, closethe rollingshutters ofcoachesonfiretocontainthespreadof fire.
- Help the train crew in physically isolating/separating the affected coachesfromthe remaining train.
- Followtheinstructionslaiddownaboveforinstantactionteam.
- Provide necessary assistance to TTEs and other staff in extinguishing thefireandextricating the trappedpassengers.

ACCoachMaintenanceStaff:

- Immediatelyisolatetheaffectedcoach/coacheselectrically.
- Breakthe boxand take out hammertobreakglasspanesof ACcoachessothatfresh airflowsin and smokegoes out.
- Followtheinstructionslaiddownaboveforinstantactionteam.
- ProvidenecessaryassistancetoTTEsandotherstaffinextinguishing the fire andextricating the trappedpassengers.

PowerCarStaff:

Incaseoffireinpower cars -

- Stop train bypullingalarmchainimmediately.
- InformGuard/LocoPilot/TTEsetcofthefireincidentandseektheirassistance.

- Shutdownthepowercarenginesanddisconnect powersupply.
- Use fire extinguishers and fire ball provided in engine room in case of fireinpowercarto extinguish fire.
- Incasefireisnotcontrolled,detachpowercarfromthetraininconsultation with crew and Guard and taking help of Railway men andfellowpassengers
- Inallothercasesoffire, followtheinstructionslaiddownaboveforinstantactionteam.
- ProvidenecessaryassistancetoTTEsandotherstaffinextinguishing the fire andextricating the trappedpassengers.
- WhenalarmistriggeredthroughAutomaticFireDetectionSysteminPowerCarfittedwithFiredetectionsystem, operationof FireSuppressionsystemhastobeensured.

RPF/GRP:

- Pullalarmchaintostopthe train.
- Rush to the affected coach/coaches immediately and provide necessaryassistance to TTEs and other staff in extinguishing the fire and extricatingthetrapped passengers.
- Followtheinstructionslaiddownaboveforinstantactionteam.
- In case doctor/doctors are available, necessary assistance will be providedto ease workingofdoctor.
- Separate the area of incident by establishing temporary barriers and ensurethat the on lookers and spectators do not enter the affected area to disturbthesceneorhampertherescue operations.
- Baggage of passengers should be isolated and protected and should betakencareof, tilltheyarehandedoverto claimantsortaken over byRailwayauthorities.
- RPFpersonnelshouldrespondtoanycallfor assistance orescuevictimsandtransportthemto the nearesthospital.
- Check, saveandrecordtheevidences/cluesofthefire.
- Help Guardinlodgingof FIR.

StationMasteratStationorNearbyStationofFireIncident:

- InformthenearestFireBrigadeofficeofthelocationoftheincidentandrequisitiontheirservices.
- AdvicetheSectionControllerand/orTPCofthefireincidentindicatingtheaffectedsection and/orforOHEisolation.
- Informthelocalhospitalsandrequisitiontheservicesofthedoctorsandparamedicalstaffasperthe requirement.
- Informallofficersandsupervisorsofalldepartmentsavailableatthestation.
- Thecontrollingstationmastershallproceedtothesitewithstaffofvariousdepartmentstohelpinrescueandrelief operations.
- StationMastershallnotallowanytraintoenterontheadjacenttrackof the affected section.
- After clearance eof affectedtrainfromthesection, adviceSectionController.
- On receipt of advice from Section Controller allow the train service on thesectiononreleasingthe emergency powerblockandOHEpowerisswitchedonin the section.

SectionControllers:

- SectionController, onreceiptoffireincident, shalladviceadjacentstations/stationmasterstoregulatethetrain servicesintheaffectedsection.
- Dependingontherequirement, orderART/ARME/SPART.
- Immediatelyinform TractionPowerController(TPC)toswitchoffOHEpower supplyin theaffectedsection, ifrequired.
- Incase offire in Freighttrain, trainwillbecontrolled immediately andbroughttothenearestation/yardintheloopline oryardlineinconsultationwithDy.CTNL/CTNL.

TractionPowerControllers:

- TheTractionpowercontrollershallswitchofftheOHEpowersupplyof both the lines ofrelevantaffectedsectiononthe adviceof SectionController.

- AdviceSectionControllerinwritingthatOHEpowersupplyhas been switched-off inthe affectedsection.
- OnadviceofSectionController, TPCshallswitch-ontheOHE powersupplyinthe affected section.

Role of Dy.CTNL/CTNL:

- InformtheFireBrigadeofficeofthelocationoftheincidentandrequisitiontheir services.
- Informcasualty ofDivisionalHospitaltoinformDoctors.
- Informthelocalhospitalsandrequisitiontheservicesofthedoctorsand Paramedicalstaffasperthe requirement.
- Promptlyinformallthe concernedofficers.
- OrderARME/ART/SPARTimmediately&arrangeDiesel/Electricpoweraccordinglywith Crew&Guard.
- Hooter tobesoundedintheDivisionalcontrolandin theLocoshed.
- PromptlyinformC&W, Engineering, Loco, Commercial, Security, and TRD Controllers.
- Incaseoffiretoa passenger carryingtrain, civilauthoritiesshouldbe promptlyadvised.
- IncaseoffireinFreighttrain, thattrainwillbecontrolledimmediatelyandbroughtto thenearest station/yardin theloopline oryardline.
- Filltheproformaabouttheaccidentasapplicableandadviseallconcerned.

IntheeventofFireCausedbyPetroloranyotherInflammableLiquids,Acids,Gases, Explosives,DangerousGoodsetc.

- Segregatetheaffectedwagon, coachorareainvolved.
- On opening a coach/wagon do not enter it immediately so as to escapefumes, which may be dangerous.Allow the fumes to let away from theaffectedarea.
- In case of fire due to LPG tank wagon, close the valves to isolate LPG feedor by othersuitable controls.
- If you smellgas or vapour, hold a wet cloth loosely over your nose andmouth and breathethroughitin asnormalaspossible.
- UseDCP/Foamtypefireextinguishersandtoextinguishgasor oilfire.
- Donotusewater or sodaacidtypefireextinguishers.
- Donotbringburningobjectnearthesiteoffire.
- Warnthepeoplelivinginthesurroundingarea.
- Stayaway fromends of tanks, as tanksnormally burst fromthe ends.
- Cooltanksthatareexposedtoflameswithwaterfromthesidesonlyafterthefireis put out.
- Withdrawimmediatelyincaseofrisingsoundfromventingsafetydeviceoranydiscoloration of tank due tofire.
- InformthenearestRailwayorCivilFireStationsintimatingthatthefirehasbeencausedbyPetrolor anyotherinflammableliquids, acidsor gases.
- Incaseoffirefromcylinders,followingstepsshallbetakenifnoundueriskisinvolved:
- Moveunheatedcylinderstoasafeplaceafterensuringclosingof valves.
- Cool the hot cylinders by spraying water from a safe position. Theperson directing the spray should take up a position where he would beprotected frompossible explosion.
- If the cylinder containing inflammable/toxic gas which develops leakduring transport, remove it to an isolated open place away from anysourceofignitionandadvicethefilleror consignorasrequired.
- InformtheChiefController ofExplosivesbyfax/telephone.
- InformOfficerInchargeof nearest policestation.

CHAPTER – 6

STRENGTHENING DISASTER RISK GOVERNANCE

6.1 Background:

Strengthening disaster risk governance is considered a cornerstone of the efforts to understand, reduce and manage risks in global practices (UNDP 2015). UNDP defines disaster risk governance as follows (UNDP 2013):

"The way in which public authorities, civil servants, media, private sector, and civil society atcommunity, national and regional levels cooperate in order to manage and reduce disasterand climate related risks. This means ensuring that sufficient levels of capacity and resourcesare made available to prevent, prepare for, manage and recover from disasters. It alsoentails mechanisms, institutions and processes for citizens to articulate their interests, exercise their legal rights and obligations, and mediate their differences."

The concept has evolved over the last decade and the current thinking acknowledges that onecannot separate governance of disaster risk from the governance of other types of risks, including those associated with global climate change, environmental degradation, financial crises, and conflict situations (UNDP 2015). From the mid-2000s onwards, governance was commonly accepted as the crux of DRR, with comprehensive efforts underway to increase the DRR capacity of national and local institutions; to strengthen policy, legal and planning frameworks; to develop human and financial capacities; and to promote multi-stakeholder and multi-disciplinary approaches. There is now greater emphasis on accountability, transparency, responsiveness to the needs of those most at risk, and ensuring the rule of law/compliance with legal provisions. These are of crucial importance in disaster risk governance.

6.2 Sendai Framework and Strengthening Disaster Risk Governance:

The Sendai Framework states that disaster risk governance at different levels is of great importance for an effective and efficient management of disaster risk. It also requires clear vision, plans, competence, guidance, and coordination within and across sectors, as well as participation of relevant stakeholders. Strengthening disaster risk governance is necessary to foster collaboration and partnerships for the implementation of disaster risk reduction and sustainable development. The Sendai Framework lays emphasis on the following to strengthen disaster risk governance:

a) Mainstream and integrate disaster risk reduction within and across all sectors and promotethe coherence and development of relevant laws, regulations, and public policies. It mustguide both the public and private sectors through the legal framework that clearly spells out the roles and responsibilities. It must address disaster risk in publically owned, managed, or regulated services and infrastructures. It must encourage actions by persons, households, communities, and businesses. It has to enhance relevant mechanisms and initiatives for disaster risk transparency. It must put in place coordination and organizational structures.

b) Adopt and implement disaster risk reduction strategies and plans, across different levels(local to national) and timescales, aimed at preventing the creation of risk, the reduction ofexisting risk and the strengthening resilience – economic, social, health and environmental.

c) Carry out assessment of the technical, financial and administrative disaster risk management capacity to deal with the identified risks at different levels

d) Promote necessary mechanisms and incentives to ensure high levels of compliance with the safety-enhancing provisions of sectorial laws and regulations, including those addressing land use, urban planning, building codes, environment, resource management, health and safety standards, and update them, where needed, for better disaster risk management

e) Develop and strengthen mechanisms to periodically review and assess the progress onvarious DM plans as well as encourage institutional debates, including by parliamentariansand relevant officials, on DRR plans.

f) Assign clear roles and tasks to community representatives within disaster risk managementinstitutions and processes and decision-making through relevant legal frameworks, andundertake comprehensive public and community consultations during the development ofsuch laws and regulations to support their implementation.

g) Establish and strengthen government coordination forums composed of relevantstakeholders at the national and local levels, such as national and local platforms for disasterrisk reduction.

h) Empower local authorities, as appropriate, through regulatory and financial mechanism towork and coordinate with civil society, communities and indigenous people and migrant's indisaster risk management at the local level

i) Work with parliamentarians for disaster risk reduction by developing or amending relevantlegislation and setting budget allocations

j) Promote the development of quality standards, such as certifications and awards for disasterrisk management, with the participation of the private sector, civil society, professionalassociations, scientific organizations and the United Nations

k) Formulate relevant public policies and laws aimed at addressing issues of prevention or relocation, where possible, of human settlements in disaster risk-prone zones.

6.3 Initiatives taken by Ministry of Railways for strengthening Disaster Risk Governance:

Ministry of Railways has taken a number of initiatives for strengthening Disaster Risk Governance as per Sendai Framework for Disaster Risk Reduction. Some of the important initiatives taken to reduce the accidents and improve safety are as under:

6.3.1 Measures to Improve Safety:

- **Safety Focus** - to reduce accidents caused by human errors, a multi-pronged approach with focus on introduction of newer technologies, mechanization of maintenance, early detection of flaws, etc. to reduce human dependence in the first place, alongwith upgrading the skills of the human resources were the prime drivers for accident prevention.
- **Periodical Safety Audits -** Periodical Safety Audits of different Divisions by multidisciplinary teams of Zonal Railways as well as Inter-Railway Safety Inspections were conducted on regular basis. During the year 2018, 83

Internal Safety Audits and 29 Inter-Railway Safety Inspections were carried out.

- **Training facilities -** Special emphasis is being laid on training of Railway Officials specially those looking after areas connected with safety. Training was imparted to 1, 55,337 (Provisional) Non-Gazetted safety staff during 2018-19.

6.3.2 Infrastructural Inputs :

'Rashtriya Rail SanrakshaKosh (RRSK)' has been introduced in 2017-18 for replacement/renewal/upgradation of critical safety assets, with a corpus of Rs.1 lakh crore over a period of five years, having annual outlay of Rs.20,000 crore. In the first year of its inception, expenditure of Rs.16091 crore was made out of the Fund for safety works. In 2018-19 also, a provision of Rs.20, 000 crore was made, against which expenditure of approximately Rs.18, 000 crore has been incurred.

The Funds under RRSK are utilised for safety works relating to Traffic Facilities, Rolling Stock, Level Crossings, Road Over/Under Bridges, Track Renewal, Bridge Works, Signal and Telecommunication Works, other Electrical Works, TRD Works, Machinery and Plant, Workshops, Training/HRD, Passenger Amenities and Other Specified Works.

Ministry of Finance has issued 'Guidelines for Operation of Rashtriya Rail SanrakshaKosh (RRSK)', which inter alia, includes Monitoring Framework for RRSK. It stipulates setting up of Monitoring Committee headed by CEO/NITI Aayog to examine performance. It is also laid down that the progress will be reviewed annually by Cabinet Committee on Economic Affairs headed by Hon'ble Prime Minister.

6.3.3 Measures to avoid Collisions:

To increase efficiency and to enhance safety in train operations, **Advanced Signaling System** with Panel Interlocking/ Route Relay interlocking / Electronic Interlocking (PI/RRI/EI) along with Multi Aspect Colour Light Signals have been progressively provided at 5886 stations covering about 94 % of the interlocked Broad Gauge stations on Indian Railways, replacing the obsolete Multi Cabin Mechanical Signaling System, that involved a large amount of human intervention. **Route Relay Interlocking (RRI)** have been provided on every major yard of Indian Railways for efficient and safe movement of trains.

To avoid collisions technological aids are briefly enumerated below:-

- **Complete Track Circuiting at stations: -** Track Circuit is one of the most important safety aids provided at the stations, which has reduced collisions in station area. A major thrust has been given to track circuiting at stations.
- **Block Proving Axle Counter (BPAC):-** To enhance safety, automatic verification of complete arrival of train at a station, Block Proving by Axle Counter (BPAC) is being provided at stations having centralized operation of points and signals.

- **Automatic Block Signaling:-** For augmenting Line Capacity and reducing headway on existing High Density Routes on Indian Railways, Automatic Block Signaling is being provided. This results in track circuiting of large portion of the track which leads to enhanced safety.
- **Automatic Train Protection (ATP) System:** In order to enhance safety in Train operations, Indian Railways has decided to provide Automatic Train Protection (ATP) System using a mix of proven European Train Control System (ETCS) level 2 and an indigenously developed Train Collision Avoidance System (TCAS). The system will be an aid to Loco Pilot, which will help to eliminate accidents due to Signal Passing at Danger (SPAD) and over speeding, ensure visibility of signals in foggy weather in addition to increasing line capacity.
  - Four projects of **ETCSLevel 2** of limited lengths on High Density Networks, have been taken up for extensive trials before going for large scale implementation.
  - **Train Collision Avoidance System (TCAS):-**Indigenous TCAS is under trials and once developed, it will be provided on low density routes.
- **Centralized Traffic Control (CTC) in Indian Railways:-**Centralized Traffic Control is a computer based system which facilitates the control and management of multiple Signaling installations at various stations from a single location. It also provides a real time simulation of railway traffic in a section at a single location. Ghaziabad-Kanpur section has been chosen for provision of first CTC of Indian Railways. All signaling assets in this section, 413 Kilometers double line section having 47 stations can be controlled from a single location i.e. CTC Tundla.
  The CTC operator can directly see the train's locations on an electronic display panel and efficiently control the train's movements by operating signals and points centrally.
- **Train Management System (TMS):-**is another area of technology upgradation for Centralized Monitoring and Management of Train traffic already functional on Mumbai Suburban section of Western Railway and Central Railway, provides live train movements in the Control Centre.

6.3.4 Measures To Reduce Derailments:

- To improve safety, Indian Railways (IR) has been using Pre-stressed Concrete sleepers (PSC) which are economical and functionally best suited for high speed and heavy density traffic. PSC sleepers are being used for all renewals, new lines, doubling, gauge conversion, etc.
- A new design of wider sleeper has been developed and adopted. The new design is considered to be functionally better than the present design. The wider and heavier sleeper offers higher frame resistance, less stress on ballast and rail pad, improving reliability and maintainability of track.
- Upgradation of Track Structure consisting of pre-stressed Concrete (PSC) sleepers, 60 Kg high strength (90 Ultimate Tensile Strength) rails on concrete sleepers, fanshaped layout on PSC sleepers, Steel Channel Sleepers on girder bridges has been adopted on most of the routes.
- Standardization of track structure with 60 Kg Rails and PSC Sleepers: Track structure is being standardized with 60 kg rails and PSC sleepers on all the Broad Gauge routes, especially on high density routes to reduce fatigue of rails under higher axle-load traffic. New track construction and replacement of over-aged tracks is being done by PSC sleepers only.

- **Rail Fracture Detection System -** Rail/weld failures are potential safety hazards. Advanced Railway systems are using the systems, which alerts all concerned in case of failures and train operations are controlled to prevent consequential train accidents. No such system is available on IR. Suitable technology will be developed in association with advanced railway systems for use on IR. A trail of Broken rail detection system on NR & NCR on 25 Kms track length in each has been undertaken. After successful trial, this system will be progressively installed on other important routes.
- **In-motion Weighbridges -** The in-motion weighbridge helps detect overloading in wagons. This reduces fatigue of rail/welds and, therefore, reduces chances of fracture. Installation of in-motion weighbridges is done as and when required as per changes in traffic pattern and emergent requirements and is a continuous process.
- **Long welded rails:** For improving maintenance and better asset reliability, Railways are consistently eliminating fish plated joints on tracks by welding the joints to convert all single rails into long welded rails to the extent possible. During relaying/construction of new lines/gauge conversion also, long welded rails are laid on concrete sleepers to the extent possible. Mobile Flash Butt welding is being done on priority in construction projects.
- **Flash Butt Welding** :
  - Flash Butt Welding of rails on IR is carried out by using Stationary plants and Mobile machines.
  - FBW is done using electrical current and enough heat is generated by using the resistance of rails. No external material is used and Welding takes place by fusion of parent rail metal.
  - Approval of Quality Assurance Plan and Welding Parameters are Standardized by RDSO for both Stationary and mobile plants before execution of Work.
  - FB Welding is carried out as per Indian Railways Manual for flash Butt Welding of Rails, 2012 (FBWM).

6.3.5 Measures Taken To Prevent Fire In Trains :

Instructions have been issued for provision of the following items in coaches during manufacturing at Production Units to improve the safety features of these coaches:

- Fire detection and suppression system in all newly manufactured Power Cars and Pantry Cars.
- Fire and Smoke detection system in all newly manufactured AC coaches.
- Double Acting AC compartment doors in all newly manufactured AC coaches.
- Fire extinguishers in all newly manufactured non-AC coaches.
- Automatic plug type doors in all newly manufactured Humsafar and Uday train coaches.

Apart from this, the existing AC coaches are being retro fitted with Fire and Smoke detection system and existing Power Cars & Pantry Cars are being provided with Fire detection and suppression system. In addition fire balls are being provided in all power cars to control the fires in case if any such incident happens.

Curbing Fire hazards in Pantry Car:

- With a view to curb fire hazards in pantry car, Board has issued guidelines for upkeep of pantry car equipment to ensure that all equipment and gadgets are in working order and in safe condition.
- Electrical gadgets in Pantry Cars should be operated only by the authorized electrical staff, nobody else.
- Zonal Railways have been advised to remove the card board cartons after loading the food articles and they are to be kept in containers made up of fire retardant materials such as insulated metallic boxes.
- Ticket checking staff should permit only those persons in Pantry Car & Power Car (Railway Staff and Pantry Car Staff) whose names are appearing in reservation chart of pantry car and Power Car and having valid travel authority.

Fire detection and suppression system at important installations:

Fire at vital installations paralyses the train movements. Fire detection system is being provided at vital installations. Fire fightingequipment are being provided at such installations. Staffs have been trained to use these equipments.

6.3.6MANAGEMENT OF FIRE IN TRAINS:

Fire on a running train is more catastrophic than on a static one, because the fanning effect may spread the fire very quickly to other coaches and in panic the passengers may jump out of a running train as it had happened in past train accidents. Under such situation, every railway servant available on the train or at the site shall immediately try and stop the train and plunge into action to save lives and property. In this context, the railway servants are expected to have a basic knowledge on fire and fire fighting methods.
Continuous heating due to brake binding, hot axles etc. May also cause a fire. Split liquid fuel can catch fire quickly than the liquid in bulk.

6.3.7 Main causes of fire in Trains:

(i) Carrying stoves, sigris, gas cylinders, kerosene oil, petrol, fireworks etc. in passenger compartments.
(ii) Making fire/using fire near paper, wood, petrol or such other inflammable articles.
(iii) Lighted match sticks, cigarette ends carelessly thrown.
(iv) Short circuit in electrical wirings.
(v) Using naked light during authority token delivery to the driver, shunting of inflammable loads, sealing of inflammable wagons.
(vi) Use of open fire, smoking near gas/petrol tank.

All railway staff and passengers should take all possible precautions to avoid any of the above mistakes so that possibility of fire breaking out can be minimized. In general fire originates in a small level. When burning materials with adequate supply of air surround it, fire spreads.

6.3.7.1 In the event of a vehicle on a train being on fire:

(i) Stop the train immediately.
(ii) Don't panic.
(iii) Evacuate passengers from burning coaches.
(iv) Protect property, valuables & mails.
(v) Locate fire extinguishing substances viz, water bucket with water/sand, fire extinguishers etc.
(vi) Use fire extinguisher if any and put out the fire.
(vii) Use water from the coaches and extinguish the fire.
(viii) Throw earth or sand, if available, on the fire.
(ix) Ascertain the type of fire viz, dry, oil gaseous, electric and use the right type of extinguishers.
(x) Isolate the burning vehicle from other vehicle by uncoupling.
(xi) Train to be protected by Driver and Guard at both ends according to the provision of **G&SR 6.03.**
(xii) Report it to the nearest station/control/fire station.
(xiii) Every effort shall be made to extinguish the fire and to save the wagon labels, seals and contents of the vehicle.
(xiv) In case fire is discovered when the train is near a tank or watering station, the Guard and Driver shall use their discretion to proceed there but no such attempt shall be made until the portion of the train in rear of burning vehicle has been detached.
(xv) Inform all concerned to assist in extinguishing the fire.
(xvi) In case of fire from electrical short circuit switch off the source.

6.3.7.2 In the event of fire on an Electric engine/EMU:

(i) Loco Pilot/Motormen shall immediately switch off the circuit and lower the pantograph. The train shall then be brought to a stop at once.
(ii) After disconnecting the electric supply to affected circuits, Loco Pilot/Motormen shall take necessary action to put out the fire.
(iii) If fire cannot be extinguished by the above means Loco Pilot/Motormen shall advise TPC through emergency telephone to arrange for the affected section OHE to be made dead.
(iv) The guard and any other staff available shall render all possible assistance to the Loco Pilot/Motormen in putting out the fire.
(v) Ordinary fire extinguishers or water from a hosepipe shall on no account be used to extinguish fire on live wire or electrical equipment.If services of fire brigade are required, fire brigade shall not be allowed to commence operation until all electrical equipment in the vicinity of the fire has been made dead.

6.3.7.3 In the event of a fire on a Diesel Engine/DMU stock:

(i) The Loco pilot/Motorman shall immediately switch off the circuit breaker and shut down the engine. The train shall be brought to stop at once.
(ii) The Guard shall give all possible assistance to the Loco pilot/Motorman in putting out the fire.
(iii) Fire extinguishers of approved type shall be provided on each diesel locomotive and motor coach of DMU when these are turned out from the home shed. The Foreman/CWS in charge of the shed shall inspect the fire extinguishers and ensure that these are in good working condition.

6.3.7.4 When a person is on fire:

(i) Approach him holding the nearest available wrap in front of you.
(ii) Wrap it round him.
(iii) Lay him flat and smother the flames.
(iv) He may roll on the floor, smothering the flames.
(v) On no account should he rush out in the open air.
(vi) Call for assistance.

6.3.7.5 Fire caused by Petrol or other inflammable liquids, acids or gases:

(i) Segregate the affected wagon, coach or area involved.
(ii) On opening a wagon do not enter it immediately. You would thus, avoid fumes, which may be dangerous.
(iii) Use foam type fire extinguishers and sand and not water or soda acid type fire extinguishers.
(iv) Do not bring naked lights near the site of fire.
(v) Warn the people living in the surrounding areas within one Km. Radius.
(vi) Stay away from ends of tanks, as tanks normally burst from the ends.
(vii) Cool tanks that are exposed to flames with water from the sides only after the fire is put out.
(viii) Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire.
(ix) Inform the nearest Fire Station intimating that Petrol or any other inflammable liquids, acids or gases, have caused the fire.

6.3.7.6 In case of fire due to Explosives/Inflammables/Dangerous Goods:

(i) Extinguish by closing the valve or isolating LPG feed to fire by other suitable controls.
(ii) Following steps may be taken if no undue risk is involved:
  (a) Move unheated cylinders to a safe place after ensuring closing of valves.
  (b) Cool the hot cylinders by spraying water from a safe position. The person directing the spray should take up a position where he would be protected from possible explosion.
(iii) If cylinder containing inflammable/ toxic gas develops leak during transportation, remove it to an isolated open place away from any source of ignition and advise the filler or consigner as required.
(iv) Inform the Chief Controller of Explosives by fax/telephone.
(v) Inform officer in charge of nearest police station.
(vi) Inform department officers concerned.
(vii) Pending the visit of the Chief Controller of Explosives/his representative, the wreckage and debris shall be left undisturbed except to save lives.
(viii) After getting information from the Chief Controller of Explosives that he does not wish any further investigation, the restoration work may be commenced.

6.3.8 FIRE FIGHTING:

6.3.8.1 Dry chemical powder type fire extinguisher (DCP):

These types are suitable for tackling petroleum, gas, electrical fire and controlling fires of textile fibres. Sodium based chemical powder is used on a fire which undergo chemical reaction.

6.3.8.2 How to Use Dry chemical powder type fire extinguisher (DCP):

(i) Carry to the place of fire and keep it up right.
(ii) Remove the safety clip.
(iii) Strike the knob located in the cap.
(iv) Sealing disk of the cartridge gets broken and allows carbon dioxide gas to escape to the main shell and powder is pushed out.
(v) Direct the steam of the powder at the base of the flame.
(vi) For effective result stand at about 1.5 to 2.5 metre near the seat of the fire.
(vii) Move forward with moving the nozzle rapidly from side to side in sweeping motion.
(viii) When using on outdoor fires operate from the up wind side for effective spray.

6.3.8.3 Building Evacuation:

When the building fire alarm sounds:
(i) Immediately evacuate using building emergency plan procedures.
(ii) Walk to nearest exit/stairwell (close doors behind you)
(iii) Don't use elevators.
(iv) Proceed to the designated gathering area outside the building.
(v) Do not re-enter building until cleared by authority personnel.
(vi) Assist with evacuation of individuals with special needs.

6.3.8.4 Suspicious substance in Railway premises:

(i) Clear and isolate the contaminated area. Do not touch or disturb anything.
(ii) Call police/fire service/bomb squad.
(iii) Wash your hands with soap and water.
(iv) Identify individuals who may have been exposed to the material.
(v) Do not leave premises until disposed by authority.

6.3.9 Other Accidents:

6.3.9.1 Bomb threat/Blast:

Person receiving call regarding bomb threat should:
(i) Attempt to gain as much information as possible from the caller like type of device, time set, location, reason/purpose of the act, dialect mannerism and identity of the caller.
(ii) Inform and alert the disaster management team (Bomb detection squad)
(iii) Alert police, fire brigade and explosive department.
(iv) Pass on the information to all departments concerned.
(v) Take initiative for evacuation of all persons from premises.
(vi) Persons noticing a bomb like object, should bring it to the notice of the nearest available officer.
(vii) Inform GRP, RPF, and bomb detection squad.
(viii) Ensure all persons are away from the spot and avoid unnecessary crowding near the area.
(ix) Inform control to take further steps for regulating train services.
(x) Wait for clearance from the police department to restore normal working.
(xi) Utilise "Caller ID" facility if provided to trace the caller.

6.3.9.2 Radiation Emergency:

6.3.9.2.1 Personal injury involving radioactive material contamination:

(i) Render first aid immediately for serious injuries, as trained.
(ii) Call bomb squad, fire station.
(iii) If possible, without causing harm to the victim, monitor the injured; remove contaminated clothing and gross personal contamination.

6.3.9.2.2 Radioactive contamination of personnel:

(i) Remove and bag all contaminated clothing.
(ii) Call fire station, bomb squad, and police.
(iii) Skin contamination should be cleaned using mild soap and tepid water. Use portable survey meter to monitor for remaining contamination. If not free of contamination, re-wash and re-survey.

6.3.9.3 What to do upon receipt of suspicious letter/package:

(i) Handle with care.
(ii) Don't shake or bump.
(iii) Isolate and look for indicators.
(iv) Don't open, smell or taste.
(v) Treat it as suspect.
(vi) Call Police/Fire service/Bomb squad.

6.3.9.4 If parcel is Open and/or Threat is identified:

6.3.9.4.1 for a bomb:

- Evacuate immediately and Call Police/ Fire service/Bomb squad.

6.3.9.4.2 For Radiological:

- Limit exposure- don't handle and Evacuate area.
- Shield yourself from the object and Call Police/ Fire service/Bomb squad

6.3.9.4.3 For Biological or Chemical:

- Isolate – don't handle and Call Police/ Fire service/Bomb squad.
- Wash your hands with soap and water.

6.3.9.4.5 Tampering of Railway fittings causing accident & placing of foreign particle on track to cause disruption to traffic:

(i) A staunch vigil should be kept by introduction of special patrolling over the area as and when warranted.
(ii) Some persons to be trained specially and to be drafted for duty over the area if required.

6.3.9.5 Measures to Curb Accidents at Level Crossings:

Various measures taken by Indian Railways to prevent accidents at level crossings are as under:

(a) **Elimination of Level Crossing:** Level crossings are meant to facilitate the smooth running of traffic in regulated manner governed by specific rules & conditions. Indian Railway has decided to progressively eliminate the level crossings for the safety of Road users and train passengers. During the year 2018-19, 3479 Nos. of unmanned level crossings and 631 Nos. of manned level crossings have been eliminated. As of September 2019, all unmanned Level Crossings on Broad Gauge have been eliminated.

(b) **Provision of Road Over/Under Bridges:** To improve safety of train operations and reduce inconvenience to road users, level crossings are being replaced by Road Over/Under Bridges/Subways (ROBs/RUBs) in a phased manner based on the quantum of traffic.
During the year 2018-19, 172 ROBs and 1305 RUBs/Subways have been constructed under cost sharing, railway cost, and Deposit/BOT term and by NHAI over Indian Railway. Works for construction of 1581 ROBs and 5751 RUBs/Subways have been sanctioned. These are at various stages of planning and execution.

(c) **Interlocking of Level Crossing Gates:** Indian Railways have provided interlocking with Signals at 11375 Level Crossing Gates as on 31.03.2019, to enhance the safety at Level Crossings.

(d) **Action Plan for Road Users' Safety :** To reduce accidents at manned and unmanned level crossing gates, IR will adopt following multi-pronged strategy :-

- Existing task force of the Ministry of Railways and State Governments for construction of ROBs/RUBs would be made more effective.
- Items to be resolved between the Ministry of Railways and Ministry of Road Transport and Highways.
- Speed breakers at level crossings, their standards and maintenance.
- Testing of driving license applicant with regard to thorough knowledge pertaining to level crossings.
- Widening of roads at selected high density locations to ease movement.
- Training and counselling of road users.
- Lifting barriers with retro-reflective markers in lieu of gate leaves shall be provided on double and multiple lines.
- On manned level crossings, with more than 500 road vehicles per day and where possible, the road width shall be widened in railway land.
- Signaling Systems like Interlocking arrangements and provision of telephones at LC gates enhances safety considerably.
- Of 21340 Manned Level Crossings, 11375 are already interlocked and provided with signals as on 31.03.2019.
- Inclusion of Dos and Don’ts near level crossings in primary school curriculum.
- Intensive social awareness campaigns to counter misadventure in front of approaching trains.
- Basic infrastructure on all unmanned level crossings will be ensured and it includes provision of adequate width, normal gradient, and level surface for 5 m from centre of the nearest track, Whistle Boards in retro-reflective sheets,

specified Road Warning Boards, road surface in good condition and speed breakers/rumble strips etc.

- All level crossings, as per revised criteria for manning, falling in the three specified categories, are proposed to be manned in next 5 years.
- Periodic census of level crossings will be carried out by multi-disciplinary teams.
- Compulsory whistling by train drivers by linking loco whistle to the Vigilance Control Device (VCD).
- On sections where there are a number of unmanned level crossings, at close proximity, RUBs may be constructed at a convenient location and the remaining level crossings closed.
- Checking visibility levels at all unmanned level crossings, and taking corrective action for their improvement.
- Appropriate approach road gradients within railway boundary to be ensured.

6.3.10 Better and Safer Coaches:

Design of lightweight, stainless steel passenger coaches has been procured through a Transfer of Technology (TOT) contract from M/s Linke Hofmann Busch (LHB) of Germany. The coach provides better ride index at higher speeds. The design provides a higher safety level as a result of modern technology in use in the design of high-speed bogies.

LHB coaches have better riding, aesthetics, higher passenger capacity and safety features as compared to conventional Integral Coaches Factory (ICF) coaches. The Production of LHB coaches in production Units has continuously increased over the years. Only LHB coaches are being manufactured from April 2018 onwards.

6.3.11 Prevention of Accident Due to Fog:

Zonal Railways should ensure that the staff be advised and counselled regarding provisions in the General & Subsidiary Rules (G&SRs). Every Crew to be imparted necessary training for upto two days about the system of working of trains during fog. With the use of fog devices in locomotives, the maximum permissible speed during foggy/inclement weather condition be enhanced from 60 KMPH to 75 KMPH subject to the judgement of the Loco Pilots. Zonal Railways should comply instructions issued from Railway Board on fog from time to time. As per latest instructions on foggy/inclement weather, major precautions to be taken by Zonal Railways for safe train operations are briefly described below:

- Provision of Fog Safe Device: Reliable Fog Safe Devices may be provided to the Loco Pilots in all locomotives running in fog affected areas during foggy weather. Placement of detonators under conditions as contained in Railway Board's letter No.98/Safety (A&R)/19/16 dated 23.10.2018 shall be dispensed with.
- Modified Automatic Signaling System as per G.R 9.01 (3) & (4) and G.R 9.03 (3) and
  (4) and G.R 5.18 to be followed strictly.
- Necessary works like adequate supply of detonators, fitting of LED flasher tail light, painting of Signal sighting Boards, fog signal posts, whistle boards etc. Should be completed before onset of winter/foggy season.
- Reduced movements in the coaching yards, approach to terminals and at/near terminals etc has to be done to reduce pressure on congested areas.
- Fog affected Railways should review the crew changing location.

- Placement of Visibility Test Object (VTO).

Precautions to be taken by Loco Pilot during Fog:

- When Loco Pilot feels that visibility is restricted due to fog, the speed shall in any case not be more than 75 KMPH.
- LP to whistle frequently to warn gateman and road users at level crossings.
- In Automatic Block territory the speed will be subject to the judgement of the LP i.e. after passing Automatic Stop Signal in Green, Double yellow and at yellow the speed not to exceed 75 Kmph, 30 Kmph and at a further restricted speed respectively.

6.3.12 Other Measures:

- **Constant Review of Safety Performance at Board's apex level** - Safety performance is invariably reviewed as a first item on Agenda of Board Meeting at the apex level. All accidents are analyzed in detail so that remedial measures can be initiated.
- **Safety Review meeting with Zonal Railways –** Chairman and Board members have conducted Safety Review Meetings with General Managers and PHODs of zonal railways during their visits as well as through video conference.
- **Intensive Footplate Night Inspections -** Intensive Footplate Inspections including night inspections have been conducted at the level of SAG, branch officers and supervisors in the field.
- **Regular Safety Drives & awareness campaigns –** Safety drives and awareness campaigns have been launched from time to time, covering the lessons learnt from learnt from recent train accidents so as to prevent similar accidents infuture.
- **Bridge Inspection and Management System:** Modern Bridge Inspection techniques have been adopted, which includes testing by non-destructive testing equipment, under water inspections, monitoring the water level with the help of water level system etc.
- **Patrolling of Railway Tracks:** During adverse weather conditions patrolling of railway tracks including night patrolling is carried out at vulnerable locations regularly.
- **Vigilance Control Device -** All electric and Diesel locomotives are equipped with vigilance control devices (VCD) to ensure alertness of Loco Pilot.

CHAPTER-7

COVID-19 PRECAUTIONS

(A) MECHANICAL DEPARTMENT

I. Difficulties faced & protocols established:

Difficulties faced:

1. Difficulties faced to reach working place particularly during lockdown period. Public transport is not available & staff face harassment from Police force.
2. Difficulty in procuring many articles used in day to day work of train maintenance, passenger amenity etc & usually procured from local market.
3. All non safety category work such as cleaning, washing of rakes is now outsourced. The most difficult task during epidemic is to arrange labour.
4. This was very difficult to counsel the staff to make them follow the COVID protocols strictly & on other hand to overcome from their fear.

Protocols established:

1. Cleaning & Sanitization of units:-
   a. All lobbies, running rooms and depots are being disinfected regularly. All diesel locos are also being sanitized for use of crew involved in freight movement.
   b. All tools and equipments for maintenance are being sanitized prior to use.
2. Counseling of staff: - The practice of daily counseling of staff is kept continue and found effective. All the staff are being counseled daily before commencing the work at every depot.
3. Thermal screening of staff:-
   All the staff coming for their duties at yard/ depots are being passed through thermal screening. The non contact type thermometer being used for thermal screening at depots and also handed over to all lobbies and to RPF staff for thermal screening. Also thermal screening at all lobbies and running rooms is being carried out.
4. In-house construction of contact less hand washing and hand sanitizers in depots
   To avoid spread of Covid-19 by touching the tap etc, a foot operated system for contact less hand washing and hand sanitizers have been prepared in-house on three depots. The same system is fabricated by RJT, HAPA, and OKHA depot for lobbies, running room & for other department also.

5. On line refresher course of Supervisors & Artisan staff has been initiated.
6. Protocols in train examination
   a) Curtains and blankets were removed from AC coaches.
   b) Sanitization of all coaches on every trip.
   c) Disinfection & intensive cleaning of coaches.
   d) Railway has done its part to spread awareness among the public about corona vaccination. In this mission corona vaccination posters were provided in all the base coaches of division.

II. COVID related specific instructions or precautions etc. related to working issued. Copy of the letters/ standard operating procedures /protocols/ instructions issued may be provided as these will help in understanding the issues and avoid back

references.The protocols are described above at Para I. Further various instructions received from Rly Board/HQ office has been followed, e.g.:-

a) Precautions taken to ensure prevention of COVID in coaches.
(Rly board letter no 2019/M (C)/202/1 dated 16.03.20

b) Every employee is motivated to download "Arogya setu app" by themselves & family members & follow protocol for immunity boosting measures for selfcare for Railway Servants and their family members.
(Rly board letter no E(W) 2020/SC-2/1dated 4.4.20)

c) Movement of all stable/stand still coaches on one month periodicity was ensured.
(Rly board letter no MC/CTRB/genl dated 27.07.20)

III. What were the experiences, the positive ones and the difficulties faced in the initial phase, so also in the second phase and how were they overcome? Please include the problems which could not be solved and the impact thereon:-

The positive experience is the dedication of staff. Due to their sincere efforts Railway advances in the process of fighting against COVID condition. More than 100 shramik spl, 150 Parcel trains, were dispatched from RJT Div & 20 COVID isolation coaches prepared during initial phase. Also there is 30% enhancement in the freight traffic which is successfully maintained & managed. Around 30 Oxygen special rakes were maintained, prepared & dispatched from HAPA during IInd phase & the same are still continue.

(B) ELECTRICAL DEPARTMENT

Item No.	Description of Item
1.	The difficulties faced and protocol established
Remarks	**Difficulties faced during Covid-19 pandemic are as under:-** Field unit staff were facing difficulties, particularlystaff performing shift duty, due to lock down orcurfew. Platform duty staff and AC coach escorting staff directly connected with passenger and public, as they were working in infection pronearea. Awareness of prevention measures for field unit staff andtheir family isrequired. Infrastructure of health related issued is needed to beimproved particularly for Group 'C' & 'D'staff. Due to shortage of staff (as a rotation) maintenance activitieswere badlyaffected. Guidelines issued by Railway Board vide letter no. EL/7.2.2 Dtd. 22.5.2020 is being followed.
2.	Covid related specific instruction or precautions etc. related to working issued. Copy of the letter/standard operating procedures/protocols/instructions issued may be provided as these will help understanding the issues and avoid back references.
Remarks	Covid related specific instruction was circulated, as issued by Railway Board vide letter no. EL/7.2.2 Dtd. 22.5.2020. (Copy Enclosed.)
3.	What were the experiences, the positive ones and the difficulties face in the initial phases, so also in the second phase and how were they overcome?

Item No.	Description of Item
	Please include the problems which could not be solved and the impact thereon.
Remarks	**Positive Experience :-** Electrical staff were performed their duty very sincerely to maintain power supply system of stations, service building, Quarters etc and coaching staff performed their duty to avoid any passenger complaint. AC coach escorting staff performed their duty well and served traveling passenger with humanitarian aspect. **Difficulties faced. :-** (i)Health infrastructure in Railway hospital is needed to be improved.

(C) MEDICAL DEPARTMENT

I. Difficulties faced & protocols established:

Difficulties faced:

1. Difficulties faced inreaching work places particularly during lockdown period Public transport was not available & staff faced difficulty in explaining Police force deployed onstreet. Difficulty in procuring many articles used in day to day work of hospital management.
   This was a very difficult time to explain and counsel staff to make follow the COVID protocols strictly looking to the nature of their works.

Protocols established:

1. All staff requiring regular travelling from one station to another station or travelling from home to office had been issued Emergency duty passes during lockdown period to avoid problems with police.
2. All the staff coming for their duties were passed through thermal screening.
3. The non contact type thermometer being used for thermal screening at work places. The Practice of daily counseling and motivating staff was continued and found effective.
4. All the staff was counseled daily before commencing work. Cleaning & Sanitization of hospital and health units was done regularly.
5. All offices including Divisional office. Field's offices and depots were disinfected regularly.
6. All tools and equipments for maintenance were being sanitized prior to use.
7. Protective Materials Supplied to Staff: All Medical staff were provided Hand Sanitizer, face mask, Soap and Face shield etc.
8. Thermal screenings of patients, Separate fever clinic, and Mike system in dispensary and CCTV camera provided.

II. COVID RELATED SPECIFIC INSTRUCTIONS OR PRECAUTIONS ETC. RELATED TO WORKING ISSUED.

1 Every employee are motivated to download "Arogya setu app " by themselves & family members to follow protocol for immunity boost &measures for self care for Railway Servant and their family members.

2. Every employee is motivated to take Covid·19 vaccine with their family members.

III. What were the experiences, the positive ones and the difficulties faced in the initial phase, so also in the second phase and how were they overcome?

1. System of Online meeting have regularly was being done through Zoom/Google Meet/WEBEX etc. Which were physically done earlier. This has resulted saving of time.

2. Treatment of COVID patients done in divisional Hospital, Rajkot. Difficulties of filling of oxygen Cylinder were jointly sorted out by civil authorities.

(D) <u>SAFETY DEPARTMENT</u>

I. **Difficulties faced & protocols established:**

Difficulties faced:

1. Difficulties faced to reach at different stations & LC Gates, which are away from head quarter Rajkot due to Train Services and Bus services were not available. When we go for doing important inspection or Ambush checks, their was fear of COVID-19 in mind, during inspection we followed COVID -19 protocol.
2. During COVID-19 period, it was very difficult to counsel the staff. So we created department wise whatsApp Group and Safety Counselors counseled through whatsApp messages regularly & on line safety seminars on Zoom/WEBEX/ GOOGLE MEET were being conducted.
3. During accidents investigation, restoration work we faced difficulty in following Covid -19 protocol.
4. Signal Sighting joint footplate inspection is being conducted by following COVID-19 protocol as per letter issued by HQ one at a time by one Train and another officer in another train.

Protocols established:

1. Regular regularly cleaning & Sanitization of safety Office and disinfected regularly.
2. All tools and equipments for maintenance are being sanitized properly before use.
3. Counseling of staff: - The practice of daily counseling of staff is kept continue and found effective. All the staff are being counseled daily before commencing the work.
4. Some staff requiring regular travelling from one station to another station or for travelling from home to office have been issued Emergency duty passes during lockdown period to avoid hindrance by the police.
5. All the staff coming for their duties were passed through thermal screening. The contactless thermometer being used for thermal screening at work places.
6. Protective Materials Supplied to Staff: All Safety dept staff were provided Hand Sanitizer, Face mask, Soap, Face shield etc.
7. Officers & supervisors surprise night inspection during in lock down period/surge pandemic period were made not compulsory.

II. COVID-19 related specific instructions or precautions etc. related to working issued.

1. Every employee is motivated to download "Arogya setu app" by themselves &family members& follow protocol for immunity boosting measures for self care for Railway Servants and their family members.
2. Every employee is motivated to take COVID-19 vaccine with their family members.

Protocol:

Important Ways to Slow the Spread of COVID-19:

- Wear a mask that covers your nose and mouth to help protect yourself and others.
- Stay 6 feet apart from others who don't live with you.
- Get a COVID-19 vaccine when it is available to you.
- Avoid crowds and poorly ventilated indoor spaces.
- Wash your hands often with soap and water. Use hand sanitizer if soap and water aren't available.

Wear a mask:

- Masks should be worn in addition to staying at least 6 feet apart, especially around people who don't live with you.
- If someone in your household is infected, people in the household should take precautions including wearing masks to avoid spread to others. And give separate room for affected person.
- Wash your hands or use hand sanitizer before putting on your mask.
- Wear your mask over your nose and mouth and secure it under your chin.
- Fit the mask snugly against the sides of your face, slipping the loops over your ears or tying the strings behind your head.
- If you have to continually adjust your mask, it doesn't fit properly, and you might need to find a different mask type or brand.
- Make sure you can breathe easily.

Stay 6 feet away from others

- Inside your home: Avoid close contact with people who are sick.
- If possible, maintain 6 feet between the person who is sick and other household members.
- Outside your home: Put 6 feet of distance between yourself and people who don't live in your household.
- Remember that some people without symptoms may be able to spread virus.
- Stay at least 6 feet (about 2 arm lengths) from other people.
- Keeping distance from others is especially important for people who are at higher risk of getting very sick.
-

Get Vaccinated

- Authorized COVID-19 vaccines can help protect you from COVID-19.
- You should get a COVID-19 vaccine when it is available to you.
- Once you are fully vaccinated, you may be able to start doing some things that you had stopped doing because of the pandemic.

Avoid crowds and poorly ventilated spaces

- Being in crowds like in restaurants, bars, fitness centers, or movie theaters puts you at higher risk for COVID-19.

- Avoid indoor spaces that do not offer fresh air from the outdoors as much as possible.
- If indoors, bring in fresh air by opening windows and doors, if possible.

Wash your hands often

- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
- It's especially important to wash:
- Before eating or preparing food
- Before touching your face
- After using the restroom
- After leaving a public place
- After blowing your nose, coughing, or sneezing
- After handling your mask
- After changing a diaper
- After caring for someone sick
- After touching animals or pets
- If soap and water are not readily available, **use a hand sanitizer that contains at least 60% alcohol**. Cover all surfaces of your hands and rub them together until they feel dry.
- **Avoid touching your eyes, nose, and mouth** with unwashed hands.

Cover coughs and sneezes

- **If you are wearing a mask**: You can cough or sneeze into your mask. Put on a new, clean mask as soon as possible and wash your hands.
- **If you are not wearing a mask**: Always cover your mouth and nose with a tissue when you cough or sneeze, or use the inside of your elbow and do not spit.
- Throw used tissues in the trash.
- Immediately **wash your hands** with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

Clean and disinfect

- Clean high touch surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.
- **If someone is sick or has tested positive for COVID-19, disinfect** frequently touched surfaces**.** Use a household disinfectant product from EPA's List N: Disinfectants for Corona virus (COVID-19)external icon according to manufacturer's labeled directions.
- **If surfaces are dirty, clean them** using detergent or soap and water prior to disinfection.

Monitor your health daily

- **Be alert for symptoms.** Watch for fever, cough, shortness of breath, or other symptoms **of COVID-19.**
- Especially important if you are running essential errands, going into the office or workplace, and in settings where it may be difficult to keep a physical distance of 6 feet.
- **Take your temperature** if symptoms develop.

- Don't take your temperature within 30 minutes of exercising or after taking medications that could lower your temperature, like acetaminophen.
- Follow CDC guidance if symptoms develop.

III. What were the experiences, the positive ones and the difficulties faced in the initial phase,
So also in the second phase and how were they overcome.

1. System of Online meeting have regularly being done through Zoom/Google Meet/Webex etc. which were physically done earlier. This has resulted saving of time, money etc.
2. Online refresher course was introduced from Area Training Centers to impart training to the field staff which was stopped due to Lockdown.
3. Staff was counseled regularly through WhatsAapp messages.

(E) ENGINEERING DEPARTMENT:

I. **Difficulties faced & protocols established:**

Difficulties faced:

1. Difficulties faced to reach working place particularly during lockdown period. Public transport wasnot available & staff faced harassment from Police force.
2. Difficulty in procuring many articles used in day to day work of track maintenance.
3. All the safety related works which were executing with the contractual labours were stopped due to non availabilityof labours.
4. This was very difficult to counsel the staff to make them follow the COVID protocols strictly looking to the nature of engineering works that needs group of people.

Protocols established:

1. Cleaning & Sanitization of units:-
   a. All offices including Divisional office, field's offices and depots were disinfected regularly.
   b. All tools and equipments for maintenance are being sanitized prior to use.

2. Counseling of staff:- The practice of daily counseling of staff is kept continue and found effective. All the staff are being counseled daily before commencing the work.

3. All staff requiring regular travelling from one station to another station or for travelling from home to office have been issued Emergency duty passes during lockdown period to avoid hindrance by the police.

4. Permission from Collector has been taken to start important and safety related works and also for transportation of labours to workplace during lockdown period.

5. All the staff coming for their duties were passed through thermal screening. The non contact type thermometer being used for thermal screening at work places.

6. Protective Materials Supplied to Staff: All Engineering staff were provided Hand Sanitizer, Face mask, Soap, Face shield etc.

II. Covid related specific instructions or precautions etc. related to working issued.

1. Every employee is motivated to download "Arogya setu app" by themselves & family members & follow protocolfor immunity boosting measures for self care for Railway Servants and their family members.
2. Every employee is motivated to take Covid-19 vaccine with their family members.

III. What were the experiences, the positive ones and the difficulties faced in the initial Phase, so also in the second phase and how were they overcome.

1. System of Online meeting have regularly being done through Zoom/Google Meet/Webex etc. which were physically done earlier. This has resulted saving of time, money etc.
2. Online refresher course was introduced from DETC to impart training to the field staff which was stopped due to Lockdown.

(F) S&T DEPARTMENT:

I. Difficulties faced & protocols established:

Difficulties faced:

1. Problem in Movement of Staff for Maintenance, Inspection and Failures at Stations, LC Gates, mid section cable failures at stations / sections other than HQ stations as Local Trains and Public transport were not available.
2. Problem in movement of staff for Maintenance, Failure rectification in sections where no Hired vehicle is available like SSE-Tele-DWK, KMBL, WKR, SSE-Signal-SUNR.
3. Limitation in movement for essential activities due to limited Kilometres of Hired vehicle and complete dependency on Road vehicle for movement due to COVID-19.
4. Problem in Transportation of material for maintenance and failure rectification.
5. Lack of computers and Peripherals to work from Home / office online.
6. Difficulty in maintaining COVID -19 protocol while working in Engineering Blocks / Mega Blocks where more manpower is required for joint work.
7. Difficulty in motivating staff for movement during Peak COVID period as few death Cases reported in division due to COVID-19.
8. During accidents / Unusuals requiring more manpower at site, difficulty in following
9. Covid-19 protocol while restoration.

Protocols established:

1. Regularly cleaning & Sanitization of S&T Control Office, SSE Depot, Field Depots and disinfected regularly.
2. Availability of Soap, Sanitizer, Mask regularly to all S&T staff.
3. Sanitization of all Vehicles used for movement of staff regularly.
4. During field duties, followed COVID -19 protocols.
5. Regular monitoring of Temperature of all staff and visitors in Office and Depot.
6. In-house construction of contact less hand washing sanitizers in SSE Signal depots.
7. On line refresher, Foundation, Initial Courses of JE/SSE, Technicians and Apprentice JE/Technicians has been conducted during pandemic.
8. All tools and equipments for maintenance are being sanitized properly.
9. Counseling of staff: - Regular counseling of staff for Precautions during COVID-19 at work place as well as offices.
10. Awareness among the Staff / public about corona vaccination through various Display and Announcement systems at stations.
11. Downloading of Aarogya Setu app by Majority of S&T Staff
12. All staff requiring regular travelling from one station to another station or for travelling from home to office have been issued Emergency duty passes during lockdown period to avoid hindrance by the police.
13. Officers & supervisors surprise night inspection during pandemic period not compulsory.

II. Covid related specific instructions or precautions etc. related to working issued.

1. Majority of S&T staff downloaded "Aarogya Setu app" by themselves & family Members & follow protocol for immunity boosting measures for self care for Railway Servants and their family members.
2. Every employee is motivated to take Covid-19 vaccine with their family members.

III. What were the experiences, the positive ones and the difficulties faced in the initial phase, so also in the second phase and how were they overcome.

1. System of Online meeting have regularly being done through Zoom/Google Meet/Webex etc. which were physically done earlier. This has resulted in smooth office working and co-ordination without any physical contact leading to safeguard against COVID-19.
2. Working in Field by staff maintaining social distancing and adopting precautions as per guidelines ensured safe Train operation with minimal effect to staff.
3. During Peak COVID periods, Offices were run with minimum essential staff and rest were working from Home.
4. Online Refresher, Foundation, Initial courses were conducted by IRISET, STTC to impart training to the field staff which were stopped due to Lockdown.

(G) COMMERCIAL DEPARTMENT:

1	Difficulties faced and protocol established
Remarks	Field staff of Booking, reservation and ticket checking are directly dealing with public.These staffs were facing difficulties while performing duty due to lock down and curfew.
2	Covid related specific instruction or precautions etc. related to working issued. Copy of the letter / standard operating procedures / protocols / instructions issued may be provided as these will help understanding the issues and avoid back references.
Remarks	Covid related specific instructions were circulated time to time as issued by Railway board.
3	What were the experiences, the positive once and the difficulties face in the initial phases, so also in the second phases and how were overcome? Please include the problems which could not be solved and the impact of thereon.
Remarks	Positive measures : Upper body PPE kit and Face shield, masks, sanitizers, gloves etc. were provided to ticket checking, booking and reservation staffs. Luggage sanitizing machines provided at Rajkot, Jamnagar and Surendranagar stations. Contact less ticket checking kiosk provided at Rajkot station. Currency sanitizing machines provided at Rajkot Booking office. Two way speaker system provided at booking and reservation counters of all major stations.

(H) OPERATING DEPARTMENTT:

I. Difficulties faced during Covid-19 pandemic are as under:-

1. Station staff and Guards has faced difficulties, as they were performing shift duty and due to COVID-19 restrictions viz lockdown or curfew.
2. Station staff and Guards directly connected with passenger and public as they were prone to infection of COVID-19.

3. Awareness of prevention measures for line staff and their family as required to face the pandemic.
4. Infrastructure of health related issued is needed to be improved particularly for Group 'C' & 'D' staff.
5. The increase in positive cases among Operating staff and employees who were on leave were stranded at their home towns due to non availability of transportation and restrictions has paved the way to staff shortage .
6. Guidelines issued by Railway Board were circulated to all operating staff and were followed in principle.

II. Positive Experience:-

1. Operating staff has set an example in performing their duties sincerely and extending their service to stranded labour and passengers.
2. The Operating staff has come forward in distributing self made masks, sanitizers, drinking water and food to needy passengers, labour.
3. The Operating staff has shown highest level of dedication in operation of Shramik specials, Covid Specials, Parcel specials, Freight trains and Oxygen Specials were moved on top priority.

III. Difficulties faced:-

The assistance in bringing awareness regarding COVID-19 and vaccination is required from Health department.

CHAPTER 8

DISASTER MANAGEMENT PLAN OF RAILWAYS – PERIODICAL REVIEW

8.0 Background

Regular maintenance is critical to ensure the relevance and effectiveness of the DM plans. Plan maintenance is the dynamic process. The plan must be periodically updated to make it consistent with the changes in Government policies, initiatives, and priorities as well as to incorporate technological changes and global experiences. Development in Railways, Location of Relief trains contact details etc should also be updated. Evaluating the effectiveness of plans involves a combination of training events, exercises, and real-world incidents to determine whether the goals, objectives, decisions, actions, and timing outlined in the plan led to a successful response. In this way, the emergency preparedness exercises become an integral part of the planning process. The DM planners must be aware of lessons and practices from various parts of India as well as lessons from across the world. The trainings, mock drills and exercises are crucial. Mock Drills conducted with NDRF/Local bodies and lessons learnt from actual train accidents will help in evaluating the operational aspects of the plan, rectify gaps, and improving the efficiency of the plan. The likelihoods of emergencies and actual occurrences are also occasions for evaluating the plan, making innovations, and for updating the plan, SOPs and guidelines. At times, operations experience setbacks due to outdated information, ineffective procedures, incorrect role assignments, and outdated norms. Further, the priorities for a jurisdiction may change over time as the makeup of the included communities change, as resources expand or contract, and as capabilities evolve.

8.1Preparation of DM Plans on Zonal Railways:

Western Railway prepared Disaster Management Plan at HQ and Divisional Level as per the provision of Disaster Management Act, 2005 as detailed in the earlier chapters and the DM Plan of the Indian Railway (prepared by Railway Board). These Plans will encompass the National Policy of Disaster Management (NPDM) and Guidelines issued by NDMA; as also all types of disasters that can occur on the Railway system. It is reiterated that the High Level Committee on Disaster Management Constituted in 2003 had mainly dealt with the up gradation of Railways relief/rescue facilities to handle train accidents. These are, therefore, only of limited use and relevance in the DM plan now DMP framed based on the new concept of a Disaster as given in the DM Act, 2005. The Plan of the Western Railway details for all types of disasters, the preventive, and mitigation and preparedness measures being taken by this railway and also the rescue, relief and restoration systems in place to meet with them.

NDMA guidelines, instructions issued by the Boards office from time to time and the action plan framed by Western railway will form the backbone of the DM Plan. This plan will be dovetailed with the State and District Disaster Management Plans wherever the same have been prepared.

8.2 **Zonal Disaster Management Plan** is incorporated information common to all divisions of Western Railway. Western Railway's action plan is incorporated for dealing with all types of Railway disaster. Action items along with their progress detailed for all type Railway disasters. Contrary to the divisional Plan this is more centric towards prevention, mitigation and preparedness than rescue and relief. Information like formation of relief and rescue teams at the accident site, Disaster Management Control Cell, Duties of various officers/officials etc. in addition to the information specific to headquarter is incorporated in this plan. Information common to all divisions of western Railway may be replicated uniformly in DM Plans of all divisions. Divisional Specific information not incorporated in this DM Plan.

8.3 **Divisional Disaster Management Plans:**

Divisional Disaster Management Planswill contain division specific information. It will generally contain divisional action plan for dealing with all types of railway disaster. It is not restrictedonly to detailed inventory of Railway and non-Railway resources as envisaged in High Level Committee's Report on Disaster Management. It should focus mainly on further new developments of sharing of resources with all stake holders. It should also have, thereafter, divisional specific information like road maps, etc. Information common to all divisions of a Western Railway may be replicated uniformly in DM Plans of all divisions. Divisional DM plan should contain information about the following:-

1) Role and responsibilities of officers and other stake holders at the accident site and in the divisional control room.
2) Site Management plans
3) Do's and don'ts in handling various types of accidents involving chemicals, oil and natural gas, nuclear materials etc.,
4) Precautions to be taken in case of fire accidents.
5) Action plan for Management of Crowd at stations during festivals and events of mass gathering.
6) Details of Incidence Response System.
7) Passenger care and Managing of Dead Bodies.
8) Media Management.
9) Vulnerability profile of the division from various natural disasters like Earth Quakes, Tsunami, Floods, Avalanches, Landslides, Cyclones etc.,
10) Details of Vulnerable bridges and their location.
11) Telephone Nos. including Mobile Nos. of all important railway officials at both Zonal & Divisional level and telephone Nos. of all stations, blocks etc.
12) Location of ART&ARME/SPART and of adjoining division and of adjoining Zonal Railways.
13) Inventory of medical facilities within Division, Doctors, Hospitals including their specialisation/No of beds, Nursing Home, Ambulances etc.,
14) Details of District & State Officials.
15) Details of Fire service stations.
16) Details of Defence establishment including Army, Navy & Air Force.
17) Details of Helipads/location where a small plane or helicopter can land.

18) Contact details of Oil and Gas companies and Chemical industries.
19) Details of social organisation/NGOs.
20) Inventory of agencies with earth moving equipment like road crane, bulldozer, boats, diving equipment etc.
21) Details of skilled divers with their name and contact details.
22) Details of road transport facilities, distance map superimposed on division map, detailed road maps etc.
23) Details of forensic personal.
24) List of materials in ART&ARME.
25) Details of para-military establishments.
26) List of Government and private helicopter service providers/their contact numbers.
27) Contact numbers of Scouts and Guides.
28) Contact details of St.JohnAmbulance services

8.4 Periodical Review of Disaster Management Plans:

Review of Disaster Management Plans should be a recurring activity. It should also be reviewed and updated as indicated below:

- Major review and revisions after each major incident
- After significant change in operational resources (e.g., policy, personnel, organizational structures, management processes, facilities, equipment)
- Subsequent to any notification or formal update of planning guidance or standards
- After every case of plan activation in anticipation of an emergency
- After the completion of major exercises
- A change in the district's demographics or hazard or threat profile
- Enactment of new or amended rules**,** laws or ordinances

On Western Railway the DM Plans of Zone/divisions are reviewed and updated at least once a year, i.e. January. In the review changes in policy (including the NPDM) issued by NDMA/NEC and by the Central Governments, Western Railway and Railway Board are to be made. The DM Plans of the State Governments and of the Districts need to be gone into periodically and changes incorporated in the respective DM Plans of Divisions.

8.5 Nodal Department for Compilation/Updating of DM Plans:-

The Hospital DM plans and the Security arrangements (drills etc) shall be prepared and coordinated by the Medical and the Security department respectively.

The Management of Floods, Cyclones, Earthquakes, Landslides, etc, and preventive action/ mitigation shall be coordinated by the Civil Engineering Department.

The Rescue and Restoration centric DM including preparation of plans and procurement of specialized equipment and rescue centric training of personnel has to be coordinated by the Mechanical Department.

Safety department on the Western Railway is responsible for compilation of DM Plans at HQ and Divisional Levels which will be reviewed in January every year. These Plans will also to be hosted on the rail-net server of the Western railway and on Safety Information Management System (SIMS) in an interactive format so that the information can be shared and its retrieval is simpler.

8.6Mock Drills/Exercises and Training

For coordination and management during Disaster/major train accident, Indian Railways conducts mock drills with NDRF and each NDRF battalion carry out at least one or two exercises/coordination meeting with each Zonal Railways every year. Coordinating DIG/NDRF and ED/Safety(M), Railway Board finalise the calendar and circulate to concerned Zones/Divisions for conducting Full Scale Disaster Management Exercise with NDRF. Such programs are crucial to ensure full preparedness and to maintain operational readiness of the disaster response operation teams, institutional mechanisms, and the equipment. These drills are organized to test their readiness to deploy within the shortest possible time. Various courses on Safety and Disaster management are also conducted at training institutes of Railways. The trainings are crucial because they go beyond concepts and guidelines into inculcating in the individuals the critical importance of working as a coherent team for emergency response with a clear chain of command. The workshops and drills will also provide an opportunity to practice SOPs.

Zonal Railways also conduct Mock drills quarterly in each division utilising the resources of Railways i.e. accident Relief Train (ART), Accident Relief Medical Van (ARMV) etc. Shortcomings noticed and lessons learnt during the mock drill should be documented for corrective action and to improve SOPs.

8.7 MOCK DRILL:

Trained manpower is an essential ingredient of any DM system. Mere provision of sophisticated equipment without trained manpower is futile. For handling an unforeseen situation like managing a Disaster, training of all railway personnel concerned is an inevitable input. To acquire necessary knowledge and skill, all relevant officials should be given periodic training regarding their duties and that of their department.

8.7.1 Full Scale Mock Drill:

Disaster Management essentially necessitates a state of preparedness under all circumstances and only conducting periodical full-scale mock drills therein, can assess the efficacy of arrangements. As per Bd's letter 2003/Safety (DM)/6/3 dated 13.06.08. Railways may also associate NDRF in full scale exercise held once a year.

(i) Objective of the full-scale mock drill would be to:

- Gauge the preparedness of DM system including detailed planning and keeping of all equipment in good fettle.
- Integrate the operational response to measure overall performance of the exercise.
- Measure performance with regard to accident restoration.

(ii) On a division, the first mock drill should be conducted within 3 months of issue of the Zonal DM plan.
(iii) On a division, the second mock drill should be conducted 3 months after the first one, in order to correct all shortcomings noticed during the first mock drill.
(iv) Thereafter, mock drills shall be conducted once every year.
(v) It should be conducted during the day and in a branch line section.
(vi) 6 hours traffic block shall be taken and the ARME/ART run out to the accident site.
(vii) UCC and CAC should be setup and each department will post their functionaries in the Control Office as also in UCC and CAC.
(viii) All facilities should be provided in UCC and CAC by departments concerned.
(ix) During these full scale mock drill, following aspects shall be closely watched:

- Turning out of ARME/ART within the prescribed time.
- Speed of the specials.
- Assembly of staff.
- Handling of ART, HRDs, HREs and other rescue equipment.
- Logging of events.
- Functioning of field telephones and communication network.
- Functioning of generator sets, lighting equipment.
- Preparedness of first-aides and availability of medical equipment.
- Preparedness of commercial department to mobilise adequate manpower.

(x) On completion of the drill, a detailed report shall be prepared detailing deficiencies noticed, corrective measures initiated and improvements required.

8.7.2 Testing the Plan and Learning to Improve

Evaluating the effectiveness of a plan involves a combination of training events, exercises and real-time incidents to determine whether the goals, objectives, decisions, actions and timings outlined in the plan led to a successful response. The purpose of exercises and drills is to promote preparedness by testing the plan with equal participation of all relevant stakeholders. The process of evaluation and remedial actions will identify, illuminate, and correct problems with the DMP. This process must capture information from exercises, post disaster critiques, self-assessments, audits, administrative reviews, or lessons-learned processes that may indicate that deficiencies exist. Members of the planning team should reconvene to discuss the problem and to consider and assign responsibility for generating remedies across all mission areas. Remedial actions may involve revising planning assumptions and operational concepts, changing organizational tasks, or modifying organizational implementing instructions (i.e., the SOPs/SOGs). Remedial actions may also involve reassessment of capabilities, revisiting assumptions made in the DMP, and finding solutions to overcome the deficiencies. The final component of a remedial action process is a mechanism for tracking and following up on the assigned actions. As appropriate, significant issues and problems identified through a remedial action process and/or the annual review should provide the information needed to allow the planning team to make the necessary revision(s) to the plan.

CHAPTER9

CAPACITY BUILDING TO HANDLE DISASTER

9.0 Capacity Development – An Overview:

9.1 Background:

Capacity development covers strengthening of institutions, mechanisms, and capacities at all levels of all stakeholders. The United Nations International Strategy for Disaster Reduction (UNISDR) defines 'Capacity Development' for DRR as follows:

"The process by which people, organisations and society systematically stimulate and develop their capability over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions – within a wider social and cultural enabling environment." (UNISDR, 2009)

It is an important component of investing in disaster risk reduction. In the domain of disaster risk management, the Sendai Framework emphasizes the need for enhancing the technical, financial, and administrative capabilities of institutions, governments, and communities to deal with the identified risks at different levels. The framework calls for reinforcing the capacity to implement, and enforce risk reduction measures. Capacity development commonly refers to a process that is driven from the inside and starts from existing capacity assets. The framework underlines the need for capacity development of women in disaster management and building their ability to participate effectively in managing disaster risk.

Investing in capacity development for DRR will be a continuing process to enhance the capability of individuals, agencies, and communities to improve the performance of their DM functions. The process of capacity building will include elements of human resource development, i.e., individual training, organizational development such as improving the functioning of groups, and the strengthening of organizations, regulations, and institutions. Involving stakeholders through participatory approaches is essential to establish ownership and commitment. The sustainability of capacity development initiatives increases in direct relation to the level of participation and ownership of the internal partners. In order for capacity development for disaster risk reduction to be effective, it must be clear in its purpose.

As capacity development entails activities on various levels, i.e. legal and institutional frameworks, systems of organisations, organisation and human and material resources, it is necessary to address challenges on all of them by implementing a mix of activities, on short and long term. The reason for this is that changes at one level often require changes at other levels too, as the levels are interdependent. Therefore, the focus of many capacity development efforts for DRR must go beyond human resource development and pay enough attention to organisational and institutional issues. Public and private investment in disaster risk prevention and reduction through structural and non-structural measures are essential to enhance the resilience to disasters. Investing in capacity development is the cost-effective way to save lives, prevent or reduce losses and ensure effective recovery and rehabilitation.

The NPDM 2009 underlines the need for a strategic approach to capacity development and notes that the active and enthusiastic participation of various stakeholders is necessary for it to be effective. The national policy notes that capacity development must address the challenge of "putting in place appropriate institutional framework, management systems and allocation of resources for efficient prevention and handling of disasters."

9.2 Capacity Development Themes:

The capacity development covers all aspects of disaster management. The key aspects and broad thematic areas for capacity development applicable to these dimensions of DM are summarized in Table 7-1. The hazard-specific capacity development needs for prevention and response are given in the plan matrix of the Chapter-3 and Chapter-4. The list is indicative, illustrative, and not exhaustive. Further, those chapters provide certain extent of detailing. Even those are indicative and in consonance with national, regional, and global practices, there will be changes, which will be incorporated in the periodic revisions of the plan and during its implementation. The effort will be to follow the emerging best practices.

Table 9-1: Summary of Broad Capacity Development Themes:

Capacity Development Themes	Hazards, Risk and Vulnerability Assessment • Human resource development • Institutional strengthening • Launching demonstration projects
Key Aspect Thematic Areas Prevention or mitigation for disaster risk reduction	• Safety education in educational institutions. • Improve the awareness and preparedness of stakeholders at all levels documenting lessons from previous disasters and ensuring their wide dissemination. • Preparing DM plans, regular updating, and mock drills. • Institutional arrangements, policies, legal support, and regulatory framework. • Developing appropriate risk transfer instruments by collaborating with insurance companies and financial Institutions. • Strengthening early warning systems. • Mainstreaming of disaster risk assessment, mapping and management into development plans and programs. • Revision of building codes and standards for rehabilitation reconstruction practices both for urban and rural areas. • Retrofitting techniques. • Rapid visual surveys for safety evaluation of buildings • Training and skill development for masons and other artisans. • Reinforce systems to implement, monitor, and enforce regulations for DRR to promote disaster-resistant built environment. • Promoting community-based DM taking into account specific needs, regional diversities and multi-hazard vulnerabilities. • Design and implement social safety-net mechanisms, including

	community-based systems. • Disaster resilience of health care systems by integrating disaster risk management into primary, secondary and tertiary health care. • Business resilience, and protection of livelihoods and productive assets throughout the supply chains, ensure continuity of services and. • Integrate disaster risk management into business models and practices Preparedness and response plans at all levels • Community-based DRR and DM

Thematic Areas	Emergency Response Capabilities EOCs Infrastructure Equipment upgrades and adoption of best available technologies
Key Aspect Effective preparedness and response	, • Strengthening of the Fire and Emergency Service through revamping, institutional reforms, and modernization. • Comprehensive revamping of Fire and Emergency Services with institutional reforms and modernization. • Adoption and adaptation of emerging global good practices • Rigorous training and HRD of first responders. • Early warnings, maps/ satellite data/ effective dissemination of information. • Table-top exercises, simulations, and mock drills to improve operational readiness of the plans. • Rescue equipment at all levels. • Systems to provide basic services in emergencies. • Housing and Temporary shelters. • Medical care for casualties, health care and sanitation. • Power and fuel supply management. • Transportation systems and network. • Logistics and supply chain management. • Media relations. • Managing the dead, disposal of animal carcasses, and debris. • Collection and management of data. • Legal services/ support.
Recovery and Build Back Better	• Post-Disaster Needs Assessment systems and expertise. • Credible damage assessment mechanisms and expertise. • Planning capabilities to ensuring coherence of BBB with overall development efforts and goals. • Studies and research for incorporating resilience into BBB models. • Studies on past disasters and recovery to draw useful lessons.

The NPDM 2009 envisages a pivotal role for the National Institute of Disaster

Management (NIDM) in the area of capacity building. Similarly, the State Disaster Management Institutes and ATIs should play a lead role in the States/ UTs. The NPDM envisages capacity development in the domain of DM at all levels of government and across various autonomous institutions. It also stresses the importance of capacity development efforts to promote community-based DM efforts. The policy notes that to sustain DRR, it is necessary to undertake capacity development across the education sector covering schools to professional institutions. It recognizes that skill development in all sectors to incorporate multi-hazard resistant features along with strengthening of relevant licensing, certification, and standards.

9.3 National Institute of Disaster Management (NIDM) and other Institutions:

The NIDM, in partnership with other research institutions has capacity development as one of its major responsibilities, along with training, research, documentation and development of a National level information base. It will network with other knowledge-based institutions and function within the broad policies and guidelines laid down by the NDMA. It will organise training for trainers, DM officials and other stakeholders. The NIDM will strive to emerge as a 'Centre of Excellence' in the field of Disaster Management. The NIDM will play an important role in developing and facilitating the implementation of a National training schedule for DM. It will also be the nodal institution for Regional and International cooperation for training. There are a number of renowned institutes in various States, which are imparting training in DM. These will be strengthened with financial assistance and such efforts will be replicated by other States/UTs. Also, the DM cells in all Administrative Training Institutes, Police Academies, State Institutes of Rural Development, Training centres of five CAPFs from where NDRF is drawn up (BSF, CRPF, CISF, ITBP, and SSB) and the NDRF Academy, Nagpur will contribute most significantly in developing DM related skills. The capacity of existing institutes needs to be upgraded in accordance with regional and local requirements.

9.4 Capacity Development of Local Bodies – Rural and Urban:

The capacities of Panchayats and ULBs have to be developed in the sphere of disaster management. Without adequate capacity development, the local bodies cannot contribute effectively to disaster management or in ensuring the proper implementation of DM plans. Capacity development is also necessary for true empowerment of the bodies of local self-governance. The elected leaders and officials of Panchayats and ULBs should be trained to competently handle different types of crises, contribute to disaster preparedness, make proper use of available warnings, organize operations such as search, rescue, relief, medical assistance, and carry out damage assessment. They should also have sound understanding of the needs of proper post-disaster rehabilitation. The local leadership can play a big role in disaster management in all stages and in DM planning. Capacity development must aim at increasing the competence of local bodies in all aspects of disaster management, mainstreaming DRR, and in promoting a culture of disaster prevention and DRR. The capabilities of the local bodies have to be developed in financial, technical, and managerial spheres. The state level training institutes (ATI, SIDM, and others) will develop need-based training programs for the capacity development of rural and urban local bodies. The capacities of Panchayats and ULBs have to be developed in the sphere of disaster management. Without adequate capacity development, the local bodies cannot contribute effectively to disaster management

or in ensuring the proper implementation of DM plans. Capacity development is also necessary for true empowerment of the bodies of local self-governance. The elected leaders and officials of Panchayats and ULBs should be trained to competently handle different types of crises, contribute to disaster preparedness, make proper use of available warnings, organize operations such as search, rescue, relief, medical assistance, and carry out damage assessment. They should also have sound understanding of the needs of proper post-disaster rehabilitation. The local leadership can play a big role in disaster management in all stages and in DM planning. Capacity development must aim at increasing the competence of local bodies in all aspects of disaster management, mainstreaming DRR, and in promoting a culture of disaster prevention and DRR. The capabilities of the local bodies have to be developed in financial, technical, and managerial spheres. The state level training institutes (ATI, SIDM, and others) will develop need-based training programs for the capacity development of rural and urban local bodies.

9.5 Training Communities:

Enhancing the capacity of communities, as they are the first responders to disasters, is a significant part of the capacity development process. The Sendai Framework notes the need to build the knowledge of civil society, communities, and volunteers on disaster risk reduction. Capacity building has to include awareness, sensitisation, orientation, and developing skills of communities and community leaders. Assistance from NDRF, Civil Defence, civil society organisations, local community-based organizations, and Self-Help Groups will be encouraged. The overall responsibility to give impetus to leadership and motivation will rest with local authorities, PRIs and ULBs under the overall guidance of State and District authorities.

9.6 National and State Disaster Resource Networks:

Indian Disaster Resource Network (IDRN) is a portal providing nation-wide inventory of DM-related resources covering almost all the basic needs. It is a web based platform, for managing the inventory of equipment, skilled human resources and critical supplies for emergency response. Primary focus of IDRN portal is to enable the decision makers to find answers on availability of equipment and human resources required to combat any emergency situation. At the State-level, Government of India has encouraged each state to establish its own State Disaster Resource Network (SDRN) portal on the pattern of IDRN.

9.7 Capacity Development - Ministries and States:

The Central Ministries, departments and agencies as well as the State Governments will take actions for capacity development of different stakeholders as shown in Table7-2 given below on the basis of proper capacity development needs assessment.

	Task	Central	Activities	Responsibility in Railways
1.	Deploying good resources, advanced technology and equipment	GoI, NDMA, MHA, All Nodal Min./ Dept.	• Identifying existing ones • Identification of gap between existing ones and those required on the basis of hazard risk and vulnerability and lessons learnt from recent past	Respective Directorates to identify gaps and initiate action.

			disasters. • Procurements of additional equipment with advanced technologies	
2.	Strengthening training institutes for disaster management.	NIDM, MoHRD, MHA, NDMA	• Research and extension support grants • Create/strengthen state level DM institutes.	Establishment directorate.

9.8 National Disaster Response and Mitigation Funds:

9.8.1 Disaster Management to be inbuilt in Developmental Plans:

The National Policy on Disaster Management provides for development of the Disaster Management handling capability by each Ministry/Department of the Central Government as also by the State Government. As per the policy, NDMA will ensure mainstreaming of disaster risk reduction in developmental agenda in all existing and new developmental programmes and projects shall incorporate disaster resilient specifications in the design and construction. The Planning Commission will give due weight age to these factors while allocating resources.

9.8.2 Responsibilities of the Central Ministries and Departments:

The National Policy on Disaster Management lays down that all Central Ministries and Departments will prepare their DM Plans and where funds are being asked for to improve Disaster Management capability including the financial projections to support these plans. The necessary budgetary allocations will be made as part of the Five Year and Annual Plans.

9.8.3 National Disaster Response and Mitigation Funds:

As per the National Policy on Disaster Management, a National Disaster Response Fund may be constituted as mandated in the Act. The National Response Fund will be applied by the National Executive Committee (NEC) towards meeting the expenses for emergency response, relief and rehabilitation, in accordance with the guidelines laid down by the Central Government in consultation with the NDMA. The proposal of merger of National Calamity Contingency Fund (NCCF) with the National Disaster Response Fund shall be as recommended by the Finance Commission from time to time.Similarly, as mandated by the Act, the National Disaster Mitigation Fund (NDMF) may be created for projects exclusively for the purpose of mitigation.

In the case of Ministry of Railways, all the maintenance activities related to rolling stock, track, civil infrastructure, signals and telecommunication, traction, operations as well as the capital expenditure incurred on these are for upkeep and improvement of safety of train operations. There is no specific allocation head for providing/capturing expenditure relating to disaster Management activities on Indian

Railways. However, disasters do happen in form of train accidents, breaches, natural calamities, etc which affect operations on railways. The expenditure incurred as a result is, however, accounted for under safety related revenue and capital heads. Thus, the mitigation funds are part and parcel of the expenditure of Railways.

9.9 Modernization of Relief/Rescue during Disasters:

The National Policy on Disaster Management provides that all Central Ministries and Departments of the Central Government and of the States will build capacity to handle different types of Disasters based on guidelines issued by the NDMA.Helicopter based relief rescue missions on par with similar arrangements existing in western world can also be used extensively for Mass Casualty Evacuation and for providing relief where required. For Railways own Disaster situation like a major train accident where the site is not approachable by rail or by other road vehicles this would be the only means of relief. All Zonal Railways may obtain details of Government and Private Helicopter service and the contact numbers of their operators to be contacted in advance. The Disaster Management Plan of the Zonal Railway and the Divisions should make a mention of the helicopter service providers. If these services are not available on one Zonal Railway, they may contact the nearest Zonal Railway where they are available to be called upon in a Disaster situation.

We have to have a total paradigm shift in the manner in which serious train accident relief is to be managed in the second decade of the 21st century. A much more radical approach would be gradually need to be introduced that what is existing on date.

Sensitive installations of Railways need to be identified. All Zonal Railways need to define sensitive installations and infrastructure. These should be ones which would cripple the Railways primary objective of transportation. For instance, Control Rooms; Microwave Towers; TF Exchanges; RRI of Junction Stations, Major Bridges, Tunnels of long lengths, Hospitals etc. are very sensitive/vulnerable locations.

9.10 Terrorist attacks on a freight train carrying inflammables:

Railways have an excellent liaison with the Oil Companies due to the transport of their commodities viz. Motor Spirit, HSD, Naphtha etc. Traditionally we have always made use of their firefighting equipment alongwith the expertise in fire control available with them.Gradually, Railways have to develop both the expertise through training in the Railways Rescue, Relief Training Institute being set up at Bangalore and also procure latest technology firefighting equipment.

CHAPTER - 10

MEDICAL PREPAREDNESS AND HOSPITAL DISASTER MANAGEMENT PLAN

10.1 Network of Mobile Medical Infrastructure:

Indian Railways has an established network system capable of handling train accidents along with emergency medical response and casualty evacuation. The system is based on an infrastructure consisting of 161Accident Relief medical Vans (ARMV) – Scale I (Unit of accident relief trains situated at an average distance of every 300kms on main lines and 400 km on branch lines), 320 Accident Relief Medical Equipment (ARME) – Scale II consisting of three sets of Portable Medical Kit forAccidents (POMKA). POMKAs are also available at all health units, sub-divisional and divisional/zonal hospitals. Trained manpower of medical and all other departments of the Indian Railways provide first aid, immediate and necessary emergency medical treatment to save the life and limbs of persons involved in train accidents and arrange rapid evacuation to the nearest government/private hospital by the first available means of transport. There is a well-rehearsed action plan to handle railway accidents.

The system is committed to the primary goal or meeting the needs of the Western of Railway, though this resource may be available in a limited manner for assistance of the district administration for mass casualty management. The details of Government & private Hospitals with MOU in Western Railway Jurisdiction is summarised below:

BCT Division	
Churchgate to Borivali	All government hospitals from churchgate to Borivali
Borivali to Virar	Ravi Hospital,Vasai Road (Surgical &Artho)
	Alliance Hospital Nallasopara (Multi speciality)
	Sai Vedanta Hospital,Bhayander (E) (Multi speciality)
Virar to Dhanu Road	Sanjivani Hospital Boisar
	DhadaHospital,Phalghar
BRC Division	All government hospitals with 108 Ambulance services
ADI,RJT& BVP Divisions	All government hospitals

10.2 Responsibility of Stake Holders:

Medical Response: Medical Response has to be quick and effective. The execution of medical response plans and deployment of medical resources warrant special attention at the State and District level in most of the situations. The voluntary deployment of the nearest medical resources to the disaster site, irrespective of the administrative boundaries, will be emphasized. Mobile medical hospitals and other resources available with the centre will also be provided to the States/UTs in a proactive manner. Post-disaster management of health, sanitation and hygiene services is crucial to prevent an outbreak of epidemics. Therefore a constant monitoring of any such possibilities will be necessary.

The main stakeholders in the Medical Preparedness and Mass Casualty Management (MPMCM) are the Ministry of Health and Family Welfare, Ministry of Labour and Employment, Employees State Insurance Corporation, Ministry of Defence, Ministry of Railways, State Governments and Union Territories and private health care providers.

NDMA's guidelines on Mass Casualty Management (MCM) have been prepared to provide directions to the Central Ministries, Departments and State Authorities for the preparation of their detailed Medical Preparedness Plans. These guidelines call for a proactive, participatory, well-structured, fail-safe, multidisciplinary and multi-sectoral approach at various levels.

Each organization of the Government may be made aware of risks, vulnerabilities and effects of various natural and man-made disasters including peripheral emergencies in terms of mortality and morbidity; short and long-term health effects including the socio-economic problems faced by the community during, and in the aftermath of MCE. The need for creation of an institutional mechanism and system is essential. This would result in enhancing capacities and capabilities of hospital and health care workers. So also is the need for strengthening existing procedures that allow emergent activities to meet the challenge of surge capacity because of mass casualty events. The different mass casualty events and other potential disasters including Chemical, Biological, Radiological and Nuclear (CBRN) emergencies which may lead to Mass Casualty Evacuation are to be made aware of to the Medical Management of the concerned departments which have their own medical establishments; Railways falls within the ambit of this item; this can be achieved only through specialized training initially to a few select Doctors in each Divisional Hospital (and the Zonal Hospitals).

A review of the existing health framework, preparedness of the Ministry of Health and Family Welfare, Ministry of Defence, Ministry of Railways and Ministry of Labour and Employment in relation to their capacity for handling casualties caused by various disasters is to be done so as to share each other's strengths and capabilities. Ministry of Health and Family Welfare is assigned with legislative capacity for a number of subjects including all matters relating to the medical, dental, nursing and pharmacy professions and education; mental health; standards for drugs; prevention of food adulteration; and prevention and control of epidemics.

Medical preparedness of Ministry of Defence, Ministry of Railways and ESIC have also been elaborated in the NDMA's guidelines. A brief outline of the arrangements with the state health departments is enumerated there is also a bird's eye view of the health care infrastructure of the private sector, Indian Red Cross Society, certain Non-Governmental Organisations and various laboratories. Among the various International initiatives, the role of the recently operationalised International Health Regulations in limiting the spread of epidemics and other public health emergencies by the Member States has been highlighted in the guidelines.

Medical preparedness aims at preventive and mitigation measures. Preventive measures include upgrading public health laboratories and establishing an integrated Disease Surveillance Programme (IDSP). Preparedness for Emergency Medical Response (EMR) for the management of mass casualties at the incident site and, their quick and safe evacuation by ambulance services is an important step in this direction. The need for

hospital disaster preparedness plans along with the non-availability of medical logistics in critical care has been highlighted by NDMA in their guidelines which need to be followed up. The cold chain system in blood transfusion services needs to be established all across the country. The requirement of specialised facilities for CBRN management has also been highlighted by NDMA.

NDMA's guidelines are comprehensively given for a legislative and regulatory framework, preventive measures, preparedness, capacity development, hospital preparedness, specialised health care and laboratory facilities, role of alternative systems of medicine and identification of the dead, psychosocial care and mental health services and Research and Development for MPMCM. The roles and responsibilities of various stakeholders at the centre state and district levels are also described. The salient highlights in the guidelines include:

- Preventive measures like strengthening of epidemic control programmes, immunisation, HIV control etc., development of minimum standards of food and water; IDSP and its integration at all levels converged to develop an effective Early Warning System (EWS) operable at all levels.
- The Medical First Responders (MFRs) of mobile medical teams will be fully trained in triage and resuscitation; well-equipped and supported by all emergency services and material logistics.
- Emergency medical evacuation requires development of an Integrated Ambulance Network (IAN) including road, aerial and water ambulance networks integrated with special trains for MCE and not only self-propelled Accident Relief medical Vans (SP-ARMVs) of the railways as mentioned in the guidelines. As the evacuation of large number of casualties cannot be done by an ARME (or SP-ARMEs) the Railways shall mobilize special train for MCE whenever required. It will work in conjunction with Emergency Response Centres (ERCs), ESIC medical services and related emergency functionaries with laid down Standard Operative Procedures (SOPs) for all stakeholders.
- Full-fledged containerised mobile hospitals will be acquired and attached with hospitals earmarked by states/districts.
- Capacity development will include training of all stakeholders including doctors, nurses, paramedics and other resource persons in triage and Basic Life Support (BLS), and development of specialists.
- Hospital preparedness should aim at planning the use of hospital resources in a well co-ordinated and simple way with defined roles for all medical personnel. Such activities will be drafted in the hospital DM plan which will be a part of the Zonal/Divisional DM plan. The plan will be rehearsed once a year using mock drills.

NDMA's guidelines include items related to response, rehabilitation and recovery, PPP, post-disaster documentation, media management and important medical management aspects which need to be integrated into the district DM plans. The major guideline include:-

- Mock drills will be based on the simulation of worst scenario in the identified vulnerable areas to check the preparedness level of the MFRs.

  A specific reference in NDMA's guidelines include item for medical preparedness for handling CBRN emergencies besides the basic aspects of medical preparedness. It covers the following areas:-
- Specific education and skill based training of MFRs and necessary community awareness about various Dos and Don'ts to deal with CBRN incidences in a participative approach.
- SOPs for CBRN management at the incident site, triage, personal protection, decontamination, resuscitation, and casualty evacuation followed by management of victims at the hospital level.
- The necessary resource inventory in terms of Personal Protective Equipment (PPE), various detectors, decontamination and de-corporation agents, antidotes, essential medicines, specialised mobile laboratories and ambulances fitted with CBRN filters. Special CBRN stores and necessary laboratory facilities will be established at various levels.

Zonal Railways have to arrange special trains consisting of AC and/or non-AC coaches to run from the nearest coaching terminal to the site for evacuation especially for large scale casualties. Railway and non-Railway Medical Terms may be deployed in these special trains along with a portable kit of medicines, etc. (POMKA) to attend to the injured during the process of evacuation. In these special trains casualties even in hundreds can be evacuated; the medical attention, however, would be limited vis-à-vis what can be provided in the ARMVs.

Each different type of casualty requires a specialized training to handle it. The Railway Medical Department neither has the training nor can they digress from their principle function of providing medical care to the railway men and their families including to retiredstaff/families. During a Chemical Disaster, as the public areas are far away from station premises it may not be possible to run the ARME or a special train to the location close to the site. In some situations due to effect of Chemical Gases (as was the case in Bhopal Gas tragedy of Union Carbide) even the Loco Pilot/Guard and the Medical Teams may not find it possible to reach the site in the immediate period of post-Disaster.

Railways is not expected to be a main stake holder in the DM Plan of CBRN disasters. They can at best be involved in the evacuation of casualties by a special train (A/c and non A/c coaches) from the nearest station closer to site to a station serving Hospital, nearby. Skeleton First Aid facility can be extended by the Railways Medical Team in this special train. In any case it would take a maximum of 5/6 hours for the special train to evacuate the causalities once it reaches near the site to reach the station serving the Hospital.

The medical and para-medical staff of Railways need to be imparted training for management of CBRN disasters, till the specialist force arrives at the disaster site.As an alternative zonal railways must cater in their own plans to arrange special trains consists of AC and non AC coaches for the purpose of evacuation of large number of casualties in a mass casualty event whenever the railways may be called upon to help the district and state authorities.Railways may not be the main stakeholder in disaster management for

CBRN disasters but railways should also train their Para medics, Medical First Responders and Quick Medical Reaction Teams (QMRTS) and train them to provide pre hospital care in case of CBRN attack within the trains or platforms and should be able to respond till such time specialized trams of NDRF/SDRF mobilized to reach the site. Therefore, it is essential to provide personal protection equipment and other equipment, training to Para medics and Medical officers for the limited role for your own set up.

10.3 In the NDMA's Guidelines on Medical Preparedness and MCE, under the head of Medical Preparedness (Page 31) in Item 3.3.3 (i) a no. of duties are defined to be done by the Medical First Responder (MFR). It is specifically mentioned that adequate no. of Personnel, Protection Equipment (PPE) should be available with the mobile teams, various first responders and rescue services. Further, in item (ii) (b), it is mentioned for evacuation of CBRN victims the use of Rail Ambulances is currently non-existent.

As the different MFR's are neither defined nor separately listed in the NDMA's guidelines, it is clarified that the Railways are not to be treated as MFR. NDMA has clarified in a review meeting held with Railway Ministry representatives that the MFR would be NDRF and along with trained personnel of State Governments and District Administration. This may be specifically clarified in the Zonal and Divisional DM Plans as to who is considered as MFR.

10**8.4 Aim of Hospital Disaster Management Plan:**

The aim of a Hospital Disaster Management Plan is to provide prompt and effective medical care to the maximum possible, in order to minimize morbidity and mortality resulting from any MCE.

10.4.1 Aim of Hospital Disaster ManagementPlan: **RJT division**

The aim of a Hospital Disaster Management Plan is to provide prompt and effectivemedicalcaretothemaximumpossible, inordertominimizemorbidityand mortality resulting from anyMCE.

There shall be Hospital Disaster Management Plan for each Railway Hospital of Indian Railways which will be prepared by CMS/MD of the Divisional/ Zonal/ WorkshopHospitaloftheZonalRailway.ThisshallbebasedontheNDMAGuidelines on Medical Preparedness and Mass Casualty Management (Annex. I page 104 of NDMAGuidelines) referringto"ImportantConsiderationsforDevelopingtheHospital Disaster ManagementPlan".

TheHospitalDMPlanshouldincorporaterelevantitemsgivenintheDMPlanof the Railways.

It should be clarifiedthat:-

"*TheHospitalDMPlancomesinto effect onlyifthecompetentauthority so authorized declares on the Zonal Railways an incident as a disaster. It canalsocomeintoeffectifanyCentral/StateGovt.agencydeclaresamajor incident a Disaster, and where the Medical facility of the Railways shall be required to giveassistance*."

All the Railway Hospitals on Western Railway have their Hospital Disaster Management Plans in place. These are being updated at regular intervals.

10.4.2 Formation ofteams:

1. **ARME Rajkot Team 'A'**: ARME Rajkot

To accompany ARME or move by road at the outset along with all the sets of POMKA.

SN	Name of Officer/Employee	Designation	Mobile/CUG No	Rly Auto No
1	Dr. Samudra manne	DMO	9724094509	44918
2.	Dr. Krishna Nayak	DMO	9724094510	44916
3.	Dr. Arun Pragadish Ram R M	ADMO	9724094502	44910
4.	Sh. Mohd. Hussain	CPHR	9274687916	44935
5.	Sh. Pooja Pathak	CPHR	9274687851	44935
6.	Smt. Nita D Sondagar	C N S	9274687834	44933
7.	Sh. Jaysingh	S N S	9358415092	44937
8.	Sh. Mukesh Kumar	S N S	9413203022	44937
9.	Sh. Amit Makwana	CHI - RJT	9274687936	44930
10.	Sh. Ashwin	OTA	9274687848	44914
11.	Sh. Sujeet Kumar	DSR	7041665419	
12.	Sh. Harshad M	HA	9274687882	
13.	Sh. Harji Solanki	HA	8160853902	
14.	Smt. Sonalba	AYA	9274687895	
15.	Smt. Mumtaz k	AYA	6354945909	
Dr on duty in the hospital after asking another colleague to take over the duty in the hospital at the earliest				

2. **Team'B': Hospital Team**

SN	Name of Officer/Employee	Desig	Mobile/CUG No	Rly Auto No
1	Dr. Pranav Minipara	ADMO	9724094506	44916
2	Smt. Pallavi Chritian	ANO	9724094517	44932
3	On duty ward Incharge	CNS		44936/44937

3. Team'C':

Reinforcement team.

To move as per the need on the instruction of inter change Hospital team by any means**.**

SN	Name of Officer/Employee	Desig	Mobile/CUG No	Rly Auto No
1	Dr. Sreekanth	DMO	9724094505	44926
2	Smt. Manek Parmar	Ch. Matron	8160728105	44937
3	Shri Ramchandra	DSR	9427410100	
4	Smt. Manjulaben	HA	6353401021	-

NOTE: All the staff residing within the Railway colony or in the vicinity of the hospital/ railway station should report to the hospital incharge /ARME incharge on sounding of the hooter/Siren as per the alert code within 10 minutes. Team to depart within 20 minutes in case of ARME having double exits and 30 minutes in single exit.

4. Control:

SN	Name of Officer/Employee	Desig	Mobile/CUG No	Rly Auto No
1	Dr. Deepika	ADMO	9724094501	44922

10.4.3 SPART HAPA

To accompany SPART along with all nominated staff

SN	Name of Officer/Employee	Desig	Mobile/CUG No	Rly Auto No
1	Dr. Prakash Parmar	CMP	9824859403	
2	Rajdevsinh Sarvaiya	Sr. NS	9016646422 9274687922	
3	Fawas Mundekatt	PHR	9274687934 9048889478	
4	Urvashi G. Dabhi	HA	9825161289 9274687926	
6	Yuvrajsinh Jadeja	DA	9274687927 8511940306	
7	Jitendra Sharma	CHI	9724094515	45293

10.5 Alert Code.

1. Siren Hooting:

Four sirens of 45 Sec Duration Each.

2. Telephonic Information:

- FromControl.
- From Station Master.
- From Any Other Source.

10.6 Responsibilities of the medical staff other than those involved directly with disaster management of the division.

Sr. DMO-RJT and CMP-HAPA should be informed about any disaster in the Division. They should remain in touch with theI/c Hospital team and act as per his instructions.

Sr. DMO- RJT and CMP-HAPA should ensure that their staff should be available at short notice to participate in any Rescue and Relief Operation of the Division.

10.6.1 Duty andResponsibilities. Person in the control:

- Liaise between the team at the site and thehospital.
- Coordinate the relief measures and establish effective communication betweentheaccidentsite, railwayhospitalandrailwayadministrationandcivil authorities and ensure that back up measures are taken as per theadvice.
- Will act as a mediator between theI/C accident site and the I/C Hospitalteam.
- Will establish communication link with the HQ office andUCC.

10.6.2 Duties and Responsibilities of HospitalStaff. Sister on Duty in Female Ward:

She will gather relevant information from any source i.e. Control, ASM on duty, Doctor I/C of the section, Loco, etc.

She will note the following:

- Date & Time of receiving information/ Hooting ofSiren.
- Name & Designation of the person givinginformation.
- Place of Accident - exact location/ Km no/ LC gate no/ Section, etc.
- Type of Mishap - collision, derailment, fire, blast, etc. The train numbers will be noted.
- Time ofMishap.
- Estimated number and type ofcasualties.
- NameofotherHospitalsbeingalertedandotherMedicalServicesbeingcalled for providing medicalrelief.
- Call for help from the other sister onduty.
- Ensure that the Ambulance leaves within the shortest possibletime.
- Inform the members of the otherteam.
- Keepintouchwiththecontrolandgatherupdatedinformationtillsomesenior person takesover.

10.6.3 Sister on Duty inthe Male Ward/ ICU:

- Onhearingthehooter, boththesisterswillimmediatelygotoassistthesisterin the Femaleward.
- Sister on duty in ICU will take on the responsibility of informing the members of Team'A'.
- SisterondutyinMaleWardwillensurethatPOMKA'Salongwithadditionalitems are taken to the ambulance and loaded. The keys will be taken byher.
- Sister on duty in Male Ward along with the available staff will then proceed to catch the ARME at the earliest & ensure that the team reaches within the stipulatedtimelimitofARMEmovement---15/20minsduringtheday&20mins during the night from the time of information received/ whistling ofhooter.

10.6.4 Other Staff onDuty:

They will help the sisters in performing their tasks quickly and effectively.

Note: whentheambulanceisnotavailablethestaffwillreachthearmebywhatevermeanspossible.

10.6.4.1 Members of team 'A':

(i) CMS:
HewillbetheoverallI/CoftheRescue&ReliefoperationsatthesiteofaccidentHe will liaise with the other Departments working at the site.He will coordinate withotherAgenciesworkingatthesite.HewillcommunicatewiththeDivisional & ZonalHQ's.

(ii) ADDL CMS:
He will man the Surgical Post and will do needful.

(iii) ADMO:
He will man the Resuscitation Post and will do the needful.

(iv) DOCTORS:
Others than those mentioned above, will be allotted duties by the CMS/ I/C at the site. Duties will depend upon numbers of Doctors available at the site.

(v) NURSES:
(a) They will assist the Doctors at the variousposts.
(b) They will provide necessary treatment wherever required. Any other work assigned.

(vi) PHR'S:
(a) They will distributemedicines.
(b) They will man the Reception and Comfort & DispatchPost.
(c) They will maintain all records and any other workassigned.
(d) They will prepare list of all casualties in quadruplicate and will note the following details of theinjured:
- Name of theInjured.
- Father's / Husband'sName.
- Age &Sex.
- Address.
- Ticket/PNRno.
- Destination: From----------To----------.
- Two Marks ofIdentification.
- Type of Injury: Trivial / Simple /Grievous.
- Nature Of Triage : Dead / Critical / Serious/
- Simple /Sorrowful.
- Transferred To / SentHome.

(e) They will prepare token cards for the critically and seriously injured passengers
(f) giving the following information:
- Name, Age, Sex, Father's/Husband'sName.
- Address.
- Ticket/PNRNo.
- Type ofInjury.
- Nature ofTriage.

- TokenNo.
- Details of First AidRendered.

(g) They will ensure that the Tokens are tied to the (R) Wrist of the injured properly.

(vii)Health Inspector:

- He will arrange for the cleanliness of the area and the toilets and is infection.
- Hewillmakeannouncementsaboutthemedicalreliefingprovidedifnot done. He will assist at the Reception / Comfort and Dispatch post as per theneed.
- He will ensure that the Dead are properly tagged, covered and kept at a safe place coachwise.
- He will ensure that the Dead are properly handed over to the Police and receipttaken.

Any other work assigned.

(viii) Dresser:

- He will man the First Aid Post in FFD, LCC He will do the dressing of the injured. He will assist in the surgical post if needed. Any other workassigned.

(ix)HA / HA cum S/WALA:

- He will help in transportation of the injured. He will help in the respective post as and whereneeded.
- He will help in the cleanliness of thearea.
- Help in erecting the tent. Any other workassigned.

(x) Ayah/Safaiwali:

She will assist in the transportation of the injured. She will help in the Resuscitation post. She will render all possible help to the injured female passengers. She will assist in maintaining the cleanliness of the area. Help in erecting the tent. Any other work assigned.

Note: All members of team 'A' should be well acquainted with the availability and placement of various items (equipment and medicines) in the POMKA/ARME–I, so that precious time is not lost in searching for the required material at the timeof emergency. They should be aware of the various facilities available in the ARME viz light switches, tent, stretchers, linen, emergency drugs, food articles, etc.

10.6.4.2 Members of team 'B ':

(i) InchargeAddl.CMS.

- He will take charge of the hospital and establish an emergency cell in the hospital.
- He will collect all information regarding the accident and thecasualties.
- He will inform the local hospitals about the occurrence of the accident, to sendtheirambulanceswithmedicalaidandtobeinreadinesstoreceivethe casualties.
- He will liaise with the medical facilities near the site ofaccident.
- He will depute one Doctor/Pharmacist to Ahmedabad Control if nominated person has not takenover.
- He will inform the Police control and keep in touch with them to make necessary security arrangements at the site ofaccident.
- He will inform the nearest Fire Brigade/ other Ambulance services to reach thesite.
- He will inform the Blood Banks to keep bloodready.
- He will inform St John AmbulanceBrigade.

- He will re allocate duties amongst the medical staff behind in thehospital.
- Ensure that the hospital is ready to receivecasualties.
- Keep in constant touch with the accident siteIncharge
- Send back up teams ifrequired.
- Requirementofmedicinesrequiredattheaccidentsiteorthe hospitals should be procured and sent wheneverrequired.

(ii) ANO of the Hospital:

- She will assist Sr DMO in discharging hisduties.
- Ensure that adequate man powers are available in thehospital.
- Re allocate duties amongst the hospitalstaff.
- Ensure that adequate clothes, bed linen and medicines areavailable.
- Adequate numbers of beds are kept empty for thecasualties.

(iii) Matron I/C Operation Theatre:

- Keep the O.T.ready.
- Ensure all equipment, gases, instruments and linen are in adequatesupply.
- Keep Anaesthetist/Surgeon/Orthopaedic Surgeon from outside ready to combat anyemergency.

(iv) CPHR I/C OPD:

- Help the Hospital I/c in re-arranging the hospitalservices.
- Keep details of patients/casualties treated in thehospital.
- Collect information about injured persons shifted to other localhospitals.
- Ensure sufficient supply of medicines, etc are available inOPD.
- InformrespectiveDepttsabouttheinjuredRlyemployeesandpreparetheir necessarycertificates.

(v) CPHRStores:

- Ensure that adequate medicines & surgical items are available in thestore.
- Cash imprest should be kept ready for purchase ofitems.
- Should take the initiative to help in organizing the relief measures in the Hospital and also to proceed to the accident site if instructed to doso.

(vi) CHI:

- Report tohospital
- Coordinate with I/C hospital team, Matron I/C, CPHRI/C.
- Perform duties as advised by I/c HospitalTeam.

(vii) Ambulance Staff:

- Keep the ambulance ready to proceed to accident site at shortnotice.
- Getallthenecessaryinformationabouthowtoreachthesiteattheearliest.
- Ensure that the Petrol/Diesel Tank isfull.
- Emergency kit, drugs, equipment and re enforcements areloaded.
- Somecashimprestamountshouldbekeptseparateforprocurementoffuel and minor repairs ifrequired.

10.6.4.3 Action to be taken while onMove:

- Prepare to deal with thecasualties.
- Distribute action cards and explain duties amongst thestaff.
- All should become familiar with the items in the ARME /POMKA.
- Wear badges andhaversacks.

- Check allequipment.
- Sterilize all surgicalitems.
- Keep in touch with the control andhospital.
- Get walkie-talkieoperational.
- Loud speaker should bechecked.
- Stretchers should bereadied.
- Beds in ARME should beprepared.
- Operation theatre should beready.
- Items of comfort should be available and one person nominated to handleit.
- Toilet items like bedpans, urine pots etc should beready.

10.6.4.4 Action to be taken on reaching the Site ofAccident:

Announcertomaketheannouncementregardingthearrivalofthemedicalteam repeatedly.Theteamsdeputedtocheckingthetrainforinjuredshouldstartfromeither/ both ends and should ensure checking the toilets and the vestibule besides the coaches.Examinationofthecrewandguardshouldbedoneincludingcollectionofblood sampleforalcoholestimationaspertheprotocol.Sitemedicalofficershouldassessthe scene of accident and report to the senior most medical officer. Set up the first field dressing station (FFD). Place placards/banners regarding various posts and also make announcement regarding the same. Triage to be done near the coach itself before transfer by the team attending the injured. All the casualties should be directed to the reception post or communication given to it regarding direct transfer to any post or hospital. Triage to be done here also. First aid given as per triage. Respective tags / tokens placed. Evacuation done as per priority. Ensure all casualties are attended promptly.Gatherinformationandprogressofinjuredtransferredortakenontheirown to various nearby hospitals. Dead bodies should be taken out and kept near the coach itself. Proper documentation and tagging of the dead should be done before handing over to the police and acknowledgement taken. Ensure proper and complete documentation. Talking to media persons done by nominated person only. Ensure establishment of proper communication. After completion of relief and rescue work, necessary certificate to be given. Do not succumb to any pressures. Always keep yourself calm and cool and follow the prescribed protocols adjusted to the demands of thesituation.

10.6.4.5 Action to be taken after return from the AccidentSite:

- Preparereport.
- Evaluate the workdone.
- Highlight thedrawbacks.
- Do swotanalysis.
- Discuss problemsfaced.
- Replan for thefuture.
- Suggestions if any should bemade.
- Commendable work done by the staffawarded.

10.7 Actioncards

10.7.1 Receptionpost.

(i) Prepare list of all casualties in quadruplicate and note the following details of theinjured:

Name of the injured. Father's / husband's name. Age & sex.
Address. Ticket/PNR no.
Destination: from----------to----------.
Two marks of identification.
Type of injury: trivial / simple / grievous. Nature of triage: dead/critical/serious.
Simple / sorrowful. Transferred to / sent home.

(ii) Prepare token cards for the critically and seriously injured passengers giving the followinginformation:

Name, age, sex, father's/husband's name. Address.
Ticket/PNRno.
Type ofinjury.
Nature of triage.
Token no.
Details of first aid rendered.

(iii) Ensure that the Tokens are tied to the RIGHT Wrist of the injured properly and send the injured to Respective Post for further treatment.

10.8 Resuscitationpost.

10.8.1 Surgicalpost.

(i) Despatch & ComfortPost.

- Transport injured to home by relief train/road.
- Transport injured to other hospitals as per the instructions and triage. Ensure the injured arecomfortable.
- Ensure injured have received water andfood.

(ii) First Aid Post atFFD.
(iii) First Aid Post atlocal.
(iv) CommandCentre.
(v) Mortuary.
(vi) VisitHospitals.
(vii) Unified CommandCentre.
(viii) Combined AssistanceCentre.
(ix) Local CommandCentre.
(x) SearchCoaches.

Transport Casualties as Per Triage.

Priority I	RedBand	:	First.
Priority II	YellowBand	:	Second
Priority III	GreenBand	:	Third

(xi) Dotriage**.**

PriorityI : Critically

		Injured
PriorityII	:	Seriously Injured
PriorityIII	:	SimpleInjury

(xii) Deadbodies.

- Ensure that the Dead are properly tagged, covered and kept at a safeplace coachwise.
- He will ensure that the Dead are properly handed over to the Police and receipttaken.
- Prepare list as per the proforma and send the list to reception post, UCC, CAC.

10.9 ProtocoltobefollowedbyDySS, RJTgiving information about the movement of the ARMEscale-I.

(i) Inform Dr. Raj Kumar,CMS: 9724094500
(ii) Inform Dr.R.V.Sharma, ACMS: 9724094525
(iii) Inform Dr. Arun Pragadish Ram R M, ADMO : 9940652077
(iv) Inform rajkot hospitaldutyroom :44937,0281-2476460
(v) InformShri Parmanand Meena , CH Pharmacist :44935, 9724022003 Working as Supervisor i/c ARME.
(vi) Send keys of the ARME kept in Dy SS room & memo of movement of the ARME with any responsible person to theARME.
(vii) If no member of medical team is available the keys of the ARME should be handed over to the guard accompanying theARME.

It should be ensured that the message of movement of ARME is communicated at the earliest as the time schedule of departure of ARME has to be adhered to.

10.10 Objective and Goals of a Hospital Disaster Management Plan:

The hospital disaster management plans should address not only mass causalities that has occurred away from the hospital, but should also address a situation where the hospital itself has been affected by a disaster – fire, explosion, flooding or earthquake, etc.
The role of the Railway Hospital will be of a general hospital only. After assessment of the hospital resources, treatment capacity and surgical capacity (refer Annex-1 of Chap 4, Page 105 of NDMA Guidelines on Medical Preparedness and Mass Casualty Management), its Hospital Disaster Management Plan should be available to the Divisional/Zonal Railway Administration and also to the district administration.

10.11 Disaster Drills:

As a part of the emergency management plan, every hospital is required to have structure in place to respond to emergencies, this structure is routinely tested during drills.

Continuous revisions should be made in the hospital disaster management plan taking leads from the regular disaster drills in the hospitals. In these drills it should be tested if the Hospital is equipped to respond effectively to the disposal of a large

no. of dead etci.e, role of mortuary services and forensic departments. Hospital Disaster Management Plan should be tested once a year by mock drills for updation.

10.12 Training of Health Care Personnel of Indian Railways:

It is desired by the National Plan that the Railways should train their Doctors in the treatment of specific injury from CBRN disasters as also keep medicines, the vaccines, equipment and disposables etc for the same in their hospitals. Railways may alternatively get the Training for Trainers of Medical department so that this could be proliferated to other Doctors and other Para Medical Personnel on all Indian Railways in nominated Railway Training Institute/s.

10.13 Preparedness of Rajkot Division:

SN	RB DMP Guidelines	Rajkot division preparedness
1	Specialized training initially to a few select Doctors in each Divisional Hospital and the Zonal Hospitals to cater the requirement of NDMAguidelines on Medical Preparedness on Mass CausalityManagement (MPMCM*).*	Rajkot division has arranged two rounds of Basic CBRN training of doctors and paramedical staffs in which total 04 persons have been trained so far.
2	Medical preparedness (Preventive and Mitigation measures) viz. upgrading Public health laboratories and establishing an Integrated Disease SurveillanceProgram (IDSP). *)*	Rajkot division is having in house laboratory capable of meeting the load in case of disaster. Some investigations are provided from out sourced private laboratories as and when required.
3	Preparedness for Emergency Medical Response (EMR) for the management of mass casualties at the incident site and, their quick and safe evacuation by ambulance services.	The staff nominated for EMR and hospital "A" and "B" team are well trained in mass causalities management and refreshercourse has carried out regularly. Hospital has 2 ambulances. However there is no Integrated Ambulance Network Services. Defined role of individualmedicalpersonnelistobeadopted.
4	Availability of medical logistics in critical care	Availability of medical logistics in critical care available as per provision of Railway Board.
5	Availability of Cold chain system in blood transfusion services	There is no separate arrangement for Blood Transfusion services in divisional hospitals. However in case of accident, there is tie up withprivatebloodbankandtheirservicescan be utilized by the divisional railwayhospitals. There is list of voluntary blood donors incase ofemergency.

6	Specialized facilities for CBRN management	Rajkot divisional hospitals is not equipped with CBRN Disaster Management equipments/ accessories. But persons are being trained in handling such situations.
7	Capacity developmentinitiatives such as training of all stakeholders including doctors, nurses, Paramedics and other resource persons in triage and Basic Life Support (BLS), and development ofspecialists.	Detailed regular training is being rendered to the medical officers, staff nurse, Paramedics in triages and Basic Life Support System.
8	Hospital preparedness in planning the use of hospital resources in a well coordinated and simple way with defined roles for all medical personnel. Such activities will be drafted in the hospital DM plan which will be a part of theZonal/Divisional DM plan. The plan will be rehearsed once a yearusing Mock drills.	DisasterManagementPlaniswellcoordinated and regular rehearsals are being done by the hospitals using mock drills once in ayear.
9	Mock drills will be based on the simulation of worst scenario in the identified vulnerable areas to check the preparedness level of the MFRs.	Mock drills are based on simulation of worst scenario and to check the preparedness. Mock drills are being carried out once in a year.
10	Training to railways Para medics, Medical First Responders and Quick Medical Reaction Teams (QMRTS) to provide pre hospital care incase of CBRN attack within the trains or platforms and should be able to respond till such time specialized trams ofNDRF/SDRF mobilized to reach thesite	The provision of PPE (Personal Protection Equipment) is not available at present to paramedics and medical officers for limited roleincaseofCBRNattackwithinthetrainor platform.
11	Provision of personal protection equipment and other equipment, to Para medics and Medical officers for the limited role in case of CBRN attack within the trains orplatforms.	The provision of PPE (Personal Protection Equipment) is not available at present to paramedics and medical officers for limited roleincaseofCBRNattackwithinthetrainor platform.

12	Training for Trainers of Medical departmentsothatthiscouldbe proliferated to other Doctors and other Para Medical Personnel on all IndianRailways in nominated Railway Training Institute/s.	Training for trainers has been given at NDRF/BRC and subsequently more than50% are being trained by these trainers in the divisions.
13	Training to the Doctors inthe treatment of specific injuryfrom	All medical officers, paramedics who are nominated for ARMV are well trained in
	CBRN disasters and also keep medicines, the vaccines, equipments and disposables etc As per National Plan.	Trauma Care Management. However, there is no separate institute available at present for such training in therailway
14	Training of Fire detection and suppression system at important installations.	Fire detection and suppression system is not available in Rajkot divisional hospital.
15	Identification of sensitive/Vulnerable installations & infrastructure for modernization of Relief/ Rescue during disasters (Ref 7.9 of RB DMP-2017).	Rajkot divisional hospital is secondary hospital and is not suitable for vulnerable installation.

CHAPTER - 11

ROLE OF SECURITY DEPARTMENT IN DISASTER MANAGEMENT

A three tier security system of District Police, Government Railway Police (GRP) and Railway Protection Force (RPF) is prevailing over Indian Railways with following roles and responsibilities-

District Police: Security of tracks, bridges and tunnels (Authority: MHA message no. 27/1/72/Poll.II, dated 11.02.1972).

Government Railway Police (GRP): GRP is a wing of State police maintained by respective State Governments for prevention and detection of crime and maintenance of law and order in station premises and trains. Duties of the GRP as regards the areas in their jurisdiction correspond in general to those of the District Police in the areas under their charge. Railways are sharing 50% of the cost on GRPs with respective State Governments.

Railway Protection Force (RPF): RPF is an 'Armed Force of the Union' constituted under the RPF Act for better protection and security of railway property, passenger area and passengers and matters connected therewith.

11.1 Role of RPF in Disasters:

In case of any disaster affecting Railways viz. serious train accidents, fire incidents, explosion in trains or on railway premises, terrorist acts, hijacking of train, etc., RPF will coordinate with other Departments of Railways, Government Railway Police/District Police and various agencies of State and Central Government for speedier relief and rescue operations. Similarly, in cases of CBRN Disasters or a natural calamity affecting Railways, RPF will provide support services in rescue, rehabilitation and mitigation efforts.

RPF will play active role in crowd control in station premises/circulating area in coordination with GRPs of respective States and Commercial Branch staff.

The deployment of the RPF may be done on need basis to provide relief, rescue and rehabilitation consequent upon any disaster situation over Railways.

11.2 Current Preparedness:

Role of RPF in the event of railway accidents and other calamities has been outlined in Standing Order No. 34 as under:

- Arranging maximum available RPF manpower within the shortest possible time and dispatching of the same to scene of accident by the quickest means.
- Segregation of the area of incident by establishing temporary barriers by use of nylon ropes to ensure that on-lookers and spectators do not enter the affected area to disturb the scene or hamper the rescue operations.

- Baggage of passengers should be isolated and protected and consigned goods should be taken care of till they are handed over to claimants or taken over by railway authorities.
- Respond to any call for assistance in rescue of victims and transporting them to the nearest hospital.

Coordination with State Police and civil authorities is ensured at the divisional and zonal level by concerned RPF officials. An SOP on "Coordination and Flow of Information between RPF and State Agencies" has also been circulated to all zonal railways for information and necessary action [2014/Sec(Spl)/200/10, dated 10.09.2015].

As per recommendations of the High Level Committee, a Disaster Management Team of 15 RPF personnel has been constituted on each Division with provision of necessary equipment viz. torches and other lighting arrangements, nylon ropes and poles for segregating the affected areas from unwanted visitors and spectators, loud-hailer, stretchers and first aid equipment, wireless sets for inter-communication, cameras for photography of scene of incident, luminous jackets, etc.

Guidelines also exist for ensuring availability of off duty RPF staff for dispatching them to place of occurrence in case of major disasters affecting Railways.

Thirty (30) categories of modern security related equipment have been identified alongwith scale by a Norms Committee. Zonal Railways need to ensure procurement of these equipment as per laid down scale.

Home Secretaries of all the States have been advised by the Min. of Home Affairs regarding initiation of action for expeditious clearance by the State Police in case of Railway accident involving loss of human lives or injuries to the passengers, etc. [No. VI-24022/11/2002-PM-I, dated 24th December, 2002]. This letter of the Ministry of Home Affairs has also been circulated to all the General Managers for information and necessary action [2002/Sec(Cr.)/45/47, dated March 27,2003].

11.3 Integrated Security System:

An Integrated Security Scheme has been approved for 202 railway stations of Indian Railways. The system envisages multi-layered surveillance of vehicles, luggage nd passengers in station premises. The system comprises of following four broad categories:

- CCTV surveillance system
- Access control (under vehicle scanning system)
- Personal and baggage screening system (HHMD, DFMD & Baggage Scanner)
- Bomb Detection and Disposal System

11.4 Crowd Control and Management:

For effective crowd control, RPF, GRP and District Police have to act in a synchronized manner in coordination with civil authorities. Chapter 10 (Maintenance of Public Order and Tranquillity) of the Code of Criminal Procedure Code (Cr.P.C.)

Part-A deals with 'Unlawful Assemblies'. Legal procedures are outlined in Sections 129 to 132 of the Cr.P.C. for dealing with Unlawful Assemblies. These provisions empower officers of Armed Forces to deal with Unlawful Assemblies. Enabling provisions are also available under rule 243 of the RPF Rules 1987 empowering superior officers of the Force to disburse unlawful assembly.

Existing CCTV surveillance system at the railway stations needs to be upgraded to incorporate intelligent video analytics to get timely information when heavy crowd builds up within station premises and plan follow-up action. Pictures stored on CCTV system will be of immense help in identifying miscreants and in initiating legal action against such elements. One of the intelligent video analytics envisaged for CCTV surveillance under the Integrated Security System is 'crowd management' to signal for crowd density within station premises when it exceeds the prescribed limit.

It is, however, essential that the District Magistrate (Dy. Commissioner) or the Civil Police (Senior Superintendent of Police) provide advance information to the

Railways (DRM) of the dates of expected rush; and also the volumes of rush (including some rough assessment of direction wise destination).

On Western Railway the recommendations of the Committee in this regard is being followed by the Division. A training programme has also been organised in the Divisional level regarding steps to be taken by RPF. All IPFs of Posts and Outposts have been instructed to act according to the recommendations. RPF staff have been briefed and trained to effectively control mobs at the accident sites by using nylon ropes. luminous jackets and human chains and also to keep the luggage of the victims under safe custody at the accident sites and guard it till its return to the victims' relatives They have also been briefed to treat the VIPs and Media persons effectively.

11.5Explosion in trains and railway premises:

At present, Railways have to rely upon the existing expertise with States and Central Security Agencies for bomb detection/disposal over railways.

Explosive detection and disposal is a highly skilled and challenging job. Bomb detection system has been envisaged under Integrated Security System. It provides for development of detection capability with RPF. RPF personnel are being trained in phased manner to develop capability in bomb detection on each zonal railway.

Preventive measures to be taken in such situations have been separately circulated vide Security Directorate Secret letter No. 2003/Sec(Spl.)200/14 dated 16.01.2008.

11.6 Terrorist acts & Hijacking of trains:

Procedures have been outlined in the Crisis Management Plans of the Government of India, of the Ministry of Home Affairs and of the Ministry of Railways to tackle such situations. Above mentioned secret documents are available with concerned Authorities and action has to be ensured in accordance with the provisions mentioned in the above mentioned plans.

Ministry of Home Affairs is the Central Nodal Ministry to tackle hostage or terrorist situations requiring specialized handling. National Security Guard (NSG) has to be requisitioned in such situations. Crisis Management Plan of the Ministry of Railways envisages management of such crisis by the NationalCrisis Management

Committee (NCMC) and Crisis Management Group (CMG) at the Railway Board Level and by the zonal management group at the zonal level.

Coordinated efforts have to be ensured by all security agencies present at the spot. Senior most officials available at the spot shall handle situations in accordance with conditions of the crisis at local level and instructions received from concerned Crisis Management Groups at Zonal and National levels. Quick Reaction Teams (QRTs) of RPF personnel should be available round the clock at bigger stations which will be of immense help to tackle such situations during initial phases especially in cases of terrorist attacks.

11.7 Preparedness of Rajkotdivision:

ThecomplianceofRailwayBoardDisastermanagementplanGuidelines, regarding current preparedness, integrated security system, Explosion in trains and railway premises & Terrorist act & Hijacking of trains is summarizedbelow:

SN	Guide lines RB DMP	RJT Division Preparedness
1	Compliance of StandingOrder No. 34 in the event of railway accidentsandothercalamities.	Standing order No. 34 is being complied.
2	Implementation of SOP on "Co-ordination and Flow of Information between RPF and State Agencies" as per letter [2014/Sec.(Spl.)/200/10, Dated 10.09.2015].	SOP on "Co-ordination and Flow ofInformation between RPF and State Agencies" is being complied over Rajkotdivision.
3	Constitution of a Disaster Management Team of 15 RPF personnel and provision of necessary equipment.	Team of RPF consisting 15 staff of various ranks for disaster management have already been formed in Rajkot division and equipped with disaster related equipments viz. Torches and other lighting arrangements, nylon ropes and poles for segregating the affected areas from unwanted visitors and spectators, loud-hailer, stretchers and first aid equipment, wirelesssetsforinter-communication,cameras for photography of scene of incident,luminous jackets, etc.

4	Implementation of Guidelines for ensuring availability of off duty RPF staff for dispatching them to place of occurrence in case of major disasters Affecting Railways.	DSC / ASC have been directed to instruct all IPFs to ensure availability of off duty RPF staff incaseofmajordisasteraffectingRailwaysand dispatching them to place of incidence by quickestmeans.
5	Procurement of modern security related equipment Identified along with scale bya Norms Committee.	19 category of modern security related equipments identified along with scale by Norms Committee is available.
6	Compliance of MHA guidelines [No.VI-24022/11/2002-PM-I, dated 24th December, 2002] circulated vide letter	Initiation of action for expeditious clearanceby the State Police in case of Railway Accident involving loss of human lives or injuries tothe
	2002/Sec(Cr.)/45/47, dated March 27, 2003] for expeditious clearance by the State Police in case of railway accident involving lossof Human lives or injuries to the passengers.	Passengers are being complied by making co-ordination of various level.
7	Provision of Integrated Security Scheme at railway stations over WesternRailway.	Status of CCTV Surveillance System, Accesscontrol(undervehiclescanningsystem, Personal and baggage scanning system (HHMD, DFMD, Bomb detection and disposal system is available with RPF staff andbaggagescanner is proposed for procurement.
8	Provision of CCTV Surveillance system, baggage scanners, Under Vehicle Scanning System (UVSS) and bomb detection &disposal equipment overWestern RailwayunderISSschemeand in overall includingISS.	7 stations of Rajkot division have been identifiedforinstallationofISSwhichequipped with 130 CCTV cameras to be provided by the RailTel. Some Baggage scanners are proposed for important stations under ISS works. One set of BDDS equipment consisting of 19 items is available in Rajkotdivision**.**
9	Sanction for installation of CCTV cameras in A1, A, B & C category stations over Western Railway under 'Nirbhaya Fund' andits Progress.	Installation of CCTV Cameras under Nirbhaya fund on 6 Stations i.e. On RJT 40, SUNR40,BKNG 06,JAM04,DWK06andOKHA 05

10	'All India Security Help-Line' 182 through Divisional Security Control Rooms of RPF & another Security Helpline 1800111322 from Railway Board, Rail Bhavan, New Delhi to provide round the clock security related assistance to passengers over Western Railway.	RPF personnel are being deployed atSecurity Control Rooms 24x7 for smooth functioning and maintaining of security helpline No. 182. Therearetotal02linesavailableatDivisional Security Control Room. All calls are being attended and no calls lie onwaiting.
11	Up-gradation of existing CCTV surveillance system at the Railway Stations for incorporating intelligent video analysis to get timely information when heavycrowd builds up within station premises and plan follow-up action.	130 CCTV cameras will be installed at important stations over Rajkot division. Proposal for installation of CCTV cameras at 7 Railway Stations over Rajkot division under Nirbhaya Fund is under process through Rail Tel Corporation LTD. Existing CCTV surveillance system at the railway stations needs to be upgraded to incorporateintelligent video analytics to get timely information when heavy crowd builds up within station premises and plan follow-up action. Pictures stored on CCTV system will be of immense help in identifying miscreants and in initiatinglegalaction against such elements. One ofthe
		intelligent video analytics envisaged for CCTV surveillance under the Integrated Security System is 'crowd management' to signal for crowd density within station premises when it Exceeds the prescribed limit.
12	RPF personnel training to develop capacity in bomb detection.	Bomb detection teams have been formed in every division and 19 BDDS equipments are available. Till date no staff is trained about the Handling of the above BDDS equipments.
13	Availability of no. of trackers and sniffer dogs with RPF for detection of explosivesand Search.	There are 3 sniffer dogs are available in Rajkot division.

14	Compliance of Security Directorate Secret letter No. 2003/Sec(Spl.) 200/14 dated 16.01.2008.	As per Security Directorate's Secret letter, preventive measures are being taken. RPF bomb detection and disposal squad team is available in Rajkot division which is equipped with modern equipments. Trained RPF personnel and sniffer dogs are being utilized duringbombthreatcall, hoaxcallwiththehelp of GRP and City Police. Explosive detectionand disposal is a highly skilled and challengingjob. Bomb detection system has been envisaged under Integrated Security System. RPF personnel are being trained in phased manner todevelopcapabilityinbombdetectionover Western Railway.
15	Compliance of Procedures outlined in the Crisis Management Plans of theGOI, of the MHA and of the Ministry of Railways to tackle such situations of Terrorist acts&Hijacking of trains.	Above mentioned secret documents are available with concern authorities and action has to be ensured in accordance with the provisions mentioned in the above plans.
16	Availability of Quick Reaction Teams (QRTs) of RPF personnel round the clock at bigger stations to tackle Terrorist attacks.	All important Railway Stations are being manned by deploying Armed RPF QRT teams round the clock. The teams immense help to tackle such situations during initial phases Especially in cases of terrorist attacks.
17	Fire detection and suppression system at important installations.	Incaseofanyfiredisasteraffectingrailwayviz. Serious train accidents caused by accidental, human error or manmade, RPF co-ordinate with Fire Brigade, other departments of Railways, GRP, District Police and various agencies of State and Central Government to speed relief and rescue operation andprovides support service in rescue, rehabilitationand Mitigation efforts. RPF plays active role in crowd control at the accident site in co-ordination with GRP and commercial branch Staff.

CHAPTER - 12

DISASTER COMMUNICATION SYSTEM

12.1 Communication on Railways for Disaster Management:

Railways have their own extensive communication systems which would be used for Disaster Management too. However, we need to have back-ups especially to ensure 100% communication availability in case of any type of man-made or natural disasters. Sharing of OFC network, where required with others may be ensured by tie-ups in advance. This will be also inter-linked with the communication system with outside agencies of the concerned Central and State Governments, IMD etc.

Preparatory work may be done for quick installation of communication system (satellite system) between Railway control set up for flood and affected locations /station. This can even be on make shift raft, boat etc. Similar arrangements can also be made in earthquake affected areas.

12.1.1 Preparedness of Rajkotdivision:

- **Optic Fibre Communicationsystem:**
  Western Railway has its own captive Optic fibre communication network for Railwayoperations.Railwaycommunicationnetworksarenotbeingsharedbyany other service providers/outside central or State agencies etc. These OFC communication networks have back up / ring protected route diversity on Rail Tel long haul network in most of the sections. The details of Communication System is as below- **OFC communicationsystem:**
  In Rajkot division SurendraNagar-Dhrangdhra (BG) is low density Traffic /small Section/Route where OFC is yet to be provided.
  In Rajkot division Rajkot–Okha, Kanalus-Sikka, Dahinsara-Navlakhiare are the sectionswhereOFCislineari.e.withoutroutediversity.Thesesectionsarebranch lines or with low trafficdensity.

- **Satellite based communication system are provided atARTs-**

SN	Division	Location	I-SAT	VSAT (Manual tracking)	VSAT (auto tracking)
1	RJT	Rajkot	Available	Available	-

- **Satellite based communication system are provided other thanARTs*:***

SN	Division	Location	I-SAT
1	RJT	NOCC(Test Room) Rajkot	Available

Whereverpossible,communicationattherelief camps isbeingprovidedifthereliefcamps are located near the Railway Stations and it is physically possible as per the prevailingconditionsatsite.Atotherlocations,communicationispossiblethroughCUG mobile phones wherever the coverageexists.

12.2 Back up Communication on Railways:

To handle any disaster by the Railways and to utilize its resources efficiently, Communication is an essential requirement. Where required, back up (alternatives) should be adequately available. One of the strengths of the Railways to handle a disaster is its own communication network. In handling a crises or a disaster, reliability of communication has to be cent per cent.

At the Divisional level, the control rooms have to communicate with the stations, the telephone exchange have to function and the OFC and Quad cable network has to have reliable back ups to be able to be effective.

Where there is no back up of the Railways owned OFC network, an arrangement of sharing with Government/Non-Government organization and other service providers has to be planned in advance. Or else, the alternative of satellite communication be resorted to. However, the speed of reconnecting a failed communication by which ever means is of essence.

Further to provide better communication facilities during disaster, it is necessary that either the Rail net, intranet network of IR is extended to every railway station of Indian Railways, Presently Rail net / Internet connections have been extended to Divisional Head quarter and important stations. Rail net/internet network can be extended to disaster location / site with the help of satellite communication when the ARTs reach at site/ location. Alternatively other means of communication is also provided on all the stations. Presently I-SAT are available in ART's, voice, video and data transmission facility can be established at Railway Station with the help of ARTs.

12.3 Backup Communication of Western Railway:

The captive communication system of Western Railway has backups available on most of the routes through channels provided by RCIL (a PSU under the ministry of Railways). The divisional control rooms are able to communicate with all the stations through control phones. Communication at major stations, where telephone exchanges are provided, is also possible through auto telephones. In addition to this BSNL phones are also provided at the control rooms and way side stations. Therefore there are multiple modes of communication between divisional control rooms and stations. These modes of

communication are available in all Broad Guage except Nadiad – Modasa(104 RKm) and Ankaleshwar-Rajpipla(63 RKM) which are non control sections i.e. section having one train system of working without any control communication. Similarly the facility is available at all meter gauge sections except non control section i.e. section having one train system of working without any control communication such as Kalol-Ranuj(102 kms). The narrow gauge sections on Western Railway such as Billimora-Waghai(63 kms), Choranda-Motikoral(19 Kms), Jambusar-Pratapnagar(51 Kms), Miyagam-Malsar(38 Km), Nadiad-Bhadran(60 Kms), Kosamba-Umarpada(62 Kms), Miyagam-Chandod(48 Kms) are having one train system of working without any control communication.

Wherever Railway owned OFC networks are not available, backup channels are being hired from service provider like BSNL. Railnet may be extended to those stations where Railway exchange are provided and stations where OFC route and POP available. V-SAT communication can be established after the arrival of ART at the site as these sets are provided in the divisional ART only using IR's own V-SAT hubs established at Thomson Road, New Delhi.

12.4 Incident Response System (IRS):

The National Policy on Disaster Management lays down guidelines for a chain of command in a structured unit to handle various types of Disasters as under:

A traditional command structure exists in the Railway hierarchy which manages disasters in Indian Railways. It has been planned to strengthen and professionalize the same by drawing upon the principles of the IRS with suitable modifications. The IRS is essentially a management system to organize various emergency functions in a standardized manner while responding to any disaster. It will provide for specialised incident management teams with an incident commander and officers trained in different aspects of incident management, such as logistics, operations planning, safety, media management, etc.

The Railways have their own IRS as they have had to deal with crises like situations and mini-disasters in the day to day operational working and especially with handling of train accidents.

12.5 Coordination – Integrated Command System of Railways with Integrated Operations Centre of MHA:

Traditionally the Control Room in each Division monitors on a "Real Time" basis the train operations. This Control Room is manned round the clock and has representatives of all the departments concerned with train operations as also with abnormalities which may affect train running. The "Command and Control" of the Divisions Control Room is with the operating department who plan, execute and monitor the running of trains (both freight and coaching trains). Assistance of other departments, viz. Mechanical (Power), Electrical (Power and OHE Traction Distribution), Mechanical (Carriage and Wagon), Civil Engineering (track maintenance and monitoring), Commercial (passenger information interface), Signal and Telecom (through a 'Test Room'), Security (RPF) etc is provided round the clock in the Operations Control Room.

This control room of the affected divisions on the Railways will monitor the activities post Disaster and coordinates with the various organizations (rescue, relief, mitigation etc) in the disaster areas.

The Divisional control will coordinate with the "Zonal Control" where a similar control room exists, called the Emergency Control in the Headquarters of each Zonal Railway. "Zonal Control will establish liaison with the Disaster Management Centre in the Railway Board which in turn coordinate with the IOC of the MHA right from the stage of receipt and issue of "Orange or Red Alerts" and also for providing/requesting help in relief/rescue/mitigation to other departments (or State Government) or from them respectively. The Zonal Control will constantly update the position to Railway Board.

12.6 CommunicationArrangement

12.6.1 Communication:

Communication is an art of communicating, transmitting, exchanging thoughts, messages or information. Effective communication is an essential componentof

Organizational success whether it is at the normal working time or during time of emergency or disaster.

Communication can be done in the following manners:

(i) Visual (like Fusee, Flasher typetorch)
(ii) Verbal (likeTelephone)
(iii) Signals (like Handsignal)
(iv) Explosion (likeDetonators)

12.6.2 Means ofCommunication:

Flasher Light (to attract attention of crew of nearby approachingtrain)
(v) Emergency Locomotive Whistlecodes.
(vi) Guard ContinuousWhistle.
(vii) Walkie TalkieSets.
(viii) CUGPhones
(ix) Detonators
(x) Fusee
(xi) ControlPhone
(xii) BSNLPhone
(xiii) Railway AutoPhone
(xiv) BlockInstruments
(xv) VHFSets
(xvi) Patrolman / Keyman / Gateman / RPF ContinuousWhistle.
(xvii) Magneto telephone provided at Gate / Block Hut /IBS.
(xviii) Portable Communication Telephone Set(PCT).
(xix) Long Range Hooter / Sirens / StationBell.

12.6.3 Introduction:

Immediately after declaration of Disaster**:**

(xx) At Rajkot HQ Control, SE / SSE (Sig) / HQ control will inform the Sr.DSTE, DSTE, ADSTE atonce.

(xxi) Rajkot HQ Signal Control will also inform the CSTE, Dy. CSTE CCG atonce.

(xxii) SE / SSE (Sig) / HQ control (on duty) will also inform all open line S&T headquartersofficers.

(xxiii) SSE(T) shall call for JE/Tele-II/HQ and start operation of HQ control office. Other SE/JEs called for shall perform duty inphases.

(xxiv) SE / SSE(Sig) / HQ control (on duty) will also inform Controller of Stores (COS) atonce.

(xxv) GM / Jt. GM / Dy. GM Railtel Corporation may bealerted.

(xxvi) S&T Control is located at, Rajkot Divisional HQOffice.

12.6.4 Mobilization Plan of Officers andStaff:

(xxvii) Sr.DSTEwillimmediatelyproceedtothesiteoftheaccidentinDRM'sspecial. Senior Supervisor (Signal / Telecommunication) will accompany Sr. DSTEto Thesiteofaccident.IncaseSr.DSTEisnotavailable, DSTEwillgo to the site ofaccident.

(xxviii) One JE(Tele), two TCM / WTM's and two Group 'D' staff shall accompany Sr. DSTE with satellite phone, FAX cum printer, two 25W VHF sets along with antenna and battery and 10 numbers 5W walkie-talkie sets to the accident site. One Satellite phone of HQ kept in RJT Exchange and one FAX machine and 4 Walkie-Talkie sets along with chargers in DRM'sspecial.

(xxix) Four more SE/SSE (Tele) / TCMs and one SE / SSEs (Sig) of the section will also go to the site of accident at theearliest.

(xxx) Sr. DSTE will be in charge of communication at all thelocations.

(xxxi) SSE(T) – HQ / ASTE will be specifically responsible for setting up of all communication facilities at RJT HQ control office. One Satellite phone will be made operational at HQ ControlOffice.

(xxxii) Due to severity of accident if DRM Special is not moving due to traffic interruption,HQteamconsistingofASTE,JE(Tele),twoWTMsandtwoGroup 'D' staff shall move with items listed at (ii) by Road vehicle to be arranged by DSTE for thispurpose.

(xxxiii) Formeetingcontingenciesofcashimprestandmovementbyroad, necessary drawal from stations earning can be made byDSTE.

12.6.5 CommunicationArrangements:

The communication arrangements in Central Emergency control office, Rajkot division will be arranged by ASTE.

(xxxiv) Central Control office of Rajkot Division at DRM Office, Kothi Compound, Rajkot

Telephone No. 0281 – 2476942, 0281 - 2483063 having ISD / STD facilityis already available in the HQ Rajkot control. Dynamic locking code of the telephone is available with CTNL (Emergency). (The dynamic locking code should be kept in a sealed cover in the control office which can be opened duringemergencyafterdulyenteringintheregisterincaseofnonavailability of CTNL -Emergency)

The ISD facility at Zonal HQ Control and Divisional Control Offices has been provided in compliance to recommendation No.43 (b) of High Level Committee on Disaster Management.

(xxxv) Rajkot HQ CommercialControl:

- Rly Auto Tel. (094)44220,
- BSNL Tel No. 0281 -2473409,
- FAX No. (094) - (Rly), 0281 – 2475217(BSNL).

(Responsibility: Primary- JE/Tele-Railnet Standby-JE-II(Tele) / Outdoor)

(xxxvi) Rajkot HQ SafetyControl:

- Sr. DSO RJT – (094) – 44602 (Rly.) Mob-9724094901
- Safety Branch - Rly Tel. (094) 44654,44612
- FAX No. (094) - (Rly), 0281 – 2475217(BSNL).

(Responsibility: Primary- JE/Tele-Railnet Standby-JE-II(Tele) / Outdoor)

(xxxvii) Railway Board:

MTNL STD Code-011 Railway STD Code-030

Designation	Name	Rly Tel No. (Off.)	MTNL Tel No. (Off.) Code- 011	Mobile No
DG safety	**Hari Shankar Verma**	**47490**	**23047490**	**9740748123**
Principal Executive Director / Safety	**Sanjay Mishra**	**47406**	**23047406**	9717190033
ED/Safety(S&T)	Balbir Singh Yadava	47407	47847407	
ED/Safety(Traffic)	Mukul Kumar	47408	23047408	882207156
ED/Safety/EE	Ashok Kumar Nakra	47427	23047427	8920030843
ED/Safety/Civil	Rahul Srivastava	47425	23047425	
EDME (Safety)	Dr.Utkarsh	47428	23047428	8851036848
Safety Inspector	Sunil Kumar	44425,47421	23304425	9958293592
Chief control Safety	---	43599,43399,47423	23382638	

(xxxviii) Telephone Nos. of Commissioner of Railway Safety:

SN	Designation and Name	Office	Residence	Mobile
1.	CRS Western Circle/Mumbai Shri Enamandram Srinivas	Rly: 22694 (WR) STD :090 MTNL 022-22034351	Rly: 47140 MTNL: 022-26040353	9004490720
2.	CRS Central Circle/Mumbai Shri Guruprakash	Rly:22695,22689 (WR) STD :090 MTNL022-22056058	Rly:21309 MTNL: 022-22833784	8828110720
3.	CCRS /New Delhi Shri Janak Kumar Garg	Rly: -011-23369778	MTNL-011-23369778	9794842049 720027237

(xxxix) Communication arrangement in Western Railway HQCCG:

Accident Emergency Control – Churchgate:

Railway Phone :(090)22696/22577/100/22176/54259/21477/22220/ 22496 / 23492

MTNL Phone: (022) 22017420 / 22084287

12.6.6 Location of 1072 no. over Rajkotdivision:

Specific DOT number for Railway Accident – Information (Railway Emergency Services – Allotment of 4 digit number '1072' (Unrestricted Category) in compliance to recommendationNo.43(b)ofHighLevelCommitteeonDisasterManagementhasbeen installed at followinglocations

Location	STD code	BSNL No.
SUNR	02752	1072 (commercial - enquiry)
RJT	0281	1072 (commercial control)
OKHA	02892	1072 (SS)

- Unrestricted means, it is accessible on STD / ISD and Category – I means mandatory for service provider. All these emergency service numbers are to be treated as toll free numbers in local area i.e. short Distance ChargingArea.
- Necessary steps be taken to open these numbers in SDCAs where ever there is an accident & request by concernedauthorities.

12.6.7 Satellite Phones Provided Over RajkotDivision:

LOCATION	VOICE	FAX	DATA
ART RJT	00870-763095992	00870763095993	00870-763095994
TEST ROOM RJT	00870–764101887	00870 –764101888	00870 –764101889

12.6.7.1 Name and Telephone numbers of Office and residence (Railway andBSNL) and FAX including mobile numbers of CTNL of RJT –DIV:

BSNL STD Code	BSNL Telephone Number		Railway Telephone Number		FAX		Mobile Number
	(O)	(R)	(O)	(R)	RLY.	BSNL	
0281	2472877	-	094 -	094	094 -	2472877	9724094908

	2483063		44642	- 44641	44645		

12.6.7.2 Satellite Phones Provided Over Other Divisions Of WesternRailway:

SN	Division / Location	Satellite Phone			Control Office Telephone	
		Voice	Fax	Data	MTNL/BSNL	Rly.
WESTERN RAILWAY						
1	Mumbai	00873-763095971	00873-763095972	00873-763095973	022-23070564	090-22296 090-44625
2	Vadodara	00873-763095977	00873-763095978	00873-763095979	0265-2638250 09724091917	091-44640 091-44614
3	Ahmedabad	00873-764101881	00873-764101882	00873-764101883	079-22204010 09724093934	093-44662 093-44634
4	ART-KKF	00873- 764101884	00873- 764101885	00873- 764101886	-	-
5	Ratlam	00870-763982198	00870-763982199	00870-763982200	07412-235126 9752496554	092-44610 092-44620 092-44679
6	Bhavnagar	00873-764101890	00873-764101891	00873-764101892	0278-2445230 09724097910	099-44640 099-44023

12.8 Help Line Booths At ImportantStations:

Help Line booths are to be opened at all the important stations enroute of the

affected train. 2 BSNL phones should be identified and kept pre-wired to the Help Line booths so that same can be energized in shortest time. Responsibility will be with SSE/SE/JE(Tele) of the division. Stations at which such arrangements are to be made and telephones which are to be utilized should be identified by Sr. DSTE with approval of DRM. FAX machine should also be provided at nearby location.
A list of such important stations (division-wise) is placed below. SUNR, THAN, WKR, MVI, RJT, BKNG, JAM, KMBL, DWK, OKHA
Sr. DSO / DSO and on duty Station Master is authorized to hire 10 cell phones on spot in compliance to recommendation No. (44) Of High Level Committee on DisasterManagementandDOPSrl.No.13 (b).Totalcellphoneshiredbyallofficials shall not exceed 10 in total peraccident.

As per Rly. Bd's letter 2004/Tele/TN/2 dt.29.06.2006; 4 nos of mobile cell phone to be kept by Sr. DSTE at location.

12.9 Communication Arrangements at AccidentSite:

(A) Site ControlOffice:

(i) TheEngineeringDepartmentshallsetupacontrolofficeinawaterprooftent. A prominently visible "**UNIFIED COMMAND CENTRE**" banner shall be displayed on the tent and shall provide sufficient number of table's andchairs for keeping the communicationequipments.

(ii) Arrangement for 220V, 5KVA stabilized power supply shall be made by Electrical department for the communications equipment. In the railway control office, satellite phone with the FAX machine shall be installed for providing communication between the accident site, Rajkot divisional control office and the emergency control office atChurchgate.

(iii) One25WVHFsetsshallalsobeprovided in the RailwayControlOfficeatsite and one 25 W VHF set shall be installed in a road vehicle so that a mobile communication can be set up to a range of about 15-20 Km. This will help in providing communication between hospital and the Railway Control Office at accidentsite.

(iv) Three site offices shall be set up as follows:

(a)	Site Control Office-1	Medical / Commercial / RPF to be manned by Commercial staff.
(b)	Site Control Office-2	Control office to be manned by Telecom staff.
(c)	Site Control Office-3	CPRO-cum-Public Phone Office manned by CPRO staff. Telecom staff will man the telephone facility to public.

Note: *All3controlofficeatsiteshallbeopenedonlyforpassengertrainaccident otherwise only (b) shall beopened.*

(v) EachofSiteControlOfficewillbeprovidedwithFAX, Controlphone, TwoBSNL phones and Two Railway phone (subject to technical feasibility). WhereBSNL phone are not available, satellite phone will beprovided.

(vi) One FAX Machine and at least two telephones (one BSNL & one Railway)

should be kept free in **EACH** of the Site Control Office to receive only **INCOMING**calls.

(B) Arrangement of BSNL / Railway Telephones from othersources:

(i) Subject to availability and feasibility BSNL / Railway Telephones available at adjoiningStations/Cabins/Gatesshallbeextendedtotheaccidentsite.PCO telephones and other BSNL phone in the nearby localities / villages / Towns shallalsobeextendedtotheaccidentsitebypersuadingtheownersofthese phones. Payments for such telephone connections will be made from the StationEarnings.

(ii) BSNL phone numbers with STD code for Railway Stations in a Division are given in Annexure II of thisbook.

(iii) CUG mobile Phones have been provided to Divisional Officers, Supervisors of different departments, Loco Pilots and Guards. The list in this regard isgiven in Annexure III & IV of thisbook.

12.10 Satellitephones:

(i) Satellite Phone and FAX machine shall be kept in the divisional control Test Room under the charge of a telecommunication supervisor who shall be responsible for keeping these equipments in good fettle. Whenever any serious accident takes place, the nominated supervisor will rush these equipments to accident site and make these functional at theearliest.

(ii) Adjoiningdivisionsshallalsorushtheirsatellitephonesthroughfastestmeans to accident site through their nominated supervisors. Minimum two telecom staffwillcarrythesatellitephoneandFAXmachinetotheaccidentsite.Total 6 Satellite phones shall be available at accidentsite.

(iii) Nominated telecom supervisor trained in setting up, handling and troubleshootingthesatellitephonesataccidentsiteshouldbeabletousethe satellite phone for setting up internet connection through '**Lap Top'carried**

By the DRM. All S&T officers & Telecom Supervisors attending accident site shall be able to operate satellite phones independently.

(iv) HQ CCG telecom control has to be informed regarding inter divisional movements and telephone numbers installed atsite.

A.Dialling Procedure for Satellite Phone:

Dialling International Access Code (00) followed by Country Code (91) then area code (i.e. City Code e.g. 0281 for Rajkot) and finally the subscriber number of the wanted subscriber.

B. Responsibility:

Primary: SSE / SE(Tele)

Stand by: JE(Tele), DSTE / ASTE to ensure that staff specially trained and nominated to operate Satellite phones aredeputed.

C. **Movement Plan of SatellitePhone:**

IncaseofanaccidentonRajkotdivision, twosatellitephonesofHeadquarter Office (kept in Rajkot exchange) shall be moved to accident site. Two additionalSatellitePhonesofadjacentdivisionsshouldalsobemovedasper plan givenbelow.

SN	Section of Accident	Adjacent Divisions from where additional satellite phone to bemoved
1	VG - RJT	ADI, BVP
2	RJT – OKHA	ADI, BVP
3	WKR – NLK / MALB	GIM (ADI)

Note: AdditionalsetshallbesenttoRJTdivisionalHQfromCCGdependingupon therequirement.

Two satellite phones of the division where accident has taken place shall also be moved to the accident site, with two telecom staff. Thus total No. of Satellite phones available at any accident site shall be 6 (Six).

12.11 Wirelesscommunication:

(A) Walkie – TalkieSets:

(i) 30Nos.of5Watthand-heldwalkie-talkiesetsarekeptinARTsincompliance to recommendation No. (96) Of High Level Committee on Disaster Management.Walkie-talkiesetsshallbemobilizedattheaccidentsiteunder thechargeofatelecomsupervisorwhoshallberesponsibleforissuingthese sets to different supervisors andofficers.

(ii) 10 Nos. 5 Watt walkie-talkie sets have been kept in each ARME/SPART. S&T staffwillcarry10No.setstothesiteoftheaccident.Sr.DSTEshallkeep20 sets as reserve in the divisional headquarters office so that these walkie- talkie sets could be taken to the accident site, ifrequired.

(iii) The charging facility for the walkie-talkie sets shall be provided in the ART / ARME/SPART so that these sets are kept in fully charged condition at all the times. It must also be ensured that sufficient spare batteries are made available at the site in fully charged condition for changing the working batteries.

(B) 25 Watt V.H.F.Sets:

(i) V.H.F. communication shall be set up at the site using 25 watt set with battery back up. Another 25 Watt V.H.F. set shall be carried to sitemounted on a road vehicle to facilitate communication with nearby hospitals, where injuredpassengersareadmitted.TheroadvehiclewillbenominatedbyDRM. One SE/JE(Tele)/TCM shall also accompany the roadvehicle.

(ii) Twonumbersof25wattVHFsetsarekeptineachARTincompliance to recommendation No. (96) of High Level Committee on Disaster Management.

12.12 Portabletelephone:

1. Types of PortableTelephones:

(i) Portable Telephones are available in Brake van of Passenger carrying Trains.
(ii) Portable telephones are also available in Locomotive of every train whether Passenger orGoods.
(iii) Telephones presently in use are of the 4-wire / 2-wire type of portable phones, which can be used in REarea.
(iv) There are two types of PortableTelephones:
(a)Land line type (Overhead Telephone linetransmission)

(b)Socket Type (Underground cabletransmission)

(v) Inoverheadterritoryadditionalpolesaretobecarriedby Guards/Loco Pilots for connecting phones to the overheadlines.

2. How to use PortableTelephones:

(a) Overheadtype:

(i) Fix "Y" bracket on thepoles.
(ii) Use required number of polesavailable.
(iii) Connect the two wires to phoneterminals.
(iv) CircuitonRedcolourbracketsideconnectsthesectioncontroller telephoneline.
(v) Circuit on the Green colour bracket side connects the Deputy Chief Controller telephoneline.
(vi) Link"Y"bracketonthecircuitandrubitforclearcommunication.

(b) Underground cabletype:

(i) Look at Receiver Arrow sign for socket location on Over Head Equipment mast / location post and move towards the Arrow pointingdirection.
(ii) OnreachingEMCSocketlocation, openthesocketbyusing the key kept in the phone box whererequired.
(iii) Plug in the phone terminal properly forcommunication.
(iv) In electrified section this phone connects the Traction Power Controller and then link to section controller. (In non-electrifiedsectionitgoesdirectlytosectioncontroller).

Note: Location of emergency socket at various KM Post is given in the Annexure V.

12.13 Public address system and megamikes:

(v) Public address system must be made functional at accident site – both for communicationwithpassengers/publicandalsotogivedirectionstorailway staffregardingreliefoperations.Forthispurpose,additionalP.A.systemsmay Become necessary depending upon the requirements at accident site.

(vi) In addition, mega mikes available in accident relief train will also beutilized. P.A. systems &mega mikes shall be under charge of the nominated Supervisor.

12.14 Staff to be deployed at thesite:

ArostershallbepreparedbySr.DSTEforthestafftoproceedtothesiteofaccident for operating nominated equipments. Standby staff shall also be notified.Arrangements ofRoadVehiclestoproceedtoaccidentsite, indicatingalternativevehiclesaswell, shall be notified. Arrangements of vehicle drivers shall also benotified.

12.15 Duties of railway officers at the time ofaccident:

(vii) Sr. DSTE shall be the in charge of all communication arrangements at all locations. DSTE / SSE(T) - HQ shall be responsible for making necessary arrangements in Emergency Control Office at Rajkot HQ Telecom Control office.

(viii) HQ Telecom control shall monitor installation of various telecom gadgets at site.

(ix) SE/JE/Sig./RJT on duty shall inform Dy. CSTE(C), Sr. DSTE, DSTE, ASTE and shallarrangetheS&TvehicleonemergencydutyinRJTdivisioncontroloffice to the residence of the officers deputed for emergency control duty so that these officers can reach the emergency control room within 5 – 10 minutes on the firstinformation.

(x) SimultaneouslyDy.CSTE(C) of the Rajkotdivisionshallbealertedwithadvice tokeeptheirstoresopenandvehiclesinreadinessformovementofmenand material to site if so advised by Sr.DSTE.

12.16 Powerrequirement:

230VAC,5KVApowerwillberequiredforthecommunicationarrangementsatthe siteoftheaccident.Inaddition, chargingarrangementswillberequiredinARTsand

ARMEs/ SPARTs for charging the walkie-talkie sets. Sr. DEE to ensure the proper arrangement in time for the same and more.

12.17 Video conference:

Video streaming facility has been provided through V-SAT in ART/RJT. The video of sites can be seen at Railway board and any terminal having Railnet.

12.18 List of telecom equipments to be kept in accident relief trains (ARTS) – RDSO report no. STT/ART(I) –97:

As per Railway Board's letter no. 99/Tele/AR/4 dated 01.10.2002 the telecom equipments to be kept in ART is listed in ANNEXURE VI of this Disaster Management.

"Sufficient mock drills shall be carried out to ensure smooth operation when required"

12.19 Preparedness of Rajkot Division:

S.N	RB DMP	Preparedness
1.	Need and availability of backup communication to ensure 100% communication availability in case of any man-made or natural disasters.	• In case of Man-made Disasters- • Railways have their own extensive communication systems which wouldbe used for Disaster Managementtoo. • Most of the circuits working on OFC network over Western Railway are in Ring protection with 100% communicationavailability. • 100%communicationavailabilityduring any disaster in areas / location where Rly OFC is not in Ring protection canbe ensured by hiring leased wired / wireless circuits from other Telecom serviceproviders. In case of Natural Disasters - • I-SAT and V-Sat in ART can be used for communication. • Drone can be used to locate/ visualize the affectedarea.
2.	Need and availability of sharing of OFC & Quad cable network, where required with others.	OFCandQuadcableNetworkisnotshared by Railway with others (Central and State Governments, otheragencies)
3.	Need and requirement of inter-linking the communication system with outside agencies of the concerned central andstate Governments, IMD etc.	Communication system with outside agencies is not inter-linked by Railway (Central, StateGovernments, IMD&other agencies).
4.	Preparation for quickinstallation of communication system (satellite system) between Railway control setup for flood& earthquake affected areas and affectedlocations/station.	• All ARTs over Rajkot division are equipped with Satellite Communication (I-Sat phone andV-Sat) facility. • The communication system can be setup from the Railway Track (location up to which ART can bereached). • Drone can be used to locate/ visualize the affectedarea.
5.	Availability of Rail net/internet network of IR to every railway station of Rajkot division.	• PresentlyRailnet/Internetconnections have been extended to Divisional Head quarter and importantstations. • Rail net/internet network can be extended to disaster location / site with the help of V-Sat communication when the ARTs reach at site/location. • Drone can be used to locate/ visualize the affectedarea.

6.	Planning & progress of voice /data / video communication facilities from IR's ownV-SAT hub established at Thomas Road, New Delhi, to different Railwaystationsofalldivisionsof Rajkotdivision.	Voice/Data/Videocommunicationcanbe established through VSAT hub at disaster location after arrival ofART.

CHAPTER - 13

DISASTER INFORMATION FLOWS AND ALERTS OF DISASTER

13.1 Standard Operating Procedures (SOPs):

The Ministry of Home Affairs (MHA), as the nodal Ministry is responsible for coordinating response and relief efforts with various Ministries/Departments of the Government of India, State Governments and District Authorities. They have prepared the Standard Operating Procedures (SOPs) for handling man made disasters (for eq. Terrorism related disasters) for which they are earmarked as the lead Ministry for disaster response, relief and mitigation.

All Central Ministries, State Governments, District Authorities and other stakeholders will prepare SOPs in consonance with the National and State Plans. The SOPs will be prescribed for activities like search and rescue, medical assistance and casualty management, evacuation, restoration of essential services and communication at disaster sites, etc. The other important activities are provision of food, drinking water, sanitation, clothing and management of relief camps. Detailed SOPs will also be devised by all concerned for dispatch, receipt and deployment of central resources.

13.2 Levels of Disasters:

The Standard Operating Procedures (SOPs) will determine the levels of disasters and for issuing alerts to electronic messaging systems to various agencies about disasters have been formulated by Ministry of Home Affairs. These SOPs will be reviewed periodically for disaster response management in case of natural and man-made disasters.

13.3 Integrated Operation Centre of MHA:

Integrated Operation Centre (IOC) has been set up in the Ministry of Home Affairs to handle disaster situations on a 24X7 basis. IOC is responsible for initiating incident alert messages when a disaster is likely to occur or when it has actually taken place.

13.4 Categorization of Alerts:

A Standard Operating Procedure has been prepared for alerts of events of different types and identifies the situations when alerts are to be sent by the IOC.
Specific hazards have different categories of alerts. Accordingly, a uniform system has been devised by categorizing each type of alert in stages – **Yellow, Orange and Red.**

13.5 Action Plan for Communication of Alert Messages:

Whenever a crisis is about to be faced, Government of India has laid down systems for warning its respective departments through an 'Alert'. It should be understood that mere issue of an 'Alert' (Yellow or Orange) is not an indication of the occurrence of a Disaster. This only signifies the existence of a crisis for which provisions of the Crisis Management Plan would come into operation.
The Action Plan for Alert Messages lays down as under:

(i) All concerned Ministries/Departments/Organisations/Agencies will report events to IOC, MHA.
(ii) While generating and transmitting alerts to IOC (MHA), the concerned agency, will indicate the category of the event as well as its corresponding stage (Red/Orange/Yellow).
(iii) For natural calamities and other crisis situations categorization of Alerts is as under:

(a) AVALANCHES (Defence Research & Development Organisation):

Category	Description	Stage
Low	Generally favourable condition. Triggering is generally possible only with high additional loads and on very few extreme slopes. Only stuffs possible and reach valley in small sizes. Valley movement is safe. Movement on slopes with care.	Yellow
Medium	Partly un-favourable condition. Triggering is possible on most avalanche prone slopes with low additional loads and may reach the valley in medium size. Movement on slopes with extreme care. Valley movements with caution. Avoid steep slopes. Routes should be selected with care.	Yellow
High	Unfavourable condition. Triggering possible from all avalanche prone slopes even with low additional loads and reach the valley in large size. Suspend all movements. Airborne avalanches likely.	Orange
All round	Very unfavourable condition. Numerous large avalanches are likely from all possible avalanche slopes even on moderately steep terrain. Suspend all movements. Airborne avalanches likely.	Red

(b) S UNAMI (Department of Ocean Development):

Category	Description	Stage
No Yellow Stage		
Moderate	When an earthquake of greater than 6.0 is reported and/or a Tsunami watch alert is received from JMA/PTWC.	Orange

Great	When change in water level after an earthquake is reported by National Institute of Ocean Technology, ITWC would issue a **Tsunami Warning *** as per laid down channels.	Red

* The warning may be withdrawn after a better assessment of the level of rise in water level.

(c) LANDSLIDES(Geological Survey of India):

Categ	Description	Stage
IV	Landslides of small dimensions that occur away from habitations and do not affect either humans or their possessions. These may occur near infrastructural installations, agricultural and forestlands and may not affect them in a significant manner. These slides may include small incidents that block communication routes for short periods or do not affect the society in a significant manner.	Yellow
III	Landslides which are fairly large and affect infrastructural installations like strategic and important highways and roads rail routes and other civil installations like various appurtenant structures of hydroelectric and irrigation projects. The landslides that enter large water bodies like reservoirs of hydroelectric projects and could damage some of components of these projects.	Orange
II	The landslides that may occur on the fringes of inhabited areas and result in limited loss of life and property. Landslides, which result in blockade of courses of relatively smaller natural drainages. If the blockade is of relatively smaller dimensions its impact would be of a lower order. Although a threat potential is there, it may not be immediate.	Orange
I	Landslides of large dimensions that are located over or in close vicinity of inhabited areas like urban settlements or fairly large rural settlements. Activity on these slides can result in loss of human lives, dwellings on large scale. These slides may also inflict heavy losses on urban infrastructure. The slides that block busy pilgrimage routes during peak times resulting in hardships to thousands of pilgrims and sometimes resulting in loss of human life. Landslides which result in blockade of courses of relatively large natural drainages. If the blockade is fairly large it could lead to formation of a very large reservoir of water behind it. Formation of a large landslide dam could result in sudden flooding of areas located upstream. Abrupt breaching of landslide dam would suddenly release enormous quantities of water in the downstream areas leading to flash floods that could result in loss of life and damage to property on large scale.	Red

(d) CYCLONE (India Meteorological Department):

Category	Description	Stage
Cyclone Alert	Issued 48 hrs.before the commencement of bad weather when a system is located about 500 km or more away from the coast. The forecast may not contain information about landfall and hence it is still of informatory type but at the same time meant to trigger preparatory actions. During this stage, Disaster Managers plans on the course of action required to be initiated once the system moves closer to the coast.	Yellow
Cyclone Warning	These messages are issued 24 hours before commencement of bad weather and are of a **"serious nature".** During this stage the system is monitored closely and the expected place & time of landfall and the districts along the coastal areas likely to be affected are clearly indicated in the warning messages. The location of the system at this stage may still be 300 km – 500 km away from the coast. Disaster Management Machinery is expected to be geared up fully during this phase.	Orange
Post landfall outlook:	During this phase warning messages are issued about 12 hours before actual landfall and are of a **"very serious nature"**. At this stage, it is expected that the Disaster Management machinery is in full operational mode to face the impeding disaster. All preparedness action should have been completed by this time. MHA would be closely monitoring steps taken by the concerned State Governments regarding evacuation and relief activities like food, sanitation etc. This phase is fit to be classified as "Great Danger" and all warning messages issued to MHA Control Room are required to be forwarded to senior officials of the PMO.	Red

(e) EARTHQUAKE (India Meteorological Department):

Category	Description	Stage
Slight	$M \leq 5.0$	Yellow
Moderate	$5.0 \leq M \leq 6.9$	Orange
Great	$M \geq 7.0$	Red

(f) FLOOD (Central Water Commission):

Category	Description	Stage
IV	Low Flood (Water level between Warning Level and Danger Level).	Yellow

III	Moderate Flood (Water level below 0.50m, less than HFL and above Danger Level).	Yellow
II	High Flood (Water level less than Highest Flood Level but still within 0.50m of the HFL).	Orange
I	Unprecedented Flood (Water level equal and above Highest Flood Level (HFL).	Red

(g) RAILWAYS (Ministry of Railways):

Category	Description	Stage
Minor	Consequential Passenger Train Accident not resulting to casualty.	Yellow
Medium	1-25casualties.	Orange
Major	26 or more casualties.	Red

(h) FOREST FIRE (Ministry of Environment & Forests):

Category	Description	Stage
Ordinary Fire	Localised fires which can be controlled by the concerned territorial Conservator of Forests.	Yellow
Medium Fire	Where large forest area is under fire, which can be controlled by the State Government and no Central intervention is sought by the State Government.	Orange
Major Fire	Large fire, which may result in substantial loss of human lives, massive environmental degradation or loss of wildlife.	Red

13.6 Action on Division/Zones on Orange/Red Alert:

On the issue of an Orange Alert (or of a higher level) the Responders have to be activated as required for rescue and relief etc. as under:

- Mobilisation of Gangmen.
- Hospitals to mobilize Doctors and Para-medical staff.
- Civil Defence units to be activated.
- RPF and RPSF deployment.
- Scouts and Guides for colony care and passenger guidance.
- Operation and manning of the disaster control room.
- Coordination amongst various stake holders through advance warnings.
- Communication system to be ensured and backups to be in readiness for immediate use when required.
- TA Units Deployment; In case the existing railway staff may not be able to maintain train services to be operational, the TA units have to mobilized. (It takes 2-3 days for the deployment of the TA unit after issue of their mobilization order; hence advance warning is of essence).

13.7 Monitoring/Reporting of Effects of Disaster:

On the declaration of an incident as a Disaster by a State Government or District Administrator or even by the GM/AGM of the Zonal Railway, the CSO would give time to time updates to the Safety Control in Railway Board of the Situation. Assistance of other departments would be made available by the GM to the Safety Department on the zonal Railways.

13.8 Standard Operating Procedure (SOP) on Railways:

(a) National Disasters:

The Civil Engineering Department at the field level and on the Divisions gets information through advance warning sent by the respective Government Departments on the possibility of Floods, Cyclones, Earthquakes, and Landslides etc. Depending on the gravity of the disaster/crises/calamity expected the information would be passed on to the Divisional officers through the Emergency Control which will act as the IRS. Where train operations have to be suspended or regulated the operating departments would be suitably advised. After making the train regulation plan the divisional control would advise the commercial and security departments for management of the welfare of passengers. Alerts to the passengers would be issued through the PR Department of the Railway in the Print and Electronic Media.

The DRMs on the divisions shall ensure coordination amongst the departments for ensuring running of train services (including relief special trains) as also relief arrangements for the passengers and for the Welfare of Railways own staff. Assistance of other Divisions and from the Zonal Railways would be taken through the Headquarter of the Zonal Railways (i.e. by involving the General Manager). Coordination with the IOC of MHA and NDMA/NDRF would be through the Emergency Control of each zonal Headquarter.

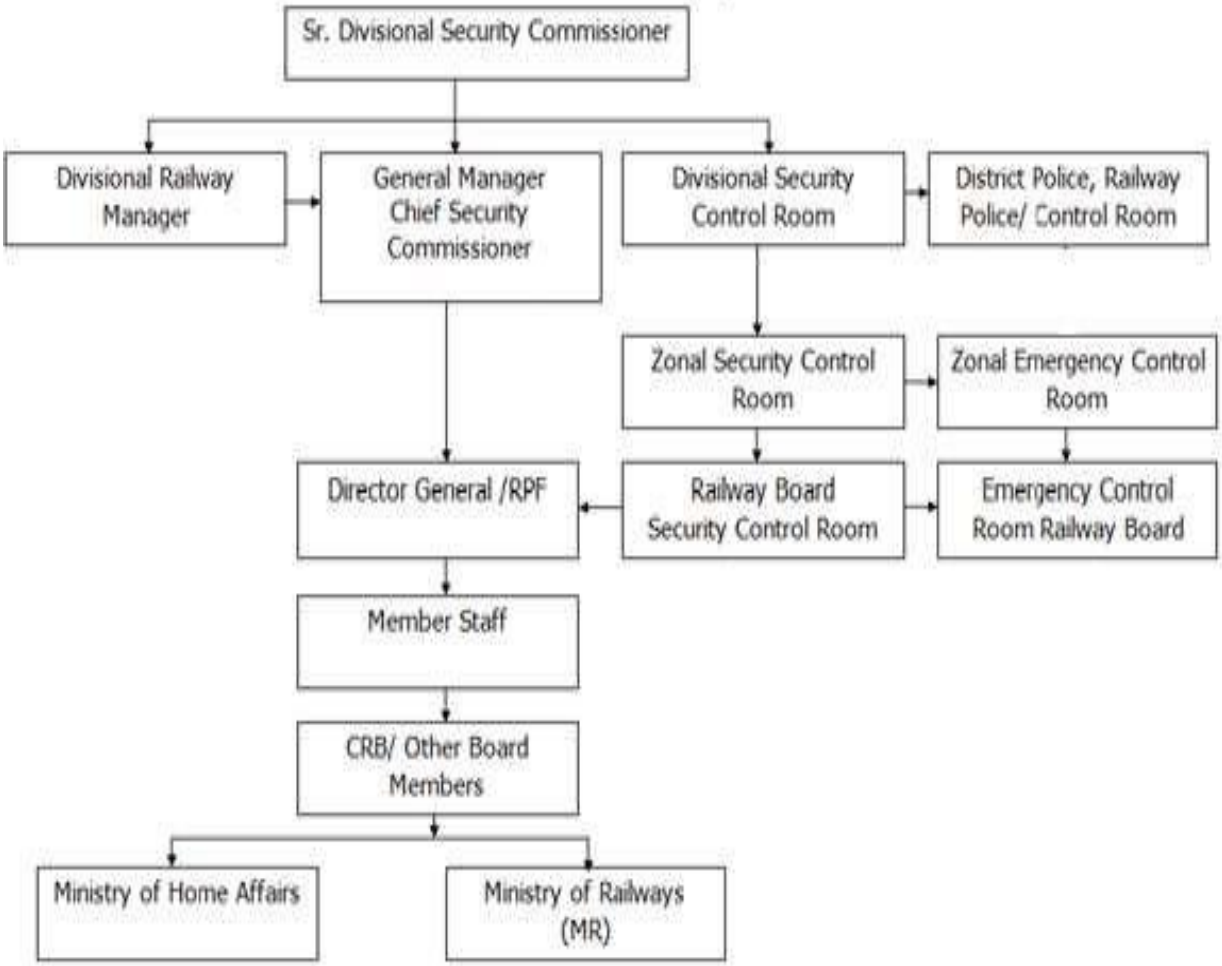
(b) Man-made Disasters:

Different forms of terrorism fall under the ambit of these disasters. A major role has to played by the Security Department of the Railways who will coordinate with the State Governments and when required the Para-military and other forces. The Security Control of the division will act as the IRS. The Headquarter Security Control will coordinate with the IOC of MHA.

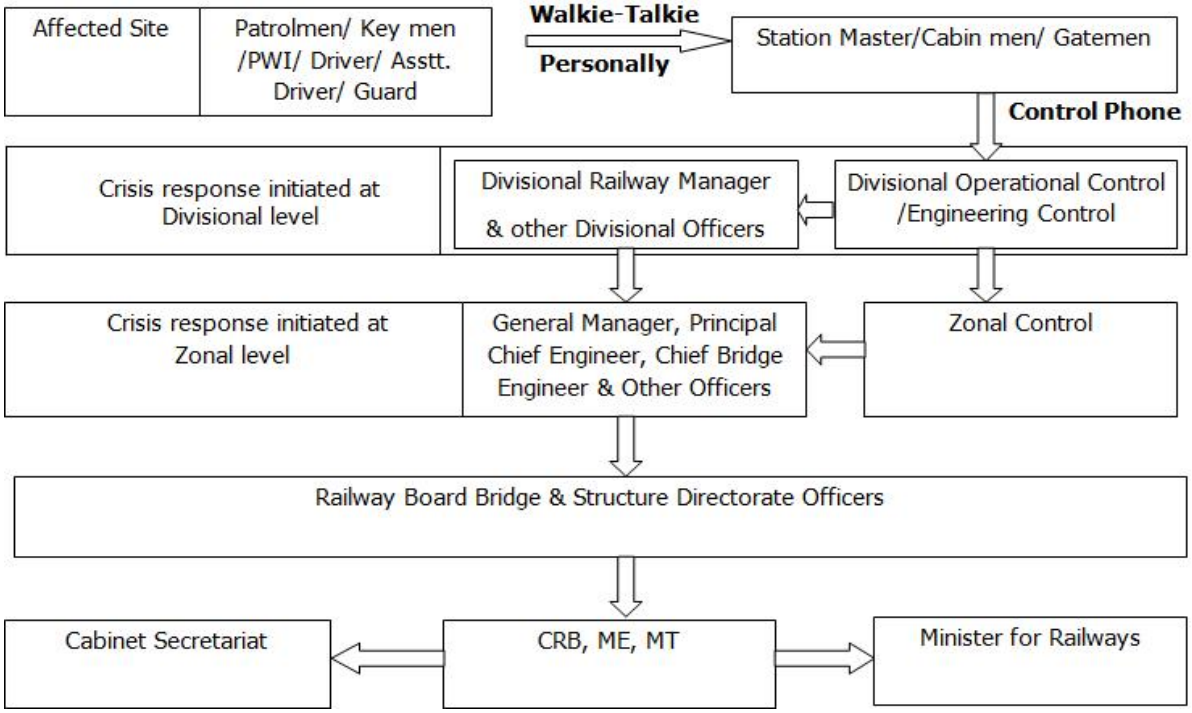
A similar system would be followed as above in organizing regulation of train services by the operating department at the divisional, zonal level and also in the Railway Board.

The Disaster information flow charts for Terrorism and security related disasters, Natural calamitiesanda railway accident is as below:

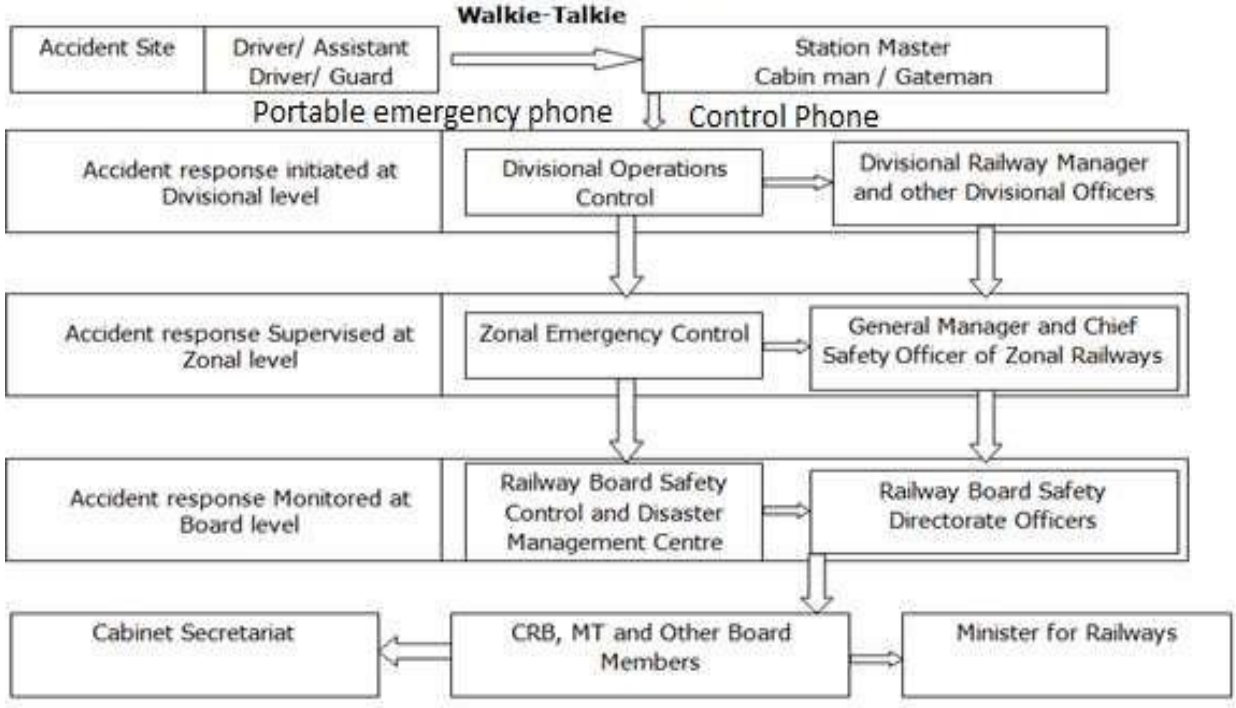
REPORTING FLOW CHART FOR TERRORISM/SECURITY RELATED CRISIS



NATURAL FACTOR(S) CRISIS MANAGEMENT INFORMATION FLOW CHART



RAILWAY ACCIDENT



CHAPTER- 14

MEDIA MANAGEMENT

(Extracts of Manual for Public Relation Department, First Edition-2007)

14.1 Authority To Deal With The Media

14.1.1 **At the Railway Board level,** only Ministers, Chairman, Members, Secretary Railway Board, Director Public Relations (DPR), Director Information & Publicity (DIP) or any other Officer(s) especially authorized by the Minister of Railways may give information or be accessible to the representatives of the media. Any other officer, if approached by the representatives of the media is to refer them to the DPR (***the official Spokesperson for the Ministry of Railways***) or in his absence to the Information Officer. The Chairman is to be kept informed of the press conferences, if any, being held by any Member of the Board.

14.1.2 **At the Railway/PU Headquarters level,** the General Managers and the CPROs are authorized to meet the media in a formal Press Conference or informally depending upon the importance of the nature of the information to be given. However, the General Managers may especially authorize the PHODs to give information or be accessible to the representatives of the media. Any other officer, if approached, by the media, is to refer them to the CPRO.

14.1.3 **At the Divisional Level,** Divisional Railway Mangers (DRMs) are permitted to meet the representatives of the media approaching them for factual information on specific subjects. They may also send news items concerning the working of the Railways (particularly in their Division and other matters of local interest) to the media directly or through the local office of Press Information Bureau (if available). DRMs may also hold press conferences **occasionally**. However, in respect of queries on wider policy matters concerning the Zonal Railway or the Indian Railways, the representatives of the media may politely be directed to GM/CPRO or DPR/Railway Board. In order to ensure that no unauthorized information/material is supplied to the press, the DRMs should **generally not** delegate this work to a Divisional Officer except to ADRMs. All such information/material should have **DRMs approval** before it is supplied to the press. Services of PROs (wherever positioned) may be utilized for the purpose.

14.1.4 It is made clear that **no unauthorized person should speak to or interact with the media,** as it may amount to un-becoming of a railway servant. In this connection, the provisions relating to official documents and responsibility of railway servants (*contained in **Rule-11** of Railway Servants (Conduct) Rules, 1966*) may also kept in view.

12.2 PUBLICITY DURING ACCIDENTS/OTHER UNUSUAL OCCURENCES

14.2.1 **In the event of accidents**, resulting in damage/causalities, the image of Railways invariably suffers because of adverse reactions in public and media. In such situations, Railways must **display greater responsibility** not only in relief and rescue operations but also in interacting with the media with correct

and updated information.

14.2.2 Sometimes, newspapers publish **contrary versions** relating to any accidents attributing them to railway sources. It is, therefore, necessary that only the authorized officers (mentioned in **para 12.1.1 to 12.1.3**) interact with the media. Unauthorized person **should not** speak to the media (as mentioned in **para-12.1.4**).

14.2.3 It has **to be ensured that the media is kept informed** of the relief and rescue measures, passengers injured and dead, restorations of the traffic, etc. to avoid breeding of gossip, rumours and sensational reporting in the absence of authentic information. CPROs must depute an official to monitor and scan through all the print and major electronic media reports, analyze them and take appropriate action immediately to correct any adverse trend for any report aimed at mere sensationalizing the untoward incident.

14.2.4 The media persons must be **briefed** at the accident site and if necessary, **at least once every day** at the Divisional/Zonal Headquarters on regular basis. For this purpose, the executive departments should ensure that the PR Department is fed with the latest information and update at top priority.

14.2.5 Appropriate **rejoinders and contradictions** must be issued and copies thereof should be sent to DPR, Railway Board for briefing the media at the national level. During such emergencies, a **close contact should be established with DPR** Ministry of Railways. It is of prime importance that PR activities have a **common strategy and one voice.**

14.2.6 Sometimes, train services are disrupted badly because of other reasons such as **bandh calls, rail roko agitations, etc.** by political/pressure groups etc. for causes many a time not even remotely connected with railway operations.

14.2.7 In situations mentioned in **para-12.2.6**, where **advance information** of such agitations is available, zonal railways must publicize about the possibility of train services getting affected from the relevant date through suitable press notifications. These notifications must make it amply clear that the agitations and bandh calls are responsible for the cancellations/diversions of the train services, if any. Wherever necessary advertisements can also be brought out in the newspapers, TV and Radio in this regard. Apart from conveying information, such initiatives may also generate opinion against such bandh calls/agitations.

14.2.8 A similar action ***(as mentioned in* para-12.2.7)** may be taken for **publicizing disruption of traffic due to floods, fog etc.** regretting inconvenience caused to the passengers and stating clearly that the reasons for such disruptions are beyond the control of Railway Administrations.

14.3 MEDIA MANAGEMENT PLAN:

14.3.1 Objective:

(i) To post the public with factual information.
(ii) To create a positive public opinion.
(iii) To create a healthy relationship with the media.

14.3.2 Managing Media:

- Any accident which may reflect in the media shall be reported to Public relations branch by central control. The safety officials available in the control shall personally ensure that CPRO/PRO is informed of all the available details.
- Depending on the gravity of the situation, CPRO or his representative will immediately position himself in the Central control.
- Either CPRO or his representative shall proceed to the accident spot, whenever required, to take charge of PR work at the site.
- Meanwhile, PR official stationed at the Central Control will obtain more details from the site for information of media.
- The public relations officer, on arrival at the site of accident shall collect factual information from the officer-in-charge of the accident site and then relay the same to the media men at site and also to PR representatives in the control. Thus, an on line communication channel will be established to keep media informed of all important details.
- Railway's endeavor shall be to ensure that only factually correct and confirmed information is relayed to the media and no inflated or exaggerated version of the fact reported in the press.

14.3.3 The procedure to be followed:

- Only GM, DRM, CPRO, and officer authorized by GM is competent to interact or give interview to media.
- Unconfirmed news having no authentic source shall not be relayed to media.
- No railway men shall express or voice any criticism, opinion or views at any point of time about the accident.
- No one except the PR representative stationed at Control/site shall relay any information to the media.
- The media may be given the following information:
  (a) Nature of the accident- date, time, place, exact location, train no&Name. Number of coaches involved, Names of dead and injured passengers, etc.
  (b) Prima-facie cause of the accident will be relayed to Media only with the approval of GM. Sabotage, even if suspected, will not be relayed to Media, without approval of Railway Board.
  (c) Names of Hospitals where injured are being treated.
  (d) Facilities offered to the kith and kin of the victims-Payments Exgratia.
  (e) Setting up of passenger assistance booths, tele/fax No., e-mail address etc.
  (f) Diversion of trains, road bridging, re-routing etc.
  (g) Probable restoration.
- Convenience and conveyance of media shall be taken care of by PR personal with assistance of Commercial representatives at the site.The media persons must be conducted to the hospitals where injured are being treated.
- Commercial department must ensure that list of passengers who travelled by the accident involved train along with the list of dead and injured in the accident reach the PR officials in control/site by the fastest possible means.

CHAPTER – 15

CRISIS MANAGEMENT PLAN – CMP

15.1 Difference between a Crisis and Disaster:

A Crisis indicates either an impending calamity, or the occurrence of an incident which would adversely affect the society and human population. A Disaster is a much bigger occurrence of an event which would cause large scale devastation, damage to property and loss of human life etc.While a Crisis may or may not turn into a Disaster, the opposite is normally true, but with the condition the crises situation is more in the initial stages.

15.2 Crisis Types:

There can be broadly 4 types of crisis situation which the Ministry of Railways may be confronted with:

a. National level crisis developed in the Railways and is specific to railways, which is to be managed with the help and assistance of other Ministries. All India Railway Strike is only such crisis identified in the CMP 2015for which Ministry of Railways is the nodal ministry.

b. National level crisis affects the country including Railways and different ministries/departments have to help and assist each other based on their strengths. Cyclone, Earthquake etc. can be such crisis where Railways have to assist by running special trains. Ministry of Home Affairs has to assist railways under security related crisis situations like sabotage, bomb blasts, etc.

c. Crisis situation which is not a national level crisis affects Railway system, which is to be managed with the help and assistance of other Ministries/departments. Chemical explosion in train, fire in train, train falling in river, etc may be such situations.

d. Crisis situation which is not a national level. Crisis affects Railway system, which can be managed with the help of internal resources from the Railways only.

15.3 NATIONAL CRISIS MANAGEMENT COMMITTEE (NCMC):

The NCMC is the apex body comprising senior officials of the Government of India to deliberate on the problems at national level. The following officers will represent the Ministry of Railways (Railway Board) in NCMC for the various crisis situations:-

(i) All India Railway Strike	**:**	Member Staff Member Rolling Stock (Alternate)
(ii) Terrorism/Security related Crisis	**:**	Member Staff Member Traffic(Alternate)
(iii) Natural Factor(s) related Crisis	**:**	Member Engineering Member Traffic (Alternate)

(iv) Major Train Accidents	**:**	Member Traffic Member Rolling Stock (Alternate)
(v) Crisis where railways have to help other ministries	**:**	Member Traffic Member Staff (Alternate)

15.4 National Level Crisis:-

The Crisis Management Plan deals with National level crisis situations as under:

i **All India Railway Strike** – Ministry of Railways is the nodal ministry

ii. **Terrorism/Security related Crisis** – Ministry of Home Affairs is the nodal ministry but Railways have to maintain liaison and flow of information.

iii. **Natural Factor(s) related Crisis leading to traffic disruption** - Ministry of Home Affairs is the nodal ministry but Railways have to maintain liaison and flow of information for assistance to restore the affected railway system.

iv. **Crisis where Railways have to help other ministries** by way of rail transport. Ministries concerned will make their own Crisis Management Plans bringing out the assistance that the Railways will be required to provide to them.

15.5 Drill for handling Crisis:

The Crisis Management Plan (CMP) is intended to deal with the afore-mentioned crisis situations only. The drill to be followed in the Ministry of Railways (Railway Board) as well as on the Zonal Railways in respect of crisis group, functioning of the Control room, communication etc., are basically the same for all crisis situations and the same general drill will follow, to be supplemented by the special instructions depending upon the nature of the crisis.

CHAPTER - 16
GUIDELINES FOR MANAGEMENT OF DISASTERS

16.1 Background

India is the seventh-largest country by area, the second-most populous country with over 1.2 billion people and the most populous democracy in the World. Bounded by the Indian Ocean on the south, the Arabian Sea on the south-west, and the Bay of Bengal on the south-east, it shares land borders with Pakistan to the west; China, Nepal, and Bhutan to the north-east; and Burma and Bangladesh to the east. In the Indian Ocean, India's neighbours are Sri Lanka and Maldives. Andaman and Nicobar Islands share a maritime border with Thailand and Indonesia.

16.1.1 Disaster Risks in India:

India is vulnerable, in varying degrees, to a large number of natural as well as man-made disasters. 59% of the landmass is prone to earthquakes of moderate to very high intensity; over 40 million hectares (12% of land) is prone to floods and river erosion; of the 7500 km long coastline, close to 5700 km is prone to cyclones and tsunamis; 68% of the cultivable area is vulnerable to drought and hilly areas are at risk from landslides and avalanches. Vulnerability to disasters/emergencies of Chemical, Biological, Radiological and Nuclear (CBRN) origin also exists. Heightened vulnerabilities to disaster risks can be related to expanding population, urbanization and industrialization, development within high-risk zones, environmental degradation and climatechange.

16.1.2 Management ofcyclones:

16.1.3 Cyclone vulnerability inIndia:

Alongcoastlineofabout7, 516kmoffatcoastalterrain, shallowcontinentalshelf, high population density, geographical location, and land physiological features of its coastalareasmakesIndia, intheNorthIndianOcean(NIO)Basin, extremelyvulnerable to cyclones and its associated hazards like storm tide (the combined effects of storm surge and astronomical tide), high velocity wind and heavyrains.

Though the frequency of Tropical Cyclones (TCs) in the NIO covering the Bay of Bengal and the Arabian Sea is the least in the world (7% of the global total), their impact on the east coast of India as well as the Bangladesh coast is relatively more devastating.Thisisevidentfromthefactthatinthelast270years,21ofthe23major cyclones (with a loss of about 10,000 lives or more) worldwide occurred over the area surrounding the Indian subcontinent (India and Bangladesh). This is primarily due to the serious storm tide effect in thearea.

In Rajkot division, Gujarat on the west coast are more vulnerable to hazards associated with cyclones.

About 8% of the area in the country is prone to cyclone-relateddisasters. Recurringcyclonesaccountforlargenumberofdeaths, lossoflivelihoodopportunities, loss of public and private property and severe damage to railinfrastructure.

16.1.4 National Cyclone Risk MitigationProject:

The National Cyclone Risk Mitigation Project (NCRMP), to be implemented with financialassistancefromtheWorldBank, isenvisagedtohavefourmajorcomponents:

- Component- A: Improvement of early warning dissemination system by strengthening the Last Mile Connectivity (LMC) of cyclone warnings and advisories. Railways need to obtain advance warnings from the systems developed.
- Component-B: Cycloneriskmitigationinvestments.OntheRailways, alongthe high risk coastal rail infrastructure lengths, a similar protection needs to be planned whererequired.
- Component-C: Technicalassistanceforhazardriskmanagementandcapacity-building, where required on the railwayinfrastructure.
- Component- D: Project management and institutional support by advance coordination by the Sr. DEN/PCEs of the Divisions and Zonal Railways is essential to be able to obtain it at shortnotice.

Early warning to station masters and passengers is the key to informing concerned stake-holders in the DM Plan. Coastal *a forestation*, construction of protection walls, cyclone shelters near railway stations where required and strengthening of bridges and rail tracks are some of the mitigation measures which IndianRailwayscanplaytoundertake, inaphasedmanner,asperthemitigationplan. Zonal Railways should identify the affected places and put up mitigation projectsfor consideration and fund allocation. Not only floods, but management of all types of disasters is the basic responsibility of the States and Central Govt. role is restricted to that of support in terms of coordination, resource allocation and making available requisite funds.

16.1.5 Coordination by Railways regarding Cyclones Risk Management, Advance Warnings andMitigation:

In Rajkot division on the west coast of Gujarat have to be in close coordination with the respective Government departments for handling all phases of the cyclones. These include:

- Cyclone risk mitigation investments on rail track, colonies in the vicinity of high riskarea.
- Capacity building on rail tracks/bridges and important rail installations both for reducing devastation from a cyclone, and for relief, restorationetc.
- Advance warning of a cyclone. Action for regulation mainly of Passenger trains followsthereafter.

The Railway infrastructure located in the vulnerable States in part either in a densely populated area or alternately where no significant population exists. While in the former case the resources of the District/State Government would also be concentrated for rescue/relief/mitigation, in the latter case the Railways would have to depend mostly on their own resources for restoration of Railway track.

16.1.6 Preparedness of Rajkotdivision:

CoastalareaofGujaratstateispronetocycloneinwesternregion.Rajkotdivision has too close coordination with state government of Gujarat for handling all phases of the cyclones. The following issues have been taken care of:

- Alltherailwaybridgesandembankmentson Rajkotdivisionaresafelydesigned against flood and stability to bear cyclone effect. These parameters are also taken into account for re-construction/replacement/new lines bridges and embankments.
- All the major and important bridges are designed for maximum runoff during the flood for their catchment area/modified catchmentarea.
- All the bridges are marked high flood level (HFL) with year and danger level (DL) in red colour. In case of any water flow crossing danger level, the train movement will be suspended in the section till water level falls and traffic will be restore only after physical check against the scouring near abutments and piersbysoundingmethodandasafetycertificateisissuedbycompetentofficer atsite.
- To avoid fly/falling of GI/Aluminium/AC sheets used in station platform sheds and other structures, the necessary J bolts are provided in more quantities with windties.
- The roof of old staff quarters having AC/GI sheets have been replaced with RCC and abandoned structures are dismantled immediately after declaring unsafe as apolicy.
- Necessary specified quantities of materials like boulders, sand/stone dust/moorum/coal ash etc is kept at Hapa, Rajkot, Surendranagar&Lakhtar stations of Rajkot Division to attend post effects of cyclone i.e. washouts, breaches immediately in cases of smallcyclones.
- Necessary specified quantities of materials like boulders, sand/stone dust/moorum/coal ash etc is kept at BVP, Kotharia, Botad, Talala, Wansjaliya, BVC, Jetalsar&Lathi stations of Bhavnagar Division, Hapa, RJT, SUNR &Lakhtar stations of Rajkot Division and GIM, Dhrangdhra&Halvad stations of Ahmadabad Division to attend post effects of cyclone i.e. washouts, breaches immediately in cases of small cyclones.
- Capacity building on rail tracks/bridges and important rail installations both for reducing devastation from a cyclone, and for relief/restoration etc is completed in coastal region of all three divisions coming in Gujaratstate.
- As soon as any information is received from Indian metrology department and otheragencieslikeCWC, StateGovernment, localbodiesetc., advancewarning of a cyclone should be communicated in affected area through Railway's own telecom and control lines through on duty station masters (24 hours) and various offices andinstallations.

All the residents i.e. staff and families residing in low lying areas should be taken at safe and higher places like platforms, institute building, other sheds/structures, and shelter etc available atstations.

16.1.7 When a train is caught in a cyclone storm at midsection/station:

- Loco pilot to stop the train clear of vulnerable cuttings, bridges and embankments.
- Guard, loco pilot and other Railway staff on train shall open all doors and windows of allcoaches.
- Station Master shall not start trains when the wind velocity exceeds the permittedlevel.
- Make announcement frequently to warn the public about thestorm/cyclone.
- Take all necessary action to provide shelter and other assistance to those affected by cyclone andstorm.

16.1.8 Cyclonemanagement

- **Cyclone** is definedas
- An atmospheric system characterized by the rapid inward circulation of air masses about a low-pressure center, usually accompanied by stormy, often destructive weather. Cyclones circulate counter clockwise in the Northern Hemisphere and clockwise in the SouthernHemisphere.
- A violent tropical storm, especially one originating in the south-western PacificOcean or IndianOcean.
- A violent rotatingwindstorm.
- Any of various devices using centrifugal force to separatematerials.

16.1.9 Scope:

The coastal Divisions of this Railway come under the influence of South West monsoonsandaresituatedalongtheArabianSea.AnumberofsectionsalongtheWest coast are prone to storms, cyclones and heavy intensity of rainfall which affect the safety of traveling public and also result in disruption to traffic andcommunication.

16.1.10 Definition & classification ofcyclones:

The following are the definitions of the terms and meaning of abbreviations used in this manual -

- **I.M.D(IndiaMeteorologicalDepartment):**ItisthedepartmentunderGovt. Of India responsible for, inter-alia, issue of weatherwarnings.
- **Regional Meteorological Centres:** These are the centres under the administrativecontroloftheIndiaMeteorologicalDepartment, whodirectlyissue the weather warning telegrams on the basis of forecasts. On Western Railway system, Regional Meteorological Centre is situated at Mumbai, Maharashtra.
- **CyclonewarningCentres(C.W.C):**ItisspecialestablishmentundertheIndia Meteorological Department. Located at Mumbai and Ahmedabad, it specializes in forecasting of development, movement and progress of cyclone on the ArabianSea.Itisthemainsourceofcyclonerelatedinformationnotonlytothe Railway

and such other organisations, but also the Regional Meteorological Centres under the India Meteorological Department situatedelsewhere.

- **First Stage Warning' by CWC :**It is the warning issued by CWC as soon as a cyclonic storm is located at such a distance form the coast that it is expectedto cause bad weather' over the coast during next 48hours.
- **Second Stage Warning' by CWC:** Following the first stage warning', the second stage' warning is issued as soon as 'actual threat' of cyclone over the costalarea.
- **SevereCyclonicStorm:**Whenthewindspeedonthestrikeofcycloneonland is expected to be 120Kmph.
- **Very Severe Cyclonic Storm:** When the wind speeds in the strike of cyclone on land is expected to be 180Kmph.
- **SuperCyclonic:** When the wind speeds on the strike of cyclone on land is expected to be 220Kmph.
- **Dewarning Message:** A message issued by CWC Mumbai / Ahmedabad after the cyclonic storm has adequately weakened or passedfully.

16.1.11 Information Dissemination & Cyclone Intensity MonitoringSystem:

Arrangements exist with the Meteorological Dept., Govt. of India for issuing telegrams of warning whenever storms, gales and heavy rainfall. The conditions under which warnings are issued are detailed below –

- Amount of rainfall considered dangerous – 75 mm and above in 24hours.
- Wind velocity considered dangerous – 65 Kmph andabove.
- Period when warnings will be given – Throughout theyear.

These weather telegrams are issued by the I.M.D. offices at Mumbai and the Cyclone Warning Centre Mumbai & Ahmedabad to the Chief Controllers of all the 6 Divisions of WR apart from Central Control at Mumbai. Arrangements exist that incase of failure of DOT communication system during bad weather / cyclone, the microwave network of the Railway or Police wireless systems or satellite phones will be in use.

16.1.12 Anemometers:

These are the devices used for measuring wind speed at specified height from the groundlevel.TheanemometersshouldbeinstalledbytheEngineeringDept.atstrategic stations along the West-costroute.

16.1.13 Pre-Cyclone Season Preparation asanIndividual:

As an individual what you should do **Don't Pay Attention to Any Rumour, Listen Only To Official Forecasting.**

- **Before a cyclone hits – BeReady…**

Prior to the commencement of 'cyclone', you can take some basic precautions that may save the lives of your family, your home and your business.

What you should do:

- Check that your home is in a sound condition, especially the roof andeaves.
- Trim any tree branches hanging over yourroof.
- Clearyourpropertyofanylooseitemsthatcouldbecomemissiles during extreme winds (e.g. sheet iron andwood).
- Knowyourcommunitydisasterplan, checkwithyourlocalcouncil.

- **Prepare an emergency kitcontaining:**
  - A portable radio, torch and sparebatteries.
  - Stocks of fresh water and cannedfood.
  - Matches, fuel lamp, portable stove, cooking gear, utensils, can opener and waterproofbags.
  - A first aid kit, manual and masking tape forwindows.
  - Keep a list of emergency phone numbers handy, including numbers for your local Police, Fire, Ambulance, State EmergencyService, LocalCouncil, GasandElectricityCompany andrelatives.
  - Find out how and where to turn off power, gas and water supplies.
  - Check that you have adequate household and contents insurance and which hazards are not covered by thepolicy.
  - Storeyourimportantdocuments(e.g.wills, passports, photos, birthcertificates) inafire/water-proofcontainerorsafedepositbox.

16.1.14 when cyclones hit what you shoulddo:

- Store all loose items inside. Put wooden or plastic outdoor furniture in your pool (if you have one) and fill garbage/wheelie bins and dinghies with water (water can be used for flushing toilets ifrequired).
- Fuel your car and park it under solidcover.
- Close shutters, board-up or heavily-tape allwindows.
- Pack an evacuation kit including your emergency kit, warm clothing, essential medications, valuables, papers, photos and keepsakes in waterproofbags.
- Disconnect all electrical appliances and turn off thegas.
- Stay inside and shelter (well clear of windows) in the strongest part of the building (e.g. the cellar, internal hallway orbathroom).
- Ifthebuildingstartstobreakup, protectyourselfwithmattresses, rugs orblanketsorbyshelteringunderastrongtableorbench.Ifnecessary, and hold on to a solid fixture such as a waterpipe.

- Continue to listen to your portable radio for updates andadvice.
- Beware of the calm 'eye' of the cyclone. If the wind suddenly drops, don't assume that the cyclone is over. Violent winds will soon resume from the opposite direction (it is best to wait for the officialall-clear).
- Ifyouaredriving,STOP-butwellawayfromtheseandclearoftrees, power-lines and watercourses. Stay in yourvehicle.

16.1.15 if you are required to evacuate what you shoulddo:

- Basedonpredictedwindspeedsandstormsurgeheights, youmayberequired to evacuate yourhome.
- Official advice will be given on local radio / TV about safe routes and when to evacuate. Make sure you wear strong shoes (not thongs) and clothing for protection.
- Switch off the power, water and gas, collect your evacuation and emergency kits and mobile phone and lock your home on the way out (don't forget your keys).
- If evacuating inland (out of town), take your pets and leave early to avoid traffic, floodingandwindhazards.Ifyouareevacuatingtoalocalshelter, follow the directions of Police and State Emergency Servicepersonnel.

16.1.16 after the cyclone what you shoulddo:

- Don'tgooutsideuntilofficiallyadviseditissafetodoso.Check for gas leaks and don't use electrical appliances ifwet.
- Continue to listen to your local radio for official warnings and advice.
- If you did evacuate your home, don't return until advised it is safe to doso.
- When you do return, use a recommended route and don'trush.
- Beware of fallen power lines, damaged bridges, buildings and trees, and don't enterfloodwaters.
- Heed all warnings and don't gosightseeing.
- Don't make any unnecessary telephonecalls.

16.1.17 Pre-cyclone season preparation asorganisation:

Pre-cyclone preparation essentially involves ensuring of adequate inventory of necessary stores and equipments as per the check list which should be available with the Stores department.

16.1.18 Check list of stores and storagelocations:

Since the time available between initial warnings upto the actual occurrence of cycloneanditsdamages/disruptionsisoftenveryshort, pre-emptiveactionisessential to ensure adequate preparedness in terms of stores and equipments necessary to deal with the disruptions / damages.

- **Storesdepartment:**

  The Stores Department will ensure stock of necessary items with sufficient quantities. The locations for stocking of these materials shall be at RAJKOT Stores Depots which is accessible by rail as well as road.

- **Engineeringdepartment:**

  The list of materials which should be kept at strategic locations on the West-coast section (Rajkot division) at all times should be available with Engineering department and to be made available to Emergency Control well before in time.

  - Standing arrangements on 'whenever required' basis should exist for supply of adequate rake loads of steel plants slag with Steel Plants and quarry dust with ballastcontractors.
  - As restoration of traffic often requires heavy handling of earth, availability of heavy earth moving machinery viz. Poclains, JCBs, Pay-loaders etc should be identified in the coastal towns along with firm's / owner's names, addresses and telephone numbers so as to hire and mobilize them as the necessity arises. Engineering department to keep this list readily available at alltime.
  - Standing contracts with 100% option clause may be entered into on annual basis from strategic quarry dust and boulder supplylocations.

- **Electricaldepartment:**

  The items, quantity and locations of electrical materials to be kept as pre-cyclone measure to be kept ready by the Electrical department and should be made available to the emergency control. In addition to these materials, the locationsofadditionalgeneratorcarsshouldbeidentifiedinadvancesothatthey can be requisitioned from other Divisions / Railways in case ofnecessity.

- **Mechanicaldepartment:**

  Mechanical Dept. during pre-cyclone season needs to take the following measures

  - About 28 wheeler tanks suitable for drinking water shall be identified and madeavailableatSUNR, WKR, RJT, HAPA, and OKHAforloadingandmovement of drinkingwater.

- **Signal &Telecommunicationdepartment:**

  The experience hasshownthatthecommunicationlinksincludingterrestrial, underground and microwave severed off at the on set of cyclone. In such cases, VHF sets for short distance communication and satellite phones for long distance communication are the only means available for exchange of vital information. However, following pre-cyclone arrangements should be made.

  - Availability of emergency generator sets for charging of VHF equipments at all nominated stations with adequatefuel.
  - The satellite phones should be kept in working order atRajkot.

- Spare 25 W VHF set complete with battery and antenna to the extent of 25% of total sets provided in the Divisions should be available with TCIs on Rajkot division (WesternRailway).
- One extra DG set along with 2 number of 20 litres of jerkin full with fuel should be stored at each of the three locations (SUNR, WKR, RJT, HAPA, and DWK)alongtheWestCoastrouteofRajkotdivision(WesternRailway)at SI/TCI'sstores.

- **Medical department:**

  Medical Department will keep the following items in stock at the locations indicated against each as preparedness for cyclone even during the pre-cyclone season.

Material	Quantity	Locations
Chlorine tablet	***	SUNR, WKR, RJT, HAPA, JAM, KMBL, DWK,OKHA
Bleaching powder	***	SUNR, WKR, RJT, HAPA, JAM, KMBL, DWK, OKHA

- At above locations the material will be kept with CMD / CMS stores in respective mainhospitals.

******* Quantity to be fixed by MD in consultation with the CMD.

16.2 Action to be taken 48 hours in advance of hittingcyclone:

Formation of low pressure area, its development into cyclonic storm and its tentative direction of propagation becomes known much before (well above 48 hours) theestimatedtimeforitsstrikingthecoast.Abroadassessmentofanticipatedseverity of cyclone becomes known at least 48 hours before its strike to the coast. From this point of time, prompt action to combat the cyclone iswarranted.

16.2.1 Check on the inventories and equipments ofstores:

Inventories / Stores to be maintained by each Dept on specified locations is detailed in PARA 9, 10, and 11. After initial warnings of cyclones have been received from the I.M.D/C.W.C each dept will conduct a re-check of physical availability of itemswith quantities and locations as per the checklist given in para 9, 10, and 11. The following actions is required by each Dept–

- **Storesdepartment:**
  - ReviewingthestockpositionofitemsasperlistavailablewiththeMaterial department (Stores) (in the stocking depot and locations likely to get affected).
  - Arrangingtransportationofsomeofthereliefmaterialstothelikely affected areas before natural calamitystrikes.

- **Engineeringdepartment:**

  The engineering material as stocked should be cross checked for its physical availability in full. The fitness of vehicles on which the materials have been

loaded 'on wheel' should be obtained. Apart from this, the following action needs to be taken –

- Based on the anticipated severity and warnings, the modalities for movement of engineering materials should beplanned.
- The firms / owners having heavy earth moving machinery should be contacted, alerted and asked to be in readiness to hire the machines to the Railway. Movement of such machine including loading and unloading arrangements should be planned in consultation with the TrafficBranch.
- Areviewofavailabilityofthefollowingmaterialswithstockholdersshould be done to know the availability position-
  - GI Wires,
  - Asbestos Sheets,
  - GI Sheets,
  - Tents

- **Electricaldepartment:**

  Check working of DG sets, stock position of HSD oil, K-Oil, position of light fittingsandothermaterialssoastoensurethattheyareavailableinworking condition at nominated depots. This should be ensured by Sr. DEE / AEE(G)/ Supervisor in-charge of their respective jurisdiction. Any shortage should be made goods. HQs control should be informed for assistance if required. Complete list of vital equipments & consumables should be available in division'scontrol.

- **Mechanicaldepartment:**

  Thefitnessofrollingstockfortransportationofdrinkingwateraswellasthose of ARTs, ARME/SPART should be checked andensured.

- **Signal &Telecommunicationdepartment:**
  - **Communication:**
    - Check that 25 W VHF set provided at each station is functioning properly & battery in fullycharger.
    - Check that emergency generator set is functioning properly with adequatefuel.
    - Checkthatfuelsupplytanksofthegeneratorsetshavebeenfullfilled and adequate fuel for 72 hrs has beenstocked.
  - **MicrowaveEquipment:**
    - Check and align all Microwave equipment and battery of DG sets with adequatefuel
    - KeepMASTriggers, Transport, and Fuelreadytoattendtoanydisturbance to antenna and towermounting.
    - Telecom channels via alternative routes should be lined up and kept terminated for administrative trunks and controlworking.
    - Satellite phones wherever available should be tested and accompanying staff identified along with battery charging arrangement.
    - CommunicationequipmentinARTshouldbetestedforproperworking order.
  - **Blockworking:**

- Check all the Block Instruments and theirBatteries.
- Extend power supply from emergency generator set to Block Battery charger.

- **Medicaldepartment:**

  Medical Dept will check the availability of stock as detailed in Para 14.

- **Operatingdepartment:**

  Sr.DOMoftheconcerneddivisionswillmakearoughassessmentofstaffand area of deployment and advice HQs and Emergency Control / CCG.

  Divisional Control will also obtain the status of functioning of VHF sets and batteries / generators from each station and bring the discrepancies to the notice of Sr. DSTE.

  StationMasterofthe areawithassistanceofSr.DOMofthedivisionwhich is likely to be affected will ensure storage of adequate drinking water, functioning of hurricane lamps, match box, adequate availability of fuel for generator sets, functioning of VHF sets, charging of stand by batteries and adequacy of first aidequipment

- **Activation of alarms to staff &colony:**

- **Action by Central Control – COM'sOffice**
  - At HQs Office the Central Control Unit who is the recipient of the weather warning telegrams will arrange for the distribution of the message to the CE, CBE, CTE, COM, CSO, CME, CEE and CSTE through their concerned departmental counterparts in central control.
  - Central Control should also verify with the Divisional Control that such weather warnings, telegrams have been received by the Chief Controller of the concerned Division to enable them take prompt action at field level.

- **Action by the Division ControlOffice:**

  The Chief Controller or in his absence the Dy. Controller should immediately arrange for the weather warning telegram to be repeated verbatim to the Divisional Officers as well as AENs concerned and all SMs onthesectionlikelytobeaffectedonthecontroltelephone.TheController repeating the telegram should record the name of the SM to whom the telegram has beenrepeated.

16.2.2 Preparation of activities for stations likely to be affected by cyclones:

Diversion ofTrains:

- Divisional / HQ Emergency Control will remain in touch and take action for diversion of trains based on the ground situation. All diversions ordered shall be advised through a bulletin to all concerned including CPRO forpublicity.

- In order to avoid any mishaps or damage to the passenger trains and to avoid marooning of passengers, the COM or an officer acting on his behalf will issue instructions to all concerned for either cancellation or regulating the trains in time so as to avoid running through likely affected area bycyclone.

16.2.3 Nomination of officers to man the emergency control and way-side stations:

- Inadditiontotheactiontakenasperaboveparabyvariousdepartments,each PHOD / concerned DRM will identify and nominate the officers for opening up and manning of emergency control at short notice at HQ /Division.
- Two light motor trolleys should be arranged & kept in readiness at strategic stations which should fall away from the likely affected zone. At least one officer & a few staff should be nominated for each. They should be provided withVHFsets&1satellitephoneeachsothattheycanaccomplishthemission of physically covering the entire affected zone & give "First information on damage" through these equipments to the control after passage of thecyclone.

16.2.4 Activation of emergency control and nomination of staff for various duties:

- **EmergencyControls:**
  - Emergency offices shall be opened in the HQ Control, Divisional Control (affecteddivision)andimportantjunctionstationsinallcaseofwarningof super cyclone or very severe cyclone storm. VIZ. SUNR, WKR, RJT, HAPA, KMBL, DWK, OKHA.
  - The Divisional and HQ Emergency control shall obtain every two hourly position from Meteorological Office for upto 12 hrs before the likely time of cyclone hitting the coast and thereafter everyhour.
  - The Station Master shall inform Local Revenue Officers, Sub-Collectors of the area regarding the holding of trains in hisstation.
- **ReliefTrain:**

  Any available rake of preferably 6 coaches of any type to be nominated and keptreadyatRJTatleast24hrsbeforethecycloneis likelytohitforcarrying staff, Doctor, Food, medicines & Reliefmaterials.
- **Action by CommercialDepartment:**

  Enquiry offices should be opened by CCM at impartment stations with public address system and information about running of trains, arrangements made for supply of food, transhipment of passengers, etc. should be repeatedly given over the public address system for the benefit of the passengers.
- **EngineeringDepartment:**
  - The ongoing patrolling of track shall be intensified. 24 hrs before anticipated strike of the cyclone, the position of coastal belt likely to be affected by it is likely to become clearer. The trains loaded with the 'monsoon reserve' materials (cinders, boulders, quarry dust, empty cement bags filled with earth/s and etc.) will be ordered to run-in

consultation with traffic department to the stations near to the last likely affectedstations.

- Empty flat wagons (BRH/BRN) will be got placed at suitable sidings (preferably goods platform line with ramps) to enable quick loading of earth movingmachinery.

- **MechanicalDepartment:**

  - TheART/ARME/SPARTstaffandcraneLocoPilotwillbekeptalerttorush to duties at minimumnotice.
  - The drinking water, food items (including biscuits & ration) shall be provided ready on ARTs / ARMEs/SPARTs. ARTs will be equipped with fuel patromax / gas lamps & portable generator with adequate provisions for 72hours.

- **Readiness of relief materials, road vehicles &equipment:**

  - **RoadVehicles:**

    Allroadvehiclesincludingjeeps, cars, light&heavymaterialcarryingvehicles shall be kept in readiness at the nominated Stations / Divisional office with adequate fuel & two (roster duty) Loco Pilots to move men / materials / equipments at minimumnotice.

  - **CommunicationEquipment:**

    As the coastal areas likely to be affected will be quite clear by then, Satellite phones with personnel competent to use, handle & troubleshoot, shall be despatched to strategic stations (larger among those likely to be affected).

  - **Stores DepartmentItems:**

    - Preparations for packing, transportation & distribution of materials shall be started. The packing shall be done with water proof packing materials & easy to handle crates(manually).
    - Nomination of Stores Officer in HQs for coordinating the material supply activities with officer-in-charge at site / nominated officers of user department inHQs.

- **Security:**

  The Security personnel will be nominated by DSCs at following positions –

  - To accompany 'relief material' carrying trains whenordered.
  - To help commercial & station staff of major stations to handle public enquiriesetc.

  - At each station where any passenger carrying train isregulated.
  - On heavy vehicles carrying reliefmaterials.
  - At major restoration sites after cyclone recedes & workcommences.

16.3 Coordination at HQ, divisional & board'slevel:

A complete fluidity inflow of information between HQ, Division & Board's level will be the objective.

- TheHQcellwillkeeptheRlyBoardcellinformed&updatedperiodicallyand askforassistancefromtheneighbouring(otherRailways)asrequired.Itwill watch inter-division movement of relief trains, restoration materials and equipments and guide the Division in marking a plan of action for rescue, relief and restoration. It will also be responsible for documenting the developments.
- The monitoring cell of adjacent division will be responsible to ensure a completecomplianceofHQinstructionsasperthedisastermanagementplan worked from their & requiring resources of the division. It will ensure that topprioritysisaccordedtothereliefandrestorationworkintheneighbouring affecteddivisions.

16.3.1 Actions duringcyclone:

Heavy devastation is often caused by the cyclonic winds and heavy downpour during the cyclone.

16.3.2 Relief andrescue:

The first priority, during cyclonic storm, is therefore to protect the traveling passengers in trains passing through / near to the cyclone affected zone.

- **Action by TrafficDepartment:**

  Coachingtrainsshouldbecontrolled/divertedsothatthetrainsdonotenter thecycloneaffectedarea,suitablepublicitytobearranged.Thecontrollingof trains should, as far as possible, be done where adequate water supply, lighting catering and medical facilities areavailable.

- **Action by CommercialDepartment:**
  - All Commercial staff should guide the passengers, whether they are on a running train or at a station when the cyclone actually strikes, regarding taking adequate measures for ensuring their personalsafety.
  - If a train is stranded in the block section, the conductor / TTEs manning the train should take a census of the passengers, and try to pass on the information to the station at either end through thewalkie- talkie sets available with the Guard / Loco Pilot of the train so that the information can be passed on to the Divisional Control Office in case communication isavailable.
  - If any passenger is found to have injured during the cyclone, first aid should be provided by the Guard / TTEs / station staff, as the casemay be.Incaseofinjuredpassengersatastation, medicalaidaslocallyavailable should be arranged. Wherever possible, details of such cases should be passed on the Divisional Commercial Control.

16.3.3 First assessment ofdamage:

- **Motor TrolleySurvey:**
  - The cyclones and consequent floods, if any, do not damage the continuity of track frame even in case of breaches, washouts, erosions etc., the experience has shown that in most cases, a light motor trolley can pass

through the entire cyclone affected zone (on its own power or augmented manually) without much difficulty except if the track frame itself is submerged inwater.

- The Officer(s) &staff, nominated & in readiness, should proceed immediatelyaftercyclonehaspassedofftheaffectedzone.Equippedwith satellite phone and VHF sets, the two trolleys – from either end of the affectedzone–shouldproceedthroughtheaffectedzoneandgiveprecise information to controlregarding.
  - Nature of damage / obstruction to track withlocation.
  - Possible method/system forrestoration.
  - Resources required forrestoration.
  - Whether or not a light vehicle (e.g. Tower Wagon) or light engine or full relief train canpass.
  - Likely time to clear the location by repairing the damage / removing theobstruction.

- **Manual Damageassessment:**

  This will be carried out concurrently and independently with motor trolley survey and will not be called till completed, to give corroborative information.

- **ByBoats:**

  Incircumstanceswhensubstantialportionoftrackgetinundatedunderwater, boats shall be hired locally to navigate across the water body and assess the damage.

- **Movement of relief train for rescue, relief andrestoration:**

  - On receipt of first information of super cyclone having passed the coast, after assessment of the damaged railway property or assistance required, all the relief trains on the section must be ordered and should be started with full complement of man, equipment and materials. The movement of relief train shallnotwaitforreceiptofdetailedreportfromsite.Thestaffrequiredtomove on these trains shall be accommodated on the train itself and should not be allowed to come back home. This may involve organizing supply of food from local sources for staff who have to remain on the relief trains for longhours.
  - These trains will move upto the neck of the affected zone in normal course. Thereafter, the trains will move forward in such a way that the section in the rearisclearedofallphysicalobstructionstothemovingdimensions.Itwill

    LeaveeachstationafterconfirmingonVHFbytheSMwiththeadjacentstation that no breaches / washouts have occurred on thatsection.

- **Movement of relief materials andrestoration:**

  - **EngineeringDepartment:**

    Based on damage report and restoration strategy, priority and sequencing of movement of available materials on wheels (e.g. buld fillers, earth moving machinery, bridge girder etc.) and labour should be quickly chalked out by Engg. Dept. and conveyed to the traffic personnel at Central Control and respective divisional controls.

- **ElectricalDepartment:**
  - Restoration Work – The damage caused to electrical installations is to be assessed location-wise. For this purpose, competent officials shall be deputed to obtain detailed assessment of the damages. Supervisors and staff should be deputed with necessary materials and tools either by Rail or by Road for immediate restorationwork.
  - In case of power failure at stations where trains are controlled, temporary lighting may be arranged with portable DG sets or throughpatromax lights.
- **StoresDepartment:**

  During restoration, Stores Dept shall play a pro-active role in making emergency purchases preferably by standing Spot Purchase Committee & supplying the same to the user departments at sites.
- **CommercialDepartment:**

  Commercial Dept will continue to take action as per para 32(2) above.
- **MedicalDepartment:**
  - The Medical team will accompany each of the relief train ordered. It will carry with them at least 50,000 chlorine tablets and 200 kgs. of bleaching powder for distribution at variousstations.
  - ThemedicalteamwillattendtostrandedpassengersandRailwaypersonnel andtheirfamiliesforanyailment.Forthispurposesufficientlywideportfolio of medicines will be carried in relief trains for various ailments in sufficient quantity.

- **Movement of reliefmaterials:**

  CPTMwillorderthespecialtrainforcarryingthereliefmaterial.Widepublicityshall be given in Press and Media to attract voluntary organizations, individuals, NGOs, medicalpractitionersetctoavailtheservice.Thecomposition&timingswillbeplanned andpublicized.

- **Procedure for accounted, audit & finalization ofaccounts:**
- **Special Returns by Stockholders afterRestoration:**

  All stockholders of all departments in-charge of custody of Railway stores shall submit a "special Return" of the material transaction that take place during restoration.

- **Emergency Purchase ofmaterials:**

  Emergency demands placed through HOD's notes shall be compiled by the Stores Dept through a Spot Purchase Committee.
- **Works Contracts – Single tender and hiring ofmachinery:**

  For restoration of traffic single tenders may be awarded to the competent contactors who have exceptional capacity to mobilize machinery and materials. Prior consent of the General Manager will be taken while the processing of the case.

16.4 Management ofFloods:

16.4.1 Vulnerability toFloods:

Floodshavebeenarecurrentphenomenoninindiaandcausehugelossestolives, properties, livelihood systems, infrastructure and public utilities. India's high risk and vulnerability is highlighted by the fact that 40 million hectares out of a geographical area of 3290 lakh hectares is prone to floods. On an average every year, 75 lakh hectaresoflandisaffected,1600livesarelostandthedamagecausedtocrops,houses and public utilities is Rs. 1805 crores due tofloods.

Eighty percent of the precipitation takes place in the monsoon months from June to September. 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. Cyclones, cyclonic circulations and cloud bursts cause flash floods and lead to huge losses. The fact that some of the rivers causing damage in India originate in neighbouring countries, adds another complex dimension to the problem.

16.4.2 InstitutionalFramework:

As per the constitutional provision, Flood Management (FM) is a state subject and as such the primary responsibility for flood management lies with the states.

The Ministry of Water Resources is responsible for the technical aspects of Flood Management. The Ministries of Agriculture, Civil Aviation, Environment and Forests, Health, Space, Earth Sciences, Mines, Railways etc. also have important role in management of floods in their respective fields.

Notonlyfloods, butmanagementofalltypes'disastersisthebasicresponsibility of the States and Central Govt. role is restricted to that of support in terms of coordination, resource allocation and making available requisitefunds.

16.4.3 India MeteorologicalDepartment:

The IMD established in 1875, is responsible for the National Meteorological Services and the principal government agency in all matters relating to meteorology, seismology and allied subjects. The IMD is mandated as follows:

To warn against severe weather phenomena like tropical cyclones, north-westerly dust storms, heavy rains and snow, cold and heat waves etc., which cause destruction of life and property.

Fortheconvenienceofadministrativeandtechnicalcontrol, therearesixRegional MeteorologicalCentres(RMCs)locatedatMumbai, Chennai, NewDelhi, Kolkata, Nagpur and Guwahati. Under each RMC, there are different types of operational units such as meteorological centres at state capitals, forecasting offices, agro-meteorological advisory service centres, flood meteorological offices (FMOs) and area cyclonewarning centres.

16.4.4 Activities for Minimizing Flood Risk andLosses:

- **By Central/StateGovernments:**

These activities include identification and marking of flood prone areas on maps, preparation of close contour and flood vulnerability maps, formulating plans for expansion and modernization of flood forecasting and warning systems, identification ofpriorityfloodprotectionand drainage improvementworks, identificationofreservoirs for review and modification of operation manuals and rule curves and undertaking special studies on problems of rivererosion.

- **Increase in WaterWays:**

Examiningadequacyandifrequired, increasingthewaterwaysofbridges/culverts under roads railway embankments by the Ministry of Shipping, Road Transport and Highways (MOSRTH), Ministry of Railways, Ministry of Defence, National Highways Authority of India, Border Road Organisation and Stategovernments.

- **Action Plan for Alignment, Location, Design and Provision ofWaterway on RailwaysEmbankments:**

Roads and Railway embankments cut across the drainage lines and may lead to increase in vulnerability of the area, through which they pass and to flooding and drainage congestion, if they are not properly aligned, located and designated. In-adequate waterway in the form of vents/culverts/bridges/ causeways is another cause of increase in vulnerability to floods. Further, breaches in them may result in hugeloss oflifeandproperties.Insufficientheightofrailembankmentsmayresulting overtopping andbreaches.

The Ministry of Shipping, Road Transport and Highways (MOSRTH), MOR, MOD, NAHI, BRO, State Governments/SDMAs will ensure that national highways, state highways, district and other roads are aligned, located and designed properly with respecttoheightandwidthandprovidedwithadequatewaterwayintheformofvents, culverts, bridges and causeways so as to make them flood safe and not increase the vulnerabilityofthearea atfloodinganddrainagecongestion.Thesafetyofexistingroads/railway embankments against floods will also be checked by the MOSRTH, MOR, MOD, NHAI, BRO and state governments/SDMAs/DDMAs and if found inadequate, measures by way of increasing height and width and augmenting water way by constructingadditionalbridges/culverts/causewaysorbyaddingmorespanstoexisting ones, will be takenup.

- **FloodForecast:**

Forecasts(stage/inflow)areissuedwhenevertheriverstageattheFlashFloodsite exceeds or is likely to exceed a specified level called warning level of the site which is fixed in consultation with the concerned state government. The warning level is generally 1 m below the danger level of the site, although there is no-common format designed for issuing flood forecasts by various fields divisions, as forecasts are issued according to the users' convenience. In the forecast, the current date and time of issue of forecast, present water level/inflow and anticipated water level/inflow with corresponding date and time are normallyincluded.

- **Dissemination of Flood Forecasts andWarnings:**

Onreachingacriticalpoint, thefinalfloodforecastsarethencommunicatedtothe user

agencies such as the concerned administrative and engineering authorities of the state/central governments including railways, defence and other agencies connected with flood protection and DM by special messenger/telegram/ wireless/ telephone/fax/e-mail.

- **The Central Water Commission's Flood Forecasting Network inIndia:**

The CWC's FF network covers most of the flood prone inter-state river basins in the country. The CWC is presently issuing flood forecasts for 175 stations of which147 stations are for river stage forecast and 28 for inflowforecast.

RoleofCWCtobegivenoutindetailastheirwarningsaremorerelevantforflood forecast and effecting evacuation. For Railways, early warnings are important for smooth movement oftrains.

- **FloodPreparedness:**

Railway Board has advised RDSO to compile the Flood vulnerable areas in Formation, Cutting Bridges and Buildings etc. along with a questionnaire.

MinistryofRailwayshasaskedRDSOtocoordinateIRactivitiesforimplementation of National Disaster Management Authority's guidelines on 'Management of floods (Jan.08) by zonal railways and production units. NDMA Guidelines have been made available to all zonal railway and productionunits.

- **Actions Taken by Rajkot division for minimizing flood risk andlosses:**

The activities proposed to be undertaken aimed at minimizing the flood risk and losses are implemented on Western Railway.

These activities include identification and marking of flood prone area on maps, preparation of close contour and flood vulnerability maps, formulating plans for expansion and modernization of flood forecasting and warning system, identificationof

Priority flood protection and drainage improvement works, identification of reservoirs for review and modification of operation manuals and rule curves and undertaking special studies on problems of river erosion.

However integration with state government and Survey of India department to procurecontourplansisregularpractice.Designoflinearwaterwayofbridgesisbased on catchment area and contour maps. There are no problems of river erosion on this railway being most of non-perennial rivers in westernregion.

As per WTT of the Division

16.5 Action Plan and Current Status:

Sr. No.	Action Plan (IR DMP)	Action taken by Western Railway-
1	Flood/weather forecasting in consultation with IMD and other agencies like CWC, State Government, local	As soon as any information is received from Indian metrology department and other agencies like CWC, State Government, local bodies etc., advance warning of flood/weather forecasting can be communicated in affected area through Railway's own telecom and control lines through on duty

	bodies etc.	station masters (24 hours) and various offices and installations. It is also placed on WhatsApp group of CUG of concerned officials.
2	Development of system of collecting data using modern techniques, Monitoring of land slides, flood danger to bridges, bridge approaches causing interruption to traffic.	Under water inspection by professional divers has been carried out on important bridges of western railway to check the soundness of foundation and substructure. All the bridges are marked high flood level (HFL) with year and danger level (DL) in red colour. In case of any water flow crossing danger level, the train movement will be suspended in the section till water level falls and physical check against scouring near abutments and piers is done by sounding method. The traffic will be restored only after physical check against the scouring near abutments and piers by sounding method after issue of a safety certificate by competent officer at site.
3	Identification of flood prone areas, RAT, RAW and information prone to erosion/breaches and marking them on railways system map. Monitoring of behaviour of rivers which pose danger to railway embankment.	The data from previous years of such prone areas is compiled by Railway and is well known to the Inspector in charge of the section and is also recorded in the section register. Major/important bridges likely to be affected by Dams on Upstream has been identified and marked in copies of System map for ready reference. River training work of rivers at the Bridge approach is in place in the form of guide bunds, spurs and retaining wall along embankment slopes on vulnerable embankments and bridges.
4	Documentation of records of flood and breaches.	Documentation of records of flood and breaches is being kept at HQ office as well as in relevant divisions and their annual updating.
5	Flood Insurance of Railway properties – A pilot project to be taken by each Railway through help of suitable consultants.	So far no such project is in force with engineering deptt.
6	Mechanism for coordination with State Government and other Central Agencies on flood control and erosion etc.	Important phone number of Maharashtra, Madhya Pradesh, and Rajasthan and Gujarat state of all concerned updated and incorporated in Monsoon precaution booklet.
7	Sanction and execution of Anti Erosion works of track, formations, bridges etc.	It is a regular exercise to inspect all the track, formation & bridges before and after monsoon. The result of inspection is materialised to work execution by proposing work in revenue or in capital works for rectification thereafter. Any defect is noticed the same is reflected in bridge register of that particular

		year. If any major work is required that will be proposed after instructions given by the chief engineer while scrutinizing the bridge register of that year.
8	Improvement to water ways of bridges in track formation (if necessary) including sanction and execution of works.	At many places in Western Railway water ways for bridges have been improved by providing pipes and Box culverts across the tracks by studying flood pattern of the affected area.
9	Development of Flood Shelters for staff and passenger at suitable locations in the areas prone to repeated floods.	This is being done as an interim relief measure by railway on the flood affected location. All the residents i.e. staff and families residing in low lying areas can be taken at safe and higher places like platforms, institute building, other sheds/structures, shelter etc.
10	Implementation of Bye-laws for buildings in flood prone areas including modifications of Works Manual.	Provisions available in works manual are implemented over WR. Alteration to Works manual may be considered by Railway Board.
11	Training on Flood Management to officials in various Railway Training Schools and institutions by devising suitable syllabus.	Special Course on Hydraulic design, Breaches & floods and Restoration &Tunneling is carried out in IRICEN Pune on regular basis.
12	Emergency response team on floods.	Position of monsoon reserve material kept at various locations & Availability of Machines/equipment/trucks/T&Ps are taken stock every year before monsoon. The ART & material train reserves are also replenished to meet with any railway emergency caused by flood.
13	Study of silting pattern resulting in reduction in reservoir/Dam's water holding capacity over years to forecast and extrapolate future impact on track due to over flow and need of additional waterway.	Survey & Construction unit of Engineering department while planning gauge conversion, construction of new line evaluates the linear waterway required for each bridge based on the HFL data, catchment area, data provided by dam authorities etc.
14	Study of changed water catchment area due to construction of highways, Dams.	Survey & Construction unit of Engineering department while planning gauge conversion, construction of new line in very special cases go in for catchment area study where previous railway records of HFL, rainfall and catchment is not available. However river/stream in the upstream is

		inspected for any possible change of course prior to monsoon.
15	Study of changed rainy season month on a particular region.	This is not done by railway. Railways rely upon the forecast of rains provided by meteorological deptt.
16	Installation of Flood water level monitoring system.	The flood water level monitoring system has installed at 10 important bridges. The details are as under-Br. No 92,359 of Virar-Surat section of Mumbai division, Br.no. 452,502 of Surat-Vadodara, 624 of Vadodara -Ahmedabad, 65 of Anand-Godhra section of Vadodara division. Br. No. 114 Godhra-Ratlam, Ratlam-Nagda317, Indore-ujjain 72 &Ratlam-Khandwa of Ratlam Division. However a few of them are yet to be commissioned for online assessment of data through CRIS softwares.

16.5.1 Floods /breaches

16.5.1.1 Flood terms

Flood may be defined as an overflowing of water onto land that is normally dry.

FEMAandtheNationalWeatherServiceusethefollowingtermstoannounceflood information:

- **FloodWatch:** Floodingispossible.TuneintoAIRWeatherRadio, commercial radio, or television forinformation.
- **FlashFloodWatch:** Flashfloodingispossible.Bepreparedtomovetohigher ground. Listen to AIR Weather Radio, commercial radio, or television for information.
- **Flood Warning:** Flooding is occurring or will occur soon; if advised to evacuate, do soimmediately.
- **FlashFloodWarning:**Aflashfloodisoccurring; seekhighergroundonfoot immediately.

16.5.1.2 History ofbreaches:

Although Rajkot division does not have any major rivers flowing through it or any majordam, stillpossibilityoffloodcannotbeoverruled.Effectofnaturesponsoredflood or flood caused due to human error can cause flood even in the seasonal rivers. Every year, Rajkot division faces breaches on these seasonal rivers to the great extent and affects the movement of train. So we must prepare ourselves to deal with the problem of floods orbreaches.

There are floods, and then there are flash floods. Either can cause property

damage,butflashfloodsaremorelikelytocauseinjuryordeath.Flashfloodscanoccur at any time, anywhere in the country.

Given below is the history of breaches faced by the Rajkot division for the last three years in which train movement suffered badly and also resulted in financial loss:

- At Km. 587/4-6 between Sabliroad – Lilapur major breaches occurred in length of 140 Rmt, 2 to 2.5 metre depth in year2008.
- From Km 795/5to 795/9 between Jaliya – Jamwanthali and from Km 796/9 to 797/2 between Jamwanthali and Aliyawada, major breaches took place during July07.
- From 837/0 to 837/2 between Jamnagar and Lakhawabal washout took place during July 07. It is proposed to provide 2 x 6.1 m slabbridge.
- From 849/7 to 850/6 between Pipli and Kanalus major breaches took place during July 07. A water sheet passed over thetrack.
- There are two spots in section Sabli road and Lakhtar where flooding took place in thepast.
- In year 2006 a major washout took place between Dahinsara andLavanpur stations.

16.5.1.3 As an Individual BePrepare:

- Staying safe during a flood takesplanning.
- Create a disaster pack to keep at home, or to take along if you need to evacuate.
- Include enough food and bottled water for threedays.
- Every person requires a gallon of water per day. Food should be able to be stored at roomtemperature.
- Don't wait for bad weather. Make sure you have everything you need before you needit.
- A portable radio, torch and spare batteries, first aid box, ropes with hooks, stick must be the part of your safetykits.
- Packanevacuationkitincludingyouremergencykit, warmclothing, essential medications, valuables, papers, photos and keepsakes in waterproofbags.
- Continue to listen to your radio for updates andadvice.

16.5.1.4 When the WaterComes

- **If you're expecting flooding in yourarea:**

- Keep the radio or television tuned to weather or emergencyinformation.
- Bewareofflashflooding.Donotwaitforinstructionstomoveifauthorities think flash flooding ispossible.
- Beware of streams, ditches, drainage channels, canyons, and other low-lying areas. Flash floods can happen in these places far from therivers.

- **If you must evacuate, you should do thes following:**

- Secure your home. Don't forget thekeys.
- If you have time, bring in outdoorfurniture.
- Move essential items up off the floor, or to an upperfloor.
- Unplug electricalappliances.
- Turn off utilities (gas and electric) at the main switches or valves if instructed to doso.
- Do not touch electrical equipment if you are wet or standing inwater.
- If you must walk through water, only go through standing water. Six inches of moving water can make you fall. Use a stick to check the firmness of the ground in front ofyou.
- Make sure that your wear strong shoes (not thongs) and clothing for protection.
- Driving through flooded areas is extremely dangerous. Never drive HYPERLINK "http://firstaid.about.com/od/emergencypreparation/ht/06_flshfloodcar.htm" through flood HYPERLINK "http://firstaid.about.com/od/emergencypreparation/ht/06_flshfloodcar.htm" HYPERLINK "http://firstaid.about.com/od/emergency preparation/ht/06_flshfloodcar.htm"water.
- Continue to listen to your local radio for official warnings andadvice.
- If you did evacuate your home, don't return until advised it is safe to do so.

- **Stepstobetakenatleastonemonthbeforethestartofrainyseason:**

- **Engineeringdepartment:**

  - Increase in frequency of Patrolling to watch the vulnerable points and put themark'V'togainattentionofotherthanengineeringrailwayemployee.
  - Bridge watchman to be provided at vulnerable points to inform flow into water.
  - As restoration of traffic after flood often requires heavy handling of earth, availability of heavy earth moving machinery viz. Poclains, JCBs, etc should be identified with firms / owners names, addresses and telephone numbers so as to hire and mobilize them as the necessityarises.
  - It will also ensure the availability of engineering materials like ballast, rubble stones, gunny bags with sand, sleepers, rail joints,etc.
  - Availability of manpower near the possible affected areas (experienced in the last year).
  - SSE(P-Way) / Keyman to remain in touch of RJT EngineeringControl.
  - PWI Control will remain in touch of State Irrigation department or Local Panchayats directly or through sectional CPWI orPWI.

- Availability of good quantity of Lime powder to be used after water recedes.

- **Electricaldepartment:**

  - DG sets of different capacity should be kept ready with water proof wiring equipments at SUNR, WKR, RJT, HAPA, KMBL, DWK, and OKHA.
  - Sufficient availability of HSD Oil, K-Oil.

- **Mechanicaldepartment:**

  - Sufficient no. of overaged Water tanks suitable for drinking water to be identified and made available at SUNR, WKR, RJT, HAPA, OKHA for loading and movement of drinkingwater.
  - Readily available extra passenger coaches to be made available for temporary shelter / transhipment ofpassengers.

- **S & Tdepartment:**

  Availability of VHF Set with battery and P.A. Systems, Mega mikes and Walkie talkie sets to be kept in working condition.

- **Commercialdepartment:**

  To make assessment of the facility which can be given to the flood affected passengers / employees (Tents, Schools, Dharmashalas, food, water).

- **Medicaldepartment:**

  - Medical department will keep the essential items in stock at SUNR, WKR, RJT, HAPA, JAM, KMBL, DWK, and OKHA.
  - Availability of good quantity of Bleaching powder, DDT, lime powder, fogging machines to be used after waterrecedes.
  - As receding flooding water leaves the breeding ground for spreading of diseases like Cholera, Malaria, etc therefore as a preparation the medical department will supply the Chlorine tablets and bleaching powder in sufficient to eachstation.

16.5.1.5 Based on the weather forecast warnings regarding impending floodcondition steps to betaken:

- **Engineeringdepartment:**

  - Bridge watchman to be provided at vulnerable points to inform flow into water.
  - Putmark‘V’boardtodrawattentionoflocopilots,guardsoftrainrunning through the floodinglocations.
  - Shifting all personnel and movable equipment around the bank for the restorationwork.

- If time permits sandbag dykes can be constructed to ensure safe passage oftrains.
- Ifrequired, forrestorationoftrafficafterflood,thedepartmentwillarrange the availability y of heavy earth moving machinery viz. Poclains, JCBs, etc.
- Itwillmadeavailabletheengineeringmaterialslikeballast,rubblestones, gunny bags with sand, sleepers, rail joints, etc in the shortest period of time.
- Manpower to be moved quickly to the affectedsite.
- EngineeringOfficer/SupervisoratsitewillremainintouchofRJTDisaster Control.
- PWI Control will remain in touch of State Irrigation department or Local Panchayats directly or through sectional CPWI orPWI.
- Make arrangement for the Mud Pumps for throwing out dirty water from thesite.

- **Electricaldepartment:**

  - Make necessary electricity arrangement at the site with the availability of sufficient no. of DG sets with fuel of different capacity with skilled manpower.
  - Sufficient availability of HSD Oil,K-Oil.

- **Mechanicaldepartment:**

  - Make arrangement to move sufficient no. of drinking water tanks to the requiredarea.
  - Move extra passenger coaches to the site of emergency for transhipment of passengers or for temporaryshelter.
  - Round the clock arrangement of engine crew for any emergency movement with concern Inspector /incharge

- **S & Tdepartment:**

  - Make arrangements for the communication system so as to remain in touch of RJT Central EmergencyControl.
  - Make arrangement for the communication system at the temporary relief sites.

- **Commercialdepartment:**

  - Make arrangement for shifting affected passengers, railway employees and their family to the nearby unaffected safer place like schools, waiting halls, sufficient bedding, food, water.
  - In coordination of local authorities andNGOs
  - Openadditionalcounter/windowstogiveinformationregardingemergency arrangement made by Railway like Transportation and reliefsites.

- **Medicaldepartment:**

- Provide Medical care to the affected passengers, employees and their family.
- Make arrangement for the sanitation of affectedarea.
- Makearrangementforthefoggingmachinesothatagentsofdiseaseslike mosquitoes, insects, do not play havoc with thesituation.

- **RPF / GRPdepartment:**

  - Evacuate people on train / at station and move them to a saferplace.
  - RPF and GRP in co-ordination with local police shall arrangeprotection.
  - Make arrangement for the sufficient number of snake catchers as these creatures comes out from the earth during thefloods.
  - Maintain law and order at the flood / reliefsite.
  - Help in the proper distribution of relief materials to the affectedpeople.

- **Emergencycontrol:**

  - Contact NDRF in case of emergency involving passenger or employees or their family residing in flood affectedarea.
  - Contact Fire brigade, Naval, Army, Air force, Local boat man and arrange divers andboats.
  - With the co-ordination of local authority the Engineering officer / supervisor or other supervisors at that station shall arrange temporary shelter in nearby schools, marriage hall, community centre, etc.
  - If necessary, arrange coaches to accommodate the affectedtemporarily.
  - Seek assistance from voluntary organisation (NGO) and arrange drinking water, food, medicines, etc.
  - Keep communication with Divisional Disaster ControlOffice.
  - WhenpeoplearemaroonedbyflooD, theDivisionalDisasterControlOffice will arrange air dropping of food packets, cloths etc., with the assistance of civil administration, Air Force, Navy andArmy.
  - Take all necessary action to provide shelter and other assistance to those affected byfloods.

16.5.1.6 Steps to be taken afterflood:

- Make quick assessment of the loss of life, damage toproperty.
- Make arrangement for Manpower for cleaning the affected area of mud, stagnant water after the water recedes and this work should be done on warfooting.
- Make arrangement for quick disposal of Human bodies, cattle, etc.
- SprayingofDDTpowder, limepowder, keroseneoilonthestagnantwater.
- Fogging machine to be used to kill sources of spreading ofdiseases.
- Special vaccination programme to be done at the warfooting.
- Communication arrangement to be restored at theearliest.
- RPF / GRP will maintain the law andorder.
- Commercial department will continue to provide essential facilities to the affectedandvolunteerslikeshelter, foodandwaterduringtherestoration process.
- Electrical department will restore the electrical supply for smooth relief working andrestoration.

- Mechanicaldepartment&Operatingdepartmentwillensuretheavailability of crew, coaches, wagons for relief material and their quicker movementthereliefsite.OneTI&LIwithRPF/GRPstaffandvolunteerswillmove with the same relief train.

16.6 Management ofEarthquakes:

16.6.1 Earthquake Risk inIndia:

Earthquake is a sudden trembling or shaking movement (called a tremor) of the crust, i.e., the earth's solid surface. India's high earthquake risk and vulnerability is evidentfromthefactthatabout59percentofIndia's landareacouldfacemoderateto severeearthquakes.Duringtheperiod1990to2006, more than23,000liveswerelost due to 6 major earthquakes in India, which also caused enormous damage to property and public infrastructure. The occurrence of several devastating earthquakes in areas hithertoconsideredsafefromearthquakesindicatesthatthebuiltenvironmentinthecountry isextremelyfragileandour ability oprepareourselvesandeffectivelyrespond to earthquakes is inadequate. India witnessed several earthquakes like the Uttarkashi earthquake of 1991, the Latur earthquake of 1993, the Jabalpur earthquake of 1997, and the Chamoli earthquake of 1999. These were followed by the Bhuj earthquake of 26 January 2001 and the Jammu & Kashmir earthquake of 8 October2005.

16.6.2 NodalMinistry:

The Ministry of Earth Sciences (MoES), as the nodal ministry will prepare the Earthquake Management Plan covering all aspects like earthquake preparedness, mitigation, public awareness, capacity building, training, education, Research and Development (R&D), documentation earthquake response, rehabilitation andrecovery.

16.6.3 Monitoring Seismic Activity and SafetyCodes:

The Indian Meteorological Department (IMD) will be the nodal agency for the monitoring of seismic activity. The Bureau of Indian Standards (BIS) will be the nodal agency for preparing earthquake-resistant building codes and other safety codes. All such key stakeholders, including central ministries, departments and State Governments/SDMAs will develop detailed DM plans, recognising the seismic risk in their respective jurisdictions based on the Guidelines of NDMA.

Given the high seismic risk the earthquake vulnerability in India, the NDMA Guidelines require the Railways along with all other stakeholders to ensure that, hereafter, all new structures are built in compliance of earthquake-resistant building codes and town planning bye-laws. This will be taken up as a national resolve.

16.6.4 Structural Safety Audit andStrengthening:

The NDMA Guidelines emphasize the need for carrying out the structural safety audit of existing lifeline structures and other critical structures in earthquake-prone areas and carrying out selective seismic strengthening and retrofitting.

The critical factors responsible for the high seismic risk in India and consequently the

prioritised six sets of critical interventions have been presented as the six pillars of earthquake management. They will help to:-

- Ensure the incorporation of earthquake-resistant design features for the construction of newstructures.
- Facilitate selective strengthening and seismic retrofitting of existing priority and lifeline structures in earthquake-proneareas.
- Improve the compliance regime through appropriate regulations and enforcement.
- Improve the awareness and preparedness of allstakeholders.
- Introduce appropriate capacity development interventions for effective earthquake management (including education, training, R&D, and documentation).
- Strengthen the emergency response capability in earthquake-proneareas.

16.6.5 Institutionalization Earthquake-Resistant Design andConstruction:

The Railways along with all central ministries and departments and State Governments will facilitate the implementation and enforcement of relevant standards for seismically safe design and construction of buildings, bridges, flyovers, ports and harbours, and other lifeline and operationally important structures including track infrastructure etc. falling within their administrative control.

16.6.6 Need for Seismic Strengthening of ExistingStructures:

Thereareapproximately12crores buildingsinthecountryinseismicZonesIII,IVandVareviewofthevulnerablebuildingsontheRailwaysneedstobesimilarlydone. OutofthesehowmanyarecriticaltoRailwaysoperationalneedshavetobeseparately identified. As it is not practically feasible or financially viable to retrofit all the existing buildings, these Guidelines recommend the structural safety audit and retrofitting of selectcriticallifelinestructuresandhighprioritybuildings.Suchselectionwillbebased onconsiderationssuchasthedegreeofrisk,thepotentiallossoflifeand thes etimated financial implications for each structure, especially in high-risk areas, i.e. in seismic ZonesIII,IVandV,wherestructureshavetoconformtoIS-1893specifications.Allthe Railway buildings and bridges are designed as per relevant latest seismicprovisions.

16.6.7 Preparedness by Rajkotdivision:

S.N	Action Plan (IR DMP)	Action taken by Rajkot division-
1	Identification of existing structures which need retro fitment	No bridges are pending to be retrofitted over Rajkot division.
2	Gist of RDSO action plan for implementation ina year time frame	All the latest guidelines issued by RDSO for design and construction of bridges and buildingstructures are being followed on Rajkot division.

3	Action to be taken by the field staff post earthquake with regard to train operation and inspection of track/ bridges	• Loco Pilot will stop the train immediately and safely, when he feels disturbances due to earthquake. • Bothlocopilotandguardwillinspectthetrackon either side or try to clear train away from vulnerable cuttings, bridges and embankment if possible. • Station master shall not start any trains in the affected section and he will inform to all concerned. • Concerned engineering officers/ supervisors will immediately move to inspect the section by trolley and light engine for any defects createdin structuresofbridges, cuttingsetc.andcertifythe track for inspected block section from one endto the other. • After certification of railway track, the train can be started in relevant section as per instructions mentionedinthecertificateissuedbyengineering officials.

Summary of NDMA Guidelines on Earthquakes and Flood:

Railway Infrastructure	**Earthquake Proneness Review**	**Flood Proneness Review**
• Railway Track Formation (incl. station Yards, bridges/culverts, ROBs/RUBs,etc. • Buildings housing signalling gears like RRI, SSIetc. • Buildings in open line maintenance work centres like loco sheds Coaching depots etc. • Stationbuildings • Control room, other important office building,etc. • High-rise residential buildings, other important residential buildings • Railwayhospitals	• NewConstruction: - Must be earthquake resistant. • ExistingInfrastructure • Identify existing railway infrastructure falling under various seismiczones. • Review for earthquake resistant adequacy based on age, foundation and other details. • Retrofit/rebuild to make it earthquake resistant. • Training of Engineers (at variouslevels). • Associated with design and construction of railwayinfrastructure.	**New Construction:** • Railway Station building shouldbe locatedinsuchafashionthatthey are above the levels corresponding to a 100 year frequency or the maximum observed flood levels. Similarly they should also be above the levels corresponding to a 50 year rainfall and the likely subversion due to drainagecongestion. • Government offices buildings should be above a level corresponding to a 25 year flood or a 10 year rainfall with stipulation that all buildings in vulnerable zones should be constructed on columns orstilts. • Railway track at levels well above the likely floodlevels. **Existing Infrastructure:-** • Co-ordination with flood/rain forecasting agencies to get early warning so as to introduce patrolling. Speed restriction etc. as per the provisions in Railway's SR.

		• Inspections of Railway Affecting Works – to be streamlined and timelyensured. • Review of waterways for adequacy and alignment and measures to modify, ifneeded. • Status Note on the lessons learnt from the previous flood situations in the past 5years. • Bye-laws for buildings inflood Plains.
		• Making existing and newbuildings and infrastructure capable of Withstanding fury of floods.

16.7 Preparedness by Rajkotdivision:

A small region of Gujarat state along the coastal bank and its surrounding area comes in seismic zone III & IV respectively on Rajkot division. All the latest guidelinesissuedbyRDSOfordesignandconstructionofbridgesandbuildingstructuresareb eing followed on Rajkot division. All new construction of all type structures and bridges are designed for seismic loads in Zone III &IV.

16.7. 1 ActionwhenatrainiscaughtinanEarthquakeatMidSection/Station:

- Loco pilot will stop the train immediately and safely, when he feels disturbances due to earthquake.
- Bothlocopilotandguardwillinspectthetrackoneithersideandtrytoclear train away from vulnerable cuttings, bridges and embankment ifpossible.
- Station master shall not start any trains in the affected section and he will inform to allconcerned.
- Concernedengineeringofficers/supervisorswillimmediatelymovetoinspect the section by trolley and light engine for any defects created in structures ofbridges, cuttingsetc.andcertifythetrackforinspectedblocksectionfrom one end to theother.
- Aftercertificationofrailwaytrack, thetraincanbestartedinrelevantsection as per instructions mentioned in the certificate issued by engineering officials.

16.7.2 Earthquake from Gujarat's historical point ofview

Gujarathasdevastatinghistoryoffacingearthquake.First recorded earthquakein 1819inKutchonJune16th.Secondrecordedearthquakein1956inAnjaronJuly21st. No one can forget the destruction and loss of lives caused by third earthquake which occurred on January 26, 2001, at 08:46 hrs. IST, and coincided with the 51st celebration of India's Republic Day. The location of the epicentre was 23.6° North

Latitude and 69.8° East Longitude, 20 Kms North East of Bhuj 110 kms North-North East of Jamnagar, Gujarat, India. With a moment magnitude (Mw) of between 7.6 and 8.1, the earthquake killed more than 20,000 people and injured another 167,000 and destroyed near a million homes throughout Gujarat and parts of easternPakistan.

16.7.3 Worst affected areas ofGujarat

District	Taluka
Kutch	Bhuj, Anjar, Bhachau, Rapar, Gandhidham
Ahmedabad	Ahmedabad City
Morvi	Morvi
Jamnagar	Jodiya, Dhrol

All the deaths occurred in India's western state of Gujarat, near the Pakistan border. The final death toll of Kutch was 12,220. Bhuj, situated only 20 kilometres (14 miles) from the epicentre, was the most devastated town. Overall, over a million structures were damaged or destroyed, including many historic buildings and tourist attractions.

The earthquake destroyed a percent of the homes in Bhuj, eight schools, and flattenedthehospital.ConsiderabledamageoccurredalsoatBhachau.Italsodestroyed 4 km of road in Bhuj. In Ahmedabad, Gujarat's commercial capital and a city of 4.6 million, as many as 50 multistory buildings collapsed and several hundred people were killed. Total property damage was estimated at $5.5 billion and rising. The quake destroyed 75% of Kutch District, and over 80% of usable food and watersupplies.

16.7.4 Earthquakeparameters:

Epicentre: The point on the surface of the earth below which earthquake has occurred.

Magnitude: Measure of the energy released by an earthquake, expressed in Richter scale.

Intensity: Measure of how an earthquake isfelt.

An earthquake is a tremor HYPERLINK "http://www.answers.com/topic/tremor"of the earth's surface usually triggered by the release of underground stress along fault HYPERLINK "http://www.answers.com/topic/fault"lines. This release causes movement in masses of rock and resulting shock waves. In spite of extensive research and sophisticated equipment,itisimpossibletopredictanearthquake,althoughexpertscanestimatethelikelihood of an earthquake occurring in a particular region. Approximately 1,000 earthquakes measuring 5.0 and above occur yearly. According to Richter scale, any quake that is higher than 4.5 can cause damage to stone buildings; quakes rated a magnitude of 7 and above are considered verysevere.

The greatest danger of an earthquake comes from falling buildings and structures and flying glass, stones and other objects.

TheRailwaystafflivingintheearthquakeareawereprobablyaffectedtothesame extent as the rest of the community, but the discipline in the service was so good that without exception the staff remained at their posts throughout their terrifying experiences and did everything that could be reasonably expected of them to provide for the safety of their lines of communication and for any demand that might subsequently be made upon transportfacilities.

- **If you live in an earthquake-prone area, here are some steps thatcan be taken by Railway staff to minimizerisks**:

- Affix bookcases, cabinets and furniture to thewalls.
- Fit cabinets with "childproof locks," so doors will remain closed and items won't flyout.
- Have a staff evacuation plan including phone numbers and a safe place to which toevacuate.
- Establish escape routes from each room / office in thebuilding.

16.7.5 If you are in anearthquake:

- Ifyouareindoors, findasecurelocationtowaitoutthequake, suchasunder aheavytableordesk, orinaninteriorhallwaywhereyoucanbraceyourself between two walls. Doorways are among the safest places to stand, thanks to the strong beams overhead. However, watch out for swinging doors.Stay away fromwindows.
- Ifyouareoutdoors, trytogetintoanopenarea, awayfromfallingbuildings, power lines, trees, etc.
- Ifyouareinacrowdedpublicarea, crouchdown, withyourhandsprotecting your head andneck.
- If you are in train, get yourself out of the train after train being stabled and moveawaytowardstheopenspace, awayfrompowerlinesandoverpasses, and stay in the open space until the shaking hassubsided.
- Besuretoputonshoesimmediately, toavoidinjuryfromsteppingonbroken glass and objects.
- Check yourself and others forinjuries.
- Check for gas and water leaks and damage to electrical wires. Only turn off gaslinesifthereisdamage; itmaytakeawhilefortechnicianstogettoyour area to turn gas and power backon.
- Survey the exterior of your office and home for structural damage to the roof, foundation andwalls.
- Do NOT use any automobile unless there is anemergency.

Remember that there may be **<u>aftershocks</u>**, which can also cause great damage to your surroundings.

Be prepared!

16.7.6 Impact of earthquake on railwaysystem:

- **Damages /Disturbance:**

  - Trackalignment,
  - TrainDerailment
  - Earthformation,
  - Sinking oftrack
  - Bridges / girders /Pillars
  - Trees / Structures / obstruction ontrack

16.7.6.1 Damage to servicebuilding:

  - Control
  - ASM Office / Relay room / Cabins and GateLodge
  - OfficeBuilding
  - Residentialbuilding

16.7.6.2 Damage to Signal andtelecommunication

  - Signalpost
  - Microwavetower
  - telephone posts andwires
  - Cables

16.7.6.3 Damage to C&W sick line and locoshed

  - Pitlines
  - Sick lines/ Shedstructures

16.7.6.4 Activation of emergency control and nomination of staff for variousduties:

As soon as information is received in Control Office about earthquake from any source, the following action is to be taken:

16.8 Divisional EmergencyControl:

- Disaster Management department will work as Emergency Control office. All other department will be working under Emergency control during the emergency.
- EmergencyofficeswillalsobeopenedatBig/JunctionstationslikeSUNR, THAN, WKR, MVI, RJT, HAPA, JAM, KMBL, DWK, OKHA who will remain in touch of divisional emergencycontrol.
- The Divisional emergency control will remain in touch of the civil authorities, armed and paramilitary forces for the reliefwork.
- The divisional emergency control will provide the information of the situation and steps taken to the HQ CCG emergencycontrol.
- If require major help, NDRF will also becontacted.

- Informationregardingrunningofrelieftrainwithtimeandlocationwillbe given to the local authorities andNDRF.

16.8.1 ReliefTrain:

- Any available rake of preferably 6 coaches of any type with the arrangement of staff, Doctor, Food, Medicines & Relief materials to berun from SUNR, RJT, HAPA.
- InformationregardingitsrunningwillalsobegiventotheNGOsandother charitablesocieties.

16.8.2 Action by operatingdepartment:

- Stop alltrains.
- Inform PWay / S&T / TPC Supervisors for checking Track, Bridges, Points, Signals on light engine / Push Trolley / Motor Trolley in each block section of the affectedarea
- Inform civil authorities regarding any unusualoccurrence.
- Arrange stock and power for moving relief / restorationmaterial
- Arrange additional Operating staff i.e. ASMs / Pointsman / Guards and Cabinman from unaffected areas.

16.8.3 Action to be taken by engineeringdepartment:

- All P.Way supervisors including PWI / IOW / BRI / Gangman / Keyman and otherstaffshouldreporttothenearestStationMasterwhointurnwillrepeat the Control about the availability of P.Way staff andSupervisors.
- CheckingoftrackandbridgesAteamofGangmen, KeymenandPWI/BRI shouldbesentoneithersideoftheeachblocksectionforcheckingthetrack structure andbridges.
- Protectiontodamagedsite–checkingteamshouldbesuitablyinstructedto protect any damaged track, structure, or bridge in thesection.
- Reporting damage / deficiencies and requirement of man and material – After checking the whole section a report about the nature ofdamages with location, and requirement of man and material should be submitted to the ASM who in turn will repeat it to theControl.
- IOW should check the damages to service and residential buildings and accordingly arrange repairs as per therequirements.
- IOW will remain in contact of water contractors, Local civil departments for the supply of drinking water andto make this available to the affected sites from the available sources on warfooting.

16.8.4 Action by S&Tdepartment:

- It is likely that overhead and cable communication will be affected due to earthquake. Immediate efforts should be made to provide alternative means of communications like VHF, Microwave, RE Cables, Optical fibre. Communication between the control and station is to be given highest importance.

- Assessment of damage – CSI / SI and ESM / MSM must be available at the station after checking all the S&T installation, details should be given to SI Controlinregardtodamageandadditionalrequirementofmanandmaterial ifany.

16.8.5 Action to be taken by Electricaldepartment:

- During Earthquake usually the first facility which go off is the electricity supply so In case of failure of power supply, electricity department should arrange sufficient number of DG sets with sufficient quantity of fuel and accessories at the important installations like Control, Station etc., as per therequirements.
- Skilled manpower should also be kept ready to deal with the emergency situation.

16.8.6 Action to be taken by Commercialdepartment:

- Regular announcement for information of passengers explaining the calamity and affect of the running of train are to bemade
- Emergency Enquiry counter to be opened at major stations and affected stations to be provided with DOT phone/Self phonefacility.
- Facilitiestothestrandedpassengerslikedrinkingwater, foodetc., aretobe provided at stations where trains arecontrolled.
- Addl. Windows for refund of tickets to beopened.

16.8.7 Action to be taken by Mechanicaldepartment:

Relief coaching and goods stock on the system must be ready and should be fit for movement.

16.8.8 Action to be taken by Personneldepartment:

- Form, relief Cell consisting CWLI, WLI and staff to assess losses and damages at stations and inColonies.
- Co-ordinateforassistanceandreliefwith Tradeunions, MahilaSamitiesand NGOs to speed uprelief.

16.8. 9 Action to be taken by RPFdepartment:

- Help Rly. Officers / Employees in relief work at station and incolonies
- Protect Rly. Stations, Yards and all vital installations and restrict the entry ofoutsiders.
- Render necessary assistances to the affected persons to save the human life.
- Keep close co-ordination with civil police and districtadministration.

16.8.10 Pre-disaster phase – mitigation andpreparedness

Considering Precambrian geological set-up in major parts of Gujarat, seismicity is

relatively high as evident from the number of earthquakes in the hard rock terrain.

As per the recent categorization, the country has been divided into five zones. Similarly the Seismic Zoning of Gujarat has been revised and Gujarat falls between Zone III to V and Saurashtra region of Gujarat on which Rajkot Railway division lies is on the Zone III and IV, i.e. moderate level damage risk zone and high level damage risk zones. However, it may be noted that major part of Saurashtra comes in the moderate zone but Cities lying in this zone also were badly affected by the impact of the Bhuj earthquake.

District coming under Risk Zone III	District coming under Risk Zone IV
Rajkot, Surendranagar, Some parts of Jamnagar	Jamnagar, Some parts of Rajkot

The most common scale used for measuring the magnitude of an earthquake by scientists is the open-ended *Richter scale*; the *Modified Mercalli Scale* (having twelve classes) is commonly used for measuring its intensity.

Measure of intensity of earthquake according to Modified Mercalli (MM) scale and its possible impact is given below:

MM scale intensity of earthquake	**Measure of intensity described in terms of possible impact**
I	Not felt except by a very few under especially favourable circumstances.
II	Felt only y a few persons at rest, especially on upper floors of building.
III	Felt quite noticeably indoors, especially on upper floors of buildings.
IV	Felt by many indoors, during the day by a few outdoors. At night some are awakened. Dishes, windows, doors are disturbed. Standing motorcars rocked noticeably.
V	Felt by nearly everyone, may awakened. Some dishes, windows, etc., broken; Pendulum clock may stop.
VI	Feltbyall: manyfrightenedandrunoutdoors.Heavyfurnituremay move. A few instances of fallen plaster or damaged chimneys – damageslight.

VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction, slight to moderate in well built ordinary structures, but considerable in poorly built or badly designed structures.
VIII	Damage slight in specially designed structures; considerable in ordinary structures and great in poorly built structures. Fall of chimneys, stacks and columns. Persons driving motorcars are disturbed.
IX	Damage considerable, even in especially designed structures; well-designed frame structures thrown out of plumbing. Buildings shift off foundations. Ground crackedconspicuously.
X	Some well-built wooden structures destroyed; ground badly cracked; rails bent. Landslides and shifting of sand andmud.
XI	Few, if any (masonry) structures, remain standing. Broad fractures, in ground.
XII	Damage total. Waves seen on ground surface. Lines of sight and level distorted. Objects thrown upward into the air.

16.9 Preparation of disaster managementplan

A Disaster Management Plan should have three parts, namely pre-disaster plan, emergency response plan and long term post-disaster plan.

16.9.1 Pre-DisasterPlan:

Warning and disaster preparedness are the important components of pre-disaster plan. However, **in case of earthquake**, there is very little scope of prior warning since the event comes very suddenly.

The pre-disaster preparedness has several components such as –

- Hazard zone mapping. Mapping of earthquake vulnerable zones and pictorial details of vulnerable structures, infrastructure, and vital installations.
- Detailed inventory of major infrastructures such as Rly. buildings, Bridges, signalposts, FOBs, culverts, track, signalling,telecomnetwork, damagetovitalinstallationslikedieselandelectriclocosheds.Thefirst taskwouldbetosetupassessmentteamscomprisingofrepresentatives from the Civil, Electrical, Signal & Telecommunication, Security and Medicaldisciplines.Whenallcommunicationlinksweredisrupted,itmay benecessaryfortheDivisiontorequisitionahelicopterfromthenearest Air Force station for an aerial survey of thedamage.
- Settlement locations and population inventory.
- Creation of data-base at all levels of human, equipment and other infrastructural resources to beutilized.

16.9.2 Emergency ResponsePlan:

- In the event of an earthquake striking some area, the IMD and GSI seismic observation centres give the exact location of the epicentre and theintensityoftheearthquakeontheRichterscale.Withthisinformation in hand, the disaster emergency squad will make an immediate visit to the spot of the affected area for a quick on-site assessment of the situation.Simultaneously, therewillbeapublicannouncementaboutthe epicenter andprobablyaffectedareaandtheintensityoftheearthquake. The emergency squad on ground shall take video photographs of the affectedarea.Theon-sitevisitandassessmentshallbecompletedwithin hours and such news will be broadcast through All India Radio and Doordarshan as well as through Railway communication network and other means for information to the public and also to the people in the affectedarea.
- The information on affected area as well as the first assessment of the emergency squad will be immediately super-imposed in the hazardzone map. The Control Room at the particular affected areas as well as the Central Control Room will be put under red alert within the shortest period after the earthquakestrikes.
- A good pre-disaster preparedness plan result in a very good emergency responseplaninthetimeofneed.TherewillbenoroomforanyInterventionsinthee mergencyresponseplan, whichisbasicallyafaithful implementation of the pre-disaster preparednessplan.

16.9.3 Long Term Post-DisasterPlan

- A good part of the long-term post disaster reconstruction plan has to be become a part of the normal development plan in the area keeping in view earthquake hazard proneness of the area under consideration and the same will be included in the pre-disaster preparedness plan. However, after an earthquake occurs, activities of reconstruction will be taken up with greaterurgency.
- A disaster is a great misfortune for the affected people but at the same time this is an opportunity to bring radical changes in attitudes to adoption of disaster mitigation measures, which otherwise, would not have been accepted by the people under normal conditions. In this process of reconstruction, a good deal of integration is necessary between Railway, State Government (regulatory and development agencies), research institutes and thepeople.
- The type of damages as brought out in the Report of IIT Mumbai on Gujarat earthquake reinforces the need for strict compliance of the laid down norms of the Bureau of Indian Standards for earthquake resistant designofstructures.Toprecludethepossibilityofadesignsuitablefora lower seismic zone being inadvertently utilized in zone III and IV, a specific endorsement should be made on the structural drawings of all lifeline buildings and structures falling in seismic zones III & IV for complianceofthecriterionofearthquakeresistantdesignasgiveninthe relevant BIScodes.
- The earthquake also causes widespread damage to other railway structures like signals, cabins, diesel loco shed, FOBs. The study

recommends low cost repair and strengthening strategies for various types of structures while recommending demolition and reconstruction of some other buildings. The Railway Board should consider the recommendation of IIT Mumbai for acceptance for new construction of important lifeline buildings and structures (railway stations, RRI cabins, PRS centres, hospitals, administrative buildings, schools etc.) falling in seismic zones III & IV on a selective basis depending upon the number ofoccupantsinthebuildingatatimeorthecriticalnatureofthebuilding from Railway's operation point of view. The Railway Board should frame guidelines for selection of such buildings andstructures.

- The Ministry of Urban Development had constituted an Expert Group in July 1994 to identify vulnerable areas with reference to naturalhazards, assess risks due to earthquakes, cyclones and floods and recommend structural measures required to prevent loss of property and life. The group, while making a number of recommendations, also compiled a Vulnerability Atlas (1997) indicating the proneness of various areas of the country to hazards arising out of earthquakes, cyclones and floods. These maps are available for each State and UnionTerritory.
- The Ministry of Home Affairs has desired that retro fitment of all lifeline buildings in seismic Zones III & IV should be carried out in a timeboundmanner, to mitigate the effect of earthquakes. Railways have a large number of such critical buildings and structures. Following the above policy will be a time consuming and a very costly exercise for which the Railway Board has made no estimates. The Railway Board, in their reply to the Ministry of Home Affairs, stated that the "Zonal Railways have beenadvisedtoassessthesafetyofallrailwaystructureswithreference to the revised classification of seismic zones and take appropriate measureslikeretro fitmentetc.whenbuildingsarenotfoundstructurally sound from earthquake point of view". The Railway Board had also communicated to the MHA that no fixed time frame could be prescribed for such retro fitment as this could have heavy financial implications. ZonalRailwayshaveyettoinitiateanyconcrete action towardsassessing the earthquake damageability of buildings and structures andundertake retro fitment whereevernecessary.
- Assessment of vulnerability of railway buildings and structures in Zone III&IVshouldbedoneselectively in forwhichcertainguidelinesshouldbe laid down by the Railway Board based on severity of the expected consequences and technical details of the structures. Some of these issues have been consideredlater.
- The Ministry of Railways has confirmed that all new constructions are as per prevalent BIS norms. The Bureau of Indian Standards issued theIS-1893 in 1962 giving the "Criteria for Earthquakes Resistant Design of Structures".
- Adviser, GOI–UNDPDisasterRisk Management Programmeand a noted authorityinthisfield,haspreparedguidelinesfor'RapidVisualScreening ofBuildingsfortheirDamageabilityundervariousEarthquakeIntensities' postulated in seismic zones of India. The guidelines, which have been submitted to the Ministry of Home Affairs for acceptance, are expected tofacilitateinitialassessmentofvulnerabilityofbuildingssoastoidentify their retro fitment needs. The methodology for Rapid Visual Screening (RVS)

and Simplified Vulnerability Assessment (SVA) procedures given in the guidelines can be made use of by the Indian Railways in a prioritized manner for railway structures in a few divisions falling in seismic zone IV and V in the next fewyears.

- The White Paper on Safety of Indian Railways as well as the Corporate Safety Plan (2003-2013) have dealt with the subject of rehabilitation of railway bridges using modern methods of repair and rehabilitation. Within the selected bridges that need rehabilitation, priority should be given to bridges falling in seismic zones IV &V.

- Earthquakes have a bearing on safe running oftrains.

  - Firstly, precautionary steps need to be taken to protect a running train from derailing due to possible damages to track and bridges. General Rules and Subsidiary Rules are available for operating rail system under conditions of tempestuous weather. There are no instructions for operating of the system after earthquake has been recorded.GeneralRulesneedtobeframedtoensuresaferunningof trains in case of an earthquake. IS:1893 has indicated the damageability of structures due to different MSK intensitylevels.

  - Secondly, the dynamic behaviour of a railway vehicle at different speeds on a track vibrated in lateral and vertical direction for different intensities of earthquakes needs to be studied using simulation techniques to preclude possible derailment on this account. It is understood the Railway Technical Research Institute (RTRI) in Japan has already conducted such studies with a view to automatically control train speed in case ofearthquake.

16.9.4 Post disaster phase – rescue, relief andrehabilitation

- This phase includes all measures that are taken immediately in the aftermath of a disaster. The speed and efficiency of the response in this phase will crucially determine the loss to life and property. The abilityto respond to a disaster is developed in the pre-disaster phase and these capabilitieswillbebroughtintoplayimmediatelyafteradisaster.Aclear chain of command, deployment of trained personnel, proper flow of information, speed of decision making and mobilization of resources are critical in thisphase.

- Afteramajorearthquake, thefirstpriorityistoprovidereliefandmedical aid to affected persons to minimize loss of lives. During the Gujarat earthquake, roofs of several quarters in Railway colony had collapsed. A number of families were rendered destitute. Others, whose dwellings were intact, preferred to live outside because of fear of continuing tremors. The water and electric power supply to railway stations and colonies had been disrupted. Fortunately, there were no stranded passengers and no trains in mid-section. Rail infrastructure had been extensively damaged. Communication channels were down and organization was in disarray as most officers and supervisors in the affected area were victims of damage. Movement of men and material for rescue and relief in such circumstances becomes a challengingtask.

- AFieldControlOfficeshouldbesetupatanappropriatelocationnearest to the affected area. The Divisional Railway Manager should direct the operations

from the Field Control Office. Tel-communication linkage using V-SAT would be necessary between the Field Control & Divisional Control. VHF sets can also be used for communication between AssessmentTeamsandtheFieldControl.TheDivisionalRailwayManager will direct and coordinate the assessment exercise and communicate to the Divisional Control Office. Liaison with the local officers of the State Government would also be necessary both at field and divisionallevel.

- Once an assessment has been made of the damage to the railway infrastructure, including the immediate assistance required and the extent of relief needed by the stranded passengers and railway staff/families, theDivisionalEmergencyControlshouldarrangethesame on priority. The Divisional Control office should function under thedirect charge of ADRM. Assistance of headquarters office can be sought for mobilizing relief from outside theDivision.
- Relief teams should be formed based on the requirement and should includerepresentativesofthemedical, personnel, engineering, electrical, telecommunication and commercial departments. RepresentativesofAccounts department should also be included to facilitate cash purchase of relief materials and disbursement of cash advance. The Relief team would be required to provide succour to the affected persons at railway stations and railway colonies. Adequate amount of cash may have to be arranged from other places to enable the relief teams to carry out their duties smoothly.
- Reliefeffortshouldstartwith mobilizing materialsandmanpowerassoon as the assessment reports start coming in. The relief supplies would include medicines, food, provisions, water, kerosene oils and stoves, match sticks, candles, blankets andtents.
- The restoration effort would be directed towards re-commissioning the communication network, emergency electric and water supply and restoration of rail working. It would be necessary to make urgent purchase/hire of items like portable generators, pumps, power cables, signal cables, etc. Provisioning of VHF sets for station to station communication for train working on 'paper line clear' should be madetill a more permanent arrangement is organised. Availability of sufficient cash is essential for spot purchase or contracting of essential supplies and equipment. This could be made available from station earnings of larger stations. As the Rajkot division lies in the Seismic Zone III andIV therefore the **S & T** department of Rajkot division will keep itself in readiness with the list of supplier and othersources.
- The divisions falling in seismic zones III and IV should have details of availability of heavy earth moving equipment, road cranes, etc. so that the same could be requisitioned without delay. Railways **Engineering** departmentshouldkeepitself inapositiontomovesuchequipmentfrom outside the division if need arises which can arise any time without any warning.
- Pastexperienceshowsthatresourcesavailableforrestorationarescarce and whatever is available, the rates are exorbitant. Purchases made in such a situation are bound to be at much higher rate than normal. In suchspecialcircumstances, there is astrongcase fordispensingwiththe normal purchase and contracting procedures for relief supplies and restoration work. The DRM is required to take quick action, as delays in rescue and restoration work are unacceptable. Therefore, the decision taken in this connection by the DRMs should not be subjected to the

normalscrutinysothatquickdecisionsregardingpurchasesandcontract canbetakenwithoutfearofquestioningatalaterstage.TheDRMsmust be suitably empowered with special financial powers (works matters, stores matters and miscellaneous matters) to effectively deal with emergencies on a warfooting.

- In case of earthquake disasters, Railways will need assistance of State Governmentinanumberofareastoprovidereliefto theirstaffandtheir families and in restoration of Railway system. Similarly, for transport of relief supplies for civil administration or movement of people, Railways and District Administration have to work together. AnMoU may be entered into between Railway Administration and State Govt. defining the role of both administrations in all suchsituations.

- OncetherailworkinghasbeenrestoredandtheRailwaysareinposition to receive relief trains, it would be necessary to make special arrangementsforhandlingofreliefmaterials.Reliefmaterialsarebooked to the District Collectors. Railways plan for Disaster Management should include procedures for expeditious clearance and delivery of relief materials. The Rajkot divisional plan gives the clear picture of stations lying in Zone III & IV where relief supplies can bereceived.
- Gujarat earthquake experience clearly showed the need for additional road transport for movement of officers and staff and for transport of materials. These may not be available locally as whatever is available may have been requisitioned by the civil administration. It will be easier for railways to seek assistance of the State Government once it is provided for in the MOU. Road vehicles may also be diverted from neighbouring railway divisions for use in the affectedareas.
- Forrescueofpersonstrappedinsidecollapsedbuildings, speciallytrained rescue teams with specialized equipment are required. The Railways do not have such trained manpower or equipment. The State Government has access to such teams. It is very important that close liaison is maintained with the District Collector so that the required assistance is madeavailableforearlyrescueofpassengersandstaffandalsoforearly restoration of Railway infrastructure. The Rajkot Division is in close liaisonwithNDRFwhichhasspecializationindealingwithsuchsituation.
- As markets are not expected to open for several days, there would be need to arrange provisions for the affected families. NGOs usually provide such support. State Government / District Administration's assistance should be sought for this purpose. DRM, Rajkot Division with the help of the NGOs, the President of WRWSSC, DRUCC will leadteams of volunteers for distribution of reliefmaterial.
- As Railways did in the case of Gujarat earthquake during 2001 and was a great success that Railways provided mobile medical facilities for use of civilians. So, Self-propelled mobile medical units should be mobilised and moved to the affected areas. This assistance should be arranged in consultation with the Stateauthorities.

16.10 Management of Landslides and Snow Avalanches:

16.10.1 Landslide Risk:

Landslides are one of the natural hazards that affect at least 15 percent of the land

area of our country–an area which exceeds 0.49 million km. Landslides of different types are frequent in geo-dynamically active domains in the Himalayan and Arakan-Yome belt of the North-Eastern parts of the country as well as in the relatively stable domains of the Meghalaya Plateau, Western Ghats and Nilgiri Hills. In all, 22 states and parts of the Union Territory of Puducherry and Andaman and Nicobar Islands are affected by this hazard. The phenomenon of landslides is more pronounced during the monsoon period.

16.10.2 Nodal agency of Government of India:

The Geological Survey of India was declared the nodal agency for landslides by the Government in January 2004. The responsibilities of the Ministry of Mines/Geological Survey of India as the nodal ministry/agency include coordinating all the activities related to landslide hazard mitigation, and monitoring the occurrence of landslide in the country.
As per the Disaster management Act, the responsibility to cope with natural disasters is essentially that of state governments and the role of the central government is a supportive one in terms of supplementing physical and financial resources.

16.10.3 Monitoring and Forecasting of Landslides:

The monitoring and forecasting of landslides, which are two of the least developed fields of landslide management practice will be given special attention as a part of mitigating the risk arising from landslide hazard. Monitoring of landslides includes:

- Surface measurements of landslide activity.
- Sub-surface measurements of landslide activity.

16.10.4 Management of Snow Avalanches:

The recording of avalanche data and their clearance is carried out by the Border Roads Organisation. The forecasting and control of snow avalanches are generally dealt with by the Snow and Avalanche Studies Establishment. According to the management of this hazard will be a collaborative work of the National Disaster Management Authority, District Administration, Border Roads Organisation, Snow and Avalanche Studies Establishment, and academic institutions active in carrying out research in this field.
Till the Kashmir Project is fully completed the Railway infrastructure is not likely to be affected by this except at a few locations in Himachal Pradesh.TheNilgiri Hills and Western Ghats are additional likely areas which may be affected by landslides and should be included in the DM Plan as vulnerable areas.

16.10.5 Action Plan:

Although management of landslides requires coordinated and multi-faceted activities among many stakeholders in the total disaster management cycle, one important recommendation for follow up by Civil Engineering Directorate of Railway Board is –

S.N	**Action Plan (IR-DMP)**	**Action taken by Western Railway**-
1	Hazard zonation mapping in macro and micro scales after identification and	There is no problem of landslides and snow avalanches on Western Railway in any section however in case of any such incidents the following

	prioritization of areas in consultation with Border Road Organization, state governments and local communities.	action to be taken; i) Whenever landslide/boulder falling is expected / experienced due to heavy down pour or otherwise all train services should be regulated. (ii)Rescue team to be rushed for restoration work.

16.11Management of Lightning/Thunderstorm:

16.11.1 Lightning/Thunderstorm Risk

In India, on an average, more than 2,500 deaths are recorded due to thunderstorm and lightning every year (Source: Annual Report, NCRB). It accounted for about 39 per cent of deaths from natural disasters in the country from 1967 to 2012. Rural and forest areas are the most vulnerable due to presence of tall trees and water bodies. A majority of the lightning victims are people working in the fields in rural areas. Lightning is also a major cause of electrical power breakdowns and forest fires. It can also damage communication and computer equipment.
A severe thunderstorm can damage power and communication lines as well as roads, besides flooding of escape routes, breaking of tree branches, uprooting of large trees, etc.
Indian Institute of Tropical Meteorology (IITM), Pune, under the Ministry of Earth Sciences, has initiated a project to study the characteristics of lightning by using Lightning Location Network (LLN). This network can accurately detect the location of occurrence of a lightning strike and can help forewarn the public at least 1-2 hours before the occurrence of a thunderstorm.

16.11.2 Definition & classification of Lightning

Lightning is a high-energy luminous electrical discharge accompanied by thunder. It is of three types:

- Thundercloud or Intra-cloud lightning (IC)
- Cloud-to-cloud or Inter-cloud lightning (CC)
- Cloud-to-ground lightning (CG)

The third type of lightning takes a toll on lives and property, and therefore, is of more concern to us. However, inter-cloud and intra-cloud lightning may hit aircrafts. These are also the precursor to cloud-to-ground lightning.

Lightning has a total path length of a few kilometres. Its peak power and total energy are very high, with the peak power discharge in the order of 100 million watts per meter of the channel and the peak channel temperature approaching 30,000 °C. Peak currents in a lightning discharge range up to hundreds of kilo amperes (kA) with its typical value being 40 kA. Predicting the precise time and location of lightning is very difficult. However, a season or a period of lightning occurrence is known for many regions.

16.11.3 Early Warning of Lightning

India Meteorological Department (IMD), Ministry of Earth Sciences, is the nodal

agency for providing current weather information and forecast, including warnings for all weather-related hazards. Besides, States should establish their own independent early warning and monitoring systems to supplement warnings from the IMD.

A thunderstorm is a small-scale phenomenon and has a life cycle of about three hours. It has a dimension of 2 km to 20 km, and therefore, its detection is difficult. Geostationary Weather Satellite captures images from a height of 36,000 km above the earth. It takes about half an hour to capture the image and another half an hour to process the data. So, by the time someone sees the satellite imagery on IMD's website, it is already one hour late. Due to the short life cycle of thunderstorms, a satellite cannot capture its initiation unless it is a large-scale thunderstorm activity.

Lightning incidents can be detected by the ground-based Lightning Detection Network in real time. There is a need to create a high-density network in regions vulnerable to lightning strikes.

16.11.4 Roles and Responsibilities to deal with Lightning

All the stakeholder Ministries/Departments and agencies should work under a unified command to ensure effective implementation of prevention, preparedness and mitigation measures.
The Chief of Operations (Chief Secretary) will spell out the priorities and issue policy guidelines. The Relief Commissioner will coordinate the services of various stakeholders, including national/State agencies, and central government agencies.

The State Emergency operation centre (SEOC) is the nerve centre to support, coordinate and monitor disaster management activities at the State level, including training and research. It will, under normal circumstances, work under the supervision of the Relief Commissioner. During an emergency situation, it will work as the centre for decision making as long as the need for emergency relief operations continues or until the long-term plans for rehabilitation are finalised.

16.11.5 Action Plan of Ministry of Railways

All essential establishments of railway’s network viz. track distribution system, Signal & telecommunication equipment etc. are properly grounded. However, installation of lightning arrestors and sound earthling for each building is essential. Lightning shields are the most commonly employed structural protection measure for buildings and other structures. A lightning shield consists of the installation of a lightning conductor at a suitably high location at the top of the structure. The conductor is grounded using a metal strip of suitable conductance. The grounding of the conductor is also specially designed to ensure rapid dissipation of the electrical charge of a lightning strike into the ground.

CHAPTER – 17

MANAGEMENT OF CHEMICAL (INDUSTRIAL) AND CBRN DISASTERS

17.1 **Background**

The NPDM notes that rise in population, rapid urbanization and industrialization, development within high-risk zones, environmental degradation, and climate change aggravates the vulnerabilities to various kinds of disasters. Due to inadequate disaster preparedness, communities, and animals are at increased risk from many kinds of human-induced hazards arising from accidents (industrial, road, air, rail, on river or sea, building collapse, fires, mine flooding, oil spills, etc.). Chemical, Biological, Radiological, and Nuclear (CBRN) hazards rank very high in among the human-induced risks. Terrorist activities and secondary incidents add to these risks and call for adequate preparedness and planning.

17.1.1 Management of ChemicalDisasters:

17.1.2 Guidelines byNDMA:

National Disaster Management Authority (NDMA) has issued guidelines on the management of chemical disasters. These guidelines are directed more towards their prevention and mitigation of their effects, if these happen than on rescue and relief operations afterwards.

The main stakeholders in the management of chemical disasters are Ministry of Environment and Forests (MoEF; the nodal ministry); Ministry of Home Affairs (MHA); Ministry of Labour and Employment (MoLE); Ministry of Agriculture (MoA); Ministry of Shipping, Road Transport and Highways (MoSRT& H); Ministry of Defence (MoD); Ministry of Chemicals and Fertilizers (MoC&F); Ministry of Petroleum and Natural Gas (MoP&NG). Department of Atomic Energy (DAE).

17.1.3 Salient features of NDMAGuidelines:

The growth of chemical industries has led to an increase in the risk of occurrence of incidents associated with hazardous chemicals (HAZCHEM). With their proliferation, the demands on its transportation by rail have gone up significantly. Common causes for chemical accidents are deficiencies in safety management systems and human errors, ortheymayoccurasaconsequenceofnaturalcalamitiesorsabotageactivities. Chemicalaccidentsresultinfire, explosionand/ortoxicrelease.Thenatureofchemical agents and their concentration during exposure ultimately decides the toxicity and damagingeffectsonlivingorganismintheformofsymptomsandsignslikeirreversible pain, suffering, and death. Meteorological conditions such as wind speed, wind direction, height of inversion layer, stability class etc. also play an important role by affecting the dispersion pattern on toxic gas clouds. The Bhopal Gas tragedy of 1984 – the worst chemical disaster in history, where over 2000 people died due to the accidental release of the toxic gas Methyl Isocyanate, is still fresh in ourmemories.

17.1.4 Genesis of NDMA's Guidelines on ChemicalDisasters:

Effective Chemical Disaster Management (CDM) is possible by the adoption of preventive and mitigation strategies as most chemical disasters are preventable in comparison to natural disasters that are difficult to predict and prevent.

In the NDMA'sGuidelinescomprehensiveinstructionsforinstallationsandstorages (including isolated storages of HAZCHEM) that contain good engineering practices for safety, accident reporting, investigation and analysis checklists and safety promotional activities as important tools for effective CDM, areprovided.

In the guidelines are instructions related to chemical accidentsduring transportation of HAZCHEM. The areas covered include:

- Preparation of a highway DMplan.
- Modification of rules pertaining to transportemergencies.
- SpecificrolesandresponsibilitiesofMAHunits, transporters, drivers, authorities and aspects related to emergency communication systems and training of various stakeholders.
- The need for the development of an efficient pipeline managementsystem.

17.1.5 Guidelines on ChemicalDisasters:

Railway's guidelines/instructions relevant to the zonal railways have been issued separately in detail for taking necessary action and incorporating suitable provisions in their respective DM Plans. These guidelines will add to the existing safeguards listed in the Red Tariff on handling, storage and transportation of hazardous material.

17.1.6 Railways Red Tariff – Transport of Hazchem:

Indian Railways have also been transporting chemicals and hazardous materialspetroleum products (petrol, Naphtha, HSD, etc.), Caustic soda, Alcohol, compressed gases (LPG gas etc.) Chemical manures, Acids, Matches etc. These goods are carried either in the SLRs or in the Parcel Vans or in the goods wagons. Quantum and type of transportation of such hazardous material varies from railway to railway and different zonal railways need to prepare themselves based on the type and extent of hazardous material being handled and transported bythem.

IndianRailway'sRulesforcarryingdangerous(hazardousgoods)byrailhavebeen legislatedintheRailwayRedTariffRule2000asperwhichdangerousgoodshavebeen classified into following 8classes:

- Explosives
- Gases, Compressed, liquefied or dissolved underpressure
- Petroleum & other inflammableliquids
- Inflammablesolids
- Oxidisingsubstance
- Poisonous (ToxicSubstances)
- Radio-activesubstances
- Acids & otherCorrosives.

Thischapterdealswiththeaboveitviiiclassesofdangerousgoodswhichinclude General rules governing acceptance, handling, Carriage, storage, delivery and the list of commodities included in that class. Carriage of Goods of a hazardous nature other than those specified in these chapters shall not be accepted for transport by rail unless specially authorised by the railway administration as provided under theseRules.

Out of the above 8 classes of dangerous goods, classes II (Gases, Compressed, Liquefied or dissolved under pressure), III (Petroleum and other inflammable liquids) and VIII (Acids and other corrosives) are dealt in bulk on the railways whereas other classesofdangerousgoodsaredealtinpiecemeal/smallquantitiesinparcelvans/SLRs. Railways may refer to the specific paras pertaining to all these classes of dangerous goods.

17.1.7*Emergency Response Guidebook 2016 - Transport of Hazardous Materials*

Apart from Railways Red Tariff which contains detailed guidelines on transportation of Chemicals and Hazardous Materials, Ministry of Railways has also published Emergency Response Guidebook 2016 **(**ERG2016) which is intended for use by first responders during the initial phase of a transportation incident involving dangerous goods/hazardous materials. Copies of ERG2016 have been distributed to all Zonal Railways which will further help in transporting hazardous materials safely.

ERG2016 was prepared by the staff of Transport Canada, the U.S. Department of Transportation and the secretariat of Communications and Transport of Mexico with the assistance of many interested parties from government and industry including the collaboration of CIQUIME of Argentina.

17.1.8 Rescue Relief and RestorationOperations:

Railway's expertise in dealing with the mis-happenings like spillage, catching fire etc. of these dangerous goods is very limited. It is therefore imperative that the respectivezonalrailwayswilldevelopandnurturecoordinationwiththoseagenciesandOrganisationsontheirsystemthathasexpertiseindealingwiththehazardousmaterial being handled and transported on the respective zonal railways. Contact details e.g. Name, Designation, Telephone Nos., Mobile Nos. etc. of such agencies should be available in the Divisional Disaster Management Plan so that these agencies can be called for without any delay during any untoward incident. Nominated staff of ARMVs/SPARTs, ARTs and few of the staff maintaining the rolling stock which is used for transportation of hazardous material may be trained and equipped with the equipment used for dealing with suchmaterial.

Preparedness of Rajkot division: (i) All nominated staff of ARTs & ARMEs/ SPARTs arebeingtrainedfordealingwithtransportationofhazardousmaterials&maintainthe rollingstock.

On Rajkot division, CMS will be instructed to coordinate with Sr.DME of the divisions for such exposure training soon.

17.1.9 Prevntive Action in the Rail Route of Movement ofHazchem:

Divisions located on the "Hazchem Rail Transportation Highways" have to be in close touch with specialized services available with IOC/GAIL and Pvt. Chemical

FactoriesandNGOstobeabletocallupontheirmenandfirefightingfireextinguishers etc at shortnotices.

VulnerabilityonthisHighwayneedstobereducedbytheremovalofJhuggiesfrom close to the track (say till at least 50 m away). This is essential as in the case of derailment of a Naptha loaded (or even POL Tank Wagon etc) train, there is a high possibility of spillage of the dangerous products and its spread over a wide area.Theseproductsarehighlypronetocatchfireandevenexplode,resultinginfireintheJhuggies etc.

17.2 Management of BiologicalDisasters:

- **Causes of BiologicalDisasters:**

Biological disasters might be caused by epidemics, accidental release of virulent microorganism(s)orBioterrorism(BT)with the useofbiologicalagentssuchasanthrax, smallpox, etc. The existences of infectious diseases have been known among human communities and civilisations since the dawn ofhistory.

In recent times travelling has become easier for which Railways have made a significant contribution. More and more people are travelling all over the world which exposes the whole world to epidemics. As our society is in a state of flux, novel pathogensemergetoposechallengesnotonlyatthepointofprimarycontactbutinfar removed locations. The Marburg virus illustrates this. The increased interaction between humans and animals has increased the possibilities of zoonotic diseases emerging in epidemicform.

17.2.1 Biological Warfare (BW) and Bio-Terrorism(BT):

The historical association between military action and outbreaks of infections suggest a strategic role for biological agents. The advances in bacteriology, virology and immunology in the late 19thcentury and early 20th century enabled nations to develop biological weapons. The Biological and Toxin Weapons Convention, however, resolved to eliminate these weapons of mass destruction.Despite considerableenthusiasm, the convention has been anon-starter.

17.2.2 Mitigation:

The essential protection against natural and artificial outbreaks of disease (bio-terrorism)willincludethedevelopmentofmechanismsforpromptdetectionofincipient outbreaks, isolation of the infected persons and the people they have been in contact with and mobilisation of investigational and therapeutic countermeasures. In the case ofdeliberatelygeneratedoutbreaks(bio-terrorism)thespectrumofpossiblepathogensisnarrow, whilenaturaloutbreakscanhaveawiderangeofpathogens.Themechanism required however, to face both can be similar if the service providers are adequately sensitized.

17.2.3 Nodal Ministry and support of otherMinistries:

Theresponsetothesechallengeswillbecoordinatedbythenodalministry-Ministry ofHealthandFamilyWelfare(MOH&FW)withinputsfromtheMinistryofAgriculturefor agents affecting animals and crops. The support and input of other ministries like MinistryofHomeAffairs, MinistryofDefence, MinistryofRailwaysandMinistryofLabour and Employment, who have their own medical care infrastructure with capability of casualty evacuation and treatment, have an important role to play. With a proper surveillance mechanism and response system in place, epidemics can be detected at the beginning stage of their outbreak andcontrolled.

17.2.4 Handling CBRN Disaster –Training:

For handling and to provide medical relief for all CBRN disaster which (include a Biological Disaster) and mitigation of BW and BT affected Railway staff, need to be incorporated in the HospitalDMPlan.TrainingofaskeletonnumbersofMedicalDoctors in each Divisional Railway Hospital to manage CBRN casualties is to beorganised.

17.3 Management of Chemical (Terrorism)Disasters:

17.3.1 Introduction:

A terrorist attack involving chemical agents differs from a normal terrorist attack as it results in specific effects on health and can cause fatal injuries, create panic, and affect the morale of the community. The targets of terrorists include market places, densely populated areas, public functions, important dignitaries, water and electricity supplies, restaurants/food plazas, malls, places of entertainment, busy railwaystations in metros and critical and sensitive military, civil and economicinstitutions.

Chemicalterrorismisanactofviolencetoachieveprofessedaimsusingchemical agents. These chemical agents include poisonous gases, liquids or solids that have a deleterious effect on the biotic and non –biotic environment. Due to the relatively easy availability of hazardous chemicals in Major Accident Hazard units, storages andduring transportation, terrorists can procure chemicals or even try to sabotage the facilitiesor transport vehicles as it offers them an easier and often more catastrophic method of anti-nationalactivity.Themodeofdispersalusedforchemicalagentswouldrangefrom dissemination of aerosolised material to contamination of food andwater.

17.3.2 NDMA'sGuidelines:

The possibility of a chemical terrorism attack can be minimized by spreading general awareness and building the capacity of the community, institutions, and governmental and non-governmental organisations.

The approach followed in the NDMA's Guidelines lays emphasis on:

- Security and surveillance measures for installations manufacturing/ using/storingchemicals.
- Strengthening intelligence regarding the movement ofchemicals.
- Preparedness for counter-terrorism measures:
  - Issues regarding the safety of chemicals and risk reduction strategiesetc.
  - Strengthening of response through rescue and emergency medical resources. Preparedness of all emergency functionaries in terms of protection, detection, decontamination, de-corporation, capacity building and infrastructuredevelopment.
  - Community-centricmechanismforthemanagementofchemical(terrorism) disasters.

17.3.3 CTD PreparednessPlan:

Implementation of the Guidelines at the national level shall begin with the preparationofadetailedactionplan(involvingprogrammesandactivities)bythenodal ministry (MHA) that shall promote coherence among different CTD management practices and strengthen mass casualty management capacities at various levels. The concerned ministries like MoD, MoEF, Ministry of Railways (MoR), MoL&E (through Employees' State Insurance Corporation (ESIC), MoA etc., will also prepare their respective CTD preparedness plan as a part of all hazard DM Plans. The Railways has an important role in the management of mass casualties in the event of national calamities, they should also cater for developing additional capacities besides meeting their own requirements in their preparednessplan.

Railway Board has issued guidelines on precautions in handling, storage and transportation of chemicals. These are to supplement the guidelines laid down in the RedTariff.TheCommercialDepartmentmaykeeptheRPFofficialupdatedontheGoods Sheds which handle Hazchem so that adequate security systems can be strengthened. This is a part of the Divisional DMPlan.

17.3.4 Preparedness for EmergencyResponse:

Preparedness for an emergency response at the incident site requires protection, detection, and decontamination. RPF and the Medical Department have a role to play in the relief and mitigation efforts. SOPs are required for all the emergency responders working under the overall supervision of the incident commander. This may be identified in the zonal DM Plan as the DRM of the respective division on the Railways where CTD has occurred. SOPs will be included for field decontamination. A well- orchestrated medical response to CTD will be possible only by having a command and control function at the divisional level by the Medical Department. The CMO/CMS will be the main coordinator for the management ofCTD.

17.4 Management of Nuclear and Radiological Emergency (Disaster):

17.4.1 Nuclear/RadiologicalEmergency:

Anyradiationincidentresultinginorhavingapotentialtoresultinexposureand/or contaminationoftheworkersorthepublicinexcessoftherespectivepermissiblelimits can lead to a nuclear/radiologicalemergency.

After due consideration of the nature and consequences of the nature and consequences of all the possible scenarios, these radiological emergencies have been broadly classified into the following five categories:

- An accident taking place in any nuclear facility of the nuclear fuel cycle includingthenuclearreactor, orinafacilityusingradioactivesources, leading to a large-scale release of radioactivity in theenvironment.
- A 'criticality' accident in a nuclear fuel cycle facility where an uncontrolled nuclearchainreactiontakesplaceinadvertently, leadingtoburstsofneutrons and gammaradiations.
- An accident during the transportation of radioactivematerial.
- The malevolent use of radioactive material as a Radiological Dispersal Device by terrorists for dispersing radioactive material in theenvironment.
- Alarge-scalenucleardisaster, resultingfromanuclearweaponattack (ashad happened at Hiroshima and Nagasaki) which would lead to mass casualties and destruction of large areas andproperty.

Normally, nuclear or radiological emergencies (referred to in points (i) to (IV) above)are within the coping capability of the plant/facility authorities. A nuclear emergency that can arise in nuclear fuel cycle facilities, including nuclear reactors, and the radiological emergency due to malevolent acts of using Radiological Dispersal Devices are the two scenarios that are of major concern. The impact of a nuclear disaster(scenarioat(v))willbewellbeyondthecopingcapabilityofthelocalauthorities and it calls for handling at the nationallevel.

17.4.2 Vulnerability of NuclearFacilities:

Identification of a Rail network close to a nuclear facility needs to be done by the zonal Railways.

As regards the vulnerability of various nuclear fuel cycle facilities to terrorists attacks, these facilities have elaborate physical protection arrangements in place to ensure their security. The structural design of these facilities ensures that even in the eventofaphysicalattack, thestructuralbarrierspreventthereleaseofanyradioactivity outside the plant area itself and hence the public are not likely to be exposed to radiation.

While their radioactive strength is in itself a deterrent to pilferage, the radioactive sources can still be stolen and used in a Radiological Dispersal Device or Improvised Nuclear Device. Essentially, a Radiological Dispersal Device is a conventional explosive device in which the radioactive material has been so added that, on its beingexploded, there would be dispersal of radioactivity in the environment.

A Radiological Dispersal Device is not a Weapon of Mass Destruction. Normally, the use of a Radiological Dispersal Device by itself would not result in fatalities due to radiation. The fatalities, if any, would primarily be due to the explosion. However, it may contaminate a reasonably large area, besides its main potential of causing panic and disruption.

Accidents during the transportation of radioactive materials are of low probability due to the special design features of the containers in which they are transported and special safety and security measures (to take care of all possible threats/eventualities, includingthethreatfrommisguidedelements)whicharelaiddowntobefollowedduring actualtransportation.

A network of Emergency Response Centres has presently been established by the Bhabha Atomic Research Centre to cope with radiological emergencies in the public domain, like transport accidents, handling of orphan sources, explosion of Radiological Dispersal Devices etc. The task of these Emergency Response Centres is to monitor and detect radiation sources, train the stakeholders, maintain adequate inventory of monitoring instruments and protective gear, and provide technical advice to first responders and local authorities.

17.4.3 DOs & DONTs for the Disaster Magistrates in the event of CBRN (Chemical, Biological, Radiological & Nuclear) disasters issued by Ministry of Home Affairs, Disaster Management Division vide letter no.32-35/2003 NDM- ll dated21.07.2017.

17.4.4 DOs:

17.4.4.1 ChemicalDisaster:

In case of accidental release of a quantity of toxic chemicals into environment, resulting in death or injury to workers or members of nearby communities, then it is a case of chemical disaster. In the event of a chemical disaster, the District Magistrate should immediately contact-

(i) TheNodalMinistryforchemicaldisastersi.e.MinistryofEnvironment, Forest andClimateChange.Contactdetails: ShriSujit Kumar Bajpayee, JointSecretary, Tel No.+91-11-20819398(O), FaxNo.=91-11-24695277,+91-11-26160515(R),ortoShriSatyendra Kumar,Director, Telephone: +91-11-20819291 (O), +91-11-24695387 (F), +91-11- 22246550(R).

(ii) MHA control Room: [1070(Toll Free), 011 23093563, 011 2309366].

(iii) NDRF Control Room 011 23438136.

17.4.4.2 BiologicalDisaster:

Biological disasters are events caused by microbial agent or its toxin in humans, animals or plants that is beyond the coping ability of the State. Such an event may occurdueto(i)epidemicofinfectiousdiseasescausedbyamicrobialagentortoxin in humans, animals or plants (ii) Non-intentional accidental release of microbial agentssuchasfromlaboratoriesorduringtransportationofsamples(iii)Intentional use of

microbial agents to cause harm such as use of biological agents or toxins as weapons of mass destruction (biological warfare) or (iv) microbial agents or toxins used by terrorists to cause panic/harm to humans, crops or livestock (bioterrorism/agro-terrorism).

In the event of Biological disasters, the District Magistrates should immediately contact:

(i) The nodal Ministry for Biological disasters i.e the Ministry of Health & Family Welfare. The contact details: ShriLavAgarawal, Joint Secretary, Tel. No. 011-23061195 (O), 011-26889166 ® mob: 9818778177, or to Dr.P. Ravindran, Addl, DDG & Director EMR. Tel No. 011-23061302 (O), 011- 45639559 ®, ControlRoom-23061469.

(ii) MHA control Room: [1070 (Toll Free), 01123093563, 011 2309366].

(iii) NDRF Control Room 011 23438136.

17.4.4.3 Nuclear/Radiologicaldisasters:

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

In case of theft/loss of radioactive source from the institution/industrial unit/hospital premises/during transportation, it would normally be noticed first by the field person responsible for handling the same. The head of the concerned organizationwouldbenextpersontogetthisinformationfromhisownfieldperson. He in turn, would bring the incident to the notice of the local police station as well as to the Atomic Energy Regulatory Board (AERB) who is the regulator (as per Radiation Protection Rule 2004 under the Atomic Energy Act) for transportation, storage and use of radiation sources in the public domain. This will be the trigger mechanism for initiating any mitigation process by stateagencies.

Further in case of loss/theft of radioactive sources, the recommended response plan/SOP for recovery/retrieval and disposal of the radiological source would be as follow:

- AERB will inform the Crisis Management Group (CMG), DAE through DAE Emergency Control Room (DAE-ECR), Contact Details of 24*7 operational DAE-Emergency Control Rooms are – main DAE-ECR [022-22023978, 022-22021714,(Mobile) 09969201364] & alternate DAE-ECR [022-25991070, 022-25515283,(Mobile)099692013651].Inaddition,itisenvisagedthatthe concerned public officials will follow their own SOP & intimate the concerned agencies for ensuring appropriateresponse.
  (a) MHA Control Room: [1070(Toll Free), 011 23093563, 011 2309366].
  (b) NDRF Control Room 011 24363260
- Expert response agencies (police/NDRF/relevant state authorities) after reachingtheincidentspot, iffeelthattheyneedanexpertadviceortechnical support from nodal ministry (DAE); they should contact CMG, DAE through DAE-

Emergency Control Room. While informing, they are requested to provide exact location, contract numbers of concerned DM/SP/local police stationanddetailsofincidentwithbriefdescriptionoftheobject(ifpossible, along with photograph taken from thedistance).

- Upon receipt of such information, the CMG, DAE will get activated and will get in touch with the local authorities to decide about further course of actions.
- CMG will decide and constitute a team of experts as per requirements. The team of experts will be dispatched to the site by quickest meanspossible.
- Member Secretary, CMG (who is also the designated Nodal Officer of DAE) will get regular updates from concerned DAE experts/field agencies and will keepconcernedauthoritiesinformedandasperscenario,willalsokeepMHA Control Roomupdated.
- DAE experts on recovery/retrieval of the source will examine the integrityof the radiation source & accordingly, AERB will decide about further course of action regarding safe keeping/disposal of thematerial.
- Responsibility of source transportation of radioactive material from incident site to a safe storage place should be undertaken by localpolice.
- If there is local contamination due to radioactive material, decontamination activities should be taken up by expert response agencies like NDRF and/or be performed under guidance of DAE's technical experts. Local district authorities should provide adequate resources for handling and transportation of the contaminated material to the safe disposalsite.
- Incaserequired, mediabriefingwillbedonebythedesignatedstateofficial. He may seek technical inputs from AERB, if hedesires.
- After recovery/retrieval of the source and after completing of activities related with decontamination and safe disposal (as per scenario requirements), with due concurrence of AERB, the closure of radiological emergency scenario will be declared by the concernedDM/SP.

17.4.5 Don'ts:

For response to CBRN Emergency:

- Don't send untrainedresponders/volunteers.
- Don't send trained responders without proper PPEs and detection equipments.
- Don't send responders without taking proper guidance from the Nodal Ministry /Department.

CHAPTER-18

Storage & Handling of Hazardous Chemicals.

I) RCD Depot -WKR

i. Location: At Km. No. 700/7-8 WKR yard

ii. Layout Plan: Enclosed A

iii. Storage location of oil/gas: RCD compound area by Rly.

iv. Security system available:

Access control	By Railway
Monitoring by cameras	Provided & Monitored
System of unusual	Bell and Manually operated Hooter provided
System of Mock drills	Frequently demonstration of fire extinguisher.

v. Safety precautions & procedures followed:

safety alarm	Bell and Manually operated Hooter provided
fighting arrangements	er yard stick, 06 nos. Of fire extinguisher, nd bucket provided

II) RCD Depot -Hapa

i. Location : At Km. No. 817/9 Hapa yard

ii. Layout Plan: Enclosed B

iii. Storage location of oil/gas: RCD compound area by Rly

iv. Security system available:

Access control	By Railway
Monitoring by cameras	Provided & Monitored
System of unusual	Bell and Manually operated Hooter provided
System of Mock drills	Frequently demonstration of fire extinguisher.

v. Safety precautions & procedures followed:

safety alarm	**Bell and Manually operated Hooter provided**
fighting arrangements	**As per yard stick, 18 nos. Of**

	fire extinguisher, 8 sand bucket provided

III) Any other Hazardous chemical or new private sidings : Nil

The petroleum products are being booked by M/s Nayara Energy Ltd. & M/s Reliance Industries Ltd. and Ammonia is booked by M/s GSFC from their respective private sidings and the Petroleum Products unloaded at RGSR Goods shed at IOC depot as such they follow their own Disaster Management Plans inside their sidings.

CHAPTER - 19
MANAGING CROWDS

19.0 Guidelines by NDMA:

National Disaster Management Authority (NDMA) has issued a guide for administrators and organizers of events and venues for managing crowds in 2014. The scope of the guidelines involves study of past crowd disasters, framework for administrators to plan and manage events better, to provide practical guidelines to venue managers and event organizers etc.

19.1 Salient features of NDMA guidelines:

Important aspects of planning for events/places of mass gathering includes understanding the visitors, various stake holders and their needs, crowd management strategies, risk analysis and preparedness, information management and dissemination, safety and security measures, facilities and emergency planning, transportation and traffic management. One of the important points to be kept in mind is the demand and supply gaps. Depending on the type of event, venue and type of crowd expected proper signage have to be planned. Specific focus should be on fire, electrical and structural safety. NDMA has suggested the following guidelines on Incidence Response System.

(i) Systematic and complete planning process.
(ii) Clear cut chain of command.
(iii) System of accountability for the incident response team members.
(iv) Well thought out pre-designed roles for each member of the response team.
(v) Effective resource management.
(vi) System for effectively integrating agencies into the planning and command structure without infringing on the independence of the concerned agencies;
(vii) Integration of community resources in the response effect and
(viii) Proper and coordinated communications set up.

19.2 Crowd control and management:

For effectiveness RPF, GRP and District Police have to act in a synchronized manner in consultation with magisterial authorities. Chapter 10 (Maintenance of Public Order and Tranquillity) of the Criminal Procedure Code (Cr.P.C.) Part-A deals with 'Unlawful Assemblies". Legal procedures are outlined in Sections 129 to 132 of the Cr.P.C. for dealing with Unlawful Assemblies. These provisions empower Members and Officers of Armed Forces (RPF is an Armed Force of the Union) to deal with Unlawful Assemblies.

One of the intelligent video analytics to be incorporated in the Integrated Security System is related to signal for crowd density within station premises when it exceeds the prescribed limit. This will enable RPF personnel and railway authorities to get timely information when heavy crowd builds up within station premises and plan follow-up action. Pictures stored on CCTV system will be of immense help in identifying miscreants and in ensuring effective legal action.

We should prescribe preventive protocols, when laid down footfalls defined separately for important stations become extraordinarily high, as during Melas or other exceptional situations. It may not be out of place to ban all commercial vending and parcel handling on such occasions, supplement exists if possible, and bring more area under illumination.

It is important to press upon the District Magistrate (Dy. Commissioner) or the Civil Police (Senior Superintendent of Police) to give an approximate indication of the number of persons likely to reach Railway stations in the days when rush is expected. Even more important is the number of such persons reaching each Railway station within a one to two hour time slots. Unless this information is given, it would not be possible for Railways to plan special trains. The OD flow of the passenger is very important to plan destination wise running of special trains. It may be kept in mind that often the Inward and outward passenger traffic is not equal; there are wide variations. Further the inward rush comes in a staggered and spaced interval; the outward rush goes back at one go. It would be essential for the Zonal Railway or Division to impress upon the State Government (or the District Magistrate) in writing of their peak capacity to clear rush, as also they can do so only direction wise. The District Administration has to regulate and control the entry of more than this number beyond which (in 1-2 hourly slots) the Railway would be unable to evacuate.

19.3 Role of responsibility of Zonal Railways/Divisions:

Depending upon the past experience, Zonal Railways/divisions should identify events of mass gathering over their system. The events can be of periodic in nature or onetime events where mass gathering of passengers is expected in the station which is beyond the normal capacity that can be handled at that station.

Concerned Zonal Railway/division should have a close coordination with the organizers and law enforcement agencies to understand crowd arrival and departure, their numbers for each such event. Railway administration should identify the threats, assess the risk and plan accordingly. Based on the past experience, a coordinating officer should be nominated for better planning and execution crowd management at the station. He should be designated as incident commander and shall be overall in charge of that particular station. He shall be assisted by staff drawn from the respective departments to discharge his/her functioning.

19.4 Crowd control and Management of rush at Railway Stations:

Specific defined areas of jurisdiction for crowd control and duties assigned to GRP/RPF and the city Police needs to be placed on record much before the expected days of rush. Close coordination has to be maintained between the 3 wings of security personnel Railway Protection Force, Civil Police and GRP with well-defined areas of responsibilities.

The car and other vehicle parking facility at a station may be discontinued; sale of Platform Tickets can also be banned for short period of time. RPF and GRP personnel deployed on each platform will monitor crowds and rush build up in the circulating areas, booking windows, station platforms and mainly on the FOBs. Special teams of commercial staff will liaise with the RPF/GRP and relay 2/4 hourly position to a centralized location viz. commercial control who will advise the need for running of

special trains to specified destination to the operating departments control room.

19.5 Action to be taken for crowd management on western railway:

Adequate deployment of RPF & GRP personnel to be deployed at circulating area, holding area, platforms, booking window, FOBs, extras to monitor the crowd and rush build up.

The following actions should be planned to monitor and manage the crowd:

- There should be separate entry and exit for smooth movement of crowd. It should be ensured that stairs should be used in one direction i.e. ingoing & outgoing crowd should not share the same stairs.
- The flow of crowd should be in unidirectional. There should be no crisscross movement of crowd to avoid stampede like situation.
- Emergency exits should be planned in advance. Preventive protocols, when laid down footfalls defined separately for important stations become extraordinarily high, as during Melas or other exceptional situations, should be prescribed.
- A holding area should be prepared either in Circulating area or outside station building premises, to monitor access control and movement of crowd.
- Sale of platform tickets should be banned during peak days in order to control unwanted crowd.
- Depending on the magnitude of the event the car & other vehicle parking at stations should be discontinued during the peak days.
- The berthing of the train should be planned well in advance and all relevant information should be displayed in holding area, circulating area and at important visible places in the station building. The empty rakes should be placed on platform in locked condition, so that the passengers waiting on the platform do not run / rush to enter in open coaches.
- There should be no change in platform under any circumstances in order to avoid confusion and stampede like situation. Platform should be designated and earmarked for departure of special trains. Regular announcement should be made before placement of empty rake on the platform.
- Ropes, barricades, queue makers etc. should be used extensively at platform entrances, circulating area, FOBs etc. for smooth movement of the crowd.
- Intelligent video analytics should be used in CCTV surveillance to signal crowd density within station premises when it exceeds a prescribed limit. This will enable RPF personnel and railway authorities to get timely information when heavy crowd builds up within station premises and plan follow-up action. Pictures stored on CCTV system will be of immense help in identifying miscreants and in ensuring effective legal action.
- During peak days, parcel handling including loading, unloading and stacking on platforms should be stopped. The loading / unloading may be done in yard / side areas in case of emergency. Movement of handcarts and thelas should be banned.
- The entire station premises should be well lit / illuminated so that miscreant activities are curbed.

- A mini control room which will also act as a Emergency Response Centre should be established close to the premises / area where the crowd is to be monitored. The representatives of RPF, GRP / Police, Commercial, Electrical, Mechanical, Medical and Operating department should monitor the Control room round the clock.

19.6 The Emergency Operations Centre should act as under:

- This Centre will by far possible, be near to the vicinity of the area it is going to control.
- The Centre should be in a safe area where it is not affected by any type of disasters, both man-made and natural, so that it can exercise control over its tasks under all circumstances.
- A Grid Map of the entire area under jurisdiction will be prepared to facilitate accuracy in pinpointing the troubled area and activate appropriate response.
- This map will contain all relevant data like position of volunteers / police, Ambulance, fire services, Medical emergency room, ticket location etc.
- All the staff involved in this activity will have a particular call sign and the grid map person. This will give them leverage in pre-empting a particular activity that ensures safety of the crowd or if they are nearest to the spot. It will aid them in initiating corrective action and feedback to the control centre.
- This Centre will exercise positive control over the crowd movement to and from the event venue.
- This Centre will not act under pressure of any sort from any individual or agency requesting speedy access to event / venue. It will exercise total discretion in allowing the same only if doing so may lead to safety and security concerns.
- The Centre will be the hub for information flow about the crowd movement both inward and outward.
- All emergency support services will be coordinated from this Centre.
- This Centre will exercise direct control over the already parked ambulances, fire services and regulating their movement, in and out of the disaster prone area.
- This Centre will pre-validate and decide the level & distance of accessibility of emergency services in the disaster area to avoid congestion and quick turnaround, there by speeding up movement of aid and vehicles.
- The Centre will also be responsible for validating the main routes for crowd movement and alternative routes (marked as standby for entry and exit.)
- The Centre will exercise / regulate the positioning of food stalls, public facilities, watering points, rest areas and display systems for easing the flow of crowd and their anxiety level.
- The entire communication network i.e. the public address system, wireless setup, display system etc. will be controlled by a dedicated team under the supervision of one competent person, who will in turn report to the Incident commander.

19.7 Duties of Security Department:

Main functions of the Security Department can be broadly classified as:

19.7.1 Liaison with Civil Police:

(i) In case of sabotage, liaison with Local Police & officials of district administration and get early clearance.
(ii) Clearance should be obtained as expeditiously as possible, for starting restoration work.
(iii) Additional manpower should be requisitioned from local police officials and district administration for purpose of crowd control.
(iv) Exemption should be obtained from SP of the district for waiving off formalities of Post Mortem of dead bodies.
(v) Obtain assistance from GRP and Local Police as and when required.

19.7.2 Crowd Management:

The first problem at an accident site is that of surging crowds. Carrying out any kind of rescue and relief operation becomes next to impossible. Railwaymen who try to undertake any kind of rescue and relief work become victims of mob fury.

(i) Cordon off the site and prevent unauthorized entry of outsiders.
(ii) Segregate the area of accident by putting up temporary barriers using nylon ropes or any other makeshift device available at the scene so that outsiders do not disturb the site or hamper rescue operations.
(iii) These barriers should be at quite some distance away from the track, so that UCC, CAC and LCCs are inside the cordoned off area.
(iv) Provided barricade and ask for additional force to control crowd during VIP visit.

19.7.3 Protection of luggage:

(i) Protect unclaimed luggage of passengers till these are duly taken over by commercial department for safe custody.
(ii) Unclaimed luggage of passengers should be isolated and stacked coach-wise, with proper labelling indicating coach no., from which recovered.
(iii) If possible, the cabin number inside the coach should also be indicated.
(iv) All such unclaimed luggage should be protected till they are handed over to claimants or taken over by commercial department.
(v) Unclaimed luggage should be stored in a safe place, preferably, part of the same school building which is being used for preserving dead bodies.
(vi) These should be stored in separate rooms coach wise so that it is easy for relatives to identify.

19.7.4 Protection of railway property:

(i) Protect Railway consignments/goods/parcels till these are duly taken over by commercial department and dispatched to nearest station for proper disposal.
(ii) Guard perishables till they are auctioned off at site or till they are dispatched to nearest station for being auctioned.
(iii) RMS consignments on the train should be shifted to school building for safe custody till Postal Authorities come and take over custody.
(iv) Provide security for the cash withdrawn for payment of ex-gratia by the commercial department.
(v) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed.
(vi) Ensure that no railway staffs tampers with any track fittings, or rolling stock parts.
(vii) Anybody found moving under suspicious circumstances should be questioned.
(viii) No railway staff should be allowed to move about near the accident site with loose or piece meal equipment.

19.7.5 General:

(i) RPF personnel should respond to any call for assistance to rescue victims and transport them to the nearest hospital.
(ii) 3 – hourly Satraps will be updated by field personnel at the scene of incident to the RPF functionary in the UCC giving the latest situation.
(iii) RPF Assistance Post will be established within the CAC so that people needing help can approach RPF.

19.8 Security arrangements Mock Drill:

Regular mock drill must be conducted to check the preparedness and iron out the deficiencies, if any, in the role of responsibility mentioned above.

CHAPTER - 20

DISASTER MANAGEMENT TRAINING

20.0 Disaster Management Training on the Railways:

20.1 National Institute of Disaster Management (NIDM):

National Institute of Disaster Management (NIDM) has been envisaged as apex body on Disaster Management training & research in the country under the Disaster Management Act, 2005. NIDM runs several multi-disciplinary training programmes including the programmes on transportation related disasters in which railway officers have also been invited to attend. Services of NIDM may be made use of, if required, for training railway officials in Disaster Management at IRITM, Lucknow. Most of the States also have DM Training Institutes funded by the Centre.

20.2Training Institutes of Railways:

Indian Railway Institute of Disaster Management, Hejalla, and Bangaluru has been set up and inaugurated in 2019 to play a crucial role in curbing train-related accidents across the country. The Disaster Management Institute and Safety Village in Hejjala, a first such initiative by the Indian Railways, is a unique Virtual Reality Centre, which will simulate real-life disasters. The institute will train railway officials in responding to any disaster situation using the right techniques. Virtual Reality software is also being installed which will enable officials to evaluate the result of the actions taken by them in an emergency situation. This will enable officials undergoing training to experiment with the various methods and means available to tackle an emergency situation and decide the best course of action to handle it. An action plan has been approved by Railway Board that IRIDM, Bangaluru will impart safety training to all working officers. Each officer would have to undergo training at IRIDM to update and upgrade their disaster management skills.

In view of the utmost importance being given to safety, senior officers of Railways are already being imparted special training on "Safety Management" through regular courses conducted by Indian Railways Institute of Transport Management (IRITM), Lucknow to enhance the safety skills and knowledge. IRITM is conducting this course regularly since January, 2018.

Apart from these, Indian Railways have many Central Training Institute (CTIs), Zonal Training Institute (ZRTIs), Supervisor Training Centres etc. where officers, supervisors and staff are imparted training on different specialised subjects.

20.3 DM Training on Zonal Railways and Divisions:

With the enactment of the Disaster Management Act, Indian Railways have also taken several initiatives to revamp Disaster Management training. Presently, training on disaster management of various tiers of railway officials does not envisage newer concepts like integration of disaster management into developmental planning, leveraging on the strengths of other non-railway agencies etc. Till now any training on the subject of Disaster Management implied subjects connected with Train

Accidents only. There was no training given for natural calamities or for terrorism related items. With the adoption of this concept the training requirements for Lower, Middle and Higher Management officials of the Railways needs to be re-oriented to cover these concepts. Hence the subjects of Disaster Management are vaster andvaried.With a viewto strengthen and revamp the Training on Disaster Management being imparted to several tiers of railway officials through Railway Training Institutes; Board has decided the following training schedule:

S.N.	Categories of Officials	New Training methodology and schedule	Action taken
1	Top Level Management (GMs, PHODs, DRMs and other SAG/S4 Officers).	5-day Disaster Management Modules are to be delivered at IRITM/LKO @ once every 3 months. **Frequency of Training:** Once every five years for SG/SAG Officers and above.	Top level management officers will be directed as and when slot for Disaster Management course allotted to this railway from IRITM/LKO.
2	Middle Level Management (SG & JAG officers)	Some of the latest and relevant topics are included in the AMP and MDP programmes being delivered at NAIR/BRC IRITM, LKO is conducting a special module on Disaster Management developed by them **Frequency of Training:** Every SG/JAG officer need to undergo the module once every five years either at NAIR as regular MDP/AMP course or special DM module at IRITM.	Middle level management officers will be directed as and when slot for Disaster Management course allotted to this railway from IRITM/LKO. or NAIR/BRC
3	Lower Level Management (SS & JS officers including serving Group B officers).	Disaster management training to be imparted at IRITM/LKO **Frequency of Training:** Once every five years.	Lower level management officers will be directed as and when slot for Disaster Management course allotted to this railway from IRITM/LKO, NAIR BRC & IRIMEE/JMP.
4	Probationers and Group B officers attending induction courses	Topics listed in annexure 4 of detailed instructions are to be covered during the regular training programme at NAIR/Vadodara. **Frequency of Training:** As part of the course.	Probationers officers including group B will be directed as and when slot for Disaster Management course allotted to this railway from IRITM/LKO,NAIR BRC & IRIMEE/JMP.
5	Supervisors of all frontline departments	One-week course at ZRTIs **Frequency of Training:** Once every five years.	All frontline supervisors and staff are being imparted training once in every 5 years.

	(Mechanical, Electrical, Engg., S&T, Traffic Comml. &Optg.)		Training of Disaster Management has been given to all supervisory staff of Security Department in initial training and promotion course. Disaster Management training will be given to the supervisory staff once in a five year. Medical department is giving training to all the staff as and when directed by the Department of training.
6	Railway Staff on board passenger carrying train (TS, Dy.TS, TTEs & catering staff of Commercial Department, Coach attendants and AC Mechanics from Electrical Departments, some of the selected coach cleaners of Mechanical Departments, some of the RPF escorting staff and catering staff of contractor wherever out-sourced).	Disaster Management being a multidisciplinary effort during field operations, training in groups of such on board staff is more desirable and efficient then training them category wise. Role of on board railway staff has been a matter of great criticism in most of the serious train accidents. On board staff are the first railway representatives to respond to any untoward incident and their empowerment will improve railways response in a big way. Such staff is to be trained in appropriate multidisciplinary groups at such locations in the divisions where there is concentration of such staff to obviate the need for their hostel accommodation, non-availability for longer periods, etc. Such training can be imparted at the selected country-wide locations to cover maximum number of staff in short period of time. This training can also be	• Traffic and commercial supervisors &front line staff training is being ensured by a 6 days training module at Training institute Udaipur. • Disaster Management training given all RPF staffs at the time of their initial and promotion training course. Staff will be directed as and when slot allotted to this railway. • All Electrical/Mechanical on board railway staff are being inspacted training once in every 3 years.

		imparted in the Customer Care Institute. Only few select staff of Mechanical, Electrical (AC), RPF is to undergo this training who are deputed to escort trains. This training will be made mandatory in a phased manner for any staff to go on-board a passenger train. The staff of catering contractor is also to be imparted this training in Phase 2 to leverage their physical presence. **Frequency of Training:** Once every three years.	
7	Nominated ARMV and ART staff of Mechanical and Medical departments	Composite training of Mechanical and Medical Staff for relief and rescue operations is planned to be given at upcoming disaster management railway institute at Bangalore. Doctors and paramedics nominated for ARMVs and other rescue operations should be exclusively trained on trauma care management either at some nominated specialised institutions or in-house. IRITM is one of the Training Institutes under consideration. Frequency of Training: Once every three years.	• Composite training of Mechanical and Medical Staff for relief and rescue operations is will be ensured when disaster management railway institute at Bangalore functional. • All medical officers, paramedics who are nominated for ARMV are well trained in Trauma Care Management. However, there is no separate institute available at present for such training in the railway. • Composite training of Mechanical and Medical Staff for relief and rescue operations has not yet started. Mechanical Department has applied for tie-up with Disaster Management Institute at Bangalore but it isyet to finalize.
8.	Disaster management team of RPF staff & other RPF personnel associated	As per recommendation no. 46 of HLC on disaster management there should be a disaster management team of RPF on each division comprising about 15 men in	Training of Disaster Management team of RPF comprising about 15 men as per recommendation no. 46 of HLC on disaster management will be directed once in every

	with relief rescue operations.	different ranks. Such teams should be trained in providing necessary support on relief rescue operations. The existing 5 day training module should be appropriately revised to make it suitable to achieve the above objective. Each of the above teams should be trained on this module at RPF Academy at Lucknow. In addition, training module may be appropriately developed separately for RPF Officers and staff and should be imparted at RPF Academy at Lucknow. The respective training modules should include role of RPF at the accident site, security at the railway premises like railway stations, trains etc. **Frequency of Training:** Once every three years for disaster management team of RPF.Once every five years for other subordinate officers and staff (other than disaster management team members. In addition, (i) At least 10% of the RPF personnel may be got trained in a training module of a minimum duration of 15 days with NDRF by GMs/Zonal Railways. (ii) All outdoor instructors of RPF zonal training centres and RPF Academy, Lucknow, may be trained in training of trainers (ToT) course in disaster management over a period of 2 years by a national training institute nominated as nodal training institute for	3 years as and when vacancies allotted to this railway by JR/RPF Academy, LKO.

		disaster management like NISA, Hyderabad. Coordination may also be done with NDRF to obtain the list of necessary resources and equipment along with their Quality Regulations & Trail Directives (QR/TD). The RPF Disaster Management Team will be equipped with these equipment and will be imparted the know-how to operate and maintain these equipment in association with NDRF.	
9	RPF Officers	Disaster Management training for RPF officers may be also organized in IRITM till such time the capability in RPF academy is developed. **Frequency of Training:** Once every five years for other RPF officers and staff.	04 RPF officers have already been attended Disaster Management course. Officers will be directed as and when nomination for Disaster Management course received from IRITM/LKO and JR/RPF Academy, LKO.

Mechanical(Traction) is the Nodal Directorate in Railway Board for Train Accident Management which includes all aspects of Policy on ART/ARME/Cranes and rescue, extrication, firefighting equipment etc. A nodal Training Institute for specialized rescue/extrication etc. for officers and for subordinates and a Safety Village are being set up in Bengaluru; the work on this Institute is being coordinated by Mechanical (Traction) Dte. Railway Board.

Respective Training Institutions on each zonal railway will ensure that the modules prescribed above are institutionalized and officials are imparted training to build capacity of human resource in disaster management.

20.4 Full scale mockdrill:

Disaster Management essentially necessitates a state of preparedness under all circumstances and the efficacy of arrangements therein can be assessed only by conducting periodical full scale mock drills.

During this exercise of Mock Drill or Rehearsal, past incidents occurred to be kept in mind. Each exercise should be monitored by a member of independent observers located at various positions.

(A) Objective of the full scale mock drill would beto

(i) GaugethepreparednessofDMsystemincludingdetailedplanningandkeeping of all equipment in goodfettle.

(ii) Integrate the operational response to measure overall performance the exercise.

(iii) Measure performance with regard to accidentrestoration.

(iv) Onadivision, thefirstmockdrillshouldbeconductedwithin3monthsofissue of the Divisional Disaster ManagementPlan.

(v) On a division, the second mock drill should be conducted3monthsafter the firstone, inordertocorrectallshortcomingsnoticedduringthefirstmockdrill.

(vi) Thereafter, mock drills shall be conducted once every 2 years after the new DRM takesover.

(vii) It should be conducted during the day and in a branch linesection.

(viii) 6 hrs. Traffic block shall be taken and the ARME/SPART / ART run out to the accidentsite.

(ix) UCCandCACshouldbesetupandeach departmenttwillpoststheirfunctionaries in the Control Office as also in UCC andCAC.

(x) All facilities should be provided in UCC and CAC by departmentsconcerned.

(B) During these full scale mock drills, following aspects shall be closely watched

(i) Turning out of ARME/SPART / ART within the prescribedtime.

(ii) Speed of thespecials.

(iii) Assembly ofstaff.

(iv) Handling of ART, ARMEs/ SPARTs and other rescueequipment.

(v) Logging ofevents.

(vi) Functioning of field telephones and communicationnetwork.

(vii) Functioning of generator sets, lightingequipments.

(viii) Preparedness of first-aiders and availability of medicalequipment.

(ix) Preparedness of commercial department to mobilize adequatemanpower.

(x) On completion of the drill, a detailed report shall be prepared detailing deficiencies noticed, corrective measures initiated and improvementsrequired.

CHAPTER - 21
NDMA GUIDELINES ON INCIDENT RESPONSE SYSTEM

21.1 DISASTER RISK IN INDIA:

India is vulnerable, in varying degrees, to a large number of natural as well as man-made disasters. As stated in the National Policy on Disaster Management, 2009, in India, 58.6 per cent of the landmass is prone to earthquakes of moderate to very high intensity; over 40 million hectares is prone to floods and river erosion; of the 7516 Kms long coastline, close to 5,700 kms is prone to cyclones and tsunami; 68 per cent of the cultivable area is vulnerable to drought and hilly areas are at risk from landslides and avalanches.

21.2 OVERVIEW OF INCIDENT RESPONSE SYSTEM:

The Incident Response System (IRS) is an effective mechanism for reducing the scope for ad-hoc measures in response. It incorporates all the tasks that may be performed during DM irrespective of their level of complexity. The main purpose of these Guidelines is to lay down the roles and responsibilities of different functionaries and stakeholders, at State and District levels and how coordinates with the multi-tiered institutional mechanisms at the National, State and District level will be done. It also emphasizes the need for proper documentation of various activities for better planning, accountability and analysis. It will also help new responders to immediately get a comprehensive picture of the situation and go in for immediate action.

21.3 IRS ORGANISATION:

The IRS Organization functions through Incident Response Teams (IRTs) in the field. In line with our administrative structure and DM Act 2005, Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response management. The RO may however delegate responsibilities to the incident Commander (IC), who in turn will manage the incident through IRTs. The IRTs will be pre-designated at all levels; State, District, Sub-Division and Tehsil/Block. On receipt of Early Warnings, the RO will activate them. In case a disaster occurs without any warning, the local IRT will respond and contact RO for further support, if required. A Nodal Officer (NO) has to be designated for proper coordination between the District, State and National level in activating air support for response.

21.4 FEATURES OF IRS:

IRS is categorized with features like management by objectives, unity of command and Chain of command, Organizational flexibility, span of control, unified command, accountability, Resource management, etc.

21.5 SUMMARY OF ACTION POINTS:

IRS constitutes an important part of the Disaster Response at the State and District level. These Guidelines will help the States and the Districts in their disaster response. It will also help to reduce chaos and confusion during response. Everyone will know all has to be done and who is in command. The important thing is to get the team members trained in their respective roles. A time bound strategy with fixed responsibilities is essential to achieve this objective.

CHAPTER - 22
DISASTER MANAGEMENT SYSTEM, STRATEGIES, CRITICAL ACTIVITIES AND AVAILABLE RESOURCES

22.0. Disaster Management system and strategies on Indian Railways:

The Indian Railways is having an organized system of relief for managing accidents with its own resources. Details of procedures and systems have been laid down in the Accident Manuals of the respective Zonal Railways. Each Zonal Railway has its own Accident Manual for dealing with Railway accidents and unusual occurrences. The manual contains various definitions of the terms used in accident management. Accidents have been classified into various types and categories depending upon the seriousness of the accident. Preparedness to manage accidents is also detailed in the Accident Manual by way of details and Accident Relief Cranes their beats, inspection schedules, turnout times, etc.Presently there are 96 Nos. Cranes (73 Nos. of 140 T, 5 Nos. of 120 T and 18 Nos. of 35 T Cranes over Indian Railway system.

Presentlyin Western Railway there are 4 Nos. of 140 TCranes are available.Details of Accident Relief Cranes their beats, inspection schedules, turnout times and locations all over western railway is given as below:

Details of Accident Relief Cranes with capacity, location , their beats, inspection Schedule & turnout time

S. N	Division	Class of ARTs	Location of ARTs	Crane capacity	Max. Speed (kmph)	Beat	Inspection Schedule	Turn out time
1	Mumbai Central	A	UDN	140T Diesel Hydraulic	100	UDN-CCG, UDN-BRC, UDN-PLD	Daily, Weekly, Monthly, Half yearly & Yearly	During day: 45" During night: 60"
2	Ratlam	A	RTM	140T Diesel Hydraulic	100	NDA-GDA, RTM-FTD-IND.	Daily, Monthly, Half yearly & 2Yearly	During day: 45" During night: 60"
3	Ahmedabad	A	KKF	140T Diesel Hydraulic	75	GER-GNC, CLDY-SIOB, KHD-PNU, PNU-SIOB, VG-MSH, MSH-PTN	Weekly, Quarterly, Monthly, Half yearly & Yearly	During day: 45" During night: 60"
4	Rajkot	A	RJT	140T Diesel Hydraulic	100	SUNR-RJT-OKO, WKR-NLK-MALB, KNLS-PBR, RJT-VRL, JAM-WML	Daily,Monthly, Half yearly, Yearly, 2Yearly & 3 Yearly	During day: 45" During night: 60"

22.1 Areas of Focus on Disaster Management:

The main areas of focus on disaster management are:-

a) Faster Response
b) Better facilities and equipment
c) Expanding resources to meet requirements in major accidents
d) Better customer focus
e) Training and Preparedness
f) ART management to undergo major changes covering rolling stock management, status of equipment, monitoring of utilization of assets and availability and consumption of stores etc.

22.2 Critical Activities for Disaster Management:

- 161 ARMVs and 241 Accident Relief trains ARTs, are positioned at strategic locations which cover the entire rail network of Indian Railways for rushing to accident sites on top priority, along with doctors, para medical staff, rescue workers and engineers. 97 of ARTs also have Diesel Hydraulic cranes attached to them.

  The details of ARMEs& ARTs with their strategic locations which over entire network of western railway for rushing to accident sites on top priority, along with doctors, para medical staff, rescue workers and engineers. is as below:

Details of ARMVs, ARTs of Western Railway with Rescue workers & Engineer								
Sr. No.	DIVISION	ARMVs			ARTs			
		Location of	Class	Max. Speed (kmph)	Location.	Class	Crane capacity	Max. Speed (kmph)
1	Mumbai	Mumbai Central (BG)*	Scale-I ARME	110	--	--	--	--
3		Valsad (BG)	Scale-I ARME	110	BL C&W Depot	B	--	100
4		Udhna (BG)	Scale-I ARME	110	UDN C&W Depot	A	140 T Diesel	100
5		BA DSL Shed (BG)	SPART (Scale-I ARMV)	105	SPART	B	--	105
6		--	--	--	NDB	C	--	100
7	Vadodara	BRCP yard (BG)	SPART (Scale-I ARMV)	105	SPART	B	--	105
8		--	--	--	BRCY C&W Depot	B	--	100
9	Ratlam	--	--	--	RTM C&W	A	140 T Diesel	100

					Depot			
		Ratlam (BG)	SPART (Scale-I ARMV)	105	SPART	B	--	105
10		Ujjain (BG)	Scale-I ARME	110	UJN C&W Depot	B	--	100
11		Chittaurgarh (BG)	Scale-I ARME	110	COR C&W Depot	B	--	100
12		--	--	--	DHD C&W Depot	C	--	100
13		Dr. Ambedkar Nagar (Loco Shed) (MG)	Scale-I ARME	75	Dr. Ambedkar Nagar (Loco Shed) (MG)	B	--	50
14	**Ahmedabad**	--	--	--	KKF Loco Shed	A	140 T Diesel	75
		Ahmedabad (BG	SPART (Scale-I ARMV)	105	SPART	B	--	105
15		Gandhidham (BG)	Scale-I ARME	110	GIM C&W Depot	B	--	100
16		Palanpur (BG)	Scale-I ARME	110	-	-	--	-
17		Sabarmati (MG)	Scale-I ARME	75	SBI Loco Shed	B	--	50
18	Rajkot	Rajkot (BG)	Scale-I ARME	110	RJT Loco Shed	A	140 T Diesel	100
19		Hapa (BG)	SPART	105	SPART	B	--	105
20	Bhavnagar	Bhavnagar (BG)	SPARME	105	BVC C&W Depot	B	--	100
21		Porbander (BG)	Scale-I ARME	110	--	--	--	-
22		Jetalsar (MG)	Scale-I ARME	75	JLR Loco Shed	B	--	50

* Shifting of Scale-I ARME-BCT to NDB has been sanctioned

A-Class ARTs: Breakdown gang of 43 staff, out of which 15 Staff (Diesel Mechanic, Diesel Electrician, Fiter, Khalasi) utilized exclusively for Maintenace of Crane and 1 SSE (Senior Section Engineer).

- ARTs and ARMVs are equipped with rescue and relief equipment. These are located so as to cover an area not beyond a distance of 150 to 200 kms within 2 to 3 hours normally. Sometimes, the ARMV may take upto 4 hours to reach the accident site in a remote area. In addition, there are 320 stationary Accident Relief Medical Equipment (ARME) – Scale II consisting of three sets of Portable Medical Kit for Accidents (POMKA) units positioned at identified stations, placed 80-100 kms. Apart in between ARMVs.

- In addition to the recommended list of ART Tools and Equipment, 13 additional items have been recommended by a Committee for adding to the ARMV/ART which includes Life Detector, Scene Tape, Rope manila Nylon, Safety cone, stretcher folding, MFR Kit with Splints, Breathing apparatus set, Portable DG sets, Higher capacity hydraulic, Portable Plasma cutting equipment for cutting stainless steel coaches, Portable Defibrillator, Abrasive cutting equipment and Life Jackets, etc.

  The details & status of recommended list of ART tools and equipment as recommended committee is as below:

	Details & Status of the 13 additional equipment for inclusion in ART/ARMVs recommended by the HLC review committee									
Sr. No	Description of equipment	Qty	To be kept in	Divisions						Remarks
				BCT	BRC	RTM	ADI	RJT	BVP	
1	Life detector	1 No.	ARMV	Not available	Not available	Not available	Not available	Not available	Not available	COFMOW has been advised to prepare specification of Life detector including estimate cost for centralized procurement vide RB's letter No. 2003/M(M&P)/7/ DM (Status) / Pt Dt .21.06.2013. DME P (II)/ Rly. Bd vide letter No 2003 M (M& P)/7/2/Vol. II dated 22.12.15 advised all ZRs to take assistance of NDRF in case of accidents/emergencies, if needed
2	Scene tape	6 Rolls	ART & ARMV	Provided	Provided	Provided	Provided	Provided	Provided	Already provided as per HLCR No.72 "Barrier Tape"

3	Rope manila Nylon 100m	1 No.	ART & ARMV	Provided	Provided	Provided	Provided	Provided	Provided	----------
4	Safety cone	6 Nos.	ART & ARMV	Available	Available	Available	Available	Available	Available	----------
5	Stretcher folding	9 Nos.	ARMV	Available	Available	Available	Available	Available	Available	
6	MFR Kit with splints	5 Sets	ARMV	---	---	---	---	---	---	Pertains to Medical Dept. Board has decided to defer the item at present vide letter No. 2003/M(M&P)/ 7/DM (Status) / Pt Dt.31.12.2012
7	Breathing apparatus	1 No.	ART	Provided	Provided	Provided	Provided	Provided	Provided	----------
8	Suitable portable DG set	1 Set	ART & ARMV	Provided	Provided	Provided	Provided	Provided	Provided	----------
9	Abrasive cuting equipment	1 Set	ART & ARMV	Provided	Provided	Provided	Provided	Provided	Provided	----------
10	Higher cap. HRD for SS Coaches	1 No.	ART & ARMV	Not available	Not available	Not available	Not available	Not available	Not available	Divisionwise Procurement status are as under
	BCT Division :		6 Sets U/P	6 Sets U/P	2 Sets U/P	6 Sets U/P	7 Sets U/P	3 Sets U/P	3 Sets U/P	
11	Portable Plasma Cutting Equipment	1 No.	ART & ARMV	Not available	Not available	Not available	Not available	Available	Not available	Divisionwise Procurement status are as under
	BCT Division :		6 Sets U/P	6 Sets U/P	2 Sets U/P	6 Sets U/P	7 Sets U/P	3 Sets U/P	3 Sets U/P	
12	Portable defibrillator	1 No.	ART	Available	Available	Available	Available	Available	Available	Pertains to Medical Dept.
13	Life jackets	100 Nos.	ART	Available	available U/P	Not available at COR U/P for UJN & DADO	Available	Available	Available	Division wise Procurement status are as under

- On receiving information of an accident, the ARTs and ARMVs are dispatched to the accident site along with personnel trained in rescue and relief operations. ARMVs and ARTs are powered by locomotives brought from line in case of accidents/ derailments. To avoid delay in arranging locomotives,

Self Propelled ART was developed first time in 2001 indigenously by Rail Coach Factory (RCF), Kapurthala. This concept has been extended to Self Propelled ARMV also. 52 Self Propelled ARTs and 11 Self Propelled ARMVs (manufactured at RCF, Kapurthala and ICF, Chennai), are working on IR network and more are being manufactured at ICF, Chennai so as to provide one per division as per High Level Committee on Disaster Management.

The details of selfpropelled ART & ARMEs (SPART &SPARME) with their strategic locations over entire network of western railway is as below:

Details of SPARTs (B-Class ARTs cum Scale-I ARMEs) & SPARME (Scale-I ARME) of Western Railway						
Sr. No.	DIVISION	SPARTs (Scale-I ARMEs)		SPART (B-Class ARTs)		
		Location of SPARTs & SPARME.	Class of ARMEs.	Location of SPARTs.	Class of SPARTs.	Max. Speed of ART (kmph)
1	Mumbai Central	BA DSL Shed (BG)	SPART (Scale-I ARME)	SPART (B-Class ART)	B	105
2	Vadodara	BRCP yard (BG)	SPART (Scale-I ARME)	SPART (B-Class ART)	B	105
3	Ratlam	Ratlam (BG)	SPART (Scale-I ARME)	SPART (B-Class ART)	B	105
4	Ahmedabad	Ahmedabad (BG	SPART (Scale-I ARME)	SPART (B-Class ART)	B	105
5	Rajkot	Hapa (BG)	SPART	SPART (B-Class ART)	B	105
6	Bhavnagar	Bhavnagar (BG)	SPARME (Scale-I ARME)	-----	--	105
* Status: Service of all SPARTs & SPARME are up to the level to meet an emergency						

- Unlike many other countries where local bodies such as Fire Brigade, Police, Health Services and Civil Defence Organizations etc. are responsible completely for rescue and relief operations during railway accidents, Indian Railways has an organized system of relief and rescue operations for managing accidents mainly with its own resources. The local administrations; however has the responsibility to support Railways.
- Preparedness to manage accidents is detailed in the Accident Manual of each Zonal Railway. It also contains detailed procedures, duties of various Railway Officials, details of rail-mounted relief and rescue equipment i.e., Accident Relief Medical vans (ARMVs) and Accident Relief Trains (ARTs) along with items contained therein, their beats, inspection schedules, turnout times, etc.
- ARTs and ARMVs are rail mounted and located at stations where Railways have suitably trained staff. Movement to the site depends upon operational

conditions. Many a time Railway doctors, para-medics and other officials reach site of the accident by road, earlier than ART/ARMV.

- Target time for dispatch of ARMVs is a maximum 20 minutes from double exit siding and 30" from single exit siding after their ordering. Target time for dispatch of ARTs is a maximum of 60 minutes from their ordering.

- As Accident Relief Train may take upto 3 hours to reach a remote accident site, the resources available near the accident site are very important and pooled for immediate relief and rescue:

  1. On board staff eg. Loco Pilot, Assistant Loco Pilot, Guard, Commercial Staff, Pantry staff, Carriage and Wagon/Electric staff etc.
  2. Staff nearby accident site eg.Gang men, Station staff etc.
  3. Help from local people in nearby vicinity.
  4. Local administration eg. Civil administration, Police, Health, Fire etc.
  5. National Disaster Response Force
  6. Air Force/Military services

  It is seen that by pooling the resources of local, state and central government and help from local people, effective disaster management can be done during the Golden Hour. Casualties/injuries is reduced effectively with integration of resources belonging to all the stakeholders for managing disasters.

- The main activities undertaken by Railway administration at accident site are:

  - The medical team participates in rescue and stabilisation of injured passengers; those seriously injured are transported to nearby hospitals.
  - The cost of such treatment is borne by the Railways. Deaths are certified by doctors and dead bodies are handed over to Police for further action such as autopsy etc. for medico-legal purpose.
  - Railway doctors are deputed to the hospitals where the injured are admitted, to render necessary assistance, including supply of required medicines, etc.
  - In addition to the above own resources, nearby ambulances and doctors with paramedics, fire brigades; other necessary resources are also requisitioned as per need for expeditious operations.
  - Information like names, addresses and telephone numbers of nearby hospitals, local police, fire brigade, and officials of Civil Administration etc are available at Stations/Divisional controls and immediate relief is sought at the time of accident.
  - In case of serious accidents involving passengers, National Disaster Response Force (NDRF) is also requisitioned. 24X7 control room of Ministry of Home Affairs (MHA) or the control room of concerned ministry is contacted for mustering help from defence services including help of Air Force.

- Relief trains are arranged for clearing stranded passengers.
- Arrangements for supply of meals, drinking water, and beverages etc. are made not only for the injured, but also to other passengers of the affected trains.
- Once affected passengers are attended, accident site is restored back to normal traffic with the help of break-down cranes, hydraulic rescue equipment, etc.
- The accident inquiries are conducted within a time frame and preventive/corrective actions are taken accordingly.
- Timely information is given to the press to avoid misreporting and speculation about the casualties and the cause of the accident.

- Disaster Management at Divisional, Zonal and Ministry level are integrated with each other, and are comprehensive and fully prepared to handle disasters.

22.3 Rescue and Relief System on Indian Railways:

The Indian Railways is having an organized system of rescue and relief operations for managing accidents with its own resources. Details of procedures and systems have been laid down in the Accident Manuals of the respective Zonal Railways. Each Zonal Railway has its own Accident Manual for dealing with Railway accidents and unusual occurrences. The manual contains various definitions of the terms used in accident management. Accidents have been classified into various types and categories depending upon the seriousness of the accident. Preparedness to manage accidents is also detailed in the Accident Manual by way of details of Accident Relief Medical vans (ARMVs) and Accident Relief Trains (ARTs), equipment contained therein, their beats, inspection schedules, turnout times, etc. The Accident Manual also lists the information to be maintained at the stations, like names, addresses and telephone numbers of nearby hospitals, local police, fire brigade etc. It also details various records and information to be maintained in the Divisional Control, like railway and non-railway hospitals, ambulance services, firefighting arrangement, contact information of officials of Civil Administration, road maps etc. for ensuring expeditious mustering of resources at the time of accidents. It also prescribes in details the duties of various railway officials and concerned departments to be discharged in managing accidents. The types of accident inquiries, their procedure and timeframe etc. for holding the inquiry are also detailed. It also prescribes the methodology of acceptance and disposal of the accident inquiry reports.

Steps are taken to provide prompt and effective relief to the affected passengers in the event of any serious train accident involving deaths. The senior-most officer at the accident site takes full charge of the situation, and supervises the overall relief operations. Special inquiry booths are opened at originating, terminating and important stations en route. The affected passengers and their relatives are treated in order to alleviate their trauma and discomfort. Railway doctors are deputed to the hospitals where the injured are admitted, to render necessary assistance, including supply of required medicines, etc. Arrangements for supply of meals, drinking water, and beverages etc. to not only the injured, but also to other passengers of the affected trains are organized. STD-equipped telephones are made available to passengers, to enable them to communicate with their relatives. Officers and Inspectors are also deputed to contact the affected passengers and

assist them in their onward travel. Special care is exercised to collect and provide security to the belongings of all passengers. Relief trains are arranged for clearing stranded passengers. A thorough and unbiased investigation into the adequacy of the relief measures is made after every serious accident. Crash courses on 'Disaster Management' for officers and staff at all levels are organized to sustain awareness of the importance of the situation. Timely information is given to the press to avoid misreporting and speculation about the casualties and the cause of the accident.

22.4 Responsibility for Rescue and relief Operations:

Unlike India, in many countries, local bodies such as Fire Brigade, Police, Health Services and Civil Defence Organizations etc. are responsible for rescue and relief operations during railway accidents. The Indian Railways has occasionally been criticized that the railway rescue teams reach the accident site later then the local people. As the railways are spread out over a vast geographical area, it is humanly not possible to maintain rescue and relief equipment and teams at every station. ARMVs can only be located at stations having adequate medical back-up facilities. At times it takes some time for the relief teams and equipment to reach the accident site from the nearest railway rescue facility, depending upon the accessibility to the accident site. Further, consequent to the Disaster Management (DM) Act coming into force, National Disaster Response Force (NDRF) has been constituted at different locations throughout the country. NDRF is a force specialized in handling rescue and relief operations in all types of disasters in the country and Railways take their help in major accidents involving passenger trains.

22.5 High Level Committees on Disaster Management on Indian Railways:

- Constituted by the Ministry of Railway in September 2002.
    - To review the existing DM system over IR related to train accidents and natural calamities and to suggest improvements.
    - To identify additional technological and managerial inputs to quicken pace of relief and rescue operations.
    - To institute a standing arrangement with other central Ministries, State government and armed forces to enable quick and smooth restoration operations without any legal or procedural hurdles.
- All 111 recommendations have been accepted by MR in March, 2003.
- The financial implications of implementing these recommendations were estimated to be around Rs. 400 crores.
- 8 recommendations have been dropped by appropriate authority.
- 104 recommendations have been implemented.
- Balance 07are under implementation.
- 111 recommendations can be broadly grouped in 5 groups.
    - Faster response.
    - Better facilities and equipment-technological inputs.
    - Expanding resources.
    - HRD

- Other logistics.

Another Disaster management review committee was appointed on 27.02.07 under the chairmanship of Shri GajendraNarain, an ex-IPS officer with the following terms of reference:

i) Comprehensive study and audit of current preparedness and management practices referring to all types of disasters/hazards for different phases of disaster management i.e. prevention, mitigation, rescue, relief and rehabilitation;
ii) Suggest ways and means for integration of disaster reduction concept into development planning;
iii) Identify the recommend areas needing development of multi-stakeholder partnership and citizen participation with a view to establish a coordinated mechanism for disaster reduction, response and rehabilitation;
iv) Study existing statutory provisions for effective disaster management on IR and suggest changes, if any;
v) Suggest best suited management structure for effective delivery along with enabling tools; and
vi) Suggest any other measures which committee may consider appropriate within the scope of disaster management.

The Committee gave 106 recommendations, out of which recommendation no. 2 has three parts (A, B & C), thus actually there are 108 recommendations, out of which 41 recommendations have been accepted and 67 have not been accepted. Out of the 41 accepted recommendations, 40 have already been implemented and only 1 is under implementation.

An Expert Group committee for Modernization of Indian Railways was constituted by Ministry of Railways which submitted its report in February, 2012. The Committee recommended for up gradation of Disaster Management facilities which inter-alia included provision of high speed self-propelledAccident Relief Trains and Medical Vans, Road Cum Rail Vehicles for accident relief, 175 T cranes, setting up of Disaster Management and other Training Centres.

22.6 Disaster Management Plans:

The High Level Committee on Disaster management over Indian Railway stipulated that each Zonal Railway and Division must write its disaster Management Plan dovetailing the same with concerned State Government/District. The Disaster Management Plans are to be prepared to ensure proper coordination and mutual co-operation among Divisions and Zonal Railway Authorities with the state/District authorities in managing severe accidents in the Indian Railways and disasters ingeneral. The Railway should also be fully aware of the local, civil, army and other resources available for supplementing the Disaster Management efforts as and when required. The Disaster Management Plan must include who is responsible for what activities in detail, to ensure the basis steps as below:

- Rapid access to the site of the accident.

- Effective site management by making best use of on-board and locally available resources.
- Quick extrication of victims.
- Speedy transportation of victims to hospital.
- Proper communication system both for assisting the stranded passengers as well as giving out timely information to the media.

In compliance to the above instructions of the Railway Board, all 17 Zonal railway Headquarters and 68 divisions have prepared their respective Disaster Management Plans. Zonal Railways have also hosted their Disaster Management Plans on the Rail net for the widespread sharing.

22.7 Measures to prevent accidents:

22.7.1 Signaling:

(a) Track Circuiting:

Track Circuit is one of the most important safety aids provided at the stations, which has reduced collisions in station area. A major thrust was given to track circuiting at stations. In the last five years, on an average 1000 locations per year have been provided with track circuits and 99% of the stations on A, B & C routes (100%, 99.8% and 99.5% respectively) and 96.6% of all BG routes have been covered so far. Plan to provide this device at all stations, mostly on Branch lines, is in place.

(b) Provision of Centralized Operation of Points and Signals by Electrical/Electronic Interlocking with MACLS is the most important system for safety, efficiency & flexibility in yard operation and for incremental line capacity and has been steadily provided on Indian Railways. Route Relay/Panel/Electronic Interlocking (RRI/PI/EI) along with MACLS have been provided at about 5557 stations (87% of total stations on BG route). Replacement of old outdated, multi-cabin mechanical signaling equipment are required to be replaced and upgraded by using electrical/electronic interlocking system in a phased manner.

(c) Elimination of Semaphore Signalingis necessary for improving visibility and efficiency of signaling system on these stations. There are 382 stations on IR network which are equipped with Semaphore Signaling. Out of these, 194 stations are on BG network. These stations are taken up for elimination of Semaphore Signaling by Colour Light Signaling with Centralized Panel Interlocking.

(d) Provision of Isolation and Elimination of Rudimentary Interlocking and Up-gradation of Standard Interlocking has assumed importance with growing traffics and speeds after a few serious accidents took place in recent years. Yard layouts and the corresponding signaling system at some

stations requireup-gradation. Main line is not isolated for run through trains and complete track circuiting is not available resulting in imposition of speed restrictions in Yard and at times, an unsafe situation is created. Up-gradation of Standard of Interlocking with provision of Standard layout with Isolation will be completed at the earliest.

(e) Token Ball Instruments

Token Ball Instruments are outdated equipment still in use on Indian Railway network. A decision in this regard has been taken to eliminate Token Ball Instruments by Token less Block Working within a time frame of 3 years (March 2019). There are 513 Block sections having 1026 Block Instruments on BG network which are planned to be eliminated.

(f) Block Proving by Axle Counters

All new works of Panel Interlocking (PI)/(EI) will be provided with Block proving by Axle counters device, to prevent collisions in the block sections due to some `parted' load being left out. BPAC devices at existing PI/EI/RRI stations are planned to be completed during XII Plan.

(g) Centralized On-line Monitoring, Predictive Maintenance and Asset Management System with Digital Mapping for every signaling installation to improve system availability besides providing event analysis tools and effective train management.

(h) Train Management System (TMS) is another area of technology upgradation for Centralized Monitoring and Management of Train traffic already functional on Mumbai Suburban section of Western Railway and Central Railway.

22.7.2 Train Protection Warning System (TPWS):

To eliminate Signal Passing At Danger (SPAD), an human error, this system has been provided as pilot project on certain stretches of 242 Route Kilometres(RKMs). No TPWS Provided in Western Railway.

22.7.3 Train Collision Avoidance System (TCAS):

TCAS, a multivendor product is being developed indigenously by RDSO for Collision Prevention as well as Protection against Signal Passing at Danger (SPAD) by loco pilot. RDSO has finalized the specification of TCAS and proof of concept trials have been carried out during October/November, 2012. Extended trials on 250 Kms section on South Central Railway are to be conducted by RDSO. Based on successful conclusion of extended trials and Safety Certification of TCAS by

Independent Safety Assessor (ISA), further deployment on Indian Railways will be considered.

22.7.4 Continuous Track Circuiting with Automatic Block Signaling:

Continuous track circuiting not only helps in improving the capacity with automatic block signaling where more than one train can be sent in a block section but also improves safety by interlocking all level crossing gates on the section with signals. Since the Golden Quadrilaterals along with its diagonals on the IR carry the maximum traffic, it is proposed to provide continuous track circuiting on priority on these sections.

22.7.5 Mobile Train Radio Communication:

Mobile Train Radio Communication (MTRC) system has an intrinsic potential in enhancing the safety and security in train operations, besides being a valuable aid in providing reliable and secure communication to all those engaged in different facets of railway operations and maintenance functions. MTRC works have already been commissioned on 2461 RKMs on IR and are in progress on 2100 RKMs.
In western railway MTRC for Mumbai Suburban section between Churchgate - Virar, work in Progress.
MTRC for Mumbai Central - Nagda& Vadodara - Ahmedabad is approved under mission Raftar.

22.7.6 Rail Fracture Detection System:

Rail/weld failures are potential safety hazards. Advanced Railway systems are using the systems, which alerts all concerned in case of failures and train operations are controlled to prevent consequential train accidents. No such system is available on IR. Suitable technology will be developed in association with advanced railway systems for use on IR. A trail of Broken rail detection system on NR & NCR on 25 Kms track length in each has been undertaken. After successful trial, this system will be progressively installed on other important routes.

22.7.7 Wheel Impact Load Detector (WILD):

WILD is used to manage the wheel impact load spectrum for targeted removals of defective wheels from service. The WILD continually monitors locomotives and vehicle wheels health to ensure safe train operations. In WILD system, if any wheel generates a force that exceeds a tailored alarming threshold, a report identifies that wheel for action. A maintenance alarm identifies vehicle for preventive maintenance at the next available opportunity and a critical alarm directs a train to stop as quickly and safely as possible. As on date 15 WILD systems have been installed. However, as on date NO WILD has been installed till date in this railway.

22.7.8 Better and Safer Coaches:

Design of lightweight, stainless steel passenger coaches has been procured through a Transfer of Technology (TOT) contract from M/s LHB of Germany. The coach provides better ride index at higher speeds. The design provides a higher safety level as a result of modern technology in use in the design of high-speed bogies.

In view of enhanced safety features, passenger comfort and higher speed potential, it is proposed to completely switch over to light weight stainless steel LHB mainline coach production, as on date it is planned to convert 20 trains in the year 2017-18, 19 trains in the year 2018-19 and 15 trains in the year 2019-20 and onwards.

22.7.9 Retro fitment of crash worthy features such as crash buffers and anticlimbing modifications in conventional coaches:

To minimize injury to passengers in case of collision, conventional coaches are to be provided with crash buffers provided at the coach ends which absorb collision

Energy minimizing damage to passenger area. Provision of anti-climbing modifications in coaches will not allow the coaches to climb over each other in case of an impact as on date 100 coaches' sanction obtained and procurement is in progress through RCF.

22.7.10 Fire detection and suppression system in AC coaches:

To make AC coaches fire resistant, fire detection and suppression system is to be provided to detect fire in AC coaches and take preventive action. Provision of automatic braking of coaches in case of fire shall also be provided. Till date the allotment quantity to western railway is128 LHB AC coaches, 20 power cars & 20 Pantry cars and the material is under procurement.

22.7.11 Fire detection and suppression in NAC coaches:

To make NAC coaches for fire resistant, fire detection and suppression system is to be provided to detect fire in NAC coaches and take preventive action.However this work has not been allotted to western railway.

22.7.12 Automatic door closure mechanism in coaches

Automatic door closure mechanism in EMU coaches to prevent accidental falling off of passengers from trains should be introduced in suburban trains. Automatic AC Component doors will manual trigger shall be provided in newly manufactured LHB AC double-decker coaches for convenience of elderly passengers and children.However this work has not been allotted to western railway.

22.7.13 Redesigning/refurbishing of interior of coaches and interior fittings for better occupant safety:

Coaches shall be provided with fire retardant materials such as Fire retardant curtains & partition panelling, roof ceiling, PVC flooring, cushioning material for seats and berths, Rexine& fabric upholstery for seats and berths, FRP windows & UIC Vestibules, etc. in the interior furnishing. Specifications of these fire retardant materials shall be upgraded as a part of continual improvement in passenger safety. Coaches are being provided with fire retardant furnishing materials. To minimize injuries during rail travel, coaches are being redesigned without any sharp corners in the interior and dully padding up vulnerable areas.
Manufacturing of Variant AC and non-AC coaches with new design is being planned with provision of emergency exit doors in addition to emergency exit window for faster evacuation of passengers, fire safety measures such as fire barrier coating, luminescent signage's for visibility in the dark, emergency alarm, interface with air brake system for automatic brake application.However this work has not been allotted to western railway.

22.7.14 In-motion Weighbridges:

The in-motion weighbridge helps detect overloading in wagons. This reduces fatigue of rail/welds and, therefore, reduces chances of fracture. Installation of in-motion weighbridges is done as and when required as per changes in traffic pattern and emergent requirements and is a continuous process. Presently 20 nos Electronic in motion way bridges in working condition. 4 nos.were under tendering processon replacement account.

22.8 Action Plan for Road Users' Safety:

To reduce accidents at manned and unmanned level crossing gates, IR will adopt following multi-pronged strategy and their planning and progress tabulated below:-

S.N	Action Plan	Current preparedness of WR
1	Existing task force of the Ministry of Railways and State Governments for construction of ROBs/RUBs would be made more effective.	In case of DFC project of western corridor, it has been decided that out of 53 ROBs in lieu of 54 LCs, 27 Nos of complete ROBs (Road portion+ approaches) will be done by DFCCIL & 26 Nos of complete ROBs (Railway portion + approaches) will be done by R&B department, Govt. of Gujarat as single entity basis. Otherwise there are examples that due to lack of coordination either railway portion of ROB is completed ahead of ROB approaches or vice versa. This is beneficial that complete ROB will be constructed by single entity
2	Items to be resolved between the Ministry of Railways and Ministry of Road Transport and Highways.	To expedite the construction of ROBs and closure of level crossings (Falling of national high way) MOU between Railway & Ministry of Road transport & Highways (MORTH) had been executed on 10th Nov 2014 which

		stated that MORTH/NHAI will replace all LCs on NH corridors on their own cost on single entity basis. MORTH/NHAI shall only deposit token plan and estimate charges @ 5 lakh per ROB in advance at one location i.e. in Northern railway in favour of FA & CAO, thus removing all formalities and expediting of level crossings. Earlier the above stated provision was not there which delayed the process of work sanction and execution of work. Target is 201 in the year 2017-18 and progress is 77 up to Oct 2017.
3	Speed breakers at level crossings, their standards and maintenance.	Maintenance of speed breakers is being done as being integral part of track maintenance in terms of provisions of IRPWM
4	Testing of driving license applicant with regard to thorough knowledge pertaining to level crossings.	Safety poster/Hand bills/ Pamphlets has been carried out in all divisions of Zone through Divisional safety officers
5	Widening of roads at selected high density locations to ease movement.	Widening of road is being done as per standards provided in IRPWM to match requirement of road authority as per their request and cost
6	Training and counselling of road users.	Gatemitras have been provided at all 738 unmanned LCs on BG & 82 unmanned LCs on MG (as on 15/10/17) in WR to counsel the road users
7	Lifting barriers with retro-reflective markers in lieu of gate leaves shall be provided on double and multiple lines.	It is done in planned manner during interlocking of LCs
8	On manned level crossings, with more than 500 road vehicles per day and where possible, the road width shall be widened in railway land.	Widening of road being done as per standards provided in IRPWM on request of road authorities.
9	Signaling Systems like Interlocking arrangements and provision of telephones at LC gates enhances safety considerably.	Telephone on manned LCs is a basic and compulsory on non interlocked LCs
10	Of 18672 Manned Level Crossings, 10513 are already interlocked and provided with signals as on 31.03.2015. It is envisaged that another 1320 gates would get interlocked in next 5 years.	Interlocking of qualified LCs is got sectioned and executed. Target for WR for 2017-18 is 15 nos

11	Inclusion of Dos and Don'ts near level crossings in primary school curriculum.	Safety poster/Hand bills/ Pamphlets has been carried out in all divisions of Zone through Divisional safety officers
12	Intensive social awareness campaigns to counter misadventure in front of approaching trains.	y seminars, Shunting melas, Nuked nataks, has been carried out all over the divisions through Divisional safety officers.
13	Basic infrastructure on all unmanned level crossings will be ensured and it includes provision of adequate width, normal gradient, level surface for 5 m from centre of the nearest track, Whistle Boards in retro-reflective sheets, specified Road Warning Boards, road surface in good condition and speed breakers/rumble strips etc.	It has been done as per provisions of IRPWM & maintained.
14	All level crossings, as per revised criteria for manning, falling in the three specified categories, are proposed to be manned in next 5 years.	Gate mitras have been provided at all 738 unmanned LCs on BG & 82 unmanned LCs on MG (as on 15/10/17) in WR to counsel the road users
15	Periodic census of level crossings will be carried out by multi-disciplinary teams.	It is being done as per provisions of IRPWM by multidisciplinary team.
16	Compulsory whistling by train drivers by linking loco whistle to the Vigilance Control Device (VCD).	(i) The 'Safety Drives' are conducted from time to time in which Crew has been counselled to continuously blow the locomotive whistle while passing LC gates to alert road users. Instructions contained in SR 16.03(3)(b) pertaining to "sounding of engine whistle while approaching level crossing". Ambush checks were also conducted from LC gate or by travelling in the adjacent coach to monitor the crew in this regard.) (ii)The compliance of the same has been ensured through field inspections by Officers & Loco Inspectors, surprise checks/ambush checks etc. from LC gates or by travelling in the adjacent coach.
17	On sections where there are a number of unmanned level crossings, at close proximity, RUBs may be constructed at a convenient location and the remaining level crossings closed.	Being implemented as per specific locations and on availability of NOC form district authorities. The target for elimination of unmanned LCs during 2017-18 by RUB is 105 nos and the progress is 35 nos up to October 2017
18	Checking visibility levels at all	Being done as regular part of track

	unmanned level crossings, and taking corrective action for their improvement.	maintenance system.
19	Appropriate approach road gradients within railway boundary to be ensured.	Being done a regular part of track maintenance system as per IRPWM

22.8.1 Provision of Road Over/Under Bridge:

It has been decided to provide Road Over/Under Bridges in replacement of all level crossings on cost sharing basis where the TVUs (number of trains x number of road vehicles in 24 hours) exceed one lakh. There are 417 level crossings where the TVUs are more than one lakh and have already been sanctioned as on 1.4.2003, for replacement with ROBs/RUBs. There are still 1252 level crossings with TVUs of more than one lakh as on 1.4.2003 where the ROBs/RUBs are yet to be sanctioned. These will be sanctioned progressively depending upon the response of the State Governments for sharing of the cost and their sponsoring them for the same.

In Western Railway there are 282 LCs where TUVs is more than 1 lakh on WRas on 01.04.17. in current year & 2018-19 the target of ROBs to be constructed on cost sharing basis where LC closure is involved is 6. Out of 6 ROBs, one ROB is completed in this financial year. There are 14 other accommodation works of different road authorities, which needed new level crossings, have also been targeted for ROB during 2017-18. Out of which 6 have already been completed.

22.8.2 Curbing Fire hazards in Pantry Car:

S.N	Guide lines as per RB DMP 2017	Current Preparedness of WR
1	To curb fire hazards in pantry car, Board has issued guidelines for upkeep of pantry car equipment to ensure that all equipment and gadgets are in working order and in safe condition.	All the equipment and gadgets are being ensured in working order and in safe condition at the time of departure of trains.
2	Electrical gadgets in Pantry Cars should be operated only by the authorized electrical staff, nobody else.	Is being Ensured
3	Zonal Railways have been advised to remove the card board cartons after loading the food articles and they are to be kept in containers made up of fire retardant materials such as insulated metallic boxes.	Card board cartoons are being removed at the departure of trains and handed over to the garbage collecting staff en-route.
4	Separate reservation chart of pantry car should be published like reservation chart of other coaches. Ticket checking staff should permit only those persons in Pantry Car & Power Car (Railway Staff and Pantry Car Staff) whose	IRCTC has been advised to issue instructions to all pantry car licensees to follow all the safety rules and regulations of safety of pantry cars and to

	names are appearing in reservation chart of pantry car and Power Car and having valid travel authority.	submit the list of all catering staff deployed to work in the concerned train to chief reservation supervisor of originating station at least 8 hours before the departure of the train for preparation of separate reservation chart of pantry car.

22.8.3 Fire detection and suppression system at important installations:

Fire at vital installations paralyses the train movements. Fire detection system is being provided at vital installations. Fire fighting equipment is being provided at such installations. Staff has been trained to use these equipment.

In Western Railway all the traction substations and switching Posts, OHE depots & PSI depots are provided with DCP type fire extinguishers in accordance to chapter VI (fire precautions) of ACTM vol.I.It is ensured that these fire extinguishers are checked, tested and refilled in accordance to the schedule recommended by OEM. A register is maintained in each installation showing the details of available fire extinguishers, date of inspection and Refilling date.

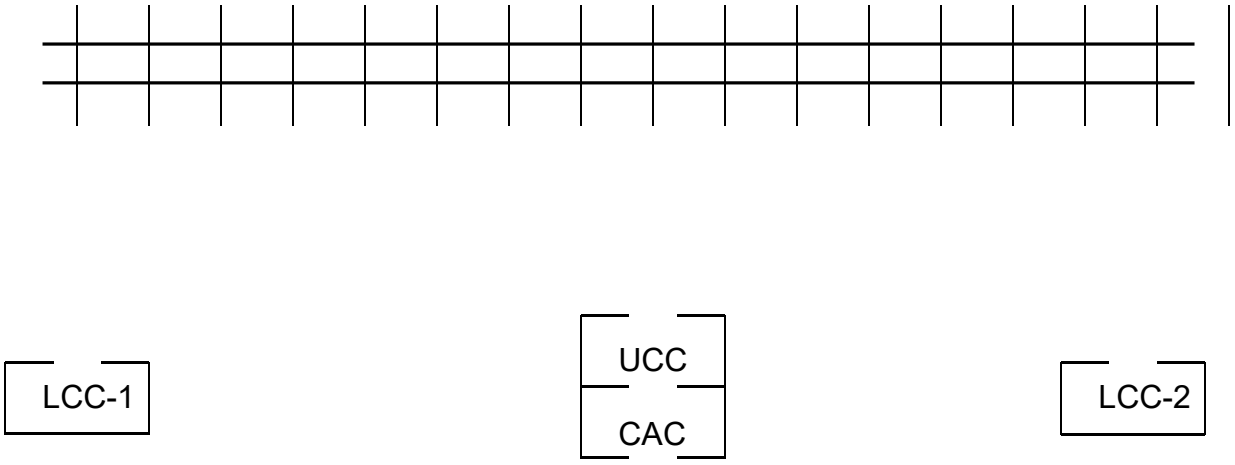
While commissioning the new Traction Sub-stations it is ensured that 30 MVA Traction transformers are procured as per the latest RDSO specifications having Nitrogen injection Fire prevention system.

22.8.4 Vigilance Control Device:

All electric and Diesel locomotives are equipped with vigilance control devices (VCD) to ensure alertness of Locopilot.

Annexure – 1

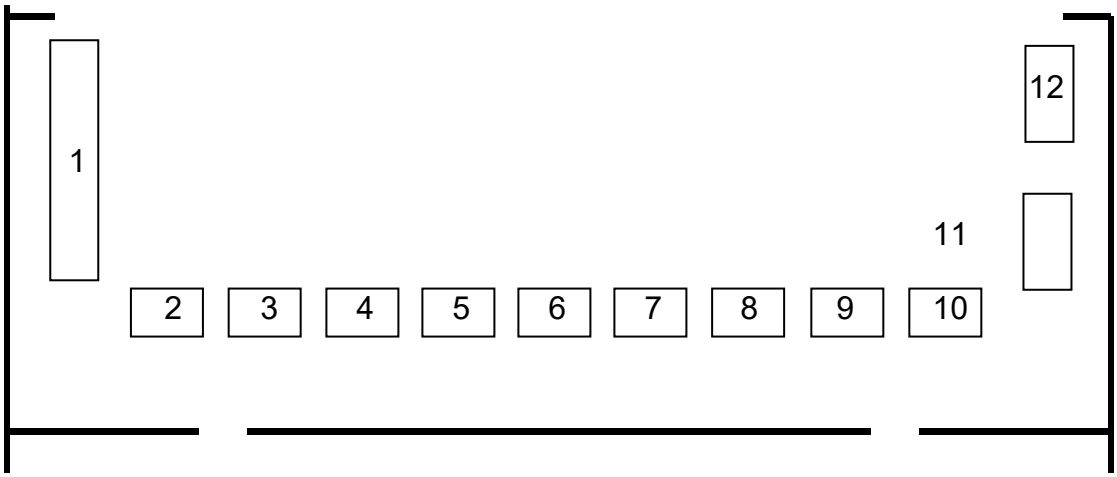
OUTLINE SCHEMATIC PLAN OF UCC/CAC/LCCs



UCC	:	Unified Command Centre
CAC	:	Combined Assistance Centre
LCC-1	:	Local Command Centre-1
LCC-2	:	Local Command Centre-2

Annexure – 2

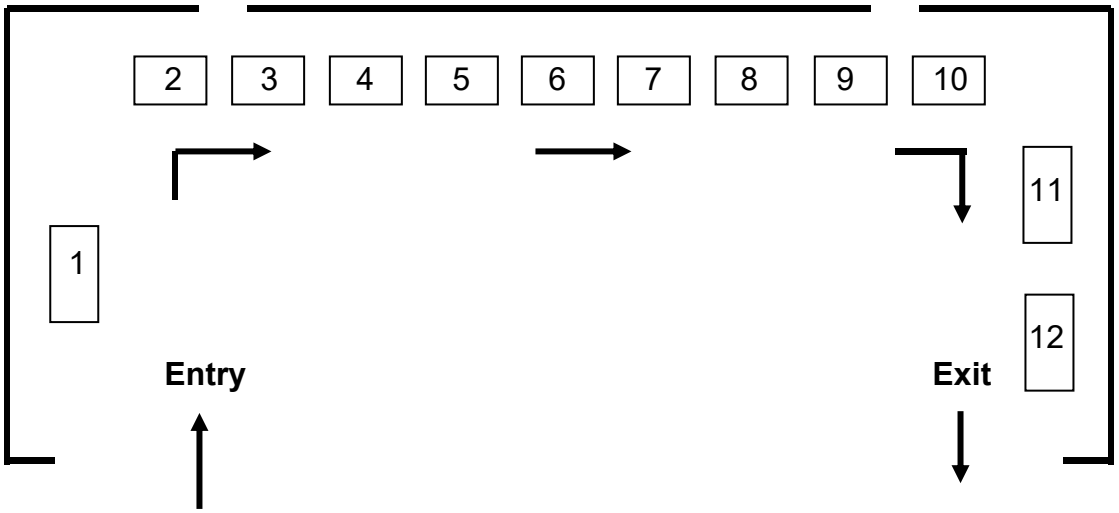
DETAIL SCHEMATIC PLAN OF UCC



1.	Medical	7.	OC Site and Officers
2.	Commercial	8.	Mechanical
3.	Operating	9.	Electrical
4.	Safety	10.	S & T
5.	Security	11.	Civil
6.	Public Relations	12.	Spare

Annexure – 3

DETAIL SCHEMATIC PLAN OF CAC

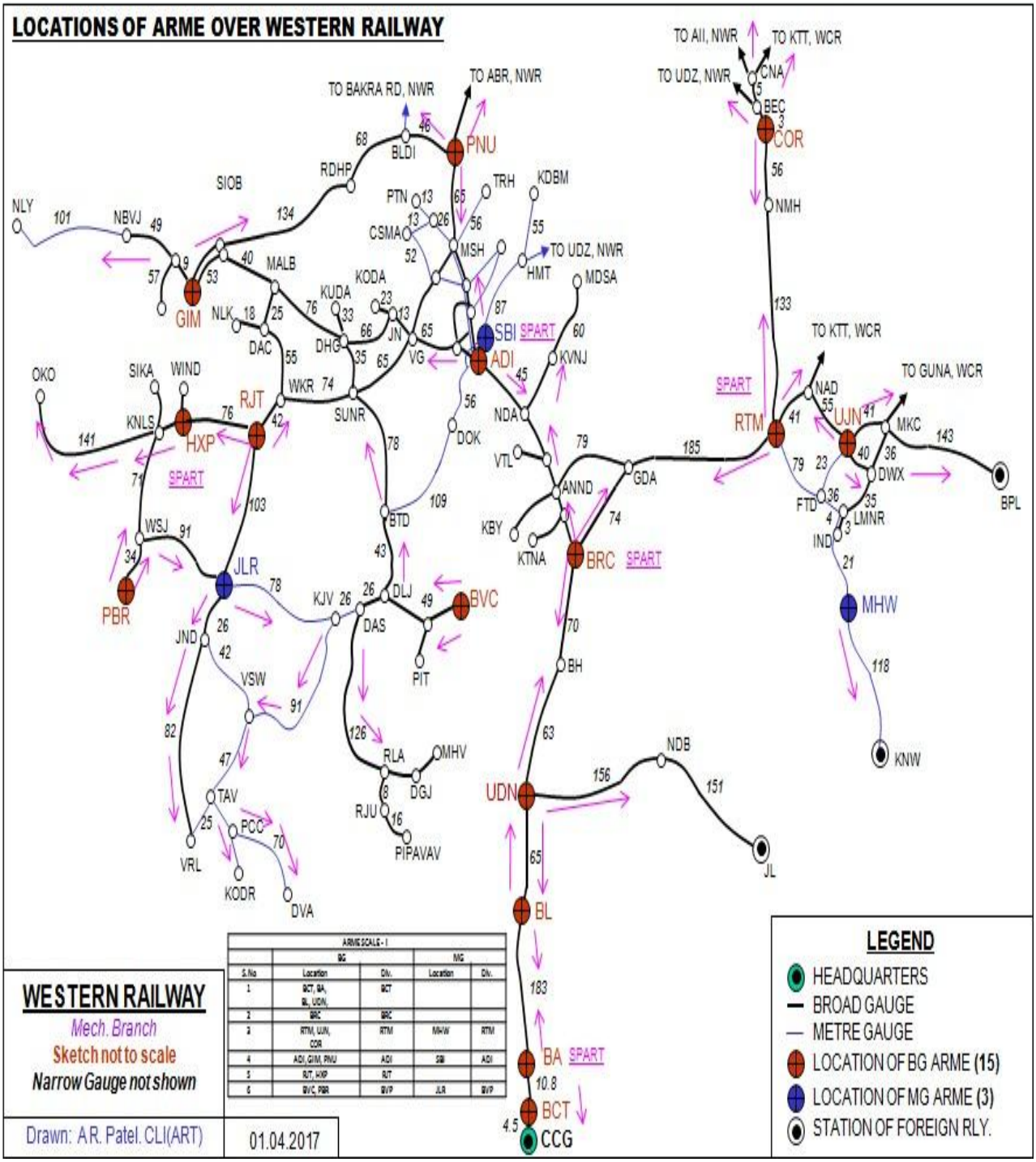


1. Commercial – Reservation Chart Official Death Certificate.
2. Medical – List of dead and injured.
3. Commercial – Provision of escort and vehicle.

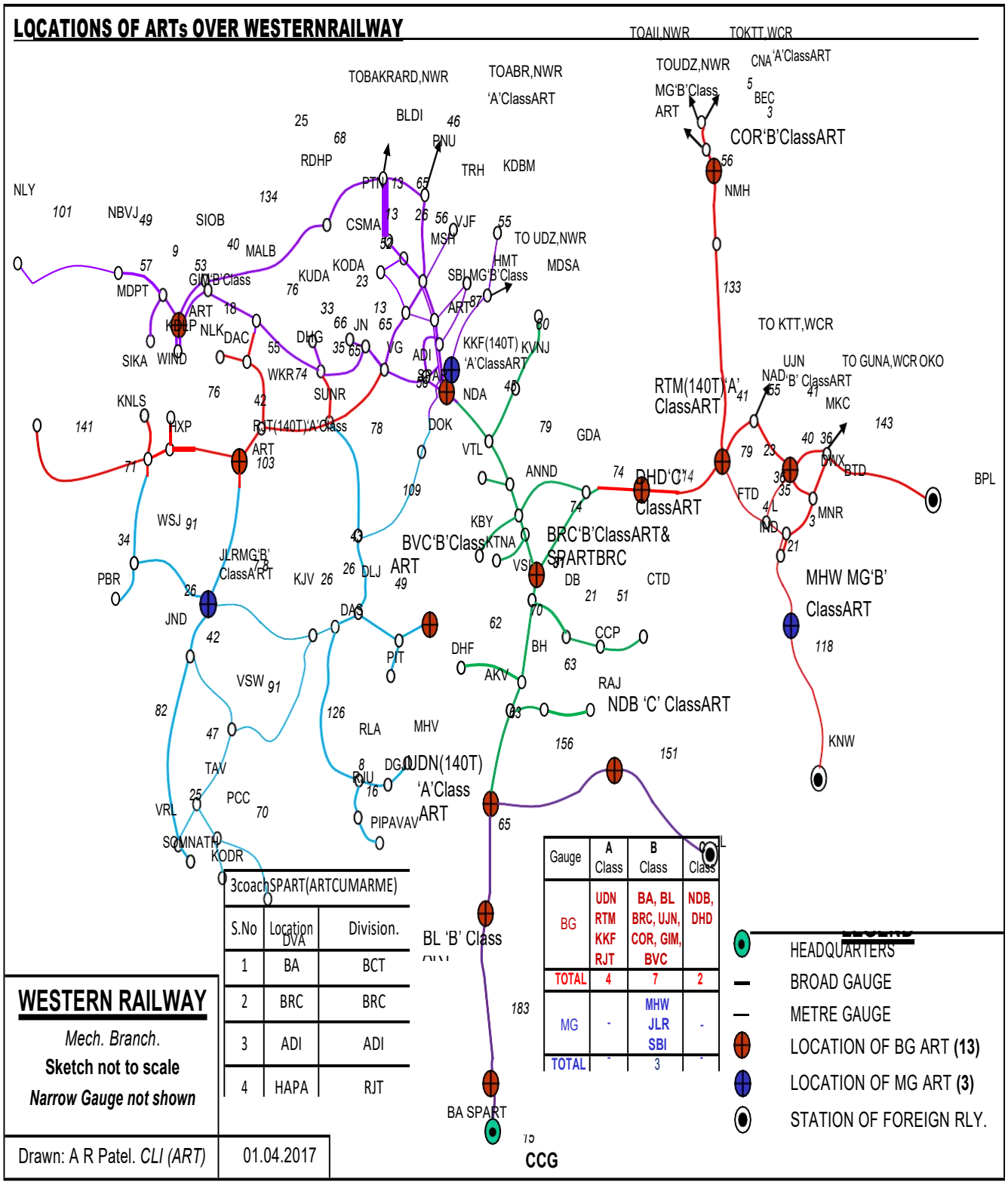
EX-gratia Issue of Claims Forms.

4. Railway Doctor – Issue of Medical Death Performing Of last rites.
5. Govt. Doctor – Issue of Post Mortem Report.
6. CAC in-Charge and Officers.
7. Municipality Official – Issue of
8. RPF/Local Police – Issue of Authority for handing over dead body.
9. Commercial – Payment of
10. Commercial – Assistance for Certificate.
11. Personnel – Issue of Return Journey Pass.
12. Operating–Arrangement for Return Journey.

Annexure – 4


LOCATIONS OF ARME OVER WESTERN RAILWAY
TO BAKRA RD, NWR
TO ABR, NWR
TO AII, NWR
TO KTT, WCR
TO UDZ, NWR
CNA
BEC
COR
PNU
BLDI
RDHP
SIOB
NLY
NBVJ
GIM
NLK
MALB
DAC
KUDA
KODA
DHG
JN
VG
CSMA
PTN
TRH
KDBM
MSH
HMT
TO UDZ, NWR
MDSA
SBI
SPART
ADI
KVNJ
NDA
VTL
DOK
SUNR
WKR
RJT
HXP
SPART
OKO
SIKA
WIND
KNLS
WSJ
PBR
JLR
JND
VSW
TAV
VRL
PCC
KODR
DVA
KJV
DLJ
BVC
DAS
PIT
BTD
RLA
MHV
DGJ
RJU
PIPAVAV
ANND
GDA
KBY
KTNA
BRC
SPART
BH
UDN
NDB
JL
BL
BA
SPART
BCT
CCG
NMH
RTM
SPART
NAD
UJN
MKC
DWX
BPL
FTD
LMNR
IND
MHW
KNW
TO KTT, WCR
TO GUNA, WCR
WESTERN RAILWAY
Mech. Branch
Sketch not to scale
Narrow Gauge not shown
Drawn: A.R. Patel. CLI(ART)
01.04.2017
ARME SCALE - I
BG
MG
S.No
Location
Div.
LEGEND
HEADQUARTERS
BROAD GAUGE
METRE GAUGE
LOCATION OF BG ARME (15)
LOCATION OF MG ARME (3)
STATION OF FOREIGN RLY.

Annexure – 5


LOCATIONS OF ARTs OVER WESTERNRAILWAY
TOAII,NWR
TOKTT,WCR
TOBAKRARD,NWR
TOABR,NWR
'A'ClassART
TOUDZ,NWR
CNA 'A'ClassART
MG'B'Class ART
BEC
COR'B'ClassART
NMH
BLDI
PNU
RDHP
TRH
KDBM
PTN
NLY
NBVJ
SIOB
CSMA
VJF
MSH
TO UDZ,NWR
MALB
KUDA
KODA
HMT
MDSA
SBI
MG'B'Class
MDPT
GIM'B'Class
ART
KKF
NLK
DAC
DHG
JN
VG
ADI
SIKA
WIND
WKR
SUNR
KKF(140T) 'A'ClassART
KVNJ
SPART
NDA
TO KTT,WCR
UJN
TO GUNA,WCR OKO
NAD
'B' ClassART
RTM(140T)'A' ClassART
MKC
KNLS
HXP
RJT(140T)'A'Class
ART
DOK
VTL
GDA
ANND
DHD'C' ClassART
DWX
BTD
BPL
FTD
MND
MNR
WSJ
KBY
KTNA
BVC'B'ClassART
BRC'B'ClassART& SPARTBRC
VSP
DB
CTD
JLRMG'B' ClassART
KJV
DLJ
PBR
JND
DAS
PIT
DHF
BH
CCP
AKV
RAJ
NDB 'C' ClassART
MHW MG'B' ClassART
KNW
VSW
RLA
MHV
TAV
VRL
PCC
SOMNATH
KODR
DGU
RJU
PIPAVAV
UDN(140T) 'A'Class ART
BL 'B' Class
BA SPART
CCG
3coachSPART(ARTCUMARME)
S.No
Location
Division.
1 BA BCT
2 BRC BRC
3 ADI ADI
4 HAPA RJT
Gauge
A Class
B Class
C Class
BG
UDN RTM KKF RJT
BA, BL BRC, UJN, COR, GIM, BVC
NDB, DHD
TOTAL 4 7 2
MG - MHW JLR SBI -
TOTAL - 3 -
WESTERN RAILWAY
Mech. Branch.
Sketch not to scale
Narrow Gauge not shown
Drawn: A R Patel. CLI (ART)
01.04.2017
LEGEND
HEADQUARTERS
BROAD GAUGE
METRE GAUGE
LOCATION OF BG ART (13)
LOCATION OF MG ART (3)
STATION OF FOREIGN RLY.

Annexure 6

Division Wise Statement of Modern Gadgets over WR											
Division	Station	No. of CCTV		No. of CCTV proposed to be installed			DFMD available			HHMD	
		W&P	Hiring	W&P	ISS	Nirbhaya Fund	Working		Non Working	Working	Non Working
							Manned	Unmanned			
BCT	Churchgate	-	64	-	157	-	-	12	3	22	18
	GLO Churchgate	-	9	-	-	-	-	-	-	-	-
	PRS Churchgate	-	15	-	-	-	-	-	-	-	
	Budhwar Park	-	41	-	-	-	-	-	-	-	-
	Charni Road	-	16	-	37	-	-	-	-	-	-
	Marine Line	-	16	-	32	-	-	-	-	-	-
	Grant Road	-	16	-	39	-	-	-	-	-	-
	Mumbai Central	-	96	-	315	-	-	10	-	47	4
	Mumbai Central (L)	-	-	-	-	-	-	-	-	6	-
	Mumbai Central (TMS)	-	6	-	-	-	-	-	-	-	-
	PRS Mumbai Central	-	20	-	-	-	-	-	-	-	-
	Mahalaxmi	-	16	-	23	-	-	-	-	-	-
	Mahalaxmi Yard	-	7	-	-	-	-	-	-	-	-
	Lower Parel	-	16	-	16	-	-	-	-	-	-
	Prabhadevi	-	16	-	32	-	-	-	-	-	-
	Dadar	-	64	-	96	-	-	-	-	25	-
	Matunga	-	16	-	32	-	-	-	-	-	-
	Mahim	-	16	-	47	-	-	-	-	-	-
	Mahim Yard	-	7	-	-	-	-	-	-	-	-
	Bandra (Local)	-	48	-	62	-	-	-	-	10	15
	Bandra Terminus	-	57	-	170	-	-	-	-	26	-
	Khar Road	-	16	-	18	-	-	-	-	-	-
	Santacruze	-	16	-	22	-	-	-	-	-	-
	Vile Parle	-	16	-	19	-	-	-	-	-	-
	Andheri	-	32	-	193	-	-	-	-	21	-
	Jogeshwari	-	12	-	136	-	-	-	-	-	-
	Ram Mandir	-	32	-	68	-	-	-	-	-	-
	Goregaon	-	13	-	137	-	-	-	-	-	-
	Malad	-	13	-	106	-	-	-	-	-	-

	Kandivali	-	32	-	116	-	-	-	-	-	-
	Borivali	-	96	-	325	-	-	-	-	-	4
BCT	Dahisar	-	32	-	113	-	-	-	-	-	-
	Mira Road	-	28	-	38	-	-	-	-	-	-
	Bhayandar	-	48	-	63	-	-	-	-	13	-
	Naigaon	-	16	-	38	-	-	-	-	-	-
	Vasai Road	-	48	-	115	-	-	-	-	-	22
	Nalasopara	-	16	-	73	-	-	-	-	-	-
	Virar	-	32	-	91	-	-	-	-	27	2
	Surat	-	43	-	86	-	-	-	-	24	-
	Vapi	-	-	-	-	43	-	-	-	3	-
	Valsad	-	-	-	-	43	-	-	-	28	-
	Navsari	-	-	-	-	35	-	-	-	-	-
	Udhana	-	-	-	-	32	-	-	-	20	-
	Boisar	-	-	-	-	32	-	-	-	-	-
	Dahanu Road	-	-	-	-	37	-	-	-	13	-
	Kelve Road	-	-	-	-	15	-	-	-	-	-
	Palghar	-	-	-	-	26	-	-	-	-	-
	Saphale	-	-	-	-	12	-	-	-	-	-
	Vaitarana	-	-	-	-	6	-	-	-	-	-
	Vangaon	-	-	-	-	14	-	-	-	-	-
	Bilimora	-	-	-	-	30	-	-	-	-	-
	Udhavada	-	-	-	-	26	-	-	-	-	-
	Nandurbar	-	-	-	-	19	-	-	-	6	1
	DSC's R. Coy	-	-	-	-	-	-	-	-	-	2
	CW/BCT	-	-	-	-	-	-	-	-	6	1
	Total	**0**	**1103**	**0**	**2815**	**370**	**0**	**22**	**3**	**297**	**69**
BRC	Vadodara	42	-	-	-	81	4	-	-	15	-
	Godhara	9	-	-	-	23	1	-	-	6	-
	Anand	5	9	-	-	19	1	-	-	4	-
	Ankleshvar	-	9	-	-	17	2	-	-	6	-
	Bharuch	-	13	-	-	30	-	-	-	4	-
	Nadiad	-	10	-	-	15	-	-	-	5	-
	Bajwa	-	-	-	-	-	-	-	-	5	-
	Pratapnagar	-	-	-	-	-	-	-	-	6	-
	Electric Loco Shed	-	-	-	-	-	-	-	-	4	-
	Total	**56**	**41**	**0**	**0**	**185**	**8**	**0**	**0**	**55**	**0**
ADI	Ahmadabad	-	51	-	109	-	6	-	5	40	59
	Gandhidham	-	-	-	-	23	2	-	2	15	12
	Mehsana	-	-	-	-	28	2	-	2	10	4
	Bhuj	-	-	-	-	7	1	-	-	12	7

	Palanpur	-	-	-	-	11	2	-	-	11	4
	Viramgam	-	-	-	-	15	2	-	-	15	3
	Bhachau	-	-	-	-	6	-	-	-	-	-
	Samakhiyali	-	-	-	-	10	-	-	-	-	-
	Dhangandhra	-	-	-	-	-	1	-	-	9	2
	Maninagar	-	-	-	-	-	2	-	1	8	5
	Gandhinagar	-	-	-	-	-	-	-	-	5	-
	Kalol	-	-	-	-	-	2	-	-	14	8
	Patan	-	-	-	-	-	-	-	-	4	2
	Sabarmati (BG)	-	-	-	-	-	-	-	-	8	1
	Sabarmati(MG)	-	-	-	-	-	3	-	1	14	4
	Siddhpur	-	-	-	-	-	-	-	-	4	2
	Unjha	-	-	-	-	-	-	-	-	3	3
	Bhildi Jn.	-	-	-	-	-	-	-	-	5	3
	Randhanpur	-	-	-	-	-	-	-	-	5	3
	MaliyaMiyana	-	-	-	-	-	-	-	-	4	1
	Vatva	-	-	-	-	-	-	-	-	4	1
	Himmatnagar	-	-	-	-	-	1	-	-	2	-
	Total	**0**	**51**	**0**	**109**	**100**	**24**	**0**	**11**	**192**	**124**
RTM	Dahod (S)	-	30	-	-	30	-	4	-	2	1
	Dahod (loco)	-	-	-	-	-	-	-	-	-	1
	Meghnagar	-	-	-	-	-	-	-	-	4	-
	Ratlam	-	55	-	-	55	-	3	-	3	1
	Chittaurgarh	-	30	-	-	30	-	2	-	3	-
	Nimach	-	-	-	-	16	1	-	-	5	-
	Nagda	-	-	-	-	29	-	2	-	-	7
	Ujjain	-	48	-	64	-	3	-	-	15	-
	Indore	-	49	-	-	49	-	4	-	-	11
	Dr. Ambedkar Nagar	-	-	-	-	21	-	-	-	5	-
	Bairagarh	-	-	-	-	-	-	-	-	3	-
	Dewas	-	-	-	-	16	-	-	-	1	-
	Mandasor	-	-	-	-	12	-	1	-	-	-
	Total	**0**	**212**	**0**	**64**	**258**	**4**	**16**	**0**	**41**	**21**
RJT	Rajkot	18	-	-	-	40	-	-	-	4	-
	Bhaktinagar	4	-	-	-	-	-	-	-	1	-
	Dwarka	6	-	-	-	13	-	-	-	1	-
	Okha	5	-	-	-	16	-	-	1	1	-
	Jamnagar	4	-	-	-	16	-	-	-	-	3
	Hapa	-	-	-	-	15	-	-	-	1	-
	Surendranagar	6	-	-	-	17	-	-	-	-	4
	Wankaner	-	-	-	-	13	-	-	-	-	-

	Morbi	-	-	-	-	-	-	-	-	1	-
	Than	-	-	-	-	-	-	-	-	1	-
	DSC's R. Coy	-	-	-	-	-	-	-	-	-	2
	Total	**43**	**0**	**0**	**0**	**130**	**0**	**0**	**1**	**10**	**9**
BVP	Bhavnagar	-	-	-	-	22	2	-	-	8	4
	Gandhigram	-	-	-	-	-	1	-	1	16	4
	Porbandar	-	-	-	-	17	-	-	1	14	-
	Veraval	-	-	-	-	16	-	-	1	15	-
	Junagadh	-	-	-	-	24	-	-	1	17	-
	DSC's R. Coy	-	-	-	-	-	-	-	-	14	3
	HQ/BVP	-	-	-	-	-	-	-	-	2	-
	Somnath	-	-	-	-	16	-	-	-	-	-
	Gondal	-	-	-	-	16	-	-	-	-	-
	Botad	-	-	-	-	23	-	-	-	-	-
	Total	**0**	**0**	**0**	**0**	**111**	**3**	**0**	**4**	**86**	**11**

Summary of Modern Equipment over Western Railway

Western Railway	Total No. of Stations	No. of CCTV		No. of CCTV proposed to be installed			DFMD available				HHMD
		W&P	Hiring	W&P	ISS	Nirbhaya Fund	Working		Non Working	Working	Non Working
							Manned	Unmanned			
	120	99	1407	0	2988	1154	39	38	19	681	234

REGISTER OF AMMENDMENT SLIPS ANNEXURE -7

SR. No.	Date of Issue	Chapter No.	Page No.	Subject Add/ Replace	Initials of Person in charge of book

PART: A

Networking is not collecting contacts, It is about planting relations.

Safety First