



**PT.DEEN DAYAL UPADHAYAY
DIVISION**
EAST CENTRAL RAILWAY

DISASTER MANAGEMENT PLAN, 2025

PART- I

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ABBREVIATIONS USED

1 AC	-	1 ST Air Conditioned Coach
2 AC	-	2 Tier Air Conditioned Sleeper Coach
3 AC	-	3 Tier Air Conditioned Sleeper Coach
ADG	-	Additional Director General
ADMO	-	Assistant Divisional Medical Officer
ADRM	-	Additional Divisional Railway Manager
AEN	-	Assistant Engineer
AGM	-	Additional General Manager
AME	-	Assistant Mechanical Engineer
ARME	-	Accident Relief Medical Equipment
ARMV	-	Accident Relief Medical Van
ART	-	Accident Relief Train
ASTE	-	Assistant Signal & Telecommunication Engineer
BCX	-	8-wheel covered vacuum brake wagon
BD Spl.	-	Break Down Special
BFR	-	8-wheel open flat vacuum brake wagon
BPC	-	Bharat Petroleum Corporation
BRWD	-	Station Code for Barwadih
C&W	-	Carriage and Wagon
CAC	-	Combined Assistance Center
CBE	-	Chief Bridge Engineer
CCM(G)	-	Chief Commercial Manager (General)
CCM(M&R)	-	Chief Commercial Manager (Marketing & Rates)
CCRS	-	Chief Commissioner of Railway Safety
CEE (Op)	-	Chief Electrical Engineer (Operations)
CFTM	-	Chief Freight Transportation Manager
CHC	-	Chief Controller
Chg.	-	Coaching
CHOD	-	Coordinating Head of Department
CME (Op)	-	Chief Mechanical Engineer (Operations)
CMI	-	Commercial Inspector
CMPE (Diesel)	-	Chief Motive Power Engineer (Diesel)
CMS	-	Chief Medical Superintendent
Con.	-	Construction
CPRO	-	Chief Public Relations Officer
CPTG/G	-	Chief Passenger Transportation Manager/General
CPU	-	Station Code for Chopan
CRB	-	Chairman Railway Board
CRS	-	Commissioner of Railway Safety
CRSE	-	Chief Rolling Stock Engineer
CSE	-	Chief Signal Engineer
CTE	-	Chief Track Engineer
CWE	-	Chief Workshop Engineer
CWS	-	Carriage & Wagon Superintendent
DAO	-	Divisional Accounts Officer
DCM	-	Divisional Commercial Manager
DCOS	-	Divisional Controller of Stores
DEE	-	Divisional Electrical Engineer
DEN	-	Divisional Engineer
DG	-	Director General
DHN	-	Station Code for Dhanbad

DM	-	Disaster Management
DM	-	District Magistrate
DME	-	Divisional Mechanical Engineer
DMO	-	Divisional Medical Officer
DMT	-	Disaster Management Team
DMU	-	Diesel Multiple Unit
DNR	-	Station Code for Danapur
DOM	-	Divisional Operations Manager
DOT	-	Department of Telephones
DPO	-	Divisional Personnel Officer
DR	-	Disaster Response
DRM	-	Divisional Railway Manager
DSC	-	Divisional Security Commissioner
DSO	-	Divisional Safety Officer
DSTE	-	Divisional Signal & Telecommunication Engineer
DTM	-	Divisional Traffic Manager
Dy.	-	Deputy
Dy. CCM	-	Deputy Chief Commercial Manager
Dy. COM	-	Deputy Chief Operations Manager
Dy. CSO	-	Deputy Chief Safety Officer
E-Mail	-	Electronic Mail
EC	-	Emergency Control
ED	-	Executive Director
EMC	-	Electro Mechanical Core
EMU	-	Electric Multiple Unit
Engg.	-	Engineering
ETL	-	Emergency Train Lighting
FA	-	First Aid
FA	-	Financial Advisor
FA&CAO	-	Financial Advisor and Chief Accounts Officer
FR	-	First Responders
(G)	-	General
G&SR	-	General & Subsidiary Rule
GM	-	General Manager
GRP	-	Govt. Railway Police
GYA	-	Station Code for Gaya
HOD	-	Head of Department
HOR	-	High Official Requisition
HPC	-	Hindustan Petroleum Corporation
HQ	-	Hdqrts.
HRE	-	Hydraulic Rerailing Equipment
HRD	-	Hydraulic Rescue Device
IAF	-	Indian Air Force
IAT	-	Instant Action Team
IG	-	Inspector General of Police
IRCM	-	Indian Railway Commercial Manual
IRCTC	-	Indian Railway Catering & Tourism Corporation
IRMM	-	Indian Railway Medical Manual
IOC	-	Indian Oil Corporation
ISD	-	International Subscriber Dialing
IT	-	Information Technology
JA	-	Junior Administrative
JCB	-	Jack-cum-Bulldozer
JE	-	Junior Engineer\
Jn.	-	Junction
LC	-	Level Crossing

LCC	-	Local Command Center
LI	-	Loco Inspector
LPG	-	Liquefied Petroleum Gas
LR	-	Leave Reserve
DDU	-	Station Code for Pt. Deen Dayal Upadhyay
MOR	-	Ministry of Railways
MOSR	-	Minister of State for Railways
MP	-	Madhya Pradesh
MR	-	Minister for Railways
MRV	-	Medical Relief Van
NGO	-	Non-Govt. Organisation
NR	-	Northern Railway
NCR	-	North Central Railway, Allahabad
OC	-	Officer-in-Charge
OHE	-	Over Head Equipment
PA	-	Public Address
PC	-	Personal Computer
PCE	-	Principal Chief Engineer
PCO	-	Public Call Office
PHOD	-	Principal Head of Department
POL	-	Petroleum & Oil
PR	-	Public Relations
PCCM	-	Principal Chief Commercial Manager
PCE	-	Principal Chief Engineer
PCEE	-	Principal Chief Electrical Engineer
PCMD	-	Principal Chief Medical Director
PCME	-	Principal Chief Mechanical Engineer
PCMM	-	Principal Chief Materials Manager
PCOM	-	Principal Chief Operations Manager
PCPO	-	Principal Chief Personnel Officer
PCSC	-	Principal Chief Security Commissioner
PCSO	-	Principal Chief Safety officer
PCSTE	-	Principal Chief Signal & Telecommunication Engineer
PRC	-	Power Controller
PRO	-	Public Relations Officer
PSU	-	Public Sector Undertaking
P Way	-	Permanent Way
PWI	-	Permanent Way Inspector
RCT	-	Railway Claims Tribunal
RE	-	Railway Electrification
RG	-	Rest Giver
RMS	-	Railway Mail Service
RPF	-	Railway Protection Force
RSO	-	Rolling Stock Organisation
S&T	-	Signal & Telecommunication
SDGM	-	Senior Deputy General Manager
SE	-	Section Engineer
Secy.	-	Secretary
SHO	-	Station House Officer
SI	-	Signal Inspector
SI	-	Sub-Inspector
SJAB	-	St. John Ambulance Brigade
SLR	-	Second Class-cum-Luggage-cum-Brake Van coach
SM	-	Station Manager
SP	-	Self Propelled
SPARMV	-	Self Propelled Accident Relief Medical Van

SPART	-	Self Propelled Accident Relief Train
SO	-	Staff Officer
SOS	-	International Call for Distress
Sr.	-	Senior
Sr. DAO	-	Senior Divisional Accounts Officer
Sr. DCM	-	Senior Divisional Commercial Manager
Sr. DEE	-	Senior Divisional Electrical Engineer
Sr. DEN	-	Senior Divisional Engineer
Sr. DME	-	Senior Divisional Mechanical Engineer
Sr. DMO	-	Senior Divisional Medical Officer
Sr. DOM	-	Senior Divisional Operating Manager
Sr. DPO	-	Senior Divisional Personnel Officer
Sr. DSC	-	Senior Divisional Security Commissioner
Sr. DSO	-	Senior Divisional Safety Officer
Sr. DSTE	-	Senior Divisional Signal & Telecommunication Engineer
SSO	-	Senior Safety Officer
SSE	-	Senior Section Engineer
STD	-	Subscriber Trunk Dialing
STM	-	Senior Transportation Manager
SS	-	Station Superintendent
TCM	-	Telecommunication Maintainer
TCI	-	Telecommunication Inspector
TI	-	Traffic Inspector
TRD	-	Traction Distribution
TS	-	Train Superintendent
TTE	-	Traveling Ticket Examiner
TXR	-	Train Examiner
UCC	-	Unified Command
Center		
VHF	-	Very High Frequency
VPU	-	Vehicle Parcel Van
WLI	-	Welfare Inspector
WTT	-	Working Time Table

Chapter-1

DISASTERS

1. DEFINITION:

Disaster is an unusual occurrence characterized by:-

- (i) Sudden calamitous event, having great material damage, loss and distress.
- (ii) A complete definition of disaster may be 'an event, concentrated in time and space, which threatens a society or a relatively self sufficient sub division of a society with major unwanted consequence as a result of the collapse of precaution which had hitherto been culturally accepted as adequate.' (Turner, 1976).

Many serious train accidents are also disasters and hence, every Railway staff should be in position to identify the characteristics of different disaster situations.

2. TYPES OF DISASTER CAUSING INTERRUPTION TO TRAIN SERVICES:-

Human/Equipment failure:

The following disasters/ accidents may be caused by human/equipment failure, which may affect normal movement of train services with loss of life or property or both.

- * Collisions.
- * Derailments.
- * Level crossing accidents at Manned/Unmanned Level Crossings.
- * Fire on Train.

Natural Calamities:

Natural calamities may also cause serious disruption of traffic with loss of life/property.

- * Landslide.
- * Earth quakes.
- * Floods.
- * Storm/Cyclones/Tornadoes.

Sabotage:

Sabotage causing deliberate loss of life and / or damage to property.

- * Setting fire to train/railway installations and railway property.
- * Bomb blasts.
- * Placing of obstructions on track to cause disruption to traffic.
- * Tampering with railway fittings to cause accidents.

3. LEVEL OF DISASTER CAUSING INTERRUPTION TO TRAIN SERVICES:

Railway accidents can be categorized into different levels:

- Accidents of a magnitude which can be managed by the concerned divisional authorities;
- Accidents of a magnitude which may require assistance from neighboring divisions but can be managed by the Zonal Railway; and Disasters of a magnitude in terms of their severity or scale of casualties that require
- active involvement of multiple agencies of the Central Govt. (Ministry of Railways & other Ministries).

4. CLASSIFICATION OF A RAILWAY ACCIDENT AS A DISASTER:

Disaster in the railway context is defined as a major train accident leading to serious causalities and long duration of interruption to traffic. This compendium of instructions has been prepared for dealing with such disasters, and not normal train accidents. In case of a serious accident the Administration would take a conscious decision whether the situation is to be classified as a Disaster or not.

5. AUTHORISED OFFICERS TO DECLARE AN ACCIDENT AS A DISASTER :

PCSO is the authorized officer to declare an accident as a Disaster. Such declaration will be issued to all concerned with the approval of General Manager. If the accident is declared as a Disaster, all instructions as contained here in this Disaster Management Plan would automatically come into force, and officers and staff of all departments would take action as laid down in this book.

6. Categorization of Alerts:

According to severity of disaster concerned ministry will issue an alert. 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.

Action Plan for Communication of Alert Messages:

Whenever a crisis is about to be faced, Government of India has laid down system for warning its respective department 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/Organizations/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 Railways categorization of Alerts is under.

Category	Description	Stage
Minor	50 or more casualties (inclusive of death and injuries)	Yellow
Medium	51-99 deaths.	Orange
Major	100 or more deaths, or where additional assistance is sought	Red

7. Standard Operating procedure (SOP) on Railways:

(i) 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/crisis/calamity expected the information would be passed on to the Divisional officers through the Emergency Control which will act as the ICS. 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 ensures 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 Patna and NDMA/NDRF would be through the Emergency Control of each zonal Headquarter.

(ii) Man-made Disasters:-

Different forms of terrorism fall under the ambit of these disasters. A major role has to be 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 ICS. The Headquarter Security Control will coordinate with the IOC of Patna.

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.

(iii) Handling CBRN Disaster

Training of a skeleton number of Medical Doctors in all Divisional Railways Hospitals is to be planned for handling and to provide medical relief for all CBRN(Chemical, Biological, Radiological, Nuclear) disaster and mitigation of BN(Biological, Warfare), BT(Bio-Terrorism).

(iv) Chemical Disaster:-

Railways expertise in dealing with mis-happenings like spillage, catching fire etc of inflammables, Acids & other corrosives are very limited. It is therefore imperative that the respective divisions will develop and nurture co-ordination with those agencies and organizations on their system that have expertise in dealing with the hazardous materials being handled and transported.

Chapter-2

DISASTER MANAGEMENT ACT – 2005

2.0 National Policy on Disaster Management (NPDM):

The Disaster Management Act, 2005 (hereinafter referred to as the Act), enacted by the Parliament was notified in the Gazette of India on 26th December, 2005. The Act provides for the legal and institutional framework for the effective management of disasters. The Act mandates creation of new institutions and assignment of specific roles for Central, State and Local Governments. Under the provisions of the Act, the National Disaster Management Authority (NDMA) has been established under the chairmanship of the Prime Minister and a National Executive Committee (NEC) of Secretaries has been created to assist the NDMA in the performance of its functions. At the State level, a State Disaster Management Authority has been created under the chairmanship of Chief Minister, which has been assisted by a State Executive Committee. At the District level, District Disaster Management Authorities have been created.

The responsibility of laying down the policies on disaster management, approving the National Policy on Disaster Management (NPDM) and laying down the guidelines on Disaster Management has been given to NDMA under the Act. The NDMA accordingly prepared a draft of the National Policy on Disaster Management in consultation with the Home Ministry and submitted the same for approval of the Government.

The Home Ministry has circulated the draft NPDM to the concerned Central Ministries and all the State Governments/Union Territories. The comments received by the Central Ministries/State Governments/Union Territories were duly examined and the accepted views/comments of Central Ministries/State Governments/Union Territories have been duly incorporated in the NPDM.

Approval of the Cabinet to the NPDM was given in the Cabinet Meeting held on 22.10.2009.

The NPDM envisages a holistic approach to disaster management, encompassing the entire disaster management cycle including prevention, mitigation, preparedness, relief, rescue, rehabilitation and reconstruction. It addresses all aspects of disaster management covering institutional, legal and financial arrangements, capacity building, knowledge management, research and development. It focuses on the areas where action is needed and the institutional mechanism through which such action can be channelized.

2.1 Salient Features of the Disaster Management Act, 2005:

It is the central legislation on Disaster Management around which all the Disaster Management related activities revolve since its enactment. It legislates a holistic approach to Disaster Management; from mere responding to disasters to greater attention to prevention and mitigation, capacity building and preparedness. The Disaster Management Plan of the Railways has been prepared by taking relevant provision of this Act into consideration.

Disaster has been defined in this Act as under:

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

Disaster Management has been explained in this Act as under:

Disaster Management means a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for-

- prevention of danger or threat of any disaster
- mitigation or reduction of risk of any disaster or its severity or consequences
- capacity-building
- preparedness to deal with any disaster
- prompt response to any threatening disaster situation or disaster
- assessing the severity or magnitude of effects of any disaster
- evacuation, rescue and relief
- rehabilitation and reconstruction

2.2 Important Provisions in the DM Act, 2005 Concerning Railways:

Sections 35, 36 & 37 of the DM Act, 2005 detail the responsibilities of Ministries and Departments of Central Govt. as per which a number of measures/actions are to be taken either on their own or in consultation with NDMA. Drawing up mitigation, preparedness and response plans, capacity building, data collection and identification & training of personnel in relation to Disaster Management is one of the key responsibilities. These provisions are summarized as under:-

Section 35

The Central Government shall take all such measures as it deems necessary or expedient for the purpose of disaster management and it shall include :-

- a) Coordination of actions of the Ministries or Departments of the Government of India, State Governments, National Authority, State Authorities, governmental and non-governmental organizations in relation to disaster management
- b) Ensure the integration of measures for prevention of disasters and mitigation by Ministries or Departments of the Government of India into their development plans and projects
- c) Ensure appropriate allocation of funds for prevention of disaster, mitigation, capacity-building and preparedness by the Ministries or Departments of the Government of India
- d) Ensure that the Ministries or Departments of the government of India take necessary measures for preparedness to promptly and effectively respond to any threatening disaster situation or disaster;
- e) Cooperation and assistance to the State Governments, as requested by them;
- f) Deployment of naval, military, air forces and other armed forces of the Union or any other civilian personnel as may be required for the purposes of this Act.

Section 36

It shall be the responsibility of every Ministry or Department of the Government of India to-

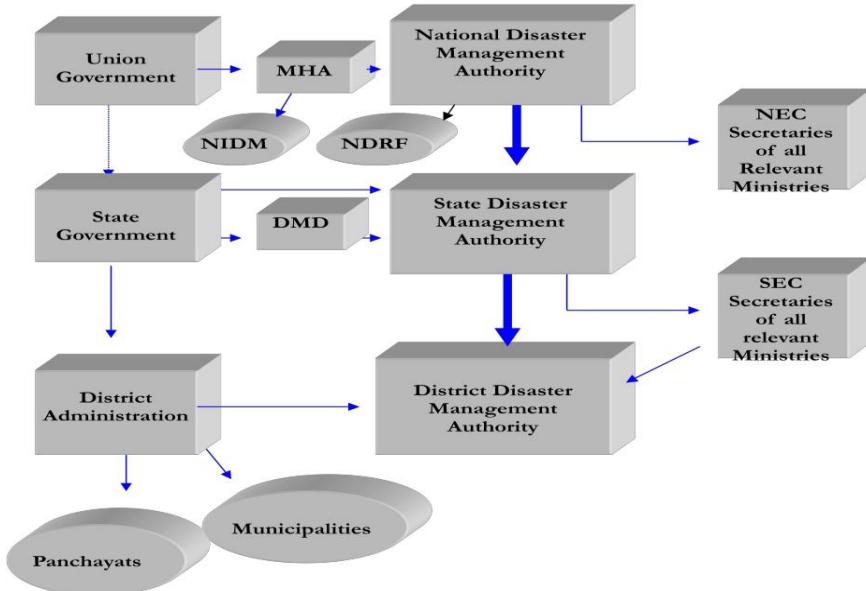
- a) Take measures necessary for prevention of disasters, mitigation, preparedness and capacity-building in accordance with the guidelines laid down by the National Authority
- b) Integrate into its development plans and projects, measures for prevention or mitigation of disasters in accordance with the guidelines laid down by the National Authority
- c) Respond effectively and promptly to any threatening disaster situation or disaster in accordance with the guidelines of the National Authority or the directions of the National Executive Committee in this behalf
- d) Review the enactments administered by it, its polices, rules and regulations and incorporate provisions for prevention of disasters, mitigation or preparedness
- e) Allocate funds for measures for prevention of disaster, mitigation, capacity-building and preparedness
- f) Provide assistance to the National Authority and State Government for:-
 - i) Drawing up mitigation, preparedness and response plans, capacity building, data collection, identification and training of personnel in relation to disaster management
 - ii) Carrying out rescue and relief operation in the affected area
 - iii) Assessing the damage from any disaster
 - iv) Carrying out rehabilitation and reconstruction
- g) Make available its resources to the National Executive Committee or a State Executive Committee for the purposes of responding promptly and effectively to any threatening disaster situation or disaster, including measures for:-
 - (i) Providing emergency communication in a vulnerable or affected area
 - (ii) Transporting personnel and relief goods to and from the affected area
 - (iii) Providing evacuation, rescue, temporary shelter or other immediate relief
 - (iv) Setting up temporary bridges, jetties and landing places
 - (v) Providing, drinking water, essential provisions, healthcare, and services in an affected area
 - (vi) Take such other actions as it may consider necessary for disaster management

Section 37

- (1) Every Ministry or Department of the Government of India shall-
 - a) Prepare a disaster management plan specifying the following particulars, namely;
 - (i) The measures to be taken by it for prevention and mitigation of Disasters in accordance with the National Plan;
 - (ii) The specifications regarding integration of mitigation measures in its Development plans in accordance with the guidelines of the National Authority and the National Executive Committee;
 - (iii) Its roles and responsibilities in relation to preparedness and capacity-building to deal with any threatening disaster situation or disaster;

- (iv) Its roles and responsibilities in regard to promptly and effectively responding to any threatening disaster situation or disaster;
 - (v) The present status of its preparedness to perform the roles and responsibilities specified in sub-clauses (iii) and (iv);
 - (vi) The measures required to be taken in order to enable it to perform its responsibilities specified in sub-clauses (iii) & (iv)
- b) Review and update annually the plan referred to in clause (a);
 c) Forward a copy of the plan referred to in clause (a) or clause (b), as the case may be, to the Central Government which Government shall forward a copy thereof to the National Authority for its approval.
- (2) Every Ministry or Department of the Government of India shall-
- a) Make, while preparing disaster management plan under clause (a) of sub section (1), provisions for financing the activities specified therein;
 - b) Furnish a status report regarding the implementation of the plan referred to in clause (a) of sub-section (1) to the National Authority, as and when required by it.

Institutional Framework Under the Disaster Management Act, 2005



No Railway official is nominated either in National Executive Committee (NEC) or State Executive Committee (SEC), though they can be co-opted as per need.

Summary of NDMA Guidelines on Earthquakes and Floods

Railway Infrastructure	Earthquake Proneness Review	Flood Proneness Review
<ul style="list-style-type: none"> • Railway Track formation (incl. station Yards, bridges/culverts, ROBs/RUBs, etc) • Buildings housing signaling gears like RRI, SSI etc. • Station buildings • Control room, other important office building, etc. • High-rise residential buildings, other important residential buildings • Railway hospitals 	<ul style="list-style-type: none"> • New Construction: <ul style="list-style-type: none"> - Must be earthquake resistant. • Existing infrastructure <ul style="list-style-type: none"> - Identify existing Infrastructure falling under various seismic zones. - Review for earthquake resistant adequacy based on age, foundation and other details. - Retrofit/rebuild to make it earthquake resistant. - Training of Engineers(at various levels) - Associated with design and construction of railway infrastructure. 	<p>New Construction</p> <ul style="list-style-type: none"> ○ Railway station buildings should be located in such a fashion that 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 years rainfall and the likely subversion due to drainage congestion. ○ 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 or stilts. ○ Railway track at levels well above the likely flood levels. <p>Existing Infrastructure:-</p> <ul style="list-style-type: none"> ○ Co-ordination with flood/rain forecasting agencies to get early warning so as to introduce patrolling. Speed restriction etc. as per the provision in railway's SR. ○ Inspections of railway affecting works to be streamlined and timely ensured. ○ Review of waterways for adequacy and alignment and measures to modify, if needed. ○ Status note on the lessons learnt from the previous flood situations in the past 5 years. ○ Bye-laws for buildings in flood plains. ○ Making existing and new buildings and infrastructure capable of withstanding fury of floods.

Chapter-3

NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

3.0 The Disaster Management Act, 2005, provides the powers, roles and jurisdiction of a National Authority as under:-

3.1 Powers and functions of National Authority:

Subject to the provisions of this Act, the National Authority shall have the responsibility for laying down the policies plans and guidelines for disaster management for ensuring timely and effective response to disaster. The National Authority may:-

- a) Lay down policies on disaster management;
- b) Approve the National Plan;
- c) Approve plans prepared by the Ministries or Departments of Government of India in accordance with the National Plan;
- d) Lay down guidelines for the State Authorities to draw up the State Plan;
- e) Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;
- f) Coordinate the enforcement and implementation of the policy and plan for disaster management;
- g) Recommend provision of funds for the purpose of mitigation;
- h) Provide such support to other countries affected by major disasters as may be determined by the Central Government;
- i) Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary;
- j) Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management;

3.2 Constitution and Role of NDMA :

It is constituted under the DM Act as the apex body in the country to deal with Disaster Management holistically. Hon'ble Prime Minister is the ex-officio Chairperson of the Authority. NDMA is responsible for laying down the policies, plans and guidelines for disaster management for ensuring timely and effective response to disaster. State and Districts have also been mandated to constitute State and District Disaster Management Authorities respectively on the line of NDMA.

3.3 Constitution of Advisory Committee by National Authority:

The National Authority may constitute an Advisory Committee consisting of experts in the field of disaster management and having practical experience of disaster management at the National, State or District level to make recommendations on different aspects of disaster management.

3.4 National Executive Committee

The Central Government shall, immediately after issue of notification under sub-section (1) of section 3, constitute a National Executive Committee to assist the National Authority in the performance of its functions under this act. The National Executive Committee shall consist of the following members, namely:-

- (a) The Secretary to the Government of India in charge of Ministry or Department of the Central Government having administrative control of the disaster management, who shall be Chairperson, ex-officio.
- (b) The Secretaries to the Government of India in the Ministries or Departments having administrative control of the agriculture, atomic energy, defense, drinking water supply, environment and forests, finance (expenditure), health, power, rural development, science and technology, space, telecommunication, urban development, water resources and the Chief of the Integrated Defense Staff of the Chiefs of Staff Committee as ex-officio members.

The National Executive Committee shall assist the National Authority in the discharge of its functions and have the responsibility for implementing the policies and plans of the National Authority and ensure the compliance of directions issued by the Central Government for the purpose of disaster management in the country.

The National Executive Committee may-

- Act as the coordinating and monitoring body for disaster management;
- Prepare the National Plan to be approved by the National Authority;
- Coordinate and monitor the implementation of the National Policy;
- Lay down guidelines for preparing disaster management plans by different Ministries or Departments or State Authorities;
- Provide necessary technical assistance to the State Government and State Authorities for preparing their DM plans in accordance with the guidelines laid down by the National Authority;
- Monitor the implementation of the National Plan and the plans prepared by the Ministries or Departments of the Government of India;
- Monitor the implementation of the guidelines laid down by the National Authority for Integrating of measures for prevention of disasters and mitigation by the Ministries or Departments in their development plans and projects;
- Monitor, coordinate and give directions regarding the mitigation and preparedness measures to be taken by different Ministries or Departments and agencies of the Government;
- Evaluate the preparedness at all governmental levels for the purpose of responding to any threatening disaster situation and give directions where necessary for enhancing such preparedness;
- Plan and coordinate specialized training programme for disaster management for different levels of officers, employees and voluntary rescue workers;
- Coordinate response in the event of any threatening disaster situation or disaster;
- Lay down guidelines for, or give directions to, the concerned Ministries or Departments of the Government of India, the State Government and the State Authorities regarding measures to be taken by them in response to any threatening disaster situation or disaster;
- Require any department or agency of the Government to make available to the National Authority or State Authorities such men or

- material resources as are available with it for the purposes of emergency response, rescue and relief;
- Advise, assist and coordinate the activities of the Ministries or Departments of the Government of India, State Authorities, statutory bodies, other governmental or non-governmental organizations and others engaged in disaster management;
- Provide necessary technical assistance or give advice to the State Authorities and District Authorities for carrying out their functions under this Act;
- Promote general education and awareness in relation to disaster management;
- Perform such other functions as the National Authority may require it to perform.

3.5 National Plan :-

There shall be drawn a plan for Disaster Management for the whole of the country to be called the National Plan;

The National Plan shall be prepared by the National Executive Committee having regard to the National Policy and in consultation with the State Governments and expert bodies in the field of Disaster Management to be approved by the National Authority;

The National Plan shall include:-

- Measures to be taken for the prevention of disasters, or the mitigation of their effects;
- Measures to be taken for the integration of mitigation measures in the development plans;
- Measures to be taken for preparedness and capacity building to effectively respond to any threatening disaster situations or disaster;
- Role and responsibilities of different Ministries or Departments of the Government of India in respect of measures specified in clauses (a), (b) and (c).

The National Plan shall be reviewed and updated annually. Appropriate provisions shall be made by the Central Government for financing the measures to be carried out under the National Plan.

Guidelines for minimum standards of relief :

The National Authority shall recommend guidelines for the minimum standards of relief to be provided to persons affected by disaster, which shall include-

- (a) The minimum requirements to be provided in the relief camps in addition to shelter, food, drinking water, medical cover and sanitation;
- (b) The special provisions to be made for widows and orphans;
- (c) Ex gratia assistance on account of loss of life as also assistance on account of damage to houses and for restoration of means of livelihood;
- (d) Such other relief as may be necessary;

Relief in loan repayment, etc.

The National Authority may, in cases of disasters of severe magnitude recommend relief in repayment of loans or for grant of fresh loans to the persons affected by disaster on such concessional terms as may be appropriate;

3.6 Role of the Nodal and other Central Ministries and Departments etc :-

For various types of disasters, the nodal Ministry concerned will chart out detailed Response Plans which will be integrated into the National Response Plan. The NEC may coordinate response in the event of any threatening disaster situation or disaster.

➤ Role of Central Ministries and Departments

As disaster management is a multi-disciplinary process, the National Policy on Disaster Management lays down that all Central Ministries and Departments will have a key role in the field of disaster management. The nodal Ministries and Departments of Government of India (i.e. the Ministries of Agriculture, Atomic Energy, Civil Aviation, Earth Sciences, Environment and Forests, Home Affairs, Health, Mines, Railways, Space, Water Resources etc.) will continue to address specific disasters as assigned to them.

3.6.1 Institutional Arrangements of Central Government:-

3.6.1.1 Armed Forces :-

Conceptually, the Armed Forces are called upon to assist the civil administration only when the situation is beyond their coping capability. In practice, however, the armed forces form an important part of the Government's response capacity and are immediate responders in all serious disaster situations. On account of their vast potential to meet any adverse challenge, speed of operational response and the resources and capabilities at their disposal, the armed forces have historically played a major role in emergency support functions. These include communication, search and rescue operations, health and medical facilities, and transportation, especially in the immediate aftermath of a disaster. The air and heli-lift and movement of assistance to neighboring countries primarily fall within the expertise and domain of the armed forces. The armed forces will participate in imparting training to trainers and DM managers, especially in CBRN aspects, heli-insertion, high altitude rescue, watermanship and training of paramedics. At the national level, the Chief of the Integrated Defense Staff and the Chairman Chiefs of Staff Committee has already been included in the NEC. Similarly, at the State and District levels, the local representatives of the armed forces may be included in their executive committees to ensure closer coordination and cohesion.

3.6.1.2 Central Para Military Forces :-

The Central Paramilitary forces, which are also the armed forces of the Union, play a key role at the time of immediate response to disasters. Besides contributing to the NDRF, they will develop adequate disaster management capability within their own forces and respond to disasters which may occur in the areas where they are posted. The local representatives of the CPMFs may be co-opted/invited in the executive committee at the State level.

3.6.1.3 State Police Forces and Fire Services :

The State Police forces and the Fire Services are crucial immediate responders to disasters. The police force will be trained and the Fire Services upgraded to acquire multi-hazard rescue capability.

3.6.1.4 Civil Defense and Home Guards :

The mandate of the Civil Defense and the Home Guards will be redefined to assign an effective role in the field of disaster management. They will be deployed for community preparedness and public awareness. A culture of voluntary reporting to duty stations in the event of any disasters will be promoted.

3.6.1.5 State Disaster Response Force (SDRF):-

States will be encouraged to create response capabilities from within their existing resources. To start with, each state may aim at equipping and training one battalion equivalent force. They will also include women members for looking after the needs of women and children. NDRF battalions and their training institutions will assist the States/UTs in this effort. The States/UTs will also be encouraged to include DM training in their respective Police Training Colleges and basic and in-service courses for gazetted and non-gazetted officers.

3.7 Guidelines issued by NDMA and Action thereon

NDMA have issued guidelines on the Management of Earthquakes, Cyclones, Floods, Medical Preparedness and Mass Casualty Management, Chemical Disasters, Biological Disasters, Nuclear Disasters, Chemical (Terrorism) Disaster, Landslides and Snow Avalanches and Preparation of State Disaster Management Plans, Incidence Response System, strengthening of Safety and securing for transportation of POL Tankers, Management of Tsunamis, Role of NGOs in DM, Management of Drought etc. These guidelines are available on the NDMA website at <http://ndma.gov.in>. These Guidelines are statutory and mandate all the stake-holders including Railways to take necessary measures for prevention and mitigation of all types of disasters possible on their system and also to have mechanism in place for rescue, relief and restoration, if these happen.

3.8 Guidelines on Chemical Disasters issued by NDMA are very relevant for the Railways, as we transport a number of hazardous chemicals by rail. These guidelines add to safeguards listed in the Red Tariff on handling, storage and transportation of hazardous material. These guidelines are directed more towards their prevention and mitigation of their effects, if these happen, than on rescue and relief operations afterwards.

3.9 Guidelines on Chemical (Terrorism) Disaster call for the railways to strengthen mechanism against chemical terrorism related disasters. Medical and RPF personnel would be required to be given specialized training to handle such a disaster.

3.10 Guidelines on Nuclear and Biological Disasters call for the railways to take stipulated precautions in the transportation of Radio-active substances and Chemical (Biological) items.

3.11 Guidelines on Preparation of State Disaster Management Plans concern the zonal Railways to the extent that co-ordination mechanism between the State Governments and the Railways should be institutionalized for disaster response. The Relief Commissioners in the States may be coordinated for assistance required from the State Governments, district officials as also to involve NGOs. Mutual sharing of each other's strengths and facilities has to be institutionalized as a system.

3.12 Guidelines on Management of Earthquakes, Cyclones, and Floods broadly necessitate zonal Railways to survey their existing infrastructure with respect to earthquake, floods and cyclone preparedness based on the vulnerability maps and to take necessary action for making the infrastructure resistant to such disasters. All new construction should henceforth necessarily be disaster resistant.

3.13 Guidelines on Medical Preparedness and Mass Casualty Management
 envisage train based casualty transport and evacuation system with following highlights:

1. In MCM (Mass Casualty Management), wherever required Railways needs to provide transportation facility for Mass Casualty Evacuation (MCE). Where required, ARMs or special trains may be run to facilitate relief from the nearest coaching terminal to the disaster site.
2. The railway disaster plan will provide support to the community and local administration during mass casualty emergencies. Assistance through Railways' infrastructure of Hospitals etc. has to be provided as and when it is asked for.

NDMA have issued Guidelines on:-

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

Reports by NDMA:- NDMA has further issued following Reports (As Broad Guidelines)

1.	Revamping of Civil Defense
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 Defense and sister Organizations(part-I)
16.	Hand Book for Training and Capacity Building of Civil Defense and sister Organizations(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.

Chapter-4

DISASTER PREPAREDNESS AVAILABILITY OF RESOURCES

Railways are generally self-reliant in carrying out rescue and relief operations as a result of having a well organized set up including ARMVs 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.

Disaster Management mechanism in Railways can be maintained at a high level of preparedness and efficiency by keeping all resources readily available and in good fettle. 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, complied and placed in a 'Data Bank'. This Data Bank is available in the divisional DM Plans. These have also been put on ECR's Web Site (www.ecr.railnet.gov.in) for ready access.

Resources available in case of a major accident 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 ARMV/ART depots and elsewhere within the division.
- (3) Resource Unit III-Railway resources available at ARMV/ART depots and elsewhere on adjoining Zones and Divisions.
- (4) Resource Unit IV -Non-railway resources available within or outside the division.

1. Resource Unit -I

(a) Resources available on trains carrying Passengers

- (i) First Aid Box available with the Guard.
- (ii) First Aid Box available with Train Superintendent and in the Pantry Car.
- (iii) Portable Telephones, Fire Extinguishers in Brake Van.
- (iv) Portable Telephones in Locomotives.
- (v) Walkie-Talkie with Guard and Driver.
- (vi) Cell Phones/Mobile communications with Passengers.
- (vii) Information collected by Train Superintendent/Travelling Ticket Examiner about Medical Practitioners traveling on the train.
- (viii) Information collected by TS/TTE about Railway Officers travelling on the train.
- (ix) Railway staff travelling on the train-either on duty or on leave as passengers.
- (x) 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 town.
- (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 railway own rescue team arrives.
- (v) Such local networks are most effective in rushing assistance immediately, especially with regard to :
 - medical succor,
 - additional manpower,
 - rescue equipment,
 - lighting arrangements,
 - transport services,
 - fire fighting 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.

2. Resource Unit - II

- (i) AMRVs, ARTs with 140 T crane are stabled at nominated stations. their locations are given in DM Plan.
- (ii) Railway medical and departmental resources.

3. Resource Unit - III

- (i) Location of AMRVs, ARTs with 140 T crane based on adjoining Zones/Divisions are given in DM Plan.
- (ii) Section wise chart of which ARMVs/ARTS are to be requisitioned from adjoining Zones/Divisions is given in Divisional/zonal DM Plans.
- (iii) Resources of men and material available on adjoining Zones/Divisions are given in their data bank and included in the Zonal/Divisional DM Plans of respective Zones/Divisions.

4. Resource Unit - IV :

- (i) Non-railway resources available within the division-as given in the data bank and included in the Divisional DM Plan.
- (ii) Non-railway resources available outside the division-as given in the data bank and included in Part-II.

Chapter-5

DISASTER PREPAREDNESS -SPART/ARMV/ARTs

1. ACCIDENT RELIEF MEDICAL VAN (ARMV)

SPART/ARME –Equipment stored in Spl. Medical Relief Vans stabled in separate sidings.

- i. Location of SPART/ARME are given below:-
- ii. One key of the Van is available with the Loco foreman or Station Master in a glass fronted case.
- iii other key is with the doctor Incharge of the ARMV.
- iv. Medicines and equipments are provided as per Rly. Board norms.
- v. Keys of all locks inside the ARMV are also in duplicate. One set of keys is kept with the medical officer Incharge of ARMV and the other set of keys are kept in a glass fronted case inside the ARMV.
- vi. The target time for turning out of ARMV is 15 minutes in day and 25 minutes in the night from the time of sounding of Hooter.

1.1 LOCATION OF SPART/ARME

PLACE	BRAKE	LOAD	Cold Cutting Equipment	Speed Kmph
DDU(SPART)	AB	03=06	Yes	100
GYA(ARME)	AB	02=04	Yes	100

1.2. ACCIDENT RELIEF MEDICAL EQUIPMENT SCALE-II

- (i) ARME Scale II are Available at DOS,SEB
- (ii) The medical equipment is kept sealed without any lock.
- (iii) The Scale II room has duplicate keys.
- (iv) One is with the Medical officer and the other is in Station Master's Office.
- (v) These are to be taken out and rushed to the site of an accident by any train or available road vehicle.

1.3 Section wise chart for requisitioning of ART, ARMVs/ Crane:-

Pt.Deen Dayal Upadhyaya		DIVISION		DIVISION	
BG Line	BG Line	Line	Line	Accident Relief Train Station	Accident Relief Train Station
Gaya	DDU	A	A	Relief Train Type	Relief Train Type
B	LUKAS	HRE Type	BD Crane provision/ Capacity	ARMV provision	Accident Relief Train Beat
		140 Ton (Diesel)		Yes SPART	DDU-DOS-GHD (Excl.)SSM-ARA(Excl)DDU Zafrabad (Inc.) DDU-Janghahi & Jingura, DDU BXR (Inc.) Dildarnagar-Tarighat B.R.
					a) DDU Division b) DDU- Zafrabad, Janghahi- Jingura c) DDU- Tarighat d) DDU-Gorakhpur, Sonpur, Barasta, Bhatni and nearest Branch line & siding.
					Gaya-Nawada (Inc.), Gaya-Jahanabad(Inc.), SSM (Inc.), JPL (Inc.), Kodarma (Excl.), Hazaribagh Town, Kodarama (Excl.) Kawar
					Not applicable
					GYA-DOS GYA-JPL GYA-GURPA GYA-JAHANABAD GYA-NAWADA KODARMA(Excl.) HAZARIBAGH TOWN KODARMA(Excl.) KAWAR

Section wise chart for requisition of ARMV					
Division	Section	First End	Other end	2 Extra ARMV	Remarks
DDU	(I) DDU-GYA	DDU	GYA	DNR-DHN	***** ECR
	(II) DDU-GHD	DDU	GHD	GYA ***** , BRWD *****	***** ECR
	(III) DDU-ARA	DDU	ARA	DNR, ALD	ECR & NCR

2. **ACCIDENT RELIEF TRAIN:**

- (i) ART Locations are given below:-
- (ii) ART Special formation is stabled complete on a separate siding having double entry for faster exit in both directions.
- (iii) Rescue/Restoration equipment is kept as per Railway Board's instructions.
- (iv) BD Special keys are with the following officials:
 - Mechanical Tool Van SSE/SE/JE/Mechanical.
 - Engineering Tool Van SSE/SE/JE/Permanent Way.
- (V) Crane Supervisor will ensure availability of adequate fuel and water in the crane at all times.
- (vi) On getting emergency call, the Crane Supervisor shall check and ensure:
 - Correct marshalling of Crane according to site requirement.
 - Alert the stand by Crane Operator of 140T Crane.
- (vii) In case road approach is faster, re-railing equipment may be moved by road as required.
- (viii) The target time for turning out of ART is 30' by day and 45' by night from the time of sounding of siren.

2.1 **LOCATION OF ARTs**

DIVISION	DEPOT	ART			
		CLASS	Brake	Load	Speed Kmph
DDU	DDU	A	AB	6=12	100
	GYA	B	AB	7=14	100

2.2. LOCATION OF CRANE BASE

DIVN	DEPOT	CRANE		
		Speed (Kmph)	Ton	Brake
DDU	Pt.Deen Dayal Upadhyay	100	140 T	AB

3.Location of ARTs/ARMVs/Cranes/Bulldozers of adjacent division/ zone

Zone	Place	ART	ARME	Crane	Bulldozer	Cold Cutting equipment
E.C.Railway	DHN	Yes	Yes	Yes	Yes	Yes
	DNR	Yes	Yes	Yes	-	Yes
North Central Railway	Allahabad	Yes	Yes	Yes	-	yes
	Kanpur	Yes	Yes	Yes	Yes	Yes

4. Authority to order movement of ARMVs & ARTs to site:

- (i) On receipt of information about serious accident involving casualties, ARMVs and ARTs shall be ordered immediately.
- (ii) This decision would be taken by the Dy. CHC (Chg.) on duty and nobody's authorization would be required for ordering the same.
- (iii) After sounding of siren the ARMV and ART should be run out within the stipulated target time.

Chapter-6

DISASTER PREPAREDNESS : USE OF ON BOARD RESOURCES

(A) PORTABLE TELEPHONE :

1. Types of Portable Telephones :

- (i) Portable Telephones are available in Brake van of Passenger carrying Trains.
- (ii) Telephones presently in use are of the 4-wire/2-wire type of portable phones which can be used in RE area as well as in overhead communication territory.
- (iii) There are two types of Portable Telephones
 - Land line type (Overhead Telephone line transmission)
 - Socket Type (Underground cable transmission)
- (iv) In overhead territory additional poles are to be carried by Guards for connecting phones to the overhead lines.

2. How to use 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 color bracket side connects the section controller telephone line.
- (v) Circuit on the Green color 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.

(B) 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.
- (iv) Never press "SOS" button provided in walkie-talkie unless it is a real emergency. In case of emergency if "SOS" button is provided on the mobile, it should be used to override an ongoing conversation.

(C) Use of BSNL/Cell phone/Mobile phones :

- (i) BSNL phone numbers with STD code for Railway Station in a Division are given in (Working Time Table).
- (ii) WTT is available with Guard, Driver, and Assistant Guard.
- (iii) Refer WTT for nearest Station contact number.
- (iv) BSNL phone numbers of important Stations are also available in Public Time Table.

(D) EMERGENCY TRAIN LIGHTING BOX :

1. How to use ETL 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.

Chapter-7

DISASTER RESPONSE – OVERVIEW

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 reduces drastically, even with the best of Medical attention thereafter.

This one hour period is generally known as The Golden Hour.

During Golden Hour period every effort should be made to :

- (i) Render definite medical care to the extent possible preferably by qualified medical practitioners.
- (ii) Stop bleeding and restore Blood Pressure.
- (iii) Persons under shock should be relieved of shock immediately.
- (iv) Transport casualties to the nearest hospital so as to reach within this Golden Hour period.

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.

2. Disaster Syndrome :

A victim's initial response following a Disaster is in three stages, viz. Shock stage, Suggestible stage and Recovery stage. These initial responses 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.

3. 3 Different phases of Disaster Response :

Disaster Response in case of a railway accident, constitutes 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 which 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 and much better equipped. Their contribution is vital 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 with the departure of most relatives and next of kin from the accident site and disposal of all bodies. Few of the grievously injured who continue to be hospitalized 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 whom 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. 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, 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 the tongue comes forward and the airway is cleared. To clear the other objects in the mouth press the Jaw, open the mouth put your fingers or a clean cloth in the mouth and clear the things. Now the air passage is clear.

(iv) 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**.

- (i) If patient is breathing, has circulation but is unconsciousness, immediately turn him to Recovery position and transport to hospital.
- (ii) 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 to give 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 2:15. 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)

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 at least turn the casualty to **Recovery Position**, which would help to save many precious lives.

Chapter-8

DISASTER RESPONSE – INSTANT ACTION TEAM

INSTANT ACTION TEAM (IAT) :

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 traveling on the train on duty.
- (iii) Railway staff traveling by the accident involved train either on duty or on leave as passengers.
- (iv) Doctors traveling by the train.
- (v) Passengers traveling on the train who volunteer for rescue and relief work.
- (vi) Railway staff working at site or available nears the site of the accident.
- (vii) Non-Railway personnel available at or near the accident site.

2. Pre – accident checklist of preparation for Members of Instant Action Team :

- (i) Generally, about 15" time elapses before information regarding occurrence of an accident reaches the Divisional Control Office. In case information can be conveyed immediately this time can be saved. This 15' time is of vital importance since it constitutes 25% of the 'Golden Hour'.
- (ii) In case they have a Mobile, ensure that telephone numbers of all relevant officials such as those of divisional control offices etc. have been permanently fed into the Mobile for immediate use in an emergency.
- (iii) These important telephone numbers should cover all those sections where they are required to work their train either within their own division or even those of adjoining divisions.
- (iv) Divisions will get printed and circulate a DM Telephone Directory containing all such telephone numbers that are likely to be required in an emergency.
- (v) Whenever they are traveling at night they should keep a torch handy and secure it by some means. The torch will be of no use in an emergency if it cannot be taken out from inside the suitcase at that point of time; or if the torch cannot be located since it has fallen off due to severe jerk.

3. Duties of Guard, Driver and other Commercial Staff :

Detail duty list of Guard and Driver are laid down in the Accident Manual of Zonal Railways. Some of the more important ones are enumerated below

(a) Guard :

- (i) Note the time of the accident and the location.
- (ii) Switch on the Amber Light, if provided, in Flashing Tail Lamp, in the rear of brake van.
- (iii) Inform Driver through walkie – talkie set.
- (iv) Inform Station Master on walkie – talkie set, if possible.
- (v) Protect adjacent line/lines if required and the line on which the accident has taken place as per G&SR 6.03.

- (vi) Secure the train and prevent escaping of vehicles.
- (vii) Make a quick survey of magnitude of accident 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. For this purpose,
 - (a) Walkie – talkie communication provided with stations should immediately be used.
 - (b) Otherwise field telephone should be used.
 - (c) If a train comes on the other line which is not blocked the same should be stopped and information sent through the driver.
 - (d) Assistant driver may be sent to the next station to convey information of the accident.
 - (e) All of the above fail, one of the railway staff on duty on the train should be sent on foot to the nearest station.
- (ix) Utilize Emergency Train Lighting box to facilitate medical aid.
- (x) Save lives and render First Aid.
- (xi) Call for Doctors and seek their assistance.
- (xii) Seek assistance of railway staff and other volunteers from train to rescue injured or entrapped passengers.
- (xiii) Direct railway staff and other volunteers from train for attending to injured.
- (xiv) Ensure that field telephone is constantly manned by a railway staff.
- (xv) Arrange protection of passengers' belongings and railway property with the help of railway staff, volunteers on train, RPF and GRP.
- (xvi) Stop running trains on adjacent line and utilize resources on that train.
- (Xvii) In electrified section if OHE is affected, take steps to switch off OHE supply.
- (Xviii) Arrange for transportation of injured to hospital.
- (Xix) Record evidence or statements, if any, given by passengers.
- (xx) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed.
- (xxi) Log your activities. Do not leave the spot unless you are relieved by a competent authority.

(b)Driver :

- (i) Note the time of the accident and location.
- (ii) Switch ON the 'Flasher light' of the locomotive and give 4 short whistles.
- (iii) Inform Guard on walkie – talkie set.
- (iv) Light the fusee, if required.
- (v) Inform Station Master on walkie – talkie set, if possible.
- (vi) Protect the adjacent line, if required, and the train in front as per G&SR 6.03.
- (Vii) Take necessary action to keep the loco safe.
- (viii) Take necessary action to prevent Loco/Vehicles/ Wagons from rolling down.
- (ix) Make a quick survey of magnitude of accident and roughly assess casualty, damage and assistance required.
- (x) Send information through quickest means to Control Office and SMs on either side of the block section. For this purpose,
 - (a) Walkie – talkie communication provided with stations should immediately be used.
 - (b) Otherwise field telephone should be used.
 - (c) If a train comes on the other line which is not blocked the same should be stopped and information sent through the driver.
 - (d) Assistant driver may be sent to the next station to convey information of the accident.

- (e) If all of the above fail, one of the railway staff on duty on the train should be sent on foot to the nearest station.
- ((xi)) Render all possible assistance to the guard.
- (xii) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed.
- (xiii) Log your activities. Do not leave the spot unless you are relieved by competent authority. a
- (xiv) If necessary detach Loco and take it to inform SM.

(c) Train Superintendent/Traveling Ticket Examiner :

- (i) Preserve reservation charts of each coach containing names of passengers who actually traveled and in which berth no.
- (ii) Avail services of Doctors traveling by the train and render Medical Aid.
- (iii) Render First Aid to injured.
- (iv) Collect particulars of injured passengers and prepare a list showing exact position of injured in coaches, from Train Engine to Brake Van. This should be handed over to railway doctors when ARMV 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) Arrange for refreshments and drinking water free of cost to the affected passengers.
- (x) Record Evidences or statement given by passengers/others at site.

(d) AC Mechanic/Attendant:

- (i) If required, Switch off the power supply to avoid short-circuiting.
- (ii) They will ensure that all precautions are taken to prevent any problem arising of short circuit consequent to accident.
- (iii) To switch OFF the AC machine and work on Exhaust to minimize the comfort of AC passengers and run down of the battery.
- (iv) They will ensure that all precautions/steps are taken to avoid short circuits and the problem arising out of the short circuit.
- (v) In case of fire advise passenger to move to the adjacent Coach, stop train by ACP and extinguish fire using correct fire extinguisher.
- (vi) They will open emergencies windows and vestibules and break-open AC windows wherever required for providing escape routes to passengers when the doors are jammed.
- (vii) They will use the bed sheets and others linens item in their custody for covering dead bodies.
- (viii) Assist the TS/TTS in their duties at the accident site.

(e) RPF and 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.

(f) Pantry Car's Staff:

- (i) They will work as per guidance of team leader and will help in saving as many lives as possible by rescuing injured that are entrapped.
- (ii) They will provide food and water to the injured and other passengers to the extent possible.
- (iii) They will provide hot water and other things available with them for other use of injured and other passengers.

4. 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 traveling on the train either on duty or on leave are deemed to be ON DUTY with immediate effect.
- (ii) Under no circumstance 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 officer traveling on the train will assume charge as Officer-in-Charge Site (OC Site).
- (v) Normally the senior most officer will be traveling in either the 1AC or in 2AC coach; and most probably in the HOR quota section of the coach. In any case the TS/TTE would know who the railway officers are, traveling in 1AC or 2AC.
- (vi) Similarly, other railway staff will be traveling in 3AC coach; and most probably in the HOR quota section of the coach.
- (vii) Similarly, some Group 'D' railway staff may be traveling in Sleeper coach; and probably in the HOR quota section of the coach.
- (viii) In the absence of any officer, the TS or senior most TTE/Guard will discharge duties listed out for OC Site.

5. 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 as detailed at item 6 below.
- (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 & 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.
- (x) From here onwards, the DRM of the accident involved division takes over charge as OC Site.

6. 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 traveling by the same train who volunteer for rescue and relief work should also be drafted into these groups.
- (iii) Passengers from non accident involved coaches should be directed towards their own coach.
- (iv) Passengers from coaches which are affected can be distributed amongst other non 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 traveling 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.

7.Duties of on board railway staff immediately after the accident :

- (i) Don't panic. Once the accident has already occurred and the train has come to a standstill nothing worse can happen.
- (ii) In case you have a Mobile and it is working, inform the divisional control office immediately about the accident.
- (iii) Observe the position in which your coach has stopped; whether it is standing upright or turned upside down or lying on its side.
- (iv) Try and see whether your coach has stopped on a bridge or whether there is level ground on both sides.
- (v) In case the coach is on a bridge or very high embankment or in case it is raining heavily, then it is better to wait for some time and not be in a hurry to leave the coach. You may be jumping from the frying pan into the fire.
- (vi) Search your coach with your torch and try to determine the general position.
- (vii) See that passengers don't panic either. Passengers sometimes make things worse for themselves by panicking at this critical moment. Try to calm them and build up their confidence.
- (viii) Ascertain whether passengers are injured or not; and whether any of them are trapped or pinned down inside the debris.
- (ix) Call out aloud and find out whether there are any doctors present.
- (x) Doctors who are traveling in the coach should be asked to announce their presence so that they can attend to and help injured passengers.
- (xi) Call out aloud and find out whether there are any railway staffs present.

- (xii) Railway staff, who are traveling in the coach, should be asked to announce their presence so that they can attend to and help other passengers.
- (xiii) For each coach, form a core team comprising of railway staff available, doctors and 3 or 4 uninjured passengers from the same coach. This core team should take the lead in helping remaining passengers both injured and uninjured.

8.Duties of members of Instant Action Team – Till arrival of Divisional Officers

- (i) If a person is bleeding and losing blood, or if he is unconscious, then in that case you have to act quickly. 'Golden Hour' should be kept in mind. You may have at the most only one hour's time on hand.
- (ii) In such cases, immediately administer First Aid to the injured passenger and try and stop further loss of blood.
- (iii) Persons trained in first aid may do 'Cardio Pulmonary Resuscitation'. This may save several lives.
- (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 open 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 members.
- (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) It is better not to take out the luggage from inside the coaches at the first instance, for two reasons. Firstly, passengers both injured and uninjured should get preference in this evacuation process. Secondly, it may be safer for the luggage to be left inside where there are less chances of their being stolen or pilfered.
- (xii) After passengers have been evacuated from your coach, cross check with the reservation chart and against the name of each passenger note down as to whether he/she is injured or not.
- (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 your coach go over to the unreserved coaches and provide similar help to those passengers also.

- (xvi) Railway officials from divisional Hd.Qrts. Generally arrive at the site of the accident within 2 to 3 hours, depending on the distance of the accident site from the divisional hd.Qrts. Wait for them to come and make further arrangements.
- (xvii) Grievously injured passengers who are bleeding or those who are unconscious require immediate hospitalization. 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 are any passengers of your coach injured, then you should go to the unreserved coaches and carry out the duties as listed above

9.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, Fire Extinguisher 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.
- (ix) Building up confidence of injured passengers by suitable advice is of great importance.

10.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) There would be some 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) Otherwise, try and see if any light or any other signs from the village are visible.

- (iv) 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 as also their general direction.
- (v) Location of nearby villages as also their general direction will be available in the Divisional DM Plans.
- (vi) Having ascertained the general location of nearby villages, 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 best and 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. In most cases, the gateman will be able to give location of nearby villages.
- iv. The messenger should then try and stop a passing vehicle and go to the nearby village, inform villagers and seek their assistance.

(c)Organizing assistance from local people available 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 accident.

(ii) Everybody should be asked to rush to the accident site with following :

- tractor trolleys (both for transportation and for general lighting),
- as many cutting equipment's, hammers, chisels etc. as are available,
- ropes,
- ladders,

(iii) If doctors or para-medical staff are available in the village they should also be sent to 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.

Chapter-9

DISASTER RESPONSE

FIRST RESPONDERS

(A) Duties of First Responders – Local people :

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.
- (viii) As a thumb rule, any injury requiring hospitalization of more than 48 hrs. is grievous, hospitalization of less than 48 hrs. is simple, and any injury not requiring hospitalization at all is trivial.
- (ix) 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 injured.
- (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 ECR 98127, cabin number containing berths 9-16)

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.

(B) Duties of First Responders– Railway Staff :

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.

2. Gate men :

- (i) Keep gate closed if the train has not cleared the gate.
- (ii) On double/multiple line section stop any other train approaching the accident area by showing hand danger signal.
- (iii) Arrange to inform SM immediately.
- (iv) Don't meddle with Interlocking.
- (v) Avail services of road vehicles waiting or passing through LC Gate.
- (vi) Send message to nearby village, informing them regarding the accident.
- (vii) Collect men and material available nearby and direct them to site.

3. Station Master at adjoining station :

(a) 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 clear or not.
 - Damage to rolling stock.
 - Damage to track in terms of telegraph posts.
 - OHE masts damaged or not, and extent of damage.
 - Approximate number of dead and injured (grievous, simple) to be obtained 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.
 - Nearest Fire Station.
- (vi) 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.

(a) Medical assistance :

- (i) Call for assistance from local Doctors, SJAB, Civil and Army Hospitals.
- (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.

(b) 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 an emergency counter and display necessary information.
- (iv) Obtain reservation charts and display it.
- (v) Collect information on dead/injured and convey it whenever asked for.
- (vi) Make frequent announcements about diversion, cancellation, regulation of train services.
- (vii) Arrange for refund of fares as per extant rules.

(c) Transport assistance :

- (i) Arrange for transport from local resources, if available, for transporting injured passengers to nearest hospitals by fastest possible means.
- (ii) For this purpose, apart from tractor trolleys, even trucks passing on the highway can be utilized.
- (iii) Stranded passengers to be transported from the accident spot by arranging transshipment either by train or by hiring road vehicles.

(e) Security 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.

(f) Communication Assistance :

- (i) Direct passengers to PCO booths available nearby.
- (ii) Make available STD phone to relatives of dead/injured.

(g) Sending manpower for site :

- (i) Proceed to site of the accident 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.\

(h) Preservation of clues and evidences :

- (i) TI/SM first reaching the site shall take action to 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. Duties of TI/PWI/SI/CWI/LI :

(a) Rushing to accident site with men and material :

- (i) Before leaving for the site of accident organize maximum number of men to go to the accident site along with their equipment.
- (ii) Reach the site of accident by quickest available means.

(b) Rescue and relief :

- (i) Ensure that the obstructed line is protected.
- (ii) Direct all staff working under them to assist in rescue and relief work.
- (iii) All of them should work as per directions of OC Site.
- (iv) Assess casualties and arrange to render First Aid.
- (v) Shift injured to nearest hospital.

(c) Joint measurements and preservation of clues and evidences :

- (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, points 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. especially for preservation of clues.
 - 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.
- (iv) Condition of switches, ground connections, point locking, occupancy of track circuit, details of damage to out door signal/point gears should be noted down.
- (v) Seize and seal the Speed Recording Graph and all other registers and repair log book of the locomotive.
- (vi) Record details of Brake Power and other aspects of Rolling stock as per Performa.
- (vii) Joint measurements of rolling stock should be taken.
Note down observations, measurements of Loco etc. at site. If it is not possible arrange for taking the reading at shed.
- (viii) These can also be recorded on a video or digital camera subject to availability.
- (ix) Details of all readings taken and position of all equipment noted should be jointly signed by supervisors of all 5 departments at accident site.
- (x) Obtain statement of staff involved in the accident.
- (xi) CWI shall prepare a sketch showing position of Rolling stock.
- (xii) PWI shall prepare a final sketch indicating the position of track, with respect to alignment, point of mount, point of drop, OHE mast, point number etc.
- (xiii) Survey the situation, assess assistance required and issue message to Divisional Control Office.
- (xiv) Take charge of the situation pertaining to your own department and remain till Divisional officers arrive at the site.

Chapter-10

DISASTER RESPONSE OFFICERS AT DIVISION

(A) GENERAL:

1. Intimation of Accident- Divisional Control Office:
 - (i) In the Divisional Control Office, information regarding an accident is generally received either by the Sectional Controller or the TPC.
 - (ii) 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').
 - (iii) Accidents involving a passenger carrying train where the first information says that heavy casualties are expected, should prima-facie be treated as a Disaster.
 - (iv) 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.
 - (v) After all on-duty functionaries gather around the section control board they will be briefly informed about the accident.
 - (vi) Each functionary will thereafter resume his position and take steps to set in motion activities required of him.
 - (vii) 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.
 - (viii) PRC will undertake the following action in the given order of priority:
 - (a) Give orders to Loco Foreman for sounding the siren for ARMVs and ARTs.
 - (b) PRC will also order movement of ARMV and ART (With 140 T crane) from adjoining divisions for approaching the accident site from the other end; details given in Chapter-3
 - (c) Thereafter he will inform his departmental officers and supervisors.
 - (ix) Dy. CHC (Chg.) will first inform Hospital Casualty. Thereafter he will inform officers and supervisors as given below.
 - (x) Each departmental functionary will inform divisional officers and supervisors of his department about the accident as detailed below:

<u>Functionary</u>	<u>Officers and Supervisors</u>
- Dy. CHC (Op)	Operating & Safety
- Dy. CHC (Chg.)	Hospital Casualty, DRM, ADRM, Medical
- TPC	Electrical/TRD
- TLC	Electric/OP
- C&W CNL	Mechanical
- Engg. Control	Engineering , Personnel, Accounts
- Electric CNL	Electrical (G)
- Test Room	S&T, Stores
- Commercial Control	Commercial, Public Relations
- Security Control	RPF
 - (xi) For this purpose, 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.
 - (xii) After Dy. CHC (Chg.) has informed Hospital Casualty, DRM, ADRM Medical Doctors, he will then inform Dy. CHC (Chg.) or Dy. CHC (Op) in Hdqrts. Emergency Control regarding the accident.

2. Intimation of Accident-Railway Doctors:

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

- (i) Note down time of receiving message.
- (ii) Inform CMS, MS, other Doctors & para medical staff and instruct them to reach the ARMV immediately.
- (iii) Collect necessary Medical team in the hospital.
- (iv) Inform CMD about movement of ARMV.
- (v) Alert blood donors, SJAB.
- (vi) Bare minimum medical team should remain in the hospital; rest of the doctors should be rushed to the accident site.
- (vii) Arrange to move Emergency boxes from ARME Scale-II locations to the accident site.

3. Informing Non-Railway Officials:

- (i) DM, SP and CMS of the district within which the accident site falls should be informed regarding the accident by the CHC.
- (ii) ADRM will inform the following regarding the accident:
 - IG/GRP,
 - ADG/GRP,
 - Divisional Commissioner,
 - Home Secretary
- (iii) In case POL rake is involved, then IOC/BPC/HPC officials should also be informed.
- (iv) In case Mail bags of RMS are involved, then Postal officials should also be informed.
- (v) Telephone numbers of all DMs, SPs, CMSs and Divisional Commissioners are available in Divisional DM Plans.
- (vi) Telephone numbers of IOC, BPC and HPC officials are also available in the Divisional DM Plans.
- (vii) Telephone numbers of ADG/GRP, IG/GRP, Home Secretary etc. of Bihar Jharkhand UP, MP, are given in Chapter-**21**.

4. Divisional Officers required going to site:

- (i) All divisional officers required to go to the accident site should proceed by the ARMV.
- (ii) Road vehicles should be sent to accident site separately. Maximum number of road vehicles should be sent to accident site from Divisional Hdqrts.
- (iii) ARMV shall be dispatched within 15" by day and within 25" by night after sounding of siren.
- (iv) DRM will proceed to the accident site. ADRM shall stay back at divisional hdqrts. For co-ordination work.
- (v) **All Branch Officers should proceed to the accident site. FOR this purpose, officers heading different branches within the same department are referred to as Branch Officers. For example, in Electrical department, TRD and 'General' will be considered to be separate branches and both will be required to go to site.**
- (vi) **The second senior most officer of each branch should stay back at divisional head quarter.**
- (vii) **Out Of the remaining officers from each branch, a majority of both Senior and junior scale officers should also proceed to the accident site.**
- (viii) Once it has become clear that the accident is a Disaster, then the 80/20 rule should be followed:

- (a) 80% of all officers should go to the accident site, and only 20% should stay back at hdqrts.
- (b) Similarly, 80% of all supervisory staff should go to the accident site, and only 20% should stay back at hdqrts.
- (ix) The complement of officers available in each department varies from division to division. Hence, Divisional DM Plans should specifically spell out, department wise, designations of officers who will be required to go to site, and those who will be required to stay back in hdqrts.
- (x) Divisional DM plans should also spell out the same thing for Supervisors of each department.
- (xi) Arrangements of Road Vehicles to proceed to accident site, indicating alternative vehicles as well, shall be indicated in Divisional DM Plans.
- (xii) Arrangements of vehicle drivers including spare drivers shall also be notified.

5. Supervisors required going to Accident Site:

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

6. Officers Required to go to site

A. MEDICAL DEPARTMENT:

1. Formation of two team:
 - (i) 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) Two teams of Doctors and Para medical staff would be formed, Team 'A' and Team 'B'.
 - (iii) Team 'A'- headed by CMS/MS in-charge will rush to the accident site immediately by ARMV along with 10 doctors and 15-20 paramedics.
 - (iv) Team 'B'- headed by the senior most doctor amongst them will stay back at the divisional hospital and perform duties as given below.
 - (v) In case the accident site is far away from divisional hdqrts., then injured passengers are unlikely to be brought back to the divisional hospital for treatment.
 - (vi) In that case, only bare minimum number doctors should be left behind for manning Team 'B' and most of the available doctors should be rushed to accident site as part of Team 'A'.
2. Duties of Team 'A':

These are listed in detail in Chapter 12, under the heading 'Site Management Plan-II'.
3. Duties of Team 'B' :
 - (i) Team 'B' will establish an Emergency Cell in the Casualty Unit of Railway Hospital.
 - (ii) Contact adjoining divisions and organize movement of 2 more ARMs to accident site, one from each end, as detailed in Chapter 3, (1.4)
 - (iii) Contact local hospital (Railway/Govt./Private) near the accident site and ask them to rush their road ambulances along with necessary medical team to the accident site immediately.

- (iv) Contact local hospital (Railway/ Govt./ Private) near the accident site to keep them in readiness to receive and provide medical treatment to injured passengers.
 - (v) Data Bank of medical facilities along the track is available section wise for each division in Divisional DM Plans. Copy of Divisional DM Plans should be available in the Hospital Emergency of Railway Hospital.
 - (vi) The above Data Bank is also available in the ECR Web Site on Railnet at www.ecr.indianrail.gov.in. Details of name, address, telephone no., facilities available etc. can be collected from this.
 - (v) Arrange to send the following in the 2nd and 3rd Special trains carrying backup logistic support to the accident site, from each end: as many more medical teams as possible,
 - a. adequate number of Safai walas & other health workers,
 - b. members of SJAB, Scouts and Civil Defense personnel.
 - (vi) Co-ordinate with MS/CMD of adjoining Divisions/Zones and ask them to send their medical team to the accident site.
 - (vii) These medical team should be sent to the accident site by train/road or combination of train-cum-road, as feasible. In case suitable Railway vehicles are not available, taxis should be hired for this purpose.
 - (viii) Adequate number of following items should be arranged and sent to accident site for the purpose of handling dead bodies:
 - a. Shrouds.
 - b. Polythene covers for dead bodies.
 - c. Wooden Coffins.
 - d. Dry ice.
 - (ix) One doctor will be available in Divisional Emergency Cell for maintaining liaison with UCC and the medical team at the accident site. Requirement of medicines required either at the accident site, or in various hospitals where patients have been admitted should be noted, procured and sent as required.
 - (x) Prepare Railway Hospital to receive and provide treatment to injured passengers, as and when are brought back from accident site.
 - (xi) Arrange to send anti snake venom 4 vials and other items in cold chain carrier.
- (B) COMMERCIAL DEPARTMENT:
- (i) Sr. DCM should proceed to site of accident along with all other Commercial Officers except DCM. DCM will be available in Divisional Control Office for providing backup support.
 - (ii) A nominated supervisor should be authorized for withdrawing sufficient money from station earnings before proceeding to site.

1. Transportation of men and material to accident site:
 - (i) On duty commercial supervisor should ensure to dispatch the maximum No. of TTE's/TCs and licensed porter in uniform to the accident side in case of Disaster.
 - (ii) More TTEs/TCs can be sent by the 2nd and 3rd Special trains carrying backup logistic support to accident site, from each end. TTEs from the Divisional squad should also be utilized for this purpose.
 - (iii) After the first batch of staff has proceeded to the accident site in the ART, the entire manpower of the commercial department should be mopped up in order to send them on the 2nd and 3rd special trains which would carry backup logistic support to the accident site, from each end. For this purpose 80% TCs/TTEs from the entire division should be sent.
 - (iv) 2nd and 3rd Special trains should carry the following:

- 2 gas stoves, 4 gas cylinders, 1000 mineral water bottles, provisions for making Poories, vegetables, tea, etc., would be rushed to the site. This will be augmented later if necessary. These will be arranged by the affected division and provided by catering personnel/IRCTC.
 - Sufficient cooks and catering staff from departmental catering or catering contractor (including IRCTC) would be ensured at the site for arranging tea, biscuits, packed meals like poories and vegetables to the stranded passengers, railways working force and other officials at site.
- (v) Sr. DCMs should prepare section-wise nominations of catering agencies both departmental and private for rushing to site. This should be available in Divisional DM Plans.

2. Helpline Enquiry Booths at stations:

- (a) General:
- (i) Helpline Enquiry Booths within ECR would be opened as below:
 - Originating and destination stations of the accident involved train.
 - All junction stations within the jurisdiction of ECR falling on the route of the train.
 - Divisional hdqrts.
 - Any other stations as may be decided.
 - (ii) Helpline Enquiry Booths on other Zonal Railways would also be opened as follows:
 - Originating and destination stations of the accident involved train.
 - All junction station falling on the route of the train.
 - Divisional hdqrts of originating and terminating Zonal Railways.
 - Any other station as may be decided.
 - (iii) Helpline Enquiry Booths shall have DOT telephones with STD, Railway telephones with STD, fax machine, photocopier and a PC with internet connection.
 - (iv) Helpline Enquiry Booths would be manned by computer literate Sr. supervisors on round the clock basis.
 - (v) Helpline Enquiry Booths within the accident affected division, should keep in touch with the Divisional Emergency Cell.
 - (vi) Divisional Emergency Cell will collect updated information regarding all aspects of the accident from the UCC and pass on the same to:
 - All Helpline Enquiry Booths within the division.
 - Emergency Cells of other divisions of ECR.
 - Hdqrts. Emergency Cell.
 - (vii) Such information should be received from UCC by E-Mail and transmitted by E-Mail to all concerned. For this purpose all Helpline Enquiry Booths should be provided with PCs with internet connection.
 - (viii) Similarly, Helpline Enquiry Booths outside the accident affected division, but within ECR jurisdiction should keep in touch with Divisional Emergency Cell of their respective divisions.
 - (ix) Helpline Enquiry Booths should not contact the accident site or the UCC directly.

(b) 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 taken out 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 traveling 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 home town.
- (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.
- (xii) This information would continue to be updated once every 3 hrs.

(b)

- Information regarding running of trains:**
- (i) Departure of unaffected front portion of the Accident involved train, and its expected time of arrival at destination.
 - (ii) Departure of unaffected rear portion of the accident involved train, its diverted route, and expected time of arrival at destination.
 - (iii) Expected date and time of starting of relatives special from originating and destination stations of the accident involved train, its stoppages enroute and its expected time of arrival at intermediate stations.
 - (iv) 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.
 - (v) Details of other trains that were scheduled to run on the accident affected section, but have been:
 - Delayed,
 - Regulated,
 - Diverted,
 - Rescheduled,
 - Short terminated,
 - Cancelled.

(c) Refunds:

- (i) Booking counters at stations 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,
 - 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.

(d) MECHANICAL DEPARTMENT

- (i) Sr. DME as well as AME should proceed to site of accident. DME will be available in Divisional Control Office for providing backup support.
- 1. Rushing of men and material to site:
 - (i) 2 ARTs with 140 T crane should be moved to the accident site, one from each end as detailed in Chapter 3.
 - (ii) In addition to above, Brake Down Special should be sent from other base stations within ECR, so that additional rescue equipment such as cutters, spreaders, hydraulic jacks etc. are available.
 - (iii) 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 as detailed in Chapter 3.
 - (iv) The aim should be to ensure one ART with 140 T crane along with one BD special at each end of the accident site.
 - (v) Provision should be made for availability of standby crane driver on each ART working at site, so that ARTs work round the clock.
 - (vi) Road cranes of sufficient capacity should be arranged so that these cranes can start working from the center while the 140T cranes can continue working from either end.
 - (vii) Trucks should be arranged for carrying BD equipment near to accident involved coaches, so that the site of accident can be approached from the middle, and more work centers can be opened up simultaneously.

(e) SECURITY DEPARTMENT:

- (i) Sr. DSC will proceed to the site by ARMV along with maximum number of RPF personnel. Only one officer will stay back at divisional hdqrts.
- 1. 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 site of accident, by fastest available means.
 - (ii) Simultaneously, the Post/Outpost in charge would requisition additional manpower from adjoining RPF Posts.
 - (iii) He should also pass on the information to Local Police and Police Control Room, local Fire Brigade, Hospitals, local voluntary organizations and the like at the earliest.
 - (iv) Divisional Security Control shall get reinforcement from neighboring posts/outposts, reserve line, divisional hdqrts. or zonal reserve and send them by the ART. If they could not be sent by the ART then they should definitely be sent by the 2nd and 3rd Special trains carrying backup logistic support to the accident site, from each end.
 - (v) In case any RPSF battalion or Company is located in the vicinity, men can be requisitioned from there for dealing with such emergent situations till additional force is available from other sources.
 - (vi) Additional RPF personnel from Zonal hdqrts. 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, from each end.
 - (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 (1kms) and poles for segregating the affected area.
- 4 loud speakers for making announcements.
- 10 stretchers and first aid equipment.
- Digital Camera for photographing the scene (both on negative and slide films)
- Video recording of rescue and salvage operations and connected administrative arrangements.

2. Co-ordinate with Local Police:

Maintain constant liaison with IG/GRP and ADG/GRP for following:-

- (i) Rushing of all available GRP personnel to the accident site.
- (ii) Obtaining additional manpower from the local police for purpose of crowd control.
- (iii) Issue of necessary instructions to local police for giving expeditious clearance for starting restoration work.
- (iv) Issue of necessary instructions to SP of the district for waiving off formalities of Post Mortem on dead bodies

(I) ELECTRICAL DEPARTMENT:

- (i) Sr. DEE (G) as well as AEE(G) should proceed to site of accident. DEE(G) will be available in Divisional Control Office for providing backup support.
- (ii) Sr. DEE/TRD as well as AEE/TRD should proceed to site of accident. DEE/TRD will be available in Divisional Control Office for providing backup support.
- (iii) Main responsibility of Electrical Department will be regarding site illumination and OHE.
- (iv) Maximum number of electrical staff should be sent by 2nd and 3rd Special trains for installation and operation of electrical equipment.
- (v) Officers staying back in divisional hdqrts. shall maintain constant liaison with site and find out quantum of assistance required by way of men and material.
- (vi) These should be rushed to accident site either from:
 - Railway sources within the division, or
 - Railway sources from adjoining divisions and zones, or
 - Non-Railway sources within the division

(J) SIGNAL & TELECOMMUNICATION DEPARTMENT:

- (i) Sr. DSTE as well as ASTEs should proceed to site of accident. DSTE will be available in Divisional Control Office for providing backup support.
- (ii) Main responsibility of S&T Department will be for providing effective and adequate means of communication.
 1. Rushing of men and material to site:
 - (i) Sr. DSTE along with ASTE will carry the following to the accident site:
 - Satellite phone.
 - FAX cum printer,
 - two 25 W VHF sets along with antenna and battery
 - 10 numbers 5 W walkie-talkie sets.
 - (ii) He will be accompanied with at least two TCI and two TCM.
 - (iii) As per requirement TCI/TCM, SIs 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 2nd and 3rd Special trains carrying backup logistic support to the accident site, from each end.

- (iv) Satellite phones of HQ and one FAX machine will be carried in GM special by at least two TCI and two TCM.
- (v) All mobile phones available with the Division should also be rushed to site for emergency use.
- (vi) Sufficient number of spare batteries and battery chargers for these mobiles should also be taken to accident site.

Arranging communication at site:

- (i) DSTE 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, IMMERSAT phones provided at site and telephones provided at Helpline Enquiry Booths. This information shall be passed on to the Divisional Emergency Cell.
- (iii) He should liaison with BSNL officials in the area for immediate provision of additional BSNL telephone/hot lines at the accident spot, nearest station and at Helpline Enquiry Booths duly utilizing assets under his disposal where required.
- (iv) Should hire sufficient number of cell phones and send them to accident site.
- (v) Obtain E-Mail addresses of Emergency Cells set up on other Divisional and Zonal Hdqrts.

3. Communication at Hdqrts. and Divisional Emergency Cells:

- (i) Communication arrangements are required to be provided at SEE Hdqrts. Emergency Cell immediately.
- (ii) 2 BSNL Telephones, one having STD facility are already available in the Hdqrts. Central Control. Dynamic locking code of the telephone is available with CHC/Emergency. FAX machine is also provided on one BSNL telephone in the Emergency control.
- (iii) Apart from this telephone, 4 other BSNL telephone numbers (2 with STD facilities) should be made available in Hdqrts. Emergency Cell for use by Chief Emergency Officer. These should be temporarily transferred from officer's chambers.
- (iv) One FAX machine shall be provided on one BSNL telephone.
- (v) 2 Railway telephone numbers with STD facilities should also be made available.
- (vi) 2 Mobile telephones should also be made available in Hdqrts. Emergency Cell.

4. Communication at Helpline Enquiry Booths:

- (i) Helpline Enquiry Booths are to be opened at all important stations en-route of the affected train as mentioned at Section (F2a) above.
- (ii) Location of these Helpline Enquiry Booths will be on Platform No. 1 of their respective stations.
- (iii) 2 BSNL phones should be identified and kept pre-wired to the Helpline Enquiry Booths so that these can be energized at short notice.
- (iv) Similarly, 2 Railway phones should be identified and kept pre-wired to the Helpline Enquiry Booths so that these can be energized at short notice.
- (v) One FAX machine, Photocopier and PC with internet connection and printer should also be provided at Helpline Enquiry Booths. These should also be kept pre-wired so that these can be energized at short notice.
- (vi) 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.

(K) ENGINEERING DEPARTMENT:

1. Rushing men and material to accident site:
SrDEN/C and DEN concerned will proceed to the site of accident by ARMV. In the absence of SrDEN/C, the next senior most DEN of the Division will proceed along with the concerned DEN. In the absence of DEN of the Section, DEN of the adjoining Section will proceed by ARMV. It is expected that AEN and PWI of the Section would have already reached the accident site before arrival of ARMV. In cases, where the PWI and AEN are based at divisional hdqrts., 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.
2. **Mobilization of work force:**
 - (i) Sufficient nos. of workmen along with PWI & Black smith are required to reach the site of the accident. For this purpose, labor specials will be run from the specified destination as decided by the Divisional Engineering 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 for the 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) SrDEN/DEN in Divisional Emergency Control will request concerned authority (Army/State Govt. Deptt.) for bulldozer/earthmoving machinery in the area.

(L) IT Department:

- (i) Two PCs should also be provided in the Emergency Cell of Div. Control office connected to Railnet and the E-Mail addresses.
- (ii) 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) Following information should be uploaded on to ECR's Website as quickly as possible:
 - (a) 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.
 - (b) Details of trains which have been diverted, regulated, short terminated, cancelled or rescheduled.

- (c) Details of special trains which are to be run:
- Passenger special carrying passengers of front portion of accident involved train.
 - Passenger special carrying passengers of rear portion of accident involved train.
 - Relatives special from originating and terminating stations of the accident involved train.

Chapter-11

DISASTER RESPONSE-COORDINATION

1. Rushing of ARMVs &ARTs to accident site:

- (i) After ARMVs and ARTs have been ordered, PNL should locate diesel powers for these ARMVs 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 ARMVs and ARTs should be moved out by Electrical 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 divisions.
- (v) Movement of ARMV and ART should never be clubbed together. ARMV should be started first and moved separately for faster movement.
- (vi) ARMVs and ARTs should be dispatched from the base station, within the target time stipulated. Departure of ARMVs 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 ever by road.
- (vii) ARMVs 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 utilize facilities of ARMV after its arrival at site.
- (viii) ARMVs 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.
- (ix) 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.
- (x) Freight trains on run towards accident site should be reversed and returned.
- (xi) Fresh stabling, if any, should be done beyond 7 stations on either side.
- (xii) Even for stabling beyond 7 stations, both Up and Dn loop lines should not be blocked at the same station.
- (xiii) For stabling beyond 7 stations, Up loop and Dn loop should be blocked, at alternate stations.

2. Diversion, Regulation, Short termination, Cancellation and Rescheduling of Mail/Express/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) However, too many trains should not be simultaneously brought to a Jn. station for regulation, since it may create law and order problems.
- (v) It is better to 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) Hdqrts. Emergency Cell shall decide on the following in consultation with adjoining Railways and Coaching Directorate of Railway Board:
 - Diversion,
 - Regulation,
 - Short termination,
 - Cancellation,
 - Rescheduling.
- (viii) The above decision regarding diversion etc. should be taken in about an hour's time after ARMVs, 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/OP would be in-charge of co-ordination with operating department regarding requirement and availability of crews etc.
- (xii) Sr.DEE/OP will take into consideration changing traffic requirement because of diversions etc. and accordingly plan crew deployment.
- (xiii) Adjoining divisions should be informed about these diverted trains so that spare crews can be sent to interchange points.
- (xiv) For diverted trains, drivers and guards having necessary road learning should be arranged.
- (xv) Drivers nominated for working these diverted trains should be empanelled for working Mail/Expresses as per Railway Board's instructions.
- (xvi) Crews should also be planned for diesel engines sent to the accident site working ARMVs, ARTs, other special trains and likely to be held up there till restoration.
- (xvii) The Diesel power should be deployed in Accident affected section as per requirement of Accident site incharge.
- (xviii) 3 sets of diesel crews should be planned for each diesel loco deployed at the accident site.
- (xix) If necessary, diesel crews should be arranged from adjoining divisions also.
- (xx) In the absence of Sr.DEE/OP, DEE/OP/AEE/OP will perform this function.

3. Running of Special trains:

Following special trains will be required to be run in the given order of priority:

- (i) ARMVs.
- (ii) ARMV from the other end.
- (iii) 2 additional ARMVs from adjoining divisions, one from each end.
- (iv) ART.
- (v) ART from the other end.
- (vi) 2 additional BD Special one from each end.
- (vii) 1st special train carrying GM and other officers from hdqrts. and some left over officers from division (in case it passes through the divisional hdqrts.).
- (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) 2 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 hrs. After arrival of ARMV, carrying DRM and other divisional officers at the accident site.
- (xiii) Before these 2nd and 3rd special trains are 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) 2 light engines should be stationed, one at each station on either side of the accident involved block section.
- (xv) 2 Engineering specials, one from each end, carrying engineering material and gangmen from the section.
- (xvi) Running of 2 passenger special 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' enroute. This is to be co-ordinated by Hdqrts. Emergency Cell in consultation with Railway Board.
- (xvii) Arrangement for the visit of MR/MOSR, CRB and other Board Members to the accident site should be made in coordination with the Safety Directorate and Secretary, Railway Board.
- (xviii) 2 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. Sequence of movement of ARMVs 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 ARMVs 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 enroute.
- (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 ARMVs 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 ARMV so that use of additional cutters, spreaders, hydraulic jacks etc. can be made.
- (viii) After all equipment from BD specials have been unloaded at accident site and staffs have detrained, both BD specials should be withdrawn. These should then be kept 4 stations beyond.
- (ix) The 2nd pair of ARMVs that have been requisitioned should also be moved on top priority. After BD specials have been withdrawn, these ARMVs should be sent into the block section while the first ones are still there.

- (x) In case 2nd pair of ARMVs arrive before BD special, then item no (ix) should be carried out before item No. (vii) and (viii).
- (xi) Both ARTs with 140 T 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 ARMVs are still there.
- (xiii) After transshipment 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 ARMVs 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 140 T crane should be marshaled as per site requirement and sent into the block section with crane leading, one from each end.
- (xvii) Tower wagons should be sent in Block Section from each end following the ART.

5. Setting up Emergency Cells in Divisions:

- (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 centralized communication networks, hot line to the site and hdqrts.
- (iv) Sr. DOM will be over all in charge 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 (Movement) 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 of the accident site. These should be maintained functionality wise for each functionality available in the UCC.
 - Similarly telephone and FAX numbers of Functionaries available in CAC should also be available with the Divisional Emergency Cell.
 - E-Mail addresses of UCC, CAC, Helpline Enquiry Booths and Hdqrts.
 - 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.

- Hdqrs. Emergency Cell.
- (xi) Divisional Emergency Officer on duty shall chronologically record all information and instructions received or given in a logbook.
- (xii) For Dhanbad division, similar Emergency Cell will also be opened at BRKA/CPU Control Office. DTM/BRKA/CPU will function as Emergency Officer and discharge all duties listed above.
- (xiii) In addition to the Division where accident has taken place similar Emergency Cells will be opened in other Divisional Control Offices of ECR that are involved in restoration and relief operations. Chief Emergency Officer will decide division where Emergency Cells are to be opened.
- (xiv) Helpline Enquiry Booths outside the accident affected division, but within ECR 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 of Divisional Emergency Cells shall be decided by DRM.

6. 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 divisions/zones
- (iv) Co-ordinate with State Govt.
- (v) Co-ordinate with defense 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.

Chapter-12

DISASTER RESPONSE – ASSISTANCE FROM ADJOINING DIVISIONS/ZONES

1.

Necessity of assistance from adjoining Division/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 100 injuries (Grievous + Simple). 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 Hdqrts. Emergency Cell.

2.

Assessment of assistance from adjoining Division/Zones:

- Assessment or 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 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 equal to no. of coaches x30.
 - (vi) This should be conveyed to Sr. DOM in Divisional Emergency Cell and Chief Emergency Officer in Hdqrts. Emergency Cell.
 - (vii) Based on the above figures, decision should be taken and assistance rushed from adjoining divisions and zones.

3.

Scale of assistance from adjoining Division/Zones:

- (i) As a thumb rule, assistance should be sought from adjoining division in case of any disaster.
 - (ii) In case of every disaster, following should be used as an approximate guideline for deciding level of assistance required:

- | | Threshold level | injury >50 | injury >100 | injury >150 |
|---|-----------------|------------|-------------|-------------|
| - | No. of teams | 1 team | 2 team | 3 team |
| - | ARMVs | 2 | 3 | 2+2 |
| - | 140 T Crane | 2 | 3 | 2+2 BDs |

- (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 |

4. Assistance from Defense & Para Military forces:

- (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 war like situation.
- (iv) Therefore, divisional/zonal hdqrts. Should get in touch with the nearest army command and request for necessary assistance.
- (v) Selected telephone numbers of Army and Para-military establishments are given.
- (vi) Additional telephone numbers of Army are given in Divisional DM Plans.

5. Departmental assistance from adjoining divisions/zones:

(a) S&T Department:

- (i) Satellite telephones from ARTs of adjoining divisions.
- (ii) Mobile Telephones from each ART of adjoining divisions

(b) Electrical Department:

- (i) Generators from ARTs of adjoining divisions.
- (ii) Lighting equipment from ARTs of adjoining divisions.
- (iii) Portals and OHE masts.

(c) Civil Engineering:

- (i) Additional workmen are required who are to be moved from adjoining divisions/zones.
- (ii) Each such division sending assistance should move workers along with artisans and PWIs.
- (iii) One DEN and one AEN each should also move to the site of accident from each such division.

Chapter-13

NATIONAL DISASTER RESPONSE FORCE

13.0 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. Establishment/raising of NDRF should progressively reduce deployment of the Armed Forces. However, Armed Forces would be deployed only when the situation is beyond the coping capacity of State Government and NDRF.

13.1 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 are on deputation in NDRF. Further details are as under:

Details of NDRF organization and 12 battalions are as under:

S.No.	Name Officers/Designatio n Location of Deployment	of STD and Code	Tele(O)	Mobile No.	Fax Nos.
Hd. Qrs.	DG/NDRF CGO Complex, Lodhi Road, New Delhi-110003	011	24369278 24369280	–	24363261
1.	Commandant, IstBn NDRF Patgoan PO Azara Guwahati	0361	2840027	09401048790	2849080
2.	Commandant, 2 nd Bn NDRF, Digberia Camp, PO- Badu Road,Madhyamgram ,Barasat,Kolkata	033	25875062	09434742836	25875032

3.	Commandant 3 rd Bn NDRF PO-Mundali,Cuttack, Odisha	0671	2879710	09439103170 09437964571	2879711
4.	Commandant 4 th Bn NDRF PO-Suraksha Campus ArrakkonamDistt. Vellore Tamilnadu	04177	246269	09442105169	246594
5.	Commandant 5th Bn NDRF PO-VishnupuriTelegaon, Pune (Maharashtra)	02114	247010	09423506765	247008
6.	Commandant,6 th Bn NDRF ChiloraRoad,Gandhinagar	079	23202540	09428826445	23201551
7.	Commandant 7th Bn NDRF Road Bibiwala Bhatinda (Punjab)	0164	2246193	09417802032	2246570
8.	Commandant 8 th Bn NDRF Kamala Nehru Nagar, Ghaziabad, UP	0120	2766013	09968610014	2766618
9.	Commandant 9 th Bn NDRF Bihata Patna, Bihar	06115	253942	0776288444	253939
10.	Commandant 10 th Bn NDRF Mangalagiri,Vijaywada (AP)	0863	2293050	09419217790	2293050
11.	Commandant &Dy COMDT 11thBn NDRF VARANASI (U.P.)	0542	2501201	09455511003 08004931403	2501101
12	Commandant 12 th Bn NDRF Itanagar, Arunachal Pradesh	03621	242940	09435483204	242940

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 required.

13.2 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 their cost for attending to rail disasters. Railways may also have to provide rail transportation logistics for transporting NDRF 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. During the meeting between NDMA/NDRF and Railway Board officials held on 19th February, 2013, it was decided that NDRF HQ 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 and each NDRF battalion should carry out at least one or two mock exercises/coordination meeting with each zonal Railway each year.

During meeting held on 26th July, 2010 between NDMA/NDRF and Railway Authorities, it was decided that the Railways would be associated in all future mock exercises being conducted by the NDMA and for which a copy of annual calendar of mock exercises will be provided by the NDMA and CSOs will coordinate Zonal Railways' participation in such mock exercises. Similarly Railways will carry out mock exercises on train accidents in presence of NDRF Battalion Commandants.

Chapter-14

MANAGEMENT OF LAND SLIDES, CYCLONES AND CHEMICAL DISASTERS

14.1 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.

14.1.1 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.

14.1.2 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 :

- i) Surface measurements of landslide activity.
- ii) Sub-surface measurements of landslide activity.

14.1.3 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 the landslide hazard zonation mapping in macro and micro scales after identification and prioritization of the areas in consultation with the Border Roads Organization, State Governments and local communities.

14.2 Cyclone Disasters

14.2.1 Cyclone vulnerability in India

A long coastline of about 7,516 km of flat coastal terrain, shallow continental shelf, high population density, geographical location, and land physiological features of its coastal areas makes India, in the North Indian Ocean (NIO) Basin, extremely vulnerable to cyclones and its associated hazards like storm tide (the combined effects of storm surge and astronomical tide), high velocity wind and heavy rains.

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. This is evident from the fact that in the last 270 years, 21 of the 23 major 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 the area.

Thirteen coastal states and Union Territories (UTs) in the country, encompassing 84 coastal districts, are affected by tropical cyclones. Four states (Tamil Nadu, Andhra Pradesh, Orissa and West Bengal) and one UT (Puducherry) on the east coast and one state (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-related disasters. Recurring cyclones account for large number of deaths, loss of livelihood opportunities, loss of public and private property and severe damage to rail infrastructure.

14.2.2 National Cyclone Risk Mitigation Project

The National Cyclone Risk Mitigation Project (NCRMP), to be implemented with financial assistance from the World Bank, is envisaged to have four major components:

- 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: Cyclone risk mitigation investments. On the Railways, along the high risk coastal rail infrastructure lengths, a similar protection needs to be planned where required.
- Component- C: Technical assistance for hazard risk management and capacity-building, where required on the railway infrastructure.
- 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 short notice.

Early warning to station masters and passengers is the key to informing concerned stake-holders in the DM Plan. Coastal afforestation, 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 Indian Railways can play to undertake, in a phased manner, as per the mitigation plan. Zonal Railways should identify the affected places and put up mitigation projects for 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.

14.2.3 Coordination by Railways regarding Cyclones Risk Management, Advance Warnings and Mitigation :-

The Zonal Railways in the high risk zone of cyclones (four states – Tamil Nadu, Andhra Pradesh, Orissa and West Bengal), one UT (Puducherry) on the east coast; and one state on the west coast (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 risk area.
- Capacity building on rail tracks/bridges and important rail installations both for reducing devastation from a cyclone, and for relief, restoration etc.
- Advance warning of a cyclone. Action for regulation mainly of Passenger trains follows thereafter.

The Railway infrastructure is 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.

14.3 CHEMICAL DISASTERS

14.3.1 Guidelines by NDMA :

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);

14.3.2 Salient features of NDMA Guidelines :

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 has gone up significantly. Common causes for chemical accidents are deficiencies in safety management systems and human errors, or they may occur as a consequence of natural calamities or sabotage activities. Chemical accidents result in fire, explosion and/or toxic release. The nature of chemical agents and their concentration during exposure ultimately decides the toxicity and damaging effects on living organism in the form of symptoms and signs like irreversible 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 our memories.

14.3.3 Genesis of NDMA's Guidelines on Chemical Disasters:-

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's Guidelines comprehensive instructions for installations and storages (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, are provided.

In the guidelines are instructions related to chemical accidents during transportation of HAZCHEM. The areas covered include:

- Preparation of a highway DM plan.
- Modification of rules pertaining to transport emergencies.
- Specific roles and responsibilities of MAH units, transporters, drivers, authorities and aspects related to emergency communication systems and training of various stake holders.
- The need for the development of an efficient pipeline management system.

14.3.4 Guidelines on Chemical Disasters:-

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.

14.3.5 Railways Red Tariff – Transport of Hazardous chemical:-

Indian Railways have also been transporting chemicals and hazardous materials e.g. petroleum 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 by them.

Indian Railway's Rules for carrying dangerous (hazardous goods) by rail have been legislated in the Railway Red Tariff Rule 2000 as per which dangerous goods have been classified into following 8 classes:

- I Explosives
- II Gases, Compressed, liquefied or dissolved under pressure
- III Petroleum & other inflammable liquids
- IV Inflammable solids
- V Oxidizing substance
- VI Poisonous (Toxic Substances)
- VII Radio-active substances
- VIII Acids & other Corrosives.

Chapter I to VIII deal with the above classes of dangerous goods which include 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 authorized by the railway administration as provided under these Rules.

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 classes of dangerous goods are dealt in piecemeal/small quantities in parcel vans/SLRs. Railways may refer to the specific paras pertaining to all these classes of dangerous goods.

14.3.6 Monitoring Movement of Hazardous chemical:

Dedicated communication system is to be established for Rail Transportation to monitor movement of Toxic Chemical Agents. A mechanism is to be developed like a Geographic Information system (GIS) for continuous monitoring of such Transport Vehicles along their route. This may require to be dove-tailed with the FOIS network of the Railways, once the TMS/FOIS is extended for booking (preparation of RRs) and movement of chemical items in wagons to be included in FOIS.

14.3.7 Rescue Relief and Restoration Operations:

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 respective zonal railways will develop and nurture coordination with those agencies and Organizations on their system that have expertise in dealing with the hazardous material 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 and Zonal Railway Disaster Management Plan so that these agencies can be called for without any delay during any untoward incident. Nominated staff of ARMVs, 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 such material.

14.3.8 Preventive Action the Rail Route of Movement of Haz. chem

Divisions located on the “Haz. chem Rail Transportation Highways” have to be in close touch with specialized services available with IOC/GAIL and Pvt. Chemical Factories and NGOs to be able to call upon their men and firefighting fire extinguishers etc at short notices.

Vulnerability on this Highway needs to be reduced by the removal of Jhuggies from 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. These products are highly prone to catch fire and even explode, resulting in fire in the Jhuggies etc.

DISASTER INFORMATION

(a) LAND SLIDES (Geological Survey of India)

Category	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 import highways and roads rail route and other civil installations like various appurtenant structures of hydroelectric and irrigation projects. The landslides that enter large water bodies like reservoirs of hydroelectric project 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	<p>Landslides of large dimensions that are located over or in close vicinity of inhabited areas areas like urban settlements or fairly large rural settlements. Activity of these slides can result in loss of human lives, dwellings on large scale. These slides may also inflict heavy losses on urban infrastructure.</p> <p>The slides that block buy pilgrimage route during peak times resulting in hardships to thousands of pilgrimage and some times resulting in loss of human life.</p> <p>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 damages to property on large scale.</p>	Red

(b) 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 informative type but at the same time meant to trigger preparatory actions. During this stage, Disaster management 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 district 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 impending 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 MPO.	Red

(c) 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

(d) 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

(c) RAILWAYS (Ministry of Railways)

Category	Description	Stage
Minor	50 or less casualties (inclusive of death and injuries)	Yellow
Medium	51-99 casualties (inclusive of death and injuries)	Orange
Major	100 or more casualty (inclusive of death and injuries) where additional assistance is sought by the Ministry of Railways.	Red

(d) FOREST FIRE (Ministry of Environment & Forests)

Category	Description	Stage
Ordinary Fire	Localized 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

(e) AVALANCHES (Defense Research & Development Organisation)

Category	Description	Stage
Low	Generally favorable condition. Triggering is generally possible only with high additional loads and on very few extreme slopes. Only sluffs possible and reach valley in small sizes. Valley movement is safe. Movement on slopes with care.	Yellow
Medium	Partly un-favorable 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 extremes care. Valley movements with caution. Avoid slopes. Route should be selected with care.	Yellow
Low	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. Very unfavorable condition. Numerous large avalanches are likely from all possible avalanche slopes even on moderately steep terrain. Suspend all movements. Airborne avalanches likely	Orange

Chapter-15

Management of Crowds

15.1. 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.

15.2. 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.

15.3 Crowd control and management.

For effectiveness in this, RPF, GRP and District Police have to act in a synchronized manner in consultation with magisterial authorities. Chapter 10 (Maintenance of Public Order and Tranquility) 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 flows 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.

15.4 Role of responsibility of Divisions

Depending upon the past experience divisions should identify events of mass gathering over their system. The events can be of periodic in nature or one time 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 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.

15.5 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.

15.6 Explosion in trains and railway premises:-

One of the key components of the Integrated Security System is explosive detection and disposal. It provides for effective detection and disposal capability with RPF. Explosive detection and disposal, being a highly skilled and challenging job, requires Bomb Detection and Disposal Squad comprising of personnel. Such RPF personnel have been identified on each zonal railway and they are being trained in phased manner by the National Security Guard (NSG). Preventive measures to be taken in such situation have been separately circulated vide Security Directorate Secret letter No.2003/Sec(Spl.)200/14 dated 16.01.2008.

15.7 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 National Crisis 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 specially in cases of terrorist attacks.

Chapter-16

SITE MANAGEMENT PLAN-I

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 set up at an accident site.

1. Unified Command Center (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) UCC is to be manned by staff of relevant departments such as:
 - Medical,
 - Commercial,
 - Operating,
 - Safety,
 - Security,
 - Public Relations,
 - Mechanical,
 - Electrical,
 - S&T,
 - 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 Hdqrts. 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, Photocopier, PCs and Loudspeakers.
- (x) PC/Laptop should be connected to internet for E-Mailing of detail update to all concerned, including Divisional Emergency Cell, Hdqrts. 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 signages indicating the way to UCC on approach roads etc.
- (xiii) UCC at the site will be manned by sr. Supervisors on round the clock.
- (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 centers. 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 log book. Flow of information both incoming and outgoing would be recorded along with the time and names of officers/staff who were given the message.
- (xvii) UCC will basically supervise the working of 2 LCCs and co-ordinate with Divisional and Hdqrts. Emergency Cells.
- (xviii) Functionaries of different departments in LCCs should provide updated information regarding progress of work to their counterparts in UCC.
- (xix) This updated information should be provided once in every 3 hrs. as per the following timings:
 - 1/- hrs.
 - 4/- hrs.
 - 7/- hrs.
 - 10/- hrs. & like wise

2. Local Command Centers (LCC)

- (i) Depending on the spread of the accident site, Local Command Centers (LCC) on the same pattern as the UCC should be set up.
- (ii) If the site is spread out over 300-400 mts. 2 LCCs should be set up.
- (iii) 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.
- (iv) LCCs will serve as co-ordination centers for various teams that are working spread out over different geographical locations.
- (v) Each LCC will oversee the working of DM teams at one end of the accident site.
- (vi) Jurisdiction of each LCC will extend to all men and materials belonging to 2 ARMVs, BD special and 1 ART at that end of the accident site.
- (vii) One SAG officer of Mechanical department will be overall in charge of each LCC.
- (viii) LCCs should be provided with loudspeakers for making announcements.
- (ix) LCCs should be provided with direct telephonic links to UCC.
- (x) However, LCCs should not be provided with telephonic links to either Divisional Emergency Cell or Hdqrts. 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 from UCC only.
- (xi) 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.
- (xii) This updated information should be provided once every 3 hrs. As detailed at 1 (xix) above.

3. Need for setting up of Central Assistance Center:

- (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 and 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 succor in their hour of agony and for guiding them sympathetically, some kind of an assistance center is required.

4. Formalities required to be completed by relatives of passengers:

- (a) Sequence of formalities that are required to be completed by relatives of injured passengers includes:\ul style="list-style-type: none;">
 - (i) Locating the name of the passenger on reservation charts, in case passenger was traveling 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 relatives 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 hospitalization 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.
- (b) Additional formalities that are required to be completed by next of kin of dead passengers include:\ul style="list-style-type: none;">
- (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 relatives.
- (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.

5. 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 all these 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 antagonized towards railways.
- (v) For this purpose a single window clearance system should be available for relatives and next to kin.

6. Combined Assistance Center (CAC):

- (i) The UCC should have a Combined Assistance Centre (CAC) located towards the rear site, away from the track, for rendering help to passengers and their relatives.
- (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) CAC should be separate from the UCC so that it does not interfere with normal rescue and relief work.
- (iv) CAC will be manned by staff of relevant departments such as:
 - Operating,
 - Medical,
 - Commercial,
 - Security,
 - Personnel
- (v) There should be only one such CAC, and all railway resources should be pooled into it.
- (vi) LCCs should not have any small CAC located in the rear. It is likely to create logistic problems.
- (vii) A big banner displaying 'COMBINED ASSISTANCE CENTER' should be put up at a prominent place at the entry to the saminana.
- (viii) Similarly there should be sufficient number of signages indicating the way to CAC on approach roads etc.
- (ix) Railway staff fluent in the language of relatives should be posted for doing work of interpreters.
- (x) Post mortem formalities should be waived off so that number of formalities gets reduced by one.
- (xi) Different counters should be provided in sequence for each of these formalities, so that the entire exercise can be completed in about an hour.
- (xii) Functionary concerned from the local Municipality who issues Official Death Certificates should be made to come and sit in the CAC so that these certificates can be issued immediately without any delay.
- (xiii) 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 relatives and going to hospitals 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 decide to cremate the body there itself.
- (j) Pass counter for issue of return journey pass.
- (k) Return journey facilitation counters for making arrangements for return journey.

7. 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) FA 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.

8. 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 DM Plans.
- (ii) Bridge Line staff will assist in setting up tentage 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 tentage 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 organized, 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 set up 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) Signages for both UCC and CAC should be provided at prominent locations.

9. 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 hrs.

(a) 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 hrs reports 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.

(b) 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.

(c) 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.

Chapter-17

SITE MANAGEMENT PLAN-II

Nominated officials from various departments arriving at site by ARMVs 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.

(A) Members of the Disaster Management Team:

1. 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) In case of sabotage or bomb explosion, bomb disposal squads and GRP/Local Police will also be involved.
- (v) Various rescue units shall accompany ARMVs, ARTs or move by road as quickly as possible.

2. Officers-in-charge of Site (OC Site):

On arrival of ARMV 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 hdqrts. officers, GM shall be OC Site. In the absence GM, the senior most officer shall be OC site. He will be responsible for forming Core Groups as required and direct them to carry out efficient rescue, relief and restoration operations.

3. Rescue, Relief and Restoration Operation:

DM Team on arrival by ARMVs and ARTs shall undertake following actions:

- (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. Photography:

Prior to starting restoration work at 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:**

- Severity of the accident.
- 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 if suspected.

(iii) Victims and unidentified bodies should also be extensively photographed as detailed in (II)(Xvi)below.

(B) General:

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:

1. OC Site:

- (i) Ensure setting up of UCC, CAC and LCCs at the earliest.
- (ii) Collect information from OC Site of IAT.
- (iii) Take stock of the situation and plan for efficient rescue operation.
- (iv) Estimate quantum of assistance required for each department from:
 - within the division,
 - adjoining divisions of ECR,
 - adjoining zones,
 - non-railway agencies.
- (v) Channelize local resources to supplement available railway resources.
- (vi) Ensure that duties of various functionaries of different departments as laid down in ECR's Zonal DM Plan are carried out.
- (vii) Ensure co-ordination among all departments for efficient rescue, relief and restoration operation.
- (viii) Ensure information to SP Police and District Magistrate.
- (ix) In case of sabotage, direct RPF to obtain quick clearance from State Police.
- (x) In case of serious explosions or fire, clearance from Controller of Explosives is to be obtained.
- (xi) Give prima facie cause of the accident along with forecast of expected date and time of restoration.
- (xii) 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.
- (xiii) 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.

(C) Duties of Operating Department:

Immediately after getting the information.

- (i) All sectional TIS and Supervisory SSs should be directed to reach the accident site by first available means.
- (ii) 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.
- (iii) 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.
- (iv) Ensure that special trains are sent into the accident affected block section according to the sequence detailed in Chapter-9, Section 4.
- (v) Ensure proper marshalling of crane while proceeding to the accident spot in the block section.
- (vi) 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.
- (vii) Ensure prompt clearance of stranded passengers at the site in coordination with the Divisional Emergency Cell.
- (viii) Regarding running of special trains, keep in touch with Divisional Emergency Cell and given requirement from site.

(D) Duties of Safety Department:

- (i) Preserve all clues and evidences regarding probable cause of the accident and ensure that these do not get disturbed till police clearance is received.
- (ii) Ensure that video/still photographs by digital cameras are taken as required.
- (iii) Ensure that joint measurements, observations are recorded in the prescribed Proforma before restoration work begins.
- (iv) Ensure that unaffected rolling stock is moved away from the site and thereafter stabled at convenient location for further examination during accident inquiry.
- (v) Ensure that evidence of train staff, station staff and public are recorded on the spot.
- (vi) Addresses of passengers willing to give statements later should also be obtained.
- (vii) Ensure that special trains are sent into the accident affected block section according to the sequence detailed in Chapter 9, Section 4.

(E) Duties of Medical Department:

1. Main functions:

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

- (a) Taking an initial round of hospitals and assessment of situation.
- (b) Taking out injured passengers from accident involved coaches. Attending to injured passengers and giving them First Aid.
- (c) Preparing list of injured passengers.
- (d) Classification of their injuries.
- (e) Transporting them to hospitals and getting them admitted.
- (f) Post admittance hospital care of the injured.
- (g) Dealing with dead bodies.
- (h) Preservation of dead bodies.

2. General:

- (i) Ensure collecting blood and urine samples of train crew in case the same is necessary.
- (ii) Organize as many road ambulances as possible at the accident site.
- (iii) Data Bank of Divisional DM Plans have names, telephone numbers and contacted on phone for sending road ambulances along with team of doctors.
- (iv) Set up Medical Counter in UCC and CAC for passenger assistance.
- (v) Set up First Aid Posts in LCCs.

3. Site management:

- (i) 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 detailed below:
- (ii) Different teams and groups will be formed for discharging various duties of the Medical department as detailed in Section (E1) above. Each team should consist of 4-6 members and each group should consist of 3-5 teams, depending upon requirement.
- (iii) One group of doctors will take a round of various hospitals where injured passengers have already been admitted. (Para 4 below)
- (iv) One group consisting of 4-5 teams of doctors and para-medics will take out injured passengers and dead bodies from accident involved coaches. (Para 5 below)
- (v) One team will attend to injured passengers and give them First Aid and other medical treatment. (Para 6 below)
- (vi) One team will prepare list of injured passengers, note down details of their injuries and classify them. (Para 7 & 8 below)
- (vii) One team would be in-charge of transporting injured passengers to hospitals and getting them admitted. (Para 9 below)
- (viii) One team would be in-charge of post admittance hospital care of the injured. (Para 10 below)
- (ix) One team will deal with dead bodies after these have been extracted from coaches. They will prepare a list and arrange for their preservation. (Paras 11 & 12 below)

- (xi) In case sufficient doctors are available then more groups should be formed for rescue operations. (Para 5 below)

4.

Taking 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 No., 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 local PCO/Cell phone etc.
- (v) Prepare a list of persons 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.

5.

Taking out injured passengers:

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

6.

Attending to injured passengers:

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

7. Preparing list of passengers:

- (i) Collect list of injured passengers prepared by TS/TTEs and assess the situation.
- (ii) Separate lists to be prepared coach wise.
- (iii) The list should contain following details:
 - If found Conscious: Name, Sex, Age, Identification marks, address, 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.
- (iv) Once the preliminary list of injured passenger has been prepared, the list should be signed by the CMS/MS In charge and a copy handed over to commercial department.
- (iv) The list of injured passengers will thereafter be updated periodically, as rescue and relief work continues.

8. Classification of Injuries:

- (i) Injuries are classified as under:
 - (a) 'Grievous' injuries as defined below.
 - (b) 'Simple' but excluding 'trivial' injuries such as abrasions or bruises.
- (ii) Following are considered to be grievous injuries (as per section 320 of the Indian Penal Code):
 - (a) Emasculation
 - (b) Permanent privation of sight of either eye.
 - (c) Permanent privation of hearing of either ear.
 - (d) Privation of any member or joint.
 - (e) Destruction or permanent impairment of powers of any member or joint.
 - (f) Permanent disfigurement of head or face.
 - (g) Fracture or dislocation of a bone or tooth.
 - (h) Any hurt which endangers life, or which cause the sufferer to be during the space of twenty days, in severe bodily pain or unable to follow his ordinary pursuits.
- (iii) Injuries other than those defined above are considered to be simple injuries.
- (iv) Apart from injuries defined above, there may be cases where a passenger or trespasser receives only petty abrasions or bruises. These are of trivial nature and technically speaking should not be taken as injuries.
- (v) As a thumb rule, any injury requiring hospitalization of more than 48 hrs. is grievous, hospitalization of less than 48 hrs. is simple, and any injury not requiring hospitalizations at all is trivial.
- (vi) Classify injured passengers into separate categories as grievous or simple.
- (vii) Inform Commercial department for arranging ex-gratia payment.

9. 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 AMRVs 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.
- (viii) In case sufficient number of railway vehicles is not available, they should hire taxis for their movement by withdrawing from stations earnings.

10. 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 hospitals to handle injured persons especially with reference to types of injuries they have suffered. Decide whether the patient needs to be shifted to other hospital with better facilities and then 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.

11. Dealing with dead bodies:

- (i) Problem faced by rescue teams is regarding dealing of dead bodies.
- (ii) On IR it is not clearly spelt out as to who will deal with them.
- (iii) Accident Manual is silent as to who will extricate dead bodies from coaches, and then take them to either hospital or the mortuary.
- (iv) It can only be inferred that Medical Department will do this work.
- (v) In case of a major disaster, the usual complement of medical staff in any ARMV is grossly inadequate for undertaking work of this magnitude.
- (vi) Adequate number of Safai walas and other health workers who have come to the accident site should be mobilized for this purpose.
- (vii) Often rescue and relief operations continues for more than 48 hours.
- (viii) Dismembered bodies begin emitting foul odors after two days. Carrying out this task under such circumstances became a real problem.
- (ix) Target should be to extricate all dead bodies within 24 hrs.
- (x) Dead bodies should be dealt with coach wise, otherwise bodies taken out from different coaches get mixed up.
- (xi) 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.
- (xii) Shift dead bodies from coaches to a nominated place at the accident site with the help of paramedical staff, SJAB, Scouts, Civil Defense, personnel, other railway staff and non-railway volunteers available at site.
 - (xiii) Ensure covering of dead bodies with shrouds.
 - (xiv) Put cloth label (white cloth of 12"x9" written by Marker pen) on each dead body on the chest just below the neck as below:
 - Date_____
 - Dead body Serial No._____
 - Name_____
 - Age _____ Sex_____
 - Coach No._____
 - (xv) 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.
 - (xvi) 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 with the label visible as per item (xiii) above and fourth and fifth should be of full length of the body.
 - (xvii) If possible each body should also be video photographed.
 - (xviii) After photographs have been taken, each body should be placed inside a body /plastic bag with zip having proper labeling system where same information is also to be provided.
 - (xix) After this, bodies will be handed over to GRP or Local Police for safe custody.
 - (xx) Take necessary steps to handle unhygienic condition that may arise due to decomposed/mutilated bodies.

12. 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 hiring of a couple of big halls, for keeping bodies.
- (vii) Rooms should preferably be at a single locations 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 nominated buildings being used as temporary mortuaries.

- (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 pasted 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 following items from local market for dealing with dead bodies:
 - Shrouds,
 - Polythene bags,
 - Coffins,
 - Dry ice
- (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.

(F) Duties of Commercial Department:

1. Main Functions:

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

- (a) Withdrawal of cash from station earnings.
- (b) Hiring of road vehicles.
- (c) Providing beverages and catering to injured and uninjured passengers.
- (d) Initial round of hospitals and assessment of situation.
- (e) Preparing list of injured passengers.
- (f) Transporting them to hospitals and getting them admitted.
- (g) Payment of ex-gratia to injured and next of kin of dead.
- (h) Dealing with refund and claims compensation formalities.
- (i) Taking charge of luggage and consignments.
- (j) Post admittance hospital care of the injured.
- (k) Taking care of relatives.

2. General:

- (i) Before Sr. DCM proceeds to accident site he should withdraw sufficiently large amount of cash from station earnings. (Para 3 below)
- (ii) At the accident site, handpicked commercial supervisors should be deputed for manning commercial counters in UCC and CAC.
- (iii) Each commercial counter in CAC is to be manned by one group as detailed in Chapter 11, Section 6 (xiii)
- (iv) Different teams and groups will be formed for discharging various duties of the Commercial department as detailed in Section (F1) above. Each team should consist of 4-6 members and each group should consist of 3-5 teams, depending upon requirement.
- (v) Separate teams and groups should be formed as detailed below, headed by a commercial officer.
- (vi) One team will hire road vehicles for use and other related activities. (Para 4 below)
- (vii) One group will arrange beverages and food both for injured as also for uninjured passengers. (Para 5 below)

- (viii) One team will take an initial round of hospitals along with doctors and assess the situation. (Para E4 above)
- (ix) One group should take care of uninjured passengers who have to be cleared from the accident site. (Para 6 below)
- (x) One group will assist Medical department in preparing a list of injured passengers, input the same into the PC in CAC. (Para E7 above and Para 7 below)
- (xi) One group will assist Medical department in shifting injured passengers to hospitals (Para E9 above)
- (xii) One group will assist the Medical department in preparing a list of dead bodies and looking after them. (Paras E11 and E12 above).
- (xiii) One team will make ex-gratia payment to injured passenger and next of kin of dead. (Para 8 below)
- (xiv) One teams will deal with refund cases and claims compensation formalities. (Para 9 below)
- (xv) One group wills in-charge of unclaimed luggage and other consignments. (Para 10 below)
- (xvi) One group will be in-charge of post admittance hospital care of injured and taking care of relatives as detailed in Chapter 14 under 'Passenger care'.

3. Withdrawal of cash from station earnings:

- (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.
 - Departmental expenditure necessitated by floods, accidents or earthquakes, etc. (8)
 - Ex-gratia payments to persons involved in train accidents. (22)
- (ii) Before Sr. DCM leaves for accident site, he should withdraw sufficiently large amount of cash from station earnings to meet with immediate requirements at the site.
- (iii) More should be withdrawn subsequently as and when required.
- (iv) Procedure and accountal as detailed below should be followed. (Para 11 & 12 below)
- (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.

4. Hiring of Vehicles:

- (i) A large number of road vehicles are required at an accident site for following purposes:
 - Taking injured passenger 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.
 - Other miscellaneous work.
- (ii) For this purpose apart from whatever number of railway vehicles may be available, extra road vehicles should be hired.

- (iii) All road vehicles should be hired along with standby drivers for round the clock duty.
- (iv) At least 10 road vehicles should be attached to CAC for taking relatives to hospitals mortuaries etc.
- (v) Nominated railway staff to be attached to each hired vehicle round the clock (even group 'D' would suffice), so that optimum use can be made of the vehicle.
- (vi) Buses from State transport authorities should also be requisitioned along with extra drivers for round the clock duty.
- (vii) One railway staff should be put in charge of each bus on round the clock duty, who will accompany the bus wherever it goes and bring it back in time (even group 'D' would suffice)
- (viii) In case hospitals are in different towns, then road transport buses should be put on fixed time round trip schedule for shuttling relatives from CAC to various locations and back to CAC.
- (x) All hired vehicles and requisitioned buses should have stickers pasted on their front and rear windscreens indicating 'RAILWAY ACCIDENT DUTY'.

5. Catering arrangements:

- (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.

6. 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 who 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 charges by any available mode of transport and also incur expenditure for carriage of passenger's luggage etc.

7. Preparing list of injured passengers:

- (i) Collect list of injured passengers prepared by TS/TTEs 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 address, 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.
- (iv) Once the preliminary list of injured passengers has been prepared, the list should be signed by the CMS/MS Incharge 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 be E-Mailed to the Divisional Emergency Cell and Hdqrts. 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.

8. Ex-Gratia

- (i) The amount of ex-gratia relief payable to injured passengers or to dependents of dead are as under:
 - (a) In case of death - Rs. 50,000/-
 - (b) Grievous injury - Rs. 25,000/-
 - (c) Simple injury - Rs. 5,000/-
- (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:
 - (a) In case of death - Rs. 50,000/-
 - (b) Grievous injury - Rs. 25,000/-
 - (c) Simple injury - Rs. 5,000/-
- (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, gangman 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' identity and claim the body, following precautions are to be taken:
 - (a) Photograph the face of the body from 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 enhanced ex-gratia is announced by the Hon'ble MR, 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 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.

9. Refund and Claims Compensation:

- (i) Refund of fares must be granted in the CAC for unfinished journey as per rules.
- (ii) Injured passengers and next of kin of deceased passengers must be supplied with blank claims compensation forms along with Claims Booklet explaining complete procedure.
- (iii) 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.

10. 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 indicated 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.
- (xi) RMS consignments on the train should be shifted to school building for safe custody till Postal Authorities came and take over custody.

11. Withdrawal 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.
 - Departmental expenditure necessitated by floods, accidents or earthquakes, etc (8)
 - Ex-gratia payments to persons involved in train accidents. (22)

- (ii) The nominated supervisor incharge 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.
- (iii) This requisition should be made in the form appended below indicating the official making such withdrawal, the departmental officer concerned and also the purpose of withdrawal.
 From _____ To _____
 Name of Supervisory Official _____ Station Master _____
 Designation/Station _____ Station _____
 Please arrange to pay from Station Earnings an amount of Rs. _____ (Rupees _____)
 towards _____ (Purpose to be indicated). This is one of the authorized 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. _____
 earnings amount: _____ from station earnings _____
 Signature of _____ Signature: _____
 SM/SS _____ Designation: _____
- (iv) 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.
- (v) 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 & Appeal Rules.

12. Withdrawal from station earnings-accountal:

- (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 Branch Officer so that they reach Account 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. DAO.
- (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.

Chapter-18

SITE MANAGEMENT PLAN-III

(A) Duties of Mechanical Department:

For discharging the dual responsibility of extricating injured passengers & dead bodies from 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 ARMVs, 2 ARTs and 2 BD 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 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 direction of another AME who will 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. Save 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 center 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 centers can be opened up.
- (xii) Examine unaffected or re-railed rolling stock and certify their fitness for further movement.

(B) Duties of Security Department:

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.

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.

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. Railway men 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 make shift 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) Provide barricade and ask for additional force to control crowd during VIP visit.

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 labeling 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. 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 staff 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.

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 strips 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.

(C) Duties of Electrical Department:

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 ARMVs, 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.

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 (G).

- (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 only other requirement as necessary.
- (iii) Thereafter, he would assess the quantity of electrical fittings and generating sets available in ARMVs and ARTs.
- (iv) In order to set up adequate illumination facilities, all generating sets and lighting fixtures available in ARMVs 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 Plans.

- (x) Once generators and lighting fixtures have been set up, 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.

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 organization.
- (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.

(D) Duties of Signal & Telecommunication Department:

Duties of S&T department consist of providing sufficient and reliable means of communication at the accident site and other work centers.

1. Types of communication facilities:

For this purpose following types of communication facilities should be provided:

- (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.

2. Locations:

These should be provided at following locations:

- (i) UCC

- (ii) CAC
- (iii) LCCs
- (iv) Hospitals
- (v) Mortuary
- (vi) Any other location as decided.

3. 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 25 W VHF sets shall also be provided in UCC.
- (vi) One 25 W 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 utilized for extending communication to the accident site and in non-RE area where 6 Quad cable is available the same will be utilized for providing communication.
- (ix) PA system at UCC, CAC and LCCs.

4. Public Address System:

- (i) Provide adequate number of PA system, Hand sets.
- (ii) PA system should be provided in UCC, CAC and LCCs. These are to be used for communicating with passengers and for giving directions to railway staff.
- (iii) For this purpose, additional PA systems may become necessary depending upon the requirements at accident site.
- (iv) Mega mikes available in ART should also be utilized.
- (v) 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 systems.

5. General:

- (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.

(E) Duties of Engineering Department:

- (i) AEN/SSE (P.Way/Works) 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 materials and gangmen from the section.
- (vii) Additional requirements 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) Additional workmen are required who are to be moved from adjoining divisions/zones.
- (x) Each such division sending assistance should move men along with artisans and PWIs.
- (xi) One DEN and one AEN each should also move to the site of accident from each such division.
- (xii) Plan for coordinated working and movement of track machine for quick restoration in consultation with TRD and operating officials.

(F) Duties of 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 hospitals.
- (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.
- (v) Man personnel branch counters in CAC and discharging duties listed out for those counters.

(G) Duties of Accounts Departments:

- (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 payments, if so announced at accident site by Hon'ble MR.

(H) Staff matters:

- (i) First problem is of identifying railway personnel.
- (ii) They should be supplied with orange coloured armbands to be kept in ARMVs/ARTs.
- (iii) Adequate number of armbands, gloves and face masks should also be provided in the ARMVs/ARTs.
- (iv) communicating with railway personnel in the crowd.
- (v) Microphones/loud speakers provided in ARMVs/ARTs should be used both for crowd control as also for giving instructions to railway personnel working at accident site.
- (vi) One 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.
- (vii) Spare coaches should be stabled at nearby stations where watering and charging facilities are available for stay of staff.

Chapter-19 **PASSENGER CARE**

1. General:

- (i) Assistance to passengers and their relatives is of utmost importance in relieving them of some of their misery.
- (ii) Injured passengers and their relatives are to be treated with utmost courtesy, concern and sympathy to alleviate their trauma and discomfort.
- (iii) For dealing with relatives arriving from far flung corners of the country, staff fluent in the local language of the place from where the train originated should be used as interpreters.
- (iv) Commercial supervisors & WLIs should be assigned to talk to injured passengers to ascertain from them whether they wish to call relatives.
- (v) Injured passengers should thereafter be provided with either mobile or BSNL STD phones in order to enable them to speak to their relatives.

2. Hospitalization of the injured:

- (i) General policy in case of railway accidents in which casualties occur is that of rapid transportation to railway hospital after rendering immediate and necessary first-aid treatment.
- (ii) In case there are no railway hospitals nearby, then they are to be admitted in the nearest Govt. hospitals.
- (iii) In following cases, injured may be taken to a Private Hospital.
 - When there is no railway or Govt. hospital available within a radius of 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.
- (iv) 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 to hospitals concerned without loss of time.
- (v) To facilitate matters and to avoid misunderstandings, CMS should draw up a list of such private hospitals bearing in mind Railway and non-Railway hospitals in the vicinity.
- (vi) CMS should also settle charges to be paid for such cases for each class of accommodation.
- (vii) 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.
- (viii) Payments to private hospitals under this para can be arranged locally by the Railways and Ministry of Railways 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 dt. 18/12/1959)

- (ix) 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.
- (x) They should also carefully monitor the condition of injured and maintain an updated list with all details.
- (xi) 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 centralized updated position.

3. Facilities to be made available in hospital:

- (i) There should be a separate reception counter manned by commercial supervisor or WLI at the entry to the hospital for dealing with relatives of patients who arrive.
- (ii) A chart should be displayed at this reception counter indicating ward nos. where accident patients are admitted along with their names, coach no. wise.
- (iii) At the entry to each ward, a second list should display the name of the patient, coach no. and the bed no. inside the ward.
- (iv) Commercial staff and WLI on duty at that hospital should carry a list indicating the name, address and telephone no. of relatives as given by the patient, and whether they have been informed or not.
- (v) Arrangements should be made to inform the next of kin or a relative or friend of the deceased, in case identity of the person involved in accident becomes known.
- (vi) As each relative arrives his name should be marked in the list against the passenger's name.
- (vii) Reception counter should be provided with BSNL telephone with STD facility.
- (viii) There should be 2 mobile telephone for being taking to patients inside wards for making outgoing calls.
- (ix) Complete medical care of all passengers including payment of medical bills till their final discharge should be provided.

4. Communication:

- (i) STD telephone should be made available to passengers to communicate with their relatives.
- (ii) BSNL/Railway Telephones available at adjoining Stations/Cabins/Gates shall be extended to the accident site.
- (iii) 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) Payments for such telephone connections will be made from station earnings.
- (v) Sr. DSTE should hire few mobile phones to meet the need of stranded passengers, wherever cellular phone connectivity is available. Stranded passengers should be permitted to use these phones free of charge.
- (vi) These cell phones should be used to convey information regarding the safety of passengers to their friends and relatives.

5. Arrival of relatives:

- (i) After a few hours, next of kin of deceased and relatives of injured passengers start arriving at the accident site.
- (ii) Adequate number of display boards should be available on ARMs/ARTs for being put up at accident site.
- (iii) By and large these display boards should indicate the direction towards the CAC.
- (iv) These indication boards should be displayed near those areas where incoming relatives arrive and congregate.

- (v) Periodic announcements on loud speakers should also be made for guiding them to the CAC.
- (vi) CAC should have different counters for various purposes as detailed below in section 8.

6. Taking care of relatives:

- (i) At CAC, number of commercial supervisors & WLIs should be available for the purpose of taking arriving relatives to different hospitals etc.
- (ii) After relatives arrive they should first of all go through the reservation charts and locate the name of the passenger.
- (iii) Thereafter if details are available as to which hospital passenger has been admitted then commercial supervisor or WLI should accompany him to that hospital.
- (iv) A hired vehicle should be provided for carrying them to various hospitals and mortuary.
- (v) 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.
- (vi) Thereafter, they should help him in completing all formalities in the CAC.

7. Single window clearance:

CAC should have provision of single window clearance for all legal formalities & multiplicity of paper work.

- (i) Counters provided in CAC should have facilities for following items
 - (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 Form.
 - (i) Counter for helping performance of last rituals 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.

8. Stay of relatives of dead and injured:

- (i) Commercial supervisor or WLI deputed with relatives should also arrange for their stay and accommodation.
- (ii) Depending upon the need, accommodation in hotels/dharamshalas would be hired for accommodating passengers.
- (iii) Arrangements should be made for their meals etc. Contract should be given for providing cooked food to relatives.

9. Performance of last rites:

- (i) In many cases relatives decide to perform last rites at the place of accident itself instead of taking the body back to their native place.
- (ii) This is mostly on account of:

- bodies being mutilated,
 - bodies being in a state of decomposition,
 - native place being far off,
 - for overcoming logistic problems of taking the body back.
- (iii) In such cases railways should render appropriate assistance to relatives for performing last rites.
- (iv) Railways should locate:
- the nearest cremation or burial ground as the case may be.
 - Shopkeepers who supply necessary material for funeral rites.
 - Priest for performing the ceremony.
- (v) The above information would be conveyed to relatives and transport provided for carrying the body.
- (vi) Above duties are to be performed by Personnel department.
- (vii) Commercial supervisor or WLI who has been deputed for relatives of a particular passenger should help them out in this endeavor.

10. Departure of relatives of dead and injured:

- (i) CAC should have counters for helping relatives regarding their return journey.
- (ii) Personnel branch staff at the CAC should be available for issuing complementary passes for their return journey.
- (iii) Reservation of berths should be provided on trains. Such reservation should be provided only from the accident site onwards.
- (iv) Extra coaches should be attached to trains going to these destinations as per requirements. These extra coaches should be brought in locked condition from the originating station.
- (v) Reserved space in luggage portion of SLRs for some of them to carry back bodies in coffins etc, in case they so desire.

Chapter-20

MEDIA MANAGEMENT PLAN

1. Objective:

- (i) To post the public with factual information pertaining to the accident.
- (ii) To convey certain information which is of use to passengers?
- (iii) To convey specific information which is of use to relatives of dead and injured passengers?
- (iv) To create a positive public opinion.
- (v) To create a healthy relationship with the press and electronic media.

2. Information to be relayed to Press and Electronic Media:

Information to be given to media can be broadly segregated into following categories:

(a) Accident:

- (i) Nature of the accident-date, time, place, exact location, train no., number of coaches involved etc.
- (ii) Details of how the accident most probably occurred.
- (iii) Prima-facie cause of the accident will be relayed to Media only with the approval of GM.
- (iv) Sabotage, even if suspected, will not be relayed to Media, without approval of Railway Board.
- (v) Periodic reports regarding progress of rescue and relief work.
- (vi) Expected date and time of restoration.

(b) Uninjured Passengers:

- (i) Steps being taken to provide beverages, refreshments and first aid treatment for unaffected passengers.
- (ii) Steps being taken by railways for clearance of unaffected passengers.
- (iii) Expected time of departure of front portion of accident involved train.
- (iv) Its likely time of arrival at the destination.
- (v) Expected time of departure of rear portion of accident involved train.
- (vi) Its diverted route and likely time of arrival at the destination.
- (vii) In case empty coaching rakes have been arranged, then details of the same.
- (viii) Road bridging being done, laborers provided for transshipment of luggage.

(c) Dead and Injured passengers:

- (i) Steps taken by Railways to render immediate medical attention.
- (ii) No. of injured passengers rescued.
- (iii) Breakup of their injuries:
 - Grievous,
 - Simple,
 - Trivial.
- (iv) Names of hospitals where injured are being treated.
- (v) Approximately how many patients have been admitted in each of these hospitals.
- (vi) Names of injured passengers.
- (vii) Communication facilities like cell phones, STD phones provided at these hospitals.
- (viii) Payment of ex-gratia.

- (ix) Facilities offered to relatives of victims, including free pass for journeys.
- (x) Special trains being run for bringing relatives of dead and injured.
- (xi) Number of dead bodies recovered and number of bodies identified.
- (xii) Identification of dead bodies takes much longer since either
 - they were traveling alone, or
 - their companions are injured and are not in a position to identify them, or
 - their companions have also perished.
- (xiii) Under such circumstances it is possible to identify dead bodies only when relatives come from their home town.
- (xiv) This aspect of identification of dead bodies and reasons for delay should be explained to the media.

(d) Helpline Enquiry Booths:

- (i) Setting up of Helpline Enquiry Booths.
- (ii) Details of Helpline Enquiry Booths as follows:
 - Stations where these have been opened.
 - Telephone Nos.
 - FAX Nos.

(e) Train Services:

- (i) Details of train operation with regard to:
 - Diversion,
 - Regulation,
 - Rescheduling,
 - Short termination,
 - Cancellation.
- (ii) Running of passenger specials for carrying relatives to the site of accident.
- (iii) 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 enroute.
- (iv) Expected departure time of relatives special from their originating stations.
- (v) Refunds being granted in Helpline Enquiry Booths for passengers whose journey have been interrupted.

3. Causality figures:

- (i) In all accidents, as long as rescue and relief work continues, there is always a difference between casualty figures given by railways and casualty figures quoted by the Media.
- (ii) The reason for this difference is that railways give casualty figures based on actual number of dead bodies recovered; whereas Media estimates casualty figures based on the damage visible and likely final tally.
- (iii) During Press Briefings, this point should be clarified that at that point of time so many bodies have been recovered.
- (iv) However, it should also be made clear that casualty figures are likely to go up since rescue work is still continuing.
- (v) Assessment regarding likely number of deaths and injuries may also be made if considered necessary. Such an assessment should be based on:
 - Total number of coaches involved.
 - Number of coaches searched.
 - Number of coaches yet to be dealt with.

- (vi) Particular reference should also be made to coaches that are crushed or that have climbed on top, and have not yet been searched.
- (vii) For example, the media can be informed that as of 13/- hrs., 2 coaches have been dealt with and----no. Of bodies have been recovered. 8 more coaches are still to be searched and casualties are likely to go up.

Chapter-21

FIRE AND OTHER ACCIDENTS

Fire on a running train is more catastrophic than on a stationary one, since fanning by winds helps spread the fire to other coaches. Moreover, passenger's sometime jump out of a running train on fire resulting in increased casualties.

In case of fire in running train, every railway staff available on the train or at the site shall immediately try and stop the train and plunge into action to save lives and property.

(A) FOLLOWING SOURCES ARE MAIN CAUSES OF FIRE IN TRAINS:

- (i) Carrying stoves, sigris, gas cylinders, kerosene oil, petrol, fire works 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 it is surrounded by burning materials with adequate supply of air, fire spreads.

(B) ACTION TO BE TAKEN IN CASE OF FIRE IN TRAIN:

- (i) First and foremost immediately summon the fire brigade.
- (ii) Secondly, if you smell gas or vapor, or even in case of excessive smoke, hold a wet cloth loosely over your nose & mouth and breath through it in as normal a manner as possible.

1. In case of fire in a passenger train:

- (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.
- (ix) Building up confidence of injured passengers by suitable advice is of great importance.

2. 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 extinguisher 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 efforts 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.

3.

In the event of fire on an Electric engine/EMU

- (i) Driver shall immediately switch off the circuit and lower the pantograph. The train shall then be brought to stop at once.
- (ii) After disconnecting the electric supply to affected circuits, Driver shall take necessary action to put out the fire.
- (iii) If fire cannot be extinguished by the above means Driver shall advice TPC through emergency telephone to arrange for OHE of the affected section to be switched off.
- (iv) The Guard and any other staff available shall render all possible assistance to the Driver in putting out the fire.
- (v) Ordinary fire extinguishers or water from a hose pipe shall on no account be used to extinguish fire on live wire or electrical equipment.
- (vi) 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 have been made dead.

4.

In the event of a fire on a Diesel Engine/DMU stock:

- (i) The Driver/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 Driver 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.

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.

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.
 - (ix) Inform the nearest Fire stations intimating that the fire has been caused by Petrol or any other inflammable liquids, acids or gases.
- 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 departmental 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.

8- RECOMMENDED ROLE OF ON BOARD STAFF IN CASE OF FIRE ON TRAIN

Introduction

In case fire on train, typical time available for rescue is 2-3 minutes before smoke fills up and passengers start getting disoriented. Smoke (toxic/non-toxic) can cause suffocation and loss of consciousness in two minutes. Fire in personal clothing cause suffocation and loss of consciousness in 10-15 minutes and Deaths of incapacitation (followed by death) can happen in five minutes. A fire in train destroys the train carriage (s) completely in a few minutes.

In most of cases, relief reaches the burning train when the carriages are completely burnt and passengers dead or badly burnt. Under such situation, role of on Board Railway servants becomes vital and they should plunge into action to save the precious lives on priority. In this context, the Railway servants are expected to have a basic knowledge on fire and fire fighting.

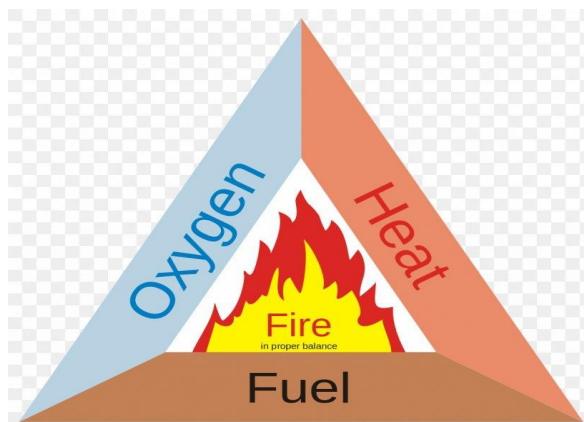
The fire incidences in trains are among the most serious disasters to human lives and the property of Indian Railways. Indian railway has already taken up various steps for fire Prevention & train fire has become a serious concern for Railways.

A train fire is different from a fire in other places in the manner in which it breaks out, grows and spreads, and in the method of fighting it. Fire in a coach on running train is very dangerous because it spreads very quickly in closed space. People died due to Smoking or choked with other coaches.

CHARACTERISTICS OF FIRE

The fire triangle illustrates the three elements a fire needs to ignite: heat, fuel, and an oxidizing agent (usually oxygen). By eliminating any one of the element, fire can be extinguished.

FUEL(Any Hydrocarbon) + AIR (OXYGEN) **Heat** **FIRE**



PROBABLE CAUSES OF FIRE IN RAILWAY COACHES

- Carrying inflammable goods like stove, gas cylinder, kerosene oil, petrol, fireworks etc. in passenger coaches.
- Making/using fire near paper, wood, petrol or such other inflammable articles.
- Throwing waste material outside the dust bin, near

- door, removal of garbage from pantry car/coaches.
- Malpractices like carelessly thrown lighted match sticks, cigarette butts and Bidi buttsetc.
 - Leakages/Blasts of pantry gas cylinders.
 - Careless, storage of inflammable materials like newspapers, edible oil etc. in pantry cars.
 - Insertion of cigarette butts, Bidi butts, Gutkha wrapper etc. in fan base, fuse distribution board, roof openings and ventilators etc.
 - Sabotage.
 - Mishandling/Careless use of pantry equipment by pantry car staff.
 - Gas regulator, flame arrester and pressure gauge in pantry car are not in working order
 - Poor maintenance of electrical equipment's and short circuits.
 - Loose or temporary connection, hanging wires/exposed joints etc.
 - Defects in locomotive causing fire.

NECESSITY FOR IMMEDIATE ACTION

In most of the cases, relief reaches a burning train after the carriages are completely burnt and passengers dead or badly burnt. Under such situation, role of on-board Railway servants becomes vital and they should plunge into action to save the precious lives on priority.

The role of on-board staff who accompanying trains shall react immediately to put-off / extinguish fire and rescue passengers / safe the railway property

IN THE EVENT OF A VEHICLE ON A TRAIN CAUGHT FIRE, ON RUN.

- a) The train shall be stopped, immediately.
- b) Efforts shall be made to save the lives and RMSfirst.
- c) Information should be given to the nearest SM/controlquickly.
- d) The burning vehicle shall be isolated a distance of not less than 45 meters being left between it and the other vehicle of thetrain.

- e) The train shall be protected in accordance with GR. 6.03, if not protected by fixed signals.
- f) Every effort shall be made to extinguish the fire and to save the wagon labels, seals and the contents of the vehicle.
- g) Earth or sand, if available shall also be used to extinguish fire in addition to fire Extinguisher and water bucket as per training imparted to the staff.
- h) Ordinary Fire extinguisher or water from a hose pipe shall on no account be used to extinguish fire on live wire or electrical equipment. If the services of the Fire Brigades are required, the brigade shall not be allowed to commence operation until all electrical equipment in the vicinity of the fire has been made dead and earthed.
- i) If the fire is suspected to be due to electrical short circuit, the electric couplers at both the ends shall be disconnected & fuses from the battery from boxes shall be removed.
- j) In case the fire is near a tank, 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 the vehicle has been detached.
- k) All available help should be mobilized to extinguish the fire.

In this context, the Railway servants the on board staff need to have basic knowledge on fire and fire fighting methods. They have to be imparted the methods of rescue through various training programs.

1.0 INSTANT ACTION TEAM AGAINST FIRE.

An instant action team comprising the following available on the train may be formed:

- Loco pilot, Asst. loco pilot, Guard.
- All TTEs, AC Coach Attendants, AC Mechanics.
- Pantry car staff (railway and/or contractor)
- OBHS On board Housing keeping Staff railway and/or contractor.
- TXR staff (as provided on some trains)
- RPF/GRP staffs.
- Railway employees either on duty or on leave as passengers travelling in the fire affected train.
- Doctors travelling by train.
- Passengers travelling on the train who volunteer for rescue and relief work.

- Railway staff working at site or available nears the site of the fire incident.

Further, Role of following officials is also important in case of fire.

- Station Master at station or nearby station of Fire Incident
- Section Controllers
- Traction Power Controllers
- BD Staff

1.1 ROLE OF INSTANT ACTION TEAM.

- i. Don't panic.
- ii. Pull the Alarm chain and stop the train immediately.
- iii. Evacuate the passengers to the adjacent coaches which are away from the fire through the vestibules, if the fire is not extinguished. After complete evacuation the rolling shutters of coaches on fire to be closed to contain the spread of fire.
- iv. More people expire due to suffocation from smoke rather than due to actual burning. Advice passengers to take a cloth wet it in their drinking water and cover their nostrils. This reduces the smoke inhalation & subsequently its bad effects.
- v. Insist that passengers should save themselves first and not to bother about their luggage which can be retrieved later on.
- vi. Isolate the affected coaches from other coaches by decoupling both Mechanical & Electrical couplers.
- vii. Located the fire extinguishing substances viz, fire extinguisher, water bucket with water/sand, etc. Use water from the coaches.
- viii. Try and put out the sources of the fire before it becomes a big blaze.
- ix. Turn off Electrical Appliances. In case of fire from electricity switch off the sources.
- x. Report it to the nearest station/control/fire station. (Fire services: 101, it can be dialed by mobile also).

When a person is on fire:

- Approach him holding the nearest available wrap in front of you
- Wrap it round him.
- Lay him flat and smother the flames.
- He may roll on the floor, smothering the flames.
- On no account should be rush into the open air.
- Call for assistance.

Handling of injured passengers:

- i. Building up confidence of injured passengers by suitable advice is of great importance.
- ii. First aid should be rendered to the injured passengers.
- iii. Ordinarily given nothing ORALLY to injured one, but if medical treatment is delayed more than 4 hours give ORS drinks preferably bio-carbonated soda.
- iv. In serious case remove the patient quickly to hospital as the injured may require an anesthetize, medical soothing.

1.2 ROLE OF AC COACH MAINTENANCE STAFF :

- Immediately isolate the affected coach/coaches electrically.
- Use fire extinguisher to extinguish fire to the extent possible.
- Immediate check lights in the coaches and provide light in dark coaches.
- Provide light at accident site.
- Take necessary action as a man of common prudence will take not only to help stranded passenger but also to arrange such helps as would be demanded by circumstances.
- Help in extricating the trapped passenger/bodies.

1.3 ROLE OF CREW (LOCO PILOT/CO-PILOT, GUARD)

- i. Stop the train immediately.
- ii. Arrange the stretcher and first-aid box for the injured passengers.
- iii. Arrange for isolating the affected coaches from other coaches by decoupling both Mechanical & Electrical couplers.
- iv. Report it to the nearest station/control/fire station.
- v. Provide anti rolling arrangement on the isolated coaches and train as well.
- vi. Render first aid to injured passengers, obtaining assistance of the railway staff, doctors and/or volunteers on the help of Ambulance service, means available.

1.4 ROLE OF TRAIN SUPERINTENDENT/TTEs

- i. Don't panic.
- ii. Pull the Alarm chain and stop the train immediately.
- iii. Evacuate the passengers to the adjacent coaches which are away from the fire through the vestibules, if the fire is not extinguished.

- After complete evacuation the rolling shutters of coaches on fire to be closed to contain the spread of fire.
- iv. Advice passengers to take a cloth wet it in their drinking water and cover their nostrils. This reduces the smoke inhalation & subsequently its bad effects.
 - v. Arrange the stretcher and first-aid box for the injured passengers
 - vi. Insist that passengers should save themselves first and not to bother about their valuables luggage which can be retrieved later on.
 - vii. Locate the fire extinguishing substances viz, fire extinguisher, water bucket with water/sand, etc. Use water from the coaches.
 - viii. Report it to the nearest station/control/fire station. (fire services; 101 it can be dialed by mobile also).
 - ix. Take assistance of volunteers from passengers, Railway employees travelling, Doctors on trains, on board contractor staff etc. to rescue operation.

1.5 ROLE OF PANTRY CAR STAFF

- i. Protect the inflammable available to pantry car.
- ii. Extinguish the fire by using fire extinguisher available at pantry.
- iii. Provide necessary assistance to TTE as directed.

1.6 ROLE OF BOARD HOUSEKEEPING STAFF & TXR :

- i. Open the doors of both sides of coaches.
- ii. Evacuate the passengers to the adjacent coaches which are away from the fire through the vestibules, if the fire is not extinguished. After complete evacuation the rolling shutters of coaches on fire to be closed to contain the spread of fire.
- iii. Open Emergency window for Evacuation of the passengers.
- iv. Provide necessary assistance to TTE as directed.

1.7 ROLE OF RPF/GRP :

- i. Separate the area of incident by establishing temporary barriers and ensure that the on lookers and spectators do not enter the affected area to disturb the scene or hamper the rescue operations.
- ii. Baggage of passengers should be isolated and should be taken care of till they are handed over to claimants or taken over by Railway authorities.
- iii. RPF personnel should respond to any call for assistance to rescue victims and transport them to the nearest hospital.
- iv. Check, save and record the evidences/clues/of the fire.

1.8 STATION MASTER AT STATION OR NEARBY STATION OF FIRE INCIDENT

- Station Master shall advice the section controller / TPC on the fire incident of trains in the section duly exchanging private numbers with the section controller indicating the affected section for OHE isolation.
- Station master shall not allow to any train to enter even in the healthy line of the affected section
- Station master shall issue caution order to GDR of train on the healthy line of unaffected section to proceed at 60 kmph in day when a clear view ahead and 30 kmph in night to observe any other obstructions
- After clearance of affected train from the section advice section controller
- On receipt of advice from section controller allow the train service on the section on releasing the emergency power block and OHE power is switched on in the section.

1.9 SECTION CONTROLLERS

- Section controller, on receipt of fire incident, shall advice adjacent stations /station masters to regulate the train services in the affected section.
- Advice traction power controller to switch off OHE power supply in the affected section duly exchanging private number with the traction Controller.
- On receipt of advice in writing from TPC, advice the station masters of all stations in the affected section to treat the DEAD SECTION as if the same is under emergency power block and to ensure that no train is allowed to enter in the affected section.
- Shall ensure no train is allowed to enter even in the healthy line of the affected section.

- Shall advice station master to issue caution order to GDR of train on the healthy line of unaffected section to proceed at 60 kmph in day when a clear view ahead and 30 kmph in night to observe any other obstructions.
- On release of affected train /coach / goods train from the section advice traction power controller to switch-on OHE power supply and cancel the emergency power block.
- Train services shall be re-store accordingly.

1.10 TRACTION POWER CONTROLLERS

- The Traction power controller shall switch off the OHE power supply of both the lines of relevant affected section.
- Advice section controller in writing that OHE power supply has been switched-off in the affected section.
- Shall advise the section controller to have emergency power block in the section to treat as DEAD section.
- After release of affected train /coach /goods train in the affected section shall advice section controller to cancel emergency power block.
- On acknowledge from section controller TPC shall switch-on the OHE power supply in the affected section.

1.11 BD STAFF

- Before entering the coach ART staff shall wear proper fire suite with equipment's.
- Cold cutters are only to be used to rescue the entrapped passengers.
- Arc welding / Gas welding, ARC cutting / GAS cutting shall not be used
- ART staff shall ensure no passenger is entrapped inside the coach before lifting coach for restoration work.
- ART supervisor shall ensure reaching of ARME/SPART before golden hours.
- Staff shall be familiar with location of emergency widows/exit for different type of coaches.

- Fire blankets shall be kept ready before reaching spot.

DO's AND DONT's

DO's	DONT's
<ul style="list-style-type: none"> • Keep the fire extinguishers in clean condition. • Ensure availability of fire extinguishers at easily visible and accessible places. • Emergency window should be free in operation • Emergency window position should be displayed properly. On-Board staff should be conversant. • Do not throw waste material outside dustbin. • Pantry staff should keep the Pantry stove platform clean and no foreign material shall be left on it. • Ensure the isolating cock of LPG line is in OFF condition when not in use in pantry car. • Vestibules area shall be free. • Use proper connectors with rated capacity for charging in mobile phone/lap top socket. • Ensure availability of hammer in hammer box provided with window glass that could slide up for easy removal. 	<ul style="list-style-type: none"> • There should be no sharp bend in rubber pipe of Fire Extinguisher. • Fire extinguishers should not be locked in cupboards. • Emergency window should not be rusted or deformed preventing opening of window • Emergency window position should not be displayed in random places for every coach. • Insertion of cigarette butts, Bidi butts, Gutakha wrapper etc. in fan base, fuse distribution board, roof openings etc. • Do not keep inflammable materials like edible oil tin/can etc., near gas burner/stove. • Do not use defective isolation cock or by-pass isolation cock or handle obstruction to handle preventing closing of the isolation cock. • Do not keep bed rolls, etc. in

	<p>the vestibule area.</p> <ul style="list-style-type: none"> • Do not plug extra load/ loose wire on mobile phone/ lap top socket. Do not allow over charging of mobile phones especially during nights which may cause fire explosion inside coach. • Do not fix hammer in a container that will take time and require screw driver to remove in case of emergency. • Do not allow smoking in the train. • Do not allow any unauthorized vendors in train.
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(C) FIRE FIGHTING:

1. **Dry Chemical powder type fire extinguisher (DCP):**

These types are suitable for tackling petroleum, gas, electrical fire and controlling fires of textile fibers, Sodium based chemical powder is used on a fire which undergo chemical reaction.

2. **How to Use:**

- (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 stream of the powder at the base of the flame.
- (vi) For effective result stand at about 1.5 to 2.5 m. 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.

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) Do not use elevators.
- (iv) Proceed to the designated gathering area outside the building.
- (v) Do not re-enter building until cleared by authorized personnel.
- (vi) Assist with evacuation of individuals with special needs.

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 authorities.

5. 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) Person noticing a bomb like object, should bring it to the notice of the nearest available officer.

- (vii) Inform GRP, RPF, 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) Utilize "Caller ID" facility if provided to trace the caller.

6. Radiation Emergency:

(a) Personal injury involving radioactive material contamination:

- (i) Render first aid immediately for serious injuries by 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.

(b) 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.

7. 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.

8. If parcel is Open and/or Threat is identified:

(a) For a Bomb:

- (i) Evacuate immediately.

- (ii) Call police/fire service/Bomb squad.

(b) For Radiological:

- (i) Limit exposure-don't handle.

- (ii) Evacuate area.

- (iii) Shield yourself from the object.

(iv) Call police/fire service/bomb squad.

(c) For Biological or Chemical:

(i) Isolate-don't handle

(ii) Call police/fire service/bomb squad.

(iii) Wash your hands with soap and water.

(D) Other Accidents:

1. Tampering of Railway fittings causing accidents & placing of foreign particles 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.

2. Earthquake:

- (i) When first tremors are sensed during an Earthquake, all personnel should evacuate buildings and assemble at safe places away from structures, walls and falling objects.
- (ii) Emergency shutdown should be declared.
- (iii) Emergency response plan to be activated.
- (iv) After status is restored, personnel should inspect all facilities for damage assessment, cleanup, restoration and recovery.

3. Landslide:

- (i) Whenever landslide is expected/experienced due to heavy down pour all train services should be regulated.
- (ii) Rescue team to be rushed for restoration work.

4. Floods: Based on the weather forecast warnings regarding impending flood condition, following steps should be taken.

- (i) Bridge watchman to be provided at vulnerable points to inform flow of water.
- (ii) Shifting all personnel and movable equipment around the bank.
- (iii) If time permits sandbag dykes can be constructed to ensure safe passage of trains.
- (iv) Regulate train service till flood recedes.
- (v) Evacuate people on train/at station and move them to a safer place.
- (vi) Contact Fire brigade, Naval, Army, Air force, Local boat man and arrange divers and boats.
- (vii) With the co-ordination of local authorities the Engineering officer/supervisor or other supervisors at that station shall arrange temporary shelter in nearby schools, marriage hall, community center etc.
- (viii) If necessary, arrange coaches to accommodate the affected temporarily.
- (ix) Seek assistance from voluntary organization and arrange drinking water, food, medicines etc.
- (x) RPF and GRP in co-ordination with local police shall arrange protection.
- (xi) Keep communication with Divisional Control office.
- (xii) When people are marooned by flood, arrange air dropping of food packets, cloths etc., with the assistance of civil administration.
- (xiii) Contact SJAB, local doctors and provide medical care to the affected.
- (xiv) Take all necessary action to provide shelter and other assistance to those affected by floods.

Chapter-22

TRAINING AND 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.

1. Training:

Training should be conducted at the following three levels:

- * Individual Training:
 - (i) For enhancing the skill of staff attached to ARMVs, ARTs, etc., supervisors and staff shall be given general training in Disaster Management.
 - (ii) Special training may be arranged in Extrication, Rescue, Medical relief, Rolling stock restoration technique and Civil Defence by departments concerned.
- * **Seminars/Workshops:** Seminars should be periodically conducted on Disaster preparedness, and the DM Plan.
- * **Joint Exercises:** Full scale Disaster Management Mock Drill to be conducted as detailed below.

2. Full Scale Mock Drill:

Disaster Management essentially necessitates a state of preparedness under all circumstances and the efficacy of arrangements there in can be assessed only by conducting periodical full scale mock drills.

- (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 2 years after the new DRM takes over.
- (v) It should be conducted during the day and in a branch line section.
- (vi) 6 hrs. Traffic block shall be taken and the ARMV/ART runs out to the accident site.
- (vii) UCC and CAC should be set up 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 ARMV/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-aiders and availability of medical equipment.
 - Preparedness of commercial department to mobilize adequate manpower.
- (x) On completion of the drill, a detailed report shall be prepared detailing deficiencies noticed, corrective measures initiated and improvements required.

Chapter-23

NDMA'S Guidelines on different types of Disasters.

1. Guidelines for Preparation of Action Plan – Prevention and Management of Heat Wave – Oct 2019.
2. Landslide Risk Management Strategy – Sept 2019
3. Guidelines on Disability Inclusive Disaster Risk Reduction – Sept 2019.
4. Guidelines on Temporary Shelters for Disaster – Affected Families – Sept 2019.
5. Guidelines on Prevention & Management of Thunderstorm & Lightning/Squall/Dust/Hailstorm & Strong Winds – March 2019.
6. Post Disaster Needs Assessment – Handbook, SOP, Manual (issued by NIDM)

(A) Prevention and Management of Thunder Storm & Lighting/ Squall/ Dust/Hail Storm and Storm wild :

1. Preventive Measures:

Disaster prevention covers measures aimed at impeding the occurrence of a disaster incident and/or preventing such an occurrence from affecting communities. The occurrence of thunder storm and squall can't be impeded. However, their harmful effects can be minimized through a number of measures.

(a) **Hazard and Vulnerability Assessment:** Micro-level hazard zoning should be done and vulnerable areas must be clearly marked on a map. The extent of vulnerability (mild, moderate or intensive) and the probable cost of damages to crops due to incidents of varying intensities must be included in the assessment report. With respect to a disaster, risk is specifically described using relative terms such as High Risk, Average Risk and Low Risk to indicate the degree of probability of the occurrence of the incident. The risk assessment includes an evaluation of all elements that are relevant to the understanding of the existing hazards and their effects on a specific environment. There are several steps in risk assessment based on the related processes of hazard mapping vulnerability analysis. They establish the nature, location and scale of risks to society and its assets. This information can assist decision makers in deciding what can and should be protected and up to which level.

(b) **Sensitization of Disaster Managers, Planners and Decision Makers:** Sensitization of planners and decision makers can immensely help in minimizing the harmful effects of these incidents on communities. The first and foremost need is awareness generation among policymakers, administrators, engineers, architects, the general public as well as the farming community.

(c) **Awareness generation among masses:** Public awareness and education help in improving the disaster resilience of masses. Information, Education and Communications strategy for mass awareness generation has been discussed in detail in section 3.3.

1.1 Mitigation and Preparedness Measures

The lessons learnt from previous incidents, particularly regarding gaps in rescue and relief works and the shortcomings experienced in the process, should be dealt with carefully. Disruption of communication and transportation services and undue delays in clearing the fallen trees, electricity poles and hoardings on the roads and/or streets that further delay the immediate transportation of the injured to nearby hospitals remains a major challenge. The hierarchical structure for execution needs to be formalized so that all efforts are properly coordinated. Coordination for relief distribution is equally important to ensure qualitative and timely delivery; the lack of which may lead to duplication of efforts at some locations while leaving some others completely starved.

a. **Enhanced understanding of preparedness and mitigation measures:** This will help us minimize the losses due to thunderstorms/ squall, etc.

b. **Hazard Resistant Construction:** United Nations Development Programme (UNDP) and NDMA, Ministry of Home Affairs, Government of India, released a "Manual on Hazard Resistant Construction in India" for the non-engineered buildings in July 2008. The popular load-bearing masonry building systems, prevalent in different parts of the country, are covered in the manual. Relevant building codes and guidelines of the Bureau of Indian Standards form the basis for this manual. In addition, the two decades of work carried out by the authors focusing on the promotion of suitable building technologies in different parts of the country and the on-site training of building artisans and engineers, as well as the post-disaster assessments of damages in various disasters 14 provide the backbone of this manual. It is hoped that this manual will contribute towards

ensuring better structural performance in the face of potentially destructive natural hazards and thus bring safety to the people, rich and poor alike, in India.

c. **Laying underground electricity cables and telephone lines:** These are best suited, particularly for congested townships where thunderstorms/squall may cause falling of electricity and telephone poles, and snapping of cables.

d. **Emergency Communication Systems:** Planning, updating and mobilization of existing radio communication resources in emergency situations and acquisition of satellite phones to make them available at the *tehsil* level to ensure prompt response in the event of occurrence of any disaster.

e. **Integrating Development schemes with Disaster Management Schemes:** This would enable the creation of disaster-resilient localities by way of recommendations by *patwari/ gram pradhan* that quality raw material and technology be used in all infrastructure/ construction projects.

f. **Technical, Social, Organizational and Administrative preparedness:** The most urgent need of the hour is to develop a DSS (Decision Support System) for thunderstorm now cast, which is currently being done using the existing network of observations, radars, satellites and lightning data. To accomplish this, the DWR and lightning network could be expanded over all thunderstorm prone areas across the country and information thus obtained could be merged with satellite observation to generate meaningful insights for different regions with a lead time of 1-2 hours. The now cast alerts/warnings should be accompanied with actionable information (Do's and Don'ts) and potential impact (expected damage). Besides SDMAs and DDMAs, *tehsil*-level Disaster Management Group (TMG) at subdivision/ *tehsil* level should be formed with representatives of various line departments, including Agriculture, Forest, BSNL and other telecom service providers, Electricity Board, Revenue, P.W.D, Health, Police and Fire Brigade. Village Disaster Management Committees (VDMCs) should also be formed at the village level comprising local villagers. This would certainly strengthen the local response mechanisms to disasters.

g. **Emergency Plan for Hospitals and Health Centres:** Emergency expansion plan for civil hospitals, community health centres, Primary Health Centres (PHCs) and additional PHCs, including schemes for mobile medical teams for a post-disaster situation, should be in place. A list of Army hospitals, Govt. Hospitals (both Centre and State), private hospitals and nursing homes in each district should be prepared. Phone numbers of all these medical facilities should be available in the District Control Room as well as in the SEOC. Based on the hazard assessment, emergency medicines, Operation Theatres and life-saving drugs should be kept ready. Vacant post of doctors and paramedical staff should be filled in all the government hospitals in order to make available the required number of medical workers at the time of an emergency. An Action Plan must be considered for training of doctors and paramedical staff on handling patient inflow and treating them in case of a disaster.

h. **Focusing on Research and Establishing a Forecasting Centre for Thunderstorm and Squall** to carry out the hazard zonation and vulnerability analysis for thunderstorm and squall with State-level knowledge institutions.

i. **Making Disaster Risk Reduction (DRR) a part of school and college curriculum:** Youth and children can be taught about extreme weather incidents and the Do's and Don'ts to be followed before, during and after a disaster. They act as agents of change and bring about greater awareness in the neighbourhood and society.

1.2 Structural Mitigation Measures

The most effective structural measures against thunderstorms, lightning, squall and strong winds are meant to protect against the strong, high-speed winds and against the electric discharge due to a lightning strike.

(a) Protection Against Strong Winds

During cyclonic conditions, strong winds are able to reach velocities of more than 200 km/hr. The cyclonic winds are also associated with pressure differentials that can cause a huge pressure difference between the outside and the inside of a building resulting in a higher net effect of the wind storm. These high-velocity winds can cause severe damage to light structural and non-structural systems such as claddings. Since the arrival of cyclonic storms is accompanied by suitable warnings, it is expected that people will not be found outdoor during a cyclonic storm. People are, therefore, safe against the most harmful effects of the high wind velocity provided they are inside cyclone shelters or other well-constructed buildings. During strong winds associated with thunderstorms or squalls, the wind velocity is high but it rarely reaches cyclonic levels. Typical wind speeds during thunderstorms are in the range of 50- 80 km/hr. During severe thunderstorms, the wind speeds may reach around 100 km/hr. The wind velocity is highest in storms that are associated with extensive lightning activities. Structures do not require any special protection against storms with wind speeds up to 100 km/hr if they are designed and constructed as per approved standards. Buildings that are constructed informally or those which are made using non-engineered materials may not be able to resist the wind forces. These may get damaged even in low wind speed unless special protection mechanisms are adopted. In general, components that provide large areas for the application of wind forces are the first to be damaged. They can become loose and pose a threat to humans as flying debris. In buildings that use lightweight sheets for roofing, the panels may collapse on occupants. Protection against the lightweight panels under such wind speeds can be provided by properly securing them with their supporting frames. The connection has to ensure that shearing or punching is avoided. Also, it has to be ensured that the panels themselves have the requisite strength to withstand the wind force. The supporting frames also need to have adequate strength to safely transfer the forces imposed on them.

(b) Protection Against Lightning — Lightning Shields

Installation of lightning arrestors and sound earthing 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. Lightning shields are not fool proof in their effectiveness. The ability of lightning shields to complete the cloud-to-ground circuit depends on several variables such as the height of the conductor, the shape and size of adjoining structures or natural conductors. The cone of protection is also highly variable and the angle of protective cone decreases with the increase in height of the shield's conductor. Very tall buildings may require lightning conductors at intermediate levels of the building in addition to the ones at its roof. Internationally, lightning shields are not used for the protection of open areas such as agricultural fields due to their very high cost and reliability issues. However, they are found to be very effective for the protection of individual structures or groups of structures in an area.

1.3 Action – Before, During and After

(a) Before Thunderstorm and Lightning

To prepare for a thunderstorm, you should do the following:

- i) Do remember that vivid and frequent lightning indicates the probability of a strong thunderstorm.
- ii) Build an emergency kit and make a family communication plan.
- iii) Remove dead or rotting trees and branches that could fall and cause injury or damage during a severe thunderstorm.
- iv) Postpone outdoor activities.

- v) Remember the 30/30 Lightning Safety Rule: Go indoors if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder.
- vi) Secure outdoor objects that could blow away or cause damage.
- vii) Get inside a home, building, or hard top automobile (not a convertible). Although you may be injured if lightning strikes your car, you are much safer inside a vehicle than outside.
- viii) Remember, rubber-soled shoes and rubber tyres provide NO protection from lightning. However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal.
- ix) Unplug appliances and other electrical items such as computers and turn off air conditioners. Power surges from lightning can cause serious damage.
- x) Shutter windows and secure outside doors. If shutters are not available, close window blinds, shades or curtains.
- xi) Unplug any electronic equipment well before the storm arrives.

(b) Before/During a Hailstorm

- i) Farmers are advised to use hail net for orchard crops to protect from mechanical damage.
- ii) Provide support to banana crops, young fruit plants and cropping up in sugarcane crop/staking of vegetables to prevent the crops from lodging.
- iii) Keep harvested produces at a safe place.
- iv) Keep cattle/goats indoor during a hailstorm.

(c) During Thunderstorms and Lightning

If thunderstorm and lightning are occurring in your area, you should:

- i. Use your battery-operated radio/TV for updates from local officials.
- ii. Avoid contact with corded phones and devices including those plugged for recharging. Cordless and wireless phones not connected to wall outlets are OK to use.
- iii. Avoid contact with electrical equipment or cords.
- iv. Avoid contact with plumbing or pipes. Do not wash your hands, do not take a shower, do not wash dishes, and do not do laundry. Plumbing and bathroom fixtures can conduct electricity.
- v. Stay away from windows and doors, and stay off porches.
- vi. Do not lie on concrete floors and do not lean against concrete walls.
- vii. Avoid natural lightning rods such as a tall, isolated tree in an open area.
- viii. Avoid hilltops, open fields, the beach or a boat on the water.
- ix. Take shelter in a sturdy building. Avoid isolated sheds or other small structures in open areas.
- x. Avoid contact with anything metal - tractors, farm equipment, motorcycles, golf carts, golf clubs, and bicycles.
- xi. If you are driving, try to safely exit the roadway and park. Stay in the vehicle and turn on the emergency flashers until the strong rain ends. Avoid touching metal or other surfaces that conduct electricity in and outside the vehicle.

(d) After lightning strikes a human being

If lightning strikes you or someone you know, call for medical assistance as soon as possible. You should check the following when you attempt to give aid to a victim of lightning:

- (i) **Breathing** – If breathing has stopped, begin mouth-to-mouth resuscitation.
- (ii) **Heartbeat** – If the heart has stopped, administer Cardiopulmonary Resuscitation (CPR).
- (iii) **Pulse** – If the victim has a pulse and is breathing, look for other possible injuries. Check for burns where the lightning entered and left the body. Also be alert for nervous system damage, broken bones and loss of hearing and eyesight.

See details on website www.ndma.gov.in

(B) TEMPORARY SHELTERS IN EARLY RECOVERY PHASE

The term '**temporary shelters**' is commonly used in a broad sense to denote shelters built immediately after a disaster to meet needs of shelter before permanent houses are rebuilt. As the concept of durability is associated with '**permanent shelters**', temporary shelters are assumed to be the opposite i.e. which need not last long. '**Transitional shelters**' is another terminology that is very common and again indicates the provisional nature of the shelters. This notion of being non-durable and provisional tends to be interpreted as shelters of lower specifications and poor quality. As are these temporary shelters end up deteriorating to inhabitable conditions in a very short time, much before permanent shelters can be built. Therefore, it is absolutely necessary to tackle this perception upfront in these guidelines and ensure '**temporary shelters**' are of adequate quality to provide for the needs of families till their permanent housing is restored or reconstructed. Drawing upon past international and national experiences and lessons learnt, we can identify two incremental shelter types as an effective practice for temporary shelter response during early recovery phase prior to permanent shelter reconstruction. It starts with an immediate shelter response termed as '**emergency shelters**' to address short-term urgent need of protection after a disaster. The next increment comes in the form of '**intermediate shelters**', which involves addressing and fulfilling needs for the mid-term duration until permanent houses are rebuilt. We classify both these types of shelters as '**Temporary Shelters**', explained further in this document. Qualifying with the above perspective, the term '**Temporary Shelters**' is continued to be used in this document for reasons of consistency with the National Disaster Response Fund & State Disaster Response Fund (NDRF/SDRF) guidelines and the National Disaster Management Plan (NDMP).

Different shelter options that people adopt in the process of rebuilding their homes
NATIONAL GUIDELINES FOR TEMPORARY SHELTERS

After a disaster, people pass through different routes and stages towards rebuilding of their homes from the time disaster strikes depending on their situation, needs, capacities and support available. These may include moving to homes of friends and family, relief camps, building emergency makeshift shelters and intermediate shelters, or finding some accommodation on rent before permanent houses are reconstructed. The graphic on previous page presents all these myriad ways through which people may traverse during process of housing reconstruction and recovery. The above understanding indicates that housing recovery and reconstruction is essentially a social economic process. Choices on the path of recovery made by the house owners depend upon their socio-economic conditions and it is these that determine how effective the recovery would be. In other words, there is also a risk that many vulnerable households may get stuck in any of these intermediary stages and may not reach the stage of permanent housing. This risk needs to be mitigated through effective facilitation of temporary shelters.

Emergency Shelters –

Short-term Temporary Shelters

Emergency shelters are made with an objective of immediate protection of life from the elements like sun, wind, rain or snow and to ensure a necessary degree of privacy. Many a times, the process of emergency shelters starts spontaneously as a self-protection measure by the affected house holds before any sort of help may arrive and are only a makeshift arrangement for dire need of shelter immediately after the disaster. This is usually done on their own or with support from within the community and their own social networks. The Government normally sets up

relief camps during such emergency situations using existing community and public buildings and infrastructure and may also undertake distribution of cash or shelter materials like plastic sheeting, tarpaulins, etc. to support immediate sheltering .

Intermediate Shelters – Mid-term Temporary Shelters

Once immediate exigencies of the hazard event are over, basic conditions of safety are somewhat restored and families, to an extent, have regained some control of their disturbed lives, emergency makeshift shelters are not found to be adequate. The affected community needs to move to durable intermediate shelters where a reasonable duration of time can be spent before permanent houses can be constructed. This indicates need of shelters which though not permanent but have greater extent of stability, robustness and comfort. Permanent housing reconstruction often takes 2-3 years so as to effectively address aspects of eligibility, habitat planning, land rights, resources and technical norms. While housing reconstruction policy and programme are being implemented, intermediate shelters play a significant role for affected people by offering space to reorganise their lives and revive livelihoods. As intermediate shelters are for medium term duration till the affected community can settle in their permanent residences, they require significant support from government to facilitate essential services so that the affected community can return to normalcy at the earliest. Past disasters stand to show that this phase lasts normally from two to three years. Thus, it is important to recognise this distinction between the requirements and duration of use of short-term temporary emergency and mid-term temporary intermediate shelters and thus needing appropriate type of shelters.

NATIONAL DISASTER MANAGEMENT AUTHORITY

GUIDING PRINCIPLES FOR TEMPORARY SHELTERS

Following principles are the foundation for these guidelines on ‘temporary shelters –emergency and intermediate’:

1. Support for recovery from a disaster is an entitlement of the affected people. Affected people are entitled to non-discriminatory, equitable, inclusive and respectful access to support from the state and other public agencies for housing including temporary shelters. An entitlement perspective of recovery support automatically implies accountability and transparency by all the stakeholders including homeowners, communities, other agencies including NGOs and donors, and the Government.

Affected people should not be treated as hapless passive recipients of relief but as resourceful agency. Housing, particularly, is a people-led process. But after a disaster when people are in shock, they are generally seen as victims and control over the process of shelter construction is taken away by external agencies in name of quick delivery. Instead, we need process to reassure, enable and strengthen peoples' own capacities and initiatives. They are extremely resourceful with a lot of experience, knowledge, wisdom, skills and resources. Furthermore, engagement of the affected community in construction of their own shelters is therapeutic, with a timely facilitation helping in overcoming the trauma due to loss.

2. The most vulnerable community members tend to be invisible or at the margins and unable to access support. Therefore, targeted attention should ensure their inclusion. No one should be left behind.

In the immediate aftermath of the disaster, the affected families may suffer many hardships and therefore, face issues of distress conditions, mental trauma,

gender-based violence, caste conflicts, social discrimination, increased debt, etc. while trying to reconstruct their houses. Vulnerable people such as single women, old aged, physically challenged, terminally ill, illiterate, extremely poor, minorities and SC/STs, etc. may require additional support and facilitation to recover like others. The facilitation process must ensure shelter reconstruction to be inclusive with fairness, sensitivity and respect for social and cultural diversity, and be non-discriminatory in provision of assistance and support.

3. Temporary shelters should be disaster resistant and not cause any further injury or loss of life.

During humanitarian and early recovery phase, it is likely that risk from natural hazards may not have fully subsided. It is, therefore, important that affected community is safe not only from the elements of nature but from any further impacts of subsequent or future hazards.

Use of materials and technologies that involve self-help should be encouraged. This also includes building materials and components that can be retrieved, salvaged, recycled and reused from rubble or damaged houses. Enabling and strengthening people centred process of recovery essentially requires including their own local materials and skills. This makes shelter construction not only quicker and cost-effective but also that can be supported by local artisans and possible to be maintained by the owners themselves.

One design doesn't fit all. A bouquet of design and technology options is necessary to ensure that people can have a shelter that's appropriate for their needs. People have different needs, preferences, constraints and conditions. If there is a particular design or technology imposed without any choices, not everyone may be able to build shelters with desired quality and safety features. It is important that many options of design materials and technology are available to people to choose from and they make their informed choice.

NATIONAL GUIDELINES FOR TEMPORARY SHELTERS

Temporary shelters should be durable at least until permanent house is reconstructed.

Depending on the scale of disaster, reconstruction of disaster resistant permanent housing may take time. Immediate needs are of short-term emergency shelters for safety and protection from the elements. In small scale disasters, it may be possible to repair and retrofit the damaged house. However, in case of large scale disasters, the shelter needs soon change from short-term emergency shelters to more durable mid-term intermediate shelters that can provide greater level of privacy, safety and setting for livelihood recovery until permanent houses are built.

Socio-technical facilitation of shelter process is not just a matter of certain tools and techniques but requires a mind-set and perspective of enabling the community. Facilitators –social or technical –

should work with attitude of serving entitlement of people and enabling them to make their own decisions on sound and rational basis, establish mechanisms to support their access to materials, skills, land, finance and knowledge. If process is facilitated well, it makes community to take up the responsibility and ownership of their disaster resistant intermediate shelters, making it stepping stone for permanent housing reconstruction.

4. If collective community efforts are facilitated well and in a timely manner, early recovery shelter process can become an active precursor to effective owner-driven housing reconstruction program later. In the immediate aftermath of a disaster, collective synergy amongst the affected communities is high which, if not used positively for recovery, dissipates quickly. Therefore, it is necessary that the shelter process promotes and involves self-help and community support.

See details on website www.ndma.gov.in

Awareness Programs

3.1 Introduction

The role of concerned State/UT's authorities and local communities are essential not only in the preparedness and mitigation phases of disaster management, but, also in the emergency situations during the event. Awareness and capacity development programs will be successful, if involvement of local communities and authorities such as District Administration, Panchayati Raj Institutions and local communities are maximized. There is an immense need of effective cooperation and coordination amongst various stakeholders for the implementation of activities in the landslide affected areas. Not only trickledown but also bottom to top approach will be beneficial to achieve the success in making landslide Disaster Risk Reduction (DRR) system in India. This approach would be helpful in the proper implementation and functioning of structural and non-structural mitigation measures at grass root level. Awareness generation programs by identified Department / Institute, Agencies such as Geological Survey of India, ATI's, NGO etc. will be conducted on the basis of landslide awareness modules, packages and other Information Education and Communication (IEC) material will be developed by Expert Department / Institute, Agency, NGO's etc. on different themes. Mass awareness generation programs through the electronic and print media, multimedia, interactive meets, mock drills, distribution of handbills and posters in local languages inter linked with Digital India campaign are in dispensable for disaster preparedness and mitigation. State Disaster Management Authority (SDMA) / State Government may take pro-active measures and initiatives in collaboration with others take holders for minimizing losses.

3.2 Review of Work

In India, the main cause of the heavy losses during landslides is the lack of awareness among the people including local residents and tourists about the first aid, safety routes, warning signs and first response to landslide emergency situation. To study the level of awareness and preparedness level of communities and government is of utmost importance. After the successful implementation of the Gol-UNDP Disaster Risk Management Programs (2002-2009), the Government of India, with the support from UNDP implemented the Gol-UNDP Disaster Risk Reduction Program (DRR) from 2009-2012 with \$12 Million support. The program was focused on strengthening the institutional structure to undertake disaster risks reduction and to develop preparedness for recovery .A road map had been prepared by Natural Resource Data Management System (NRDMS),Department of Science and Technology for Landslide for Landslide Risk Management in India in the year 2010, covering the mechanisms of Landslide Risk Assessment by Landslide Hazard Zonation Mapping and by building capacity of indigenous communities living in the area of susceptible to landslide hazard. In the road map, efforts have also been made for landslide risk mitigation by learning from their previous events and shared experiences in the same regions or other. Early warning against landslides based on robust prediction, and Retrofitting of problematic slopes and unsafe buildings is essential. Landslide education and training, and Landslide Response, Rescue and Reconstruction are also some of the other important steps included for risk mitigation in the road map of Natural Resource Data Management System (NRDMS),department of Science and Technology. National Disaster Management Authority The module on "Comprehensive Land slides Risk Management" which has been developed by National Institute of Disaster Management (NIDM),Ministry of Home Affairs covers five days rigorous training course focusing on transmitting basic and requisite knowledge/skills needed by stakeholders of the society at various levels in the field

of landslide management. Asian Disaster Preparedness Centre (ADPC) in the Program for Hydro-meteorological Disaster Mitigation in Secondary Cities in Asia has taken help of three different case studies of Baguio City in Philippines, Patong City in Thailand and aluthara District, Sri Lanka by using risk assessments to reduce landslide risk. These three different case studies demonstrate how to reduce the impact in landslide hazard prone areas. Identifying the mapping process is the first step for landslide risk analysis, to establish zones in terms of degree of risk, and locate the landslide hotspots within the area. Further steps include monitoring the land movements and the rainfall patterns is then crucial; in each study area, scientific agencies have focused on the local communities and schools participation and using their traditional practices as part of their involvement in the landslide risk mitigation

process. The good governance system is one of the substantial foundations for fostering an efficient policy framework for different stakeholders to adopt and implement together a coherent strategy of landslide risk adaptation.

3.3 Identified Gaps

The existing work provides a comprehensive work on the issues of landslide risk reduction. But it is also significant to identify the gaps at national and international level due to which things have not been getting implemented at grass root level.

3.3.1 National Level In all the susceptible regions, local authorities have started to engage themselves, following up and implementing policies to build a comprehensive

landslide risk mitigation framework, to reduce the exposure and the related vulnerabilities of the population. But still it provides the need to engage local communities also, because at the end of the day they are particularly susceptible and policies are formed for their betterment first. Bringing all the stakeholders of society together helps to ensure the durability and the expansion of landslide risk reduction in the society and also other geographical areas by involving the local people considered as catalysts of change. Major gaps identified are as follows:

(i).Classification of the States which are prone to landslides according to severity. The states will be classified into the following three categories based on the Landslide Hazard Zonation Map.

- State I - Very High & High Hazard Zone
- States II - Moderate & Moderately High Hazard Zone
- States III - Low & Very Low Hazard Zone

(ii) Need to study the socio-economic profile of the communities residing in these areas:

There is a need to gauge the level of awareness among the people inhabiting these areas about disasters in general and landslides in particular and to determine the information requirements of the people inhabiting these areas.

(iii) Awareness programs and campaigns are to be conducted on regular basis. A major drawback of the system is that awareness programs does not reach the community vulnerable to the disaster. A comprehensive awareness outreach is to be established, so that it can benefit the society (especially the communities at risk) in understanding and implementing the prevention and mitigation measures.

3.3.2 International Level

The active engagement at the global level, linking and integrating their best practices by supporting technical experts tend to strengthen the knowledge dissemination channels on landslide risk mitigation and encourages further awareness among all the different stakeholders on the landslide risk situation. Subsequently, the disaster risk adaptation mechanisms can be expanded swiftly and more easily to other type of risks. Today there is a crucial need of improved recommendations for improved recognition and National Landslide Risk Management Strategy smart management of landslides within rural urban

corridors of susceptible zones. It can be recognized that many of the recommendations at national and international level are both idealized And generalized for particular locations and there will be valid reasons in specific cases where they cannot be applied. The implementation of some of the recommendations will require a significant degree of institutional effort in collaboration with support at local level. For outweighing financial hurdles, it would be necessary to convince the authorities involved that the benefits outweigh the overall costs and logistical difficulties.

3.4 Recommendations

One of the main tasks before us is to focus on prevention in disaster management at all levels. The culture of awareness generation and preparedness must be disseminated; so that all people in the society can become alert and aware in case of an emergency or before the disasters strikes to take some preventive measures. In India, a paradigm shift from post disaster response to pre disaster prevention, preparedness and mitigation strategy should be focused on. There is an immediate need to make local people aware about landslides to reduce losses. The development and enhancement of awareness generation and preparedness requires following necessary steps to be taken as under:-

3.4.1 Involvement of local masses

- The response time is poor due to difficult terrain and accessibility in mountainous regions of India. Therefore, involvement of local community, inhabited individuals, youth clubs, NGOs in awareness programs will improve knowledge associated through capacity building to fight / self-help during and after any event.

[**Action:** Ministry of Mines (MoM)/GSI,SDMA's/DDMA's and other expert institutions and stakeholders]

3.4.2 Enhancement of education focusing upon youth especially• A simplistic course (with informatics) at school level may be introduced which must elaborate do's and don'ts to prevent/mitigate any type of landslide situation. A compulsory course on disaster risk reduction(as Environmental Sciences at Graduation Level) may follow at University level.[**Action:** MHRD, UGC, IIT's, Universities, other academic institutions, States and its concerned Departments such as Education Department etc. in collaboration with NDMA/NIDM]

- Landslide management and awareness including geo-climatic region, landslide characteristics, landslide vulnerable zone, their participation in the times of landslide

etc. of their own particular area should be taken as an academic compulsory subject for the local children from primary school level education.[**Action:** State governments in collaboration with SDMA's and other stakeholders]

- Community Education Programme of 10 to 15 days may be initiated by the governmental agencies. The specialists like the staff of NDMA/SDMA and NIDM may arrange training cum education programme for inhabitants particularly the elderly, woman, youth, physically challenged etc.[**Action:** NDMA, NIDM, SDMA's (ATI's)

/ DDMA's and other stakeholders in consultation with TAC and LHZMC]

3.4.3 Involvement of educated mass for creating awareness amongst local people and school children

- The land use planner, urban planner should make the local people understand about the importance of land use planning. But deforestation, urbanization, industrialization, maximum use of resource, heavy building construction and engineering structural work etc. increases the landslide vulnerability. Thus, proper scientific land use planning and ban on biodegradable materials is necessary. The scientist and engineer should arrange awareness camp to increase geological, geo-hydrological investigation practice for contractor. National Disaster Management Authority[**Action:** Ministry of Mines (MoM)/GSI,SDMA's (ATI's)/DDMA's and other expert institutions and stakeholders]

- Organize village wise training cum workshops for youth / elderly people on topic such as “Procedure to rescue oneself, family and neighborhood in the time of landslide”.**Action:** Ministry of Mines (MoM)/GSI, NDMA and SDMA’s / DDMA’s]

3.4.4 Promotion of latest technology and techniques.

- Geologist, engineers and other disciplines related to the field of landslides must be

exposed to the latest development in the domain of landslides investigations and management that are globally followed on a regular basis.**Action:** Ministry of Mines (MoM)/GSI, NDMA, NIDM and SDMA’s (ATI’s) / DDMA’s]

- The early warning system can reduce the maximum losses due to landslide hazard. Monitoring and analysis of natural parameters such as rainfall patterns and water absorption, land movements and slope evolution is critical to landslide risk mitigation.**Action:** Ministry of Mines (MoM)/GSI in collaboration with IMD and other expert institutions in coordination with SDMA’s / DDMA’s]

3.5 Implementation Strategy The strategies which can be adopted across the country are as follows:-

A. Short Term

1. Automated SMS and e-mail service: In view of this, NDMA can collaborate with the various government and private travel agencies including Indian Airlines, Indian Railways and mobile network operators to send automated SMS and e-mail messages on precaution to be taken while travelling in the landslide prone areas at the time of booking of tickets to these areas.

2. Toll free number for landslide reporting:

Each state in the very high and high risk zonation can initiate a toll free number for landslide reporting. Upon receiving reports of landslide / early signs of landslide from people.

3. Creation of common signage for landslides prone area across the country: A common signage for landslide prone area can be designed. This signage can be put in landslide prone areas across the country.

4. Computer game for disaster: NDMA in collaboration with expert agencies /Institutes for computer application can design computer and mobile games on disaster management.

5. Use of local mass media: A well designed mass media campaign (both print & electronic) can be undertaken in these states. The campaign must be designed in the local languages.

6. Use of posters and hoardings: Posters and hoardings on the various aspects of awareness regarding landslide can be designed and displayed at all important public places. The campaign material should be translated into local languages.

7. Use of Global Disaster Preparedness Disaster Response Apps: There are number of globally recognized disaster preparedness disaster response apps serving the needs of people affected by disasters. These top mobile apps could prove fruitful in providing assistance to aid workers and volunteers in better preparedness and respond to landslide and other disasters such as American Red Cross Apps, Disaster Alert (Pacific Disaster Center’s World Disaster Alerts) App, Global Emergency

Overview (ACAPS) App, Humanitarian Kiosk (United Nations), Federal Emergency Management Agency (FEMA) App, etc.

B. Medium Term

1. Awareness through community radio:

The local community radio can broad cast programmes on awareness. It can also transmit early warning messages regarding the occurrence of landslides in the area.

National Landslide Risk Management Strategy

2. Design of animated character for spreading awareness on disaster management

(including landslides): An animated character 'Sabu' (a baby rhinoceros) can be designed in partnership with computer animators.

3. Publication of awareness campaign on landslides using the print and electronic media across the country: Awareness campaigns on landslides can be conducted using the print and electronic media. The campaign should be in the national and regional newspapers, radio and TV channels.

4. Creation of a disaster management application: NDMA in collaboration with Indian Institute of Technology (IIT) can design a computer application for disaster management. The application can be used to know about the latest information on disasters (including landslides) across the country.

5. Awareness through documentary: The National Disaster Management Authority (NDMA) should initiate a programme on power point documentary/presentation for Government organization, School and Hospital organisation, Soldiers, NGOs, Local

nodal agencies, Local club, and local people focusing on the role and responsibility before, during and after the landslide disaster.

6. Creation of village task force: The not-for profit organizations should constitute a village task force in each village of these states. The members of the task force should be made aware of the various aspects of landslide mitigation and post-landslide activities.

C. Long Term

1. Awareness programme on landslide hazard: Government (National/ State) has also emphasized on a robust awareness programme for landslide hazard. Public awareness is being enhanced about sign sand events that manifests that a landslide is imminent so that personal safety measures may be taken. Some of these signs include:

- i) Springs, seeps, or saturated ground in areas that have not typically been wet before.
- ii) New cracks or unusual bulges in the ground, street pavements or sidewalks.
- iii) Soil moving away from foundations, and ancillary structures such as decks and patios tilting and/or moving relative to the house.
- iv) Broken water lines and other underground utilities.
- v) Leaning telephone poles, trees, retaining walls or fences.
- vi) Sunken or dropped-down road beds.
- vii) Rapid increase in a stream or creek water levels, possibly accompanied by increased turbidity (soil content).
- viii) Sudden decrease in creek water levels even though it is still raining or rainfall has recently stopped.

2. Use of traditional art forms/traditional knowledge: Due to modernization and tech savvy nature of 21st century generation, old traditions disaster management practices are dying up. Therefore, it is necessary to document and disseminate old traditional best practices available in mountain regions of India through community participation in trainings. Traditional art forms are important mediums of awareness generation. Traditional knowledge and modern technologies are also useful in designing landslide Early Warning System (EWS).

3. Awareness through Participatory Approach:

The planning and implementation process is recommended in order to maintain sustainability of the programs launched by the administration for disaster management. It is necessary that the government and the communities together evolve a joint action plan aimed at enhancing community education and development of community leadership. The elements of participatory learning can be applied at different levels such as organizational level (headquarters, branches, schools, businesses, workplaces),community level (village, town, cities) and National Disaster Management Authority population level (marginalized, vulnerable sections).

4. Landslide education plan: An illustrated booklet with information on landslide

awareness can be prepared in local languages. This can be circulated among the PRI members, Front Line Health Workers(FLHW), School Teachers, Youth Leaders, members and other important stake holder groups in these areas.

5. Involvement of Not-for-Profit Organizations:

NDMA should identify not-for-profit organizations to undertake the awareness building activities in these States. The organization should be asked to submit a targeted awareness generation plan.

6. Awareness among school children, their parents and teachers: The not-for-profit organizations can organize sessions for school children, their parents and teachers from Class IX onwards on various aspects of land slide occurrence and their mitigation. A one day training module can be designed for the participants.

7. Awareness among local youth: The not for-profit organization can hold a day long awareness generation camp with the members of National Cadet Corps (NCC), Scouts and Guides, and National Service Scheme (NSS) volunteers. These camps should be conducted in coordination with the state and district teams of these organizations.

8. National Data Centre on Landslide: It would integrate various data sources, a geo-portal to address the data needs and thus, enable an effective response.

9. Awareness among members of Panchayati Raj institutions: On similar lines; the not for-profit organizations can also hold a one day awareness generation workshop for the PRI members of the various panchayats in the district in the district headquarter. The Community Based Family Disaster Preparedness and mitigation (CBFDP) is a process to capacitate communities to prevent, mitigate and cope with disasters effectively

10. Awareness among policy makers and government officials: The policy makers are

key stakeholders in disaster management. State Disaster Management Authority (SDMA) can hold workshops with policymakers and government officials of all departments to reinforce their role in ensuring that people conform to the various land use policies.

11. Climate Change related landslide risk management: The past incidences clearly

indicate the high frequency as well as intensity of the hydro-meteorological hazards in the mountain region such as heavy rainfall, landslides, riverine floods, cloudburst, Glacial Lake Outburst Floods (GLOFs), droughts etc. Therefore, local communities require awareness, specialized training and right information to cope up with disasters in the mountains.

3.6 Financial Implications Disaster prevention is indeed, more cost-effective than disaster response and rehabilitation. The focus should thus, be on disaster preparedness and mitigation. The allocation of fund is depending upon the availability of capital for landslide and other associated risk management in the concerned

State/UT and it will vary from one State to other.

3.7 Monitoring Mechanism Monitoring is an essential part of any project /programme, therefore following steps are required for proper implementation of strategy at ground level:-

1. Utilization certificate as per GFR
2. Progress Report (time to time)
3. Minutes of meeting to be provided.
4. Audit & Inspection

5. Feedback from target groups The landslide awareness programmes must be monitored regularly so as to implement the strategy based on feedback, challenges and technological and other development solutions.

Landslide

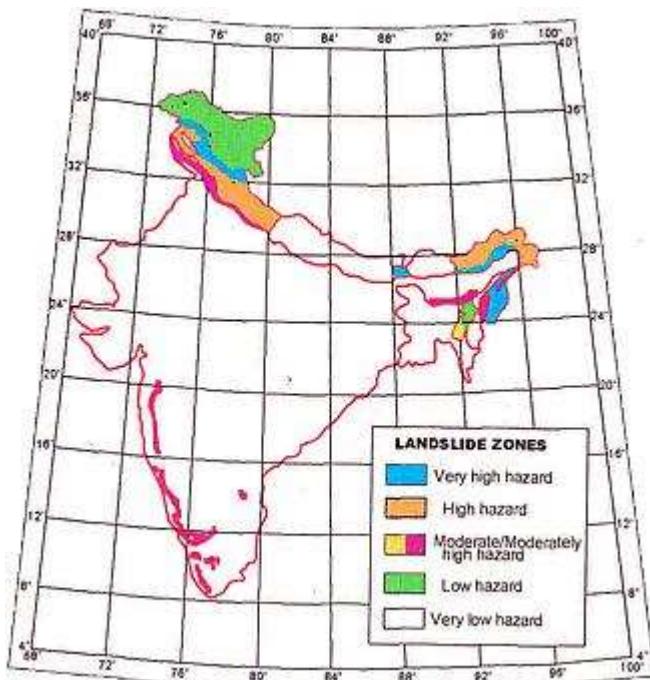
India has the highest mountain chain on earth, the Himalayas, which are formed due to collision of Indian and Eurasian plate, the northward movement of the Indian plate towards China causes continuous stress on the rocks rendering them friable, weak and prone to landslides and earthquakes. The slow motion of the Indian crust, about 5 cm/year accumulates stress to which natural disasters are attributed. Some landslides make unique, and unparalleled catastrophes. Landslides and avalanches are among the major hydro-geological hazards that affect large parts of India besides the Himalayas, the Northeastern hill ranges, the Western Ghats, the Nilgiris, the Eastern Ghats and the Vindhya range, in that order, covering about 15 % of the landmass. The Himalayas alone count for landslides of every fame, name and description- big and small, quick and creeping, ancient and new. The Northeastern region is badly affected by landslide problems of a bewildering variety. Landslides in the Darjeeling district of West Bengal as also those in Sikkim, Mizoram, Tripura, Meghalaya, Assam, Nagaland and Arunachal Pradesh pose chronic problems, causing recurring economic losses worth billions of rupees. A different variety of landslides, characterized by a lateritic cap, pose constant threat to the Western Ghats in the South, along the steep slopes overlooking the Konkan coast besides Nilgiris, which is highly landslide prone.

Some spectacular events of tragedies are reported as Varnavat landslide, Uttarkashi District, Malpa landslide Pithoragarh district, Okhimat landslide in Chamoli district, UK and Paglajhora in Darjeeling district as well as Sikkim, Aizawl sports complex, Mizoram. These are some of the more recent examples of landslides. The problem therefore needs to be tackled for mitigation and management for which hazard zones have to be identified and specific slides to be stabilized and managed in addition to monitoring and early warning systems to be placed at selected sites.



The Photograph of Okhimath landslide which formed a lake in
Madhyamaheshwerganga, Rudraprayag district.

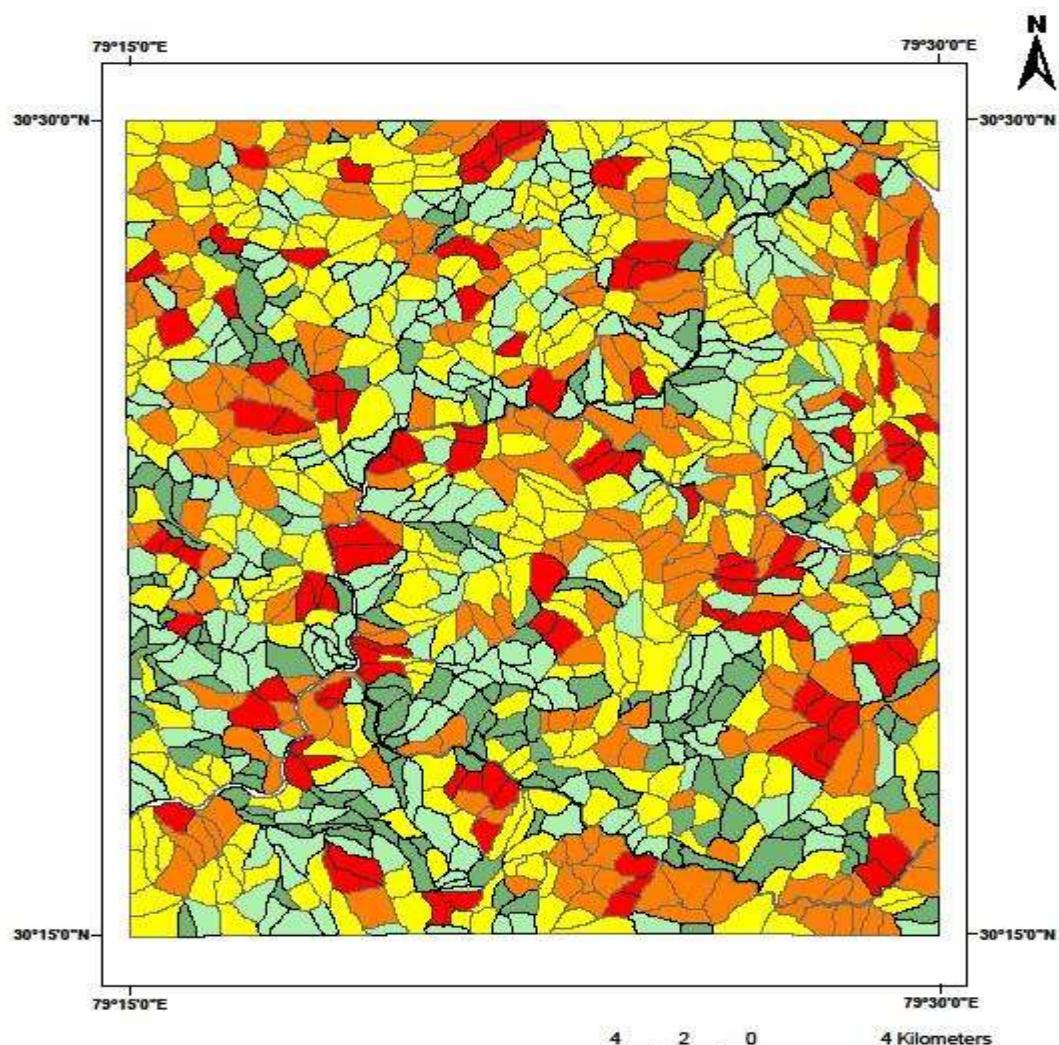
A general landslide hazard map of India shown here marks the areas of different hazard zones in various states of India; one may note that Himalayas of Northwest and Northeast India and the Western Ghats are two regions of high vulnerability and are landslide prone.



NDMA guidelines are being followed for Landslide Hazard Zonation (LHZ) maps at 1: 50,000 scale and progressively larger scales for specific areas. National Remote Sensing Center (NRSC), Department of Science and Technology (DST), Council of

Scientific and Industrial Research (CSIR), Indian Institute of India (IITs), Universities have done tremendous work in this regard. The NRSC Atlas on selected corridors of Uttarakhand and Himachal Pradesh has been a very useful Atlas (Please see NRSC work on Landslides). DST has funded more than 30 projects spread over India by various academic institutions the reports of which can be requested from DST (NRDMA).

An example of LHZ map at 1: 50,000 scale from a part of Himalayas in Chamoli district (Pachauri, 1992) shown here is based upon several geological, geotechnical parameters. Such maps are being refined and relooked for higher level of verification and acceptability for public use. Approximately 15 % of the Indian landmass has to be covered by such maps at 1: 50,000 scale or higher to classify slopes in various levels of hazards. Geographical Information System (GIS) and Remote Sensing applications are being used through NRSC under a special group of GIS for LHZ at NDMA through database collection from all concerned departments and being stored through good offices of GIS and other agencies, CSIR labs, DST etc as a parallel theme on landslide mitigation.



Legend

Hazard Zones

- Very High
- High
- Moderate
- Low
- Very Low

4 2 0 4 Kilometers

Emergency Kit

- Battery operated torch
- Extra batteries
- Battery operated radio
- First aid kit and manual
- Emergency food (dry items) and water (packed and sealed)
- Candles and matches in a waterproof container
- Knife
- Chlorine tablets or powdered water purifiers
- Can opener.
- Essential medicines
- Cash, Aadhar Card and Ration Card
- Thick ropes and cords
- Sturdy shoes

Recover and build

Remain calm and be alert and awake, listen to warnings of heavy and prolonged period of rainfall from weather station, if your home is located below a debris covered area move away to safer place, listen to sounds of rock fall, moving debris and cracking of trees, or cracks in ground or any movement. Keep a battery operated ready for the night.

Call and help rescue teams, keep drinking water containers, first aid kit and essential medicines and avoid entering damaged houses.

Watch for flooding if close to river, help others who need help especially elderly people, children and women, seek advice from local authorities for rebuilding damaged houses, roads etc.

Report any damage of roads, power and telephone lines to concerned authorities.

Floods

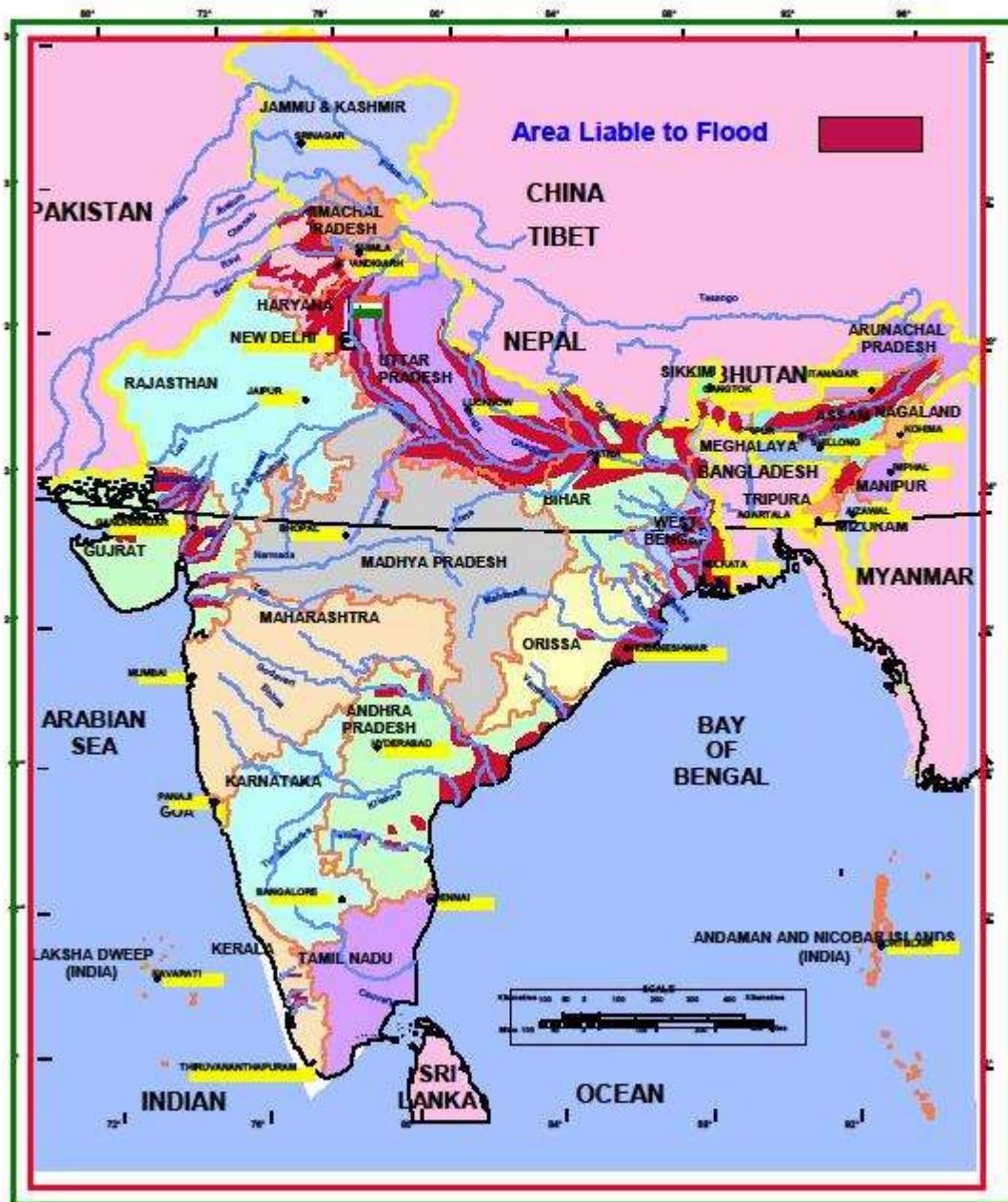
India is highly vulnerable to floods. Out of the total geographical area of 329 million hectares (mha), more than 40 mha is flood prone. Floods are a recurrent phenomenon, which cause huge loss of lives and damage to livelihood systems, property, infrastructure and public utilities. It is a cause for concern that flood related damages show an increasing trend. The average annual flood damage in the last 10 years period from 1996 to 2005 was Rs. 4745 crore as compared to Rs. 1805 crore, the corresponding average for the previous 53 years. This can be attributed to many reasons including a steep increase in population, rapid urbanization growing developmental and economic activities in flood plains coupled with global warming.

An average every year, 75 lakh hectares of land is affected, 1600 lives are lost and the damage caused to crops, houses and public utilities is Rs.1805 crores due to floods. The maximum number of lives (11,316) was lost in the year 1977. The frequency of major floods is more than once in five years.

Floods have also occurred in areas, which were earlier not considered flood prone. An effort has been made in these Guidelines to cover the entire gamut of Flood Management. Eighty per cent of the precipitation takes place in the monsoon months from June to September. The rivers bring heavy sediment load from catchments. These, coupled with inadequate carrying capacity of 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. It is a fact that some of the rivers causing damage in India originate in neighboring countries; adding another complex dimension to the problem. Continuing and large-scale loss of lives and damage to public and private property due to floods indicate that we are still to develop an effective response to floods. NDMA's Executive Summary Guidelines have been prepared to enable the various implementing and stakeholder agencies to effectively address the critical areas for minimising flood damage.

INDIA

AREA LIABLE TO FLOODS



Emergency Kit

- Battery operated torch
- Extra batteries
- Battery operated radio
- First aid kit and essential medicines
- Emergency food (dry items) and water (packed and sealed)
- Candles and matches in a waterproof container
- Knife
- Chlorine tablets or powdered water
- Important documents (Ration card, Voter ID card, Aadhar Card etc.)
- Cash, Aadhar Card and Ration Card
- Thick ropes and cords
- Shoes

Earthquakes

Earthquake

An earthquake is a phenomenon that occurs without warning and involves violent shaking of the ground and everything over it. It results from the release of accumulated stress of the moving lithospheric or crustal plates. The earth's crust is divided into seven major plates, that are about 50 miles thick, which move slowly and continuously over the earth's interior and several minor plates. Earthquakes are tectonic in origin; that is the moving plates are responsible for the occurrence of violent shakes. The occurrence of an earthquake in a populated area may cause numerous casualties and injuries as well as extensive damage to property.

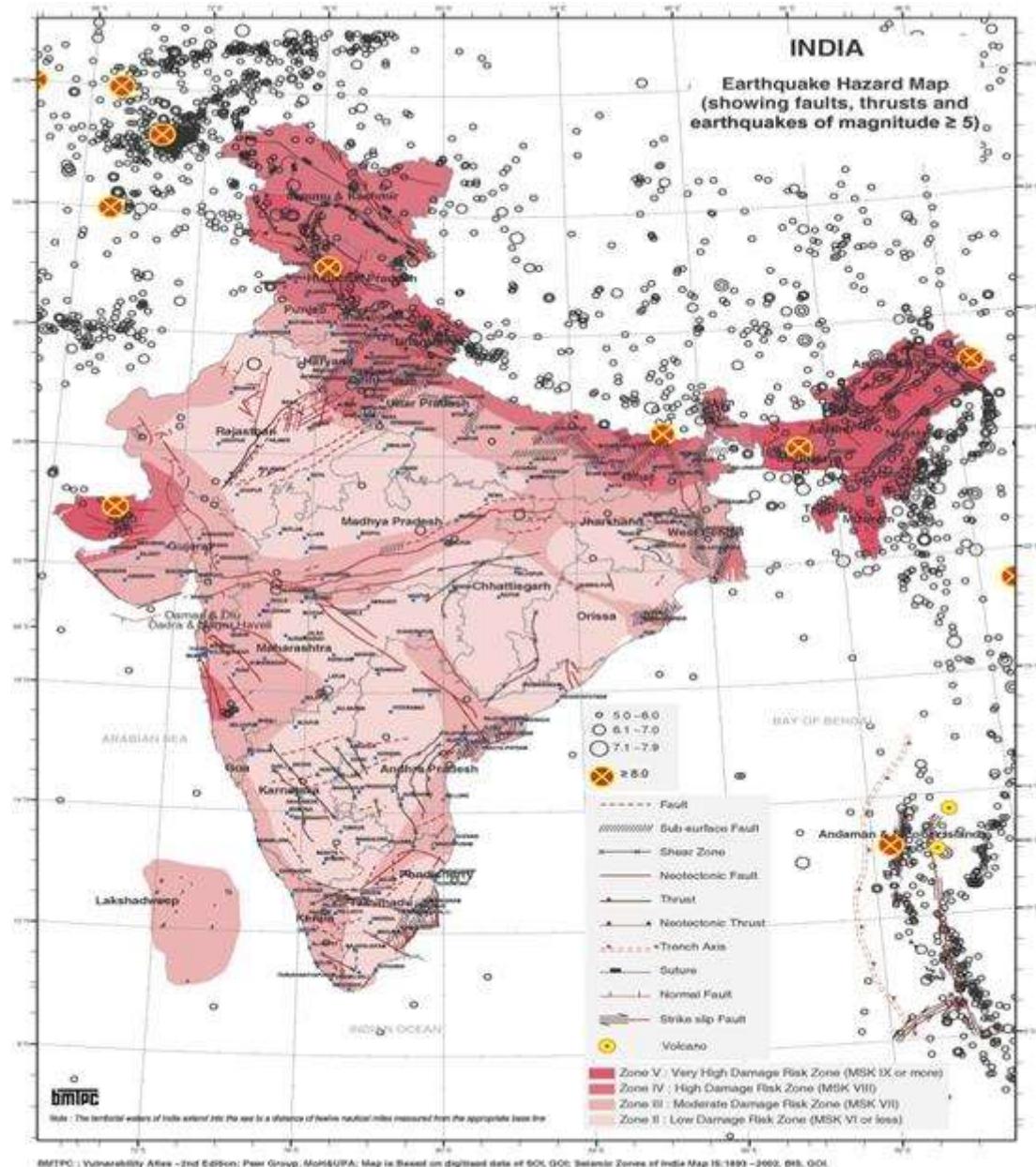
The Earthquake Risk in India

India's increasing population and extensive unscientific constructions mushrooming all over, including multistoried luxury apartments, huge factory buildings, gigantic malls, supermarkets as well as warehouses and masonry buildings keep - India at high risk. During the last 15 years, the country has experienced 10 major earthquakes that have resulted in over 20,000 deaths. As per the current seismic zone map of the country (IS 1893: 2002), over 59 per cent of India's land area is under threat of moderate to severe seismic hazard-; that means it is prone to shaking of MSK Intensity VII and above (BMTPC, 2006). In fact, the entire Himalayan belt is considered prone to great earthquakes of magnitude exceeding 8.0-; and in a relatively short span of about 50 years, four such earthquakes have occurred: 1897 Shillong (M8.7); 1905 Kangra (M8.0); 1934 Bihar-Nepal (M8.3); and 1950 Assam-Tibet (M8.6). Scientific publications have warned of the likelihood of the occurrence of very severe earthquakes in the Himalayan region, which could adversely affect the lives of several million people in India.

At one time regions of the country away from the Himalayas and other inter-plate boundaries were considered to be relatively safe from damaging earthquakes. However, in the recent past, even these areas have experienced devastating earthquakes, albeit of lower magnitude than the Himalayan earthquakes. The Koyna earthquake in 1967 led to revision of the seismic zoning map, resulting in deletion of the non-seismic zone from the map. The areas surrounding Koyna were also re-designated to Seismic Zone IV, indicating high hazard. The occurrence of the Killari earthquake in 1993 resulted in further revision of the seismic zoning map in which the low hazard zone or Seismic Zone I was merged with Seismic Zone II, and some parts of Deccan and Peninsular India were brought under Seismic Zone III consisting of areas designated as moderate hazard zone areas. Recent research suggests that as understanding of the seismic hazard of these regions increases, more areas assigned as low hazard may be re-designated to higher level of seismic hazard, or vice-versa.

The North-Eastern part of the country continues to experience moderate to large earthquakes at frequent intervals including the two great earthquakes mentioned above. Since 1950, the region has experienced several moderate earthquakes. On an average, the region experiences an earthquake with a magnitude greater than 6.0 every year. The Andaman and Nicobar Islands are also situated on an inter-plate boundary and frequently experience damaging earthquakes.

The increase in earthquake risk is due to a spurt in developmental activities driven by urbanization, economic development and the globalization of India's economy. The increase in use of high-technology equipment and tools in manufacturing and service industries has also made them susceptible to disruption due to relatively moderate ground shaking. As a result, loss of human life is not the only determinant of earthquake risk any more. Severe economic losses leading to the collapse of the local or regional economy after an earthquake may have long-term adverse consequences for the entire country. This effect would be further magnified if an earthquake affects a mega-city, such as Delhi or Mumbai.



Earthquake Zone Map

What to Do After an Earthquake

- Keep calm, switch on the radio/TV and obey any instructions you hear on it.
- Keep away from beaches and low banks of rivers. Huge waves may sweep in.
- Be prepared to expect aftershocks.
- Turn off the water, gas and electricity.
- Do not smoke and do not light matches or use a cigarette lighter. Do not turn on switches. There may be gas leaks or short-circuits. Use a torch.
- If there is a fire, try to put it out. If you cannot, call the fire brigade.
- If people are seriously injured, do not move them unless they are in danger.
- Immediately clean up any inflammable products that may have spilled (alcohol, paint, etc).
- If you know that people have been buried, tell the rescue teams. Do not rush and do not worsen the situation of injured persons or your own situation.
- Avoid places where there are loose electric wires and do not touch any metal object in contact with them.
- Do not drink water from open containers without having examined it and filtered it through a sieve, a filter or an ordinary clean cloth.
- If your home is badly damaged, you will have to leave it. Collect water containers, food, and ordinary and special medicines (for persons with heart complaints, diabetes, etc.)
- Do not re-enter badly damaged buildings and do not go near damaged structures.

Emergency Kit

- Battery operated torch
- Extra batteries
- Battery operated radio
- First aid kit and manual
- Emergency food (dry items) and water (packed and sealed)
- Candles and matches in a waterproof container
- Knife
- Chlorine tablets or powdered water purifiers
- Can opener.
- Essential medicines
- Cash, Aadhar Card and Ration Card
- Thick ropes and cords
- Sturdy shoes

Cyclone

Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. Cyclones are usually accompanied by violent storms and bad weather. The air circulates inward in an anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere. Cyclones are classified as: (i) extra tropical cyclones (also called temperate cyclones); and (ii) tropical cyclones. The word Cyclone is derived from the Greek word Cyclos meaning the coils of a snake. It was coined by Henry Peddington because the tropical storms in the Bay of Bengal and the Arabian Sea appear like coiled serpents of the sea.

Classifications

Cyclones are classified as extra tropical cyclones (also called temperate cyclones); and tropical cyclones.

The World Meteorological Organisation (WMO, 1976) uses the term 'Tropical Cyclone' to cover weather systems in which winds exceed 'Gale Force' (minimum of 34 knots or 63 kph). Tropical cyclones are the progeny of ocean and atmosphere, powered by the heat from the sea; and driven by easterly trades and temperate westerlies, high planetary winds and their own fierce energy.

In India, cyclones are classified by:

- Strength of associated winds,
- Storm surges
- Exceptional rainfall occurrences.

Extra tropical cyclones occur in temperate zones and high latitude regions, though they are known to originate in the Polar Regions.

Cyclones that develop in the regions between the Tropics of Capricorn and Cancer are called tropical cyclones. Tropical cyclones are large-scale weather systems developing over tropical or subtropical waters, where they get organized into surface wind circulation.

Worldwide terminology

Cyclones are given many names in different regions of the world – They are known as typhoons in the China Sea and Pacific Ocean; hurricanes in the West Indian islands in the Caribbean Sea and Atlantic Ocean; tornados in the Guinea lands of West Africa and southern USA.; willy-willies in north-western Australia and tropical cyclones in the Indian Ocean.

Indian Meteorological Department

The criteria below has been formulated by the Indian Meteorological Department (IMD), which classifies the low pressure systems in the Bay of Bengal and the Arabian Sea on the basis of capacity to damage, which is adopted by the WMO.

Type of Disturbances	Wind Speed in Km/h	Wind Speed in Knots
Low Pressure	Less than 31	Less than 17
Depression	31-49	17-27
Deep Depression	49-61	27-33
Cyclonic Storm	61-88	33-47
Severe Cyclonic Storm	88-117	47-63
Super Cyclone	More than 221	More than 120

1 knot - 1.85 km per hour

Cyclones are classified into five different levels on the basis of wind speed. They are further divided into the following categories according to their capacity to cause damage:-

Cyclone Category	Wind Speed in Km/h	Damage Capacity
01	120-150	Minimal
02	150-180	Moderate
03	180-210	Extensive
04	210-250	Extreme
05	250 and above	Catastrophic

Storm surges (tidal waves) are defined as the rise in sea level above the normally predicted astronomical tide. Major factors include:

- A fall in the atmospheric pressure over the sea surface
- Effect of the wind
- Influence of the sea bed
- A funnelling effect
- The angle and speed at which the storm approaches the coast
- The tides

The very high specific humidity condenses into exceptionally large raindrops and giant cumulus clouds, resulting in high precipitation rates. When a cyclone makes landfall, rain rapidly saturates the catchment areas and the rapid runoff may extensively flood the usual water sources or create new ones.

How Cyclones are formed

The development cycle of tropical cyclones may be divided into three stages:

Formation and Initial Development Stage

The formation and initial development of a cyclonic storm depends upon various conditions. These are:

- A warm sea (a temperature in excess of 26 degrees Celsius to a depth of 60 m) with abundant and turbulent transfer of water vapour to the overlying atmosphere by evaporation.
- Atmospheric instability encouraging formation of massive vertical cumulus clouds due to convection with condensation of rising air above ocean surface.

Mature Tropical Cyclones

When a tropical storm intensifies, the air rises in vigorous thunderstorms and tends to spread out horizontally at the tropopause level. Once air spreads out, a positive perturbation pressure at high levels is produced, which accelerates the downward motion of air due to convection. With the inducement of subsidence, air warms up by compression and a warm 'Eye' is generated. Generally, the 'Eye' of the storms has three basic shapes: (i) circular; (ii) concentric; and (iii) elliptical. The main physical feature of a mature tropical cyclone in the Indian Ocean is a concentric pattern of highly turbulent giant cumulus thundercloud bands.

Modification and Decay

A tropical cyclone begins to weaken in terms of its central low pressure, internal warmth and extremely high speeds, as soon as its source of warm moist air begins to ebb, or is abruptly cut off. This happens after its landfall or when it passes over cold waters. The weakening of a cyclone does not mean that the danger to life and property is over.

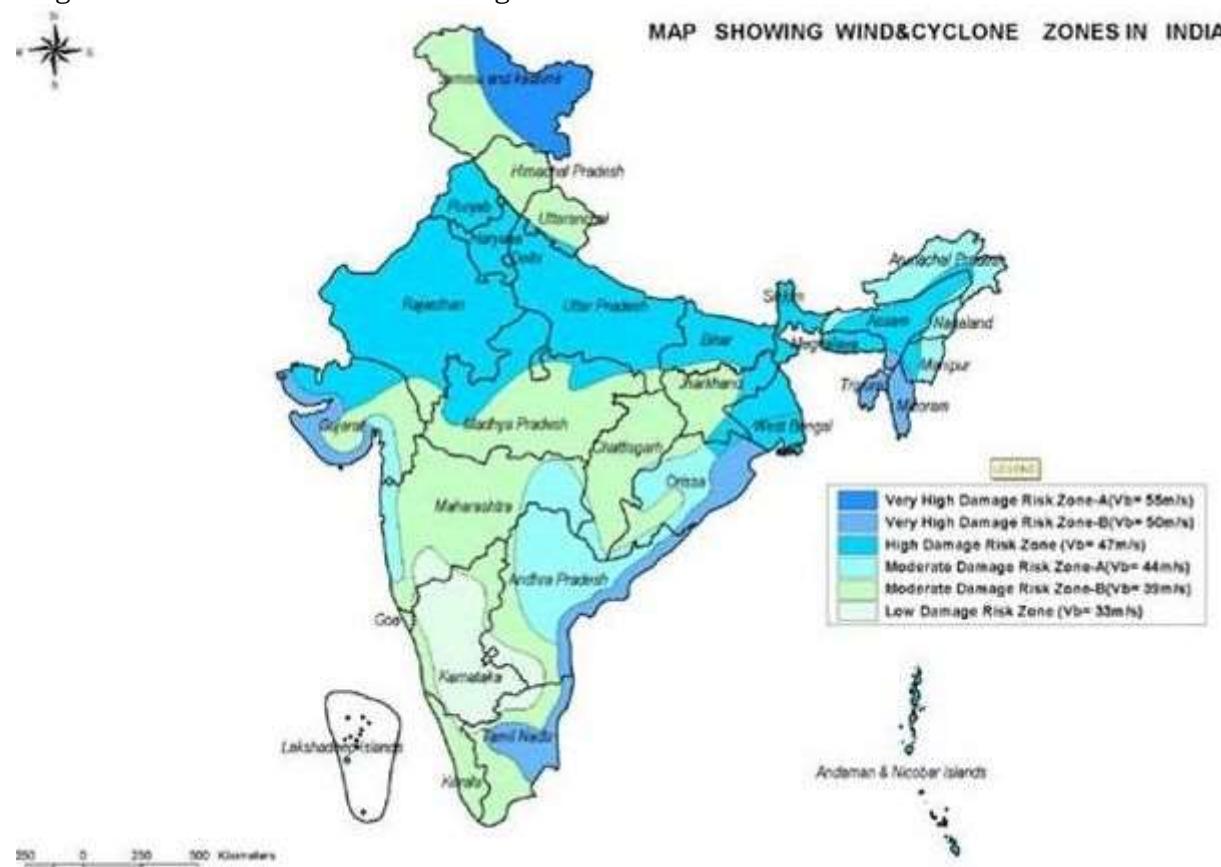
Indian Context

The Indian subcontinent is one of the worst affected regions in the world. The subcontinent with a long coastline of 8041 kilometres is exposed to nearly 10 per cent of the world's tropical cyclones. Of these, the majority of them have their initial genesis over the Bay of Bengal and strike the East coast of India. On an average, five to six tropical cyclones form every year, of which two or three could be severe. More cyclones occur in the Bay of Bengal than the Arabian Sea and the ratio is approximately 4:1. Cyclones occur frequently on both the coasts (the West coast - Arabian Sea; and the East coast - Bay of Bengal). An analysis

of the frequency of cyclones on the East and West coasts of India between 1891 and 1990 shows that nearly 262 cyclones occurred (92 of these severe) in a 50 km wide strip above the East coast. Less severe cyclonic activity has been noticed on the West coast, where 33 cyclones occurred the same period, out of which 19 were severe.

Tropical cyclones occur in the months of May-June and October-November. Cyclones of severe intensity and frequency in the North Indian Ocean are bi-modal in character, with their primary peak in November and secondary peak in May. The disaster potential is particularly high during landfall in the North Indian Ocean (Bay of Bengal and the Arabian Sea) due to the accompanying destructive wind, storm surges and torrential rainfall. Of these, storm surges cause the most damage as sea water inundates low lying areas of coastal regions and causes heavy floods, erodes beaches and embankments, destroys vegetation and reduces soil fertility.

Cyclones vary in diameter from 50 to 320 km but their effects dominate thousands of square kilometers of ocean surface and the lower atmosphere. The perimeter may measure 1,000 km but the powerhouse is located within the 100-km radius. Nearer the Eye, winds may hit at a speed of 320 km. Thus, tropical cyclones, characterized by destructive winds, torrential rainfall and storm surges disrupt normal life with the accompanying phenomena of floods due to the exceptional level of rainfall and storm surge inundation into inland areas. Cyclones are characterized by their devastating potential to damage structures, viz. houses; lifeline infrastructure-power and communication towers; hospitals; food storage facilities; roads, bridges and culverts; crops etc. The most fatalities come from storm surges and the torrential rain flooding the lowland areas of coastal territories.



Recover and build

After 'All Clear' is issued for back movement by 'State' give attention to the following:

- Whether 'roads' for reaching home is recommended by authorities
- Whether power lines are safe
- Whether transport arrangement is approved by authorities
- Pure drinking water is available
- Sewage lines are working
- Any epidemic spread in the area

- Safety of neighbor(s) assured
- Emergency Kit**
- Battery operated torch
 - Extra batteries
 - Battery operated radio
 - First aid kit and essential medicines
 - Important papers (Ration card, Voter ID card, Aadhar card etc)
 - Emergency food (dry items) and water (packed and sealed)
 - Candles and matches in a waterproof container
 - Knife
 - Chlorine tablets or powdered water purifiers
 - Cash, Aadhar Card and Ration Card
 - Thick ropes and cords
 - Shoes

Chemical

Chemical Disaster

Chemical, being at the core of modern industrial systems, has attained a very serious concern for disaster management within government, private sector and community at large. Chemical disasters may be traumatic in their impacts on human beings and have resulted in the casualties and also damages nature and property. The elements which are at highest risks due to chemical disaster primarily include the industrial plant, its employees & workers, hazardous chemicals vehicles, the residents of nearby settlements, adjacent buildings, occupants and surrounding community.

Chemical disasters may arise in number of ways, such as:-

- Process and safety systems failures
- Human errors
- Technical errors
- Management errors
- Induced effect of natural calamities
- Accidents during the transportation
- Hazardous waste processing/ disposal
- Terrorist attack/ unrest leading to sabotage

Status of Chemical Disaster Risk in India

India has witnessed the world's worst chemical (industrial) disaster "Bhopal Gas Tragedy" in the year 1984. The Bhopal Gas tragedy was most devastating chemical accident in history, where over thousands of people died due to accidental release of toxic gas Methyl Iso Cyanate (MIC).

Such accidents are significant in terms of injuries, pain, suffering, loss of lives, damage to property and environment. India continued to witness a series of chemical accidents even after Bhopal had demonstrated the vulnerability of the country. Only in last decade, 130 significant chemical accidents reported in India, which resulted into 259 deaths and 563 number of major injured.< /p>

There are about 1861 Major Accident Hazard (MAH) units, spread across 301 districts and 25 states & 3 Union Territories, in all zones of country. Besides, there are thousands of registered and hazardous factories (below MAH criteria) and un-organized sectors dealing with numerous range of hazardous material posing serious and complex levels of disaster risks.

Safety initiatives taken in India to address chemical risk< /p>

The comprehensive legal/ institutional framework exists in our country. A number of regulations covering the safety in transportation, liability, insurance and compensations have been enacted.< /p>

Following are the relevant provisions on chemical disaster management, prevailing in country:-

- | | |
|---------------------------------------|--------------------------------|
| ▪ Explosives Act 1884 | - Petroleum Act 1934 |
| ▪ Factories Act 1948 | - Insecticides Act 1968 |
| ▪ Environment Protection Act 1986 | - Motor Vehicles Act 1988 |
| ▪ Public Liability Insurance Act 1991 | - Disaster Management Act 2005 |

Government of India has further reinforced the legal framework on chemical safety and management of chemical accidents by enacting new rules such as MSIHC Rules, EPPR Rules, SMPV Rules, CMV

Rules, Gas Cylinder Rules, Hazardous Waste Rules, Dock Workers Rules and by way of amendments to them.

The National Disaster Management Authority (NDMA) of India had come out with very specific guidelines on Chemical Disaster Management. The guidelines have been prepared to provide the directions to ministries, departments and state authorities for the preparation of their detailed disaster management plans. These guidelines call for a proactive, participatory, multi-disciplinary and multi-sectoral approach at various levels for chemical disaster preparedness and response. Further, NDMA has provided specific inputs to the GOM for avoidance of future chemical disasters in the country, along with suggested amendments on the existing framework. NDMA is also working on revamping of CIFs (Chief Inspectorate of Factories) to strengthen chemical safety in India. In addition, the National Action Plan on Chemical Industrial Disaster Management (NAP-CIDM), has been finalized which will act as the roadmap for chemical disaster management in India.

Bihar Hazard Profile

The multi-disaster prone state of Bihar requires a multi-disciplinary approach to deal with these disasters requiring participation of various stakeholders. It requires a continuous and integrated process of planning, organising, coordinating and implementing measures that are necessary for risk prevention, mitigation of risk impacts, preparing to face the disaster event, response, rehabilitation and reconstruction. Some of the prominent disasters and their impacts are –

Flood:-

Bihar's topography is marked by a number of perennial and non-perennial rivers of which, those originating from Nepal are known to carry high sediment loads that are then deposited on the plains of Bihar. A majority of the rainfall in this region is concentrated in the 3 months of monsoon during which the flow of rivers increases up to 50 times causing floods in Bihar. 68800 sq km out of a total area of 94160 sq km, an estimated 73% per cent of the total land area in Bihar is vulnerable to flood. Annual flooding in Bihar accounts for about 30-40% of the flood damages in India; 22.1% of the total flood affected population in India is reported to be located within the state of Bihar. 28 districts of Bihar fall under most flood prone and flood prone districts.

Earthquake :-

Bihar is located in the high seismic zone that falls on the boundary of the tectonic plate joining the Himalayan tectonic plate near the Bihar-Nepal Border and has six sub-surface fault lines moving towards the Gangetic planes in four directions. Major parts of the state are classified under in seismic zone IV and V by the Vulnerability Atlas of India, i.e. as having high earthquake vulnerability with the potential to cause very high degree of devastation. In all, 15.2% of the total area of Bihar is classified under Zone V and 63.7% of the total area of Bihar falls in Zone IV. Of the 38 districts, 8 districts fall in seismic zone V while 24 districts fall in seismic zone IV and 6 districts in seismic zone III with most districts falling under multiple seismic zones (i.e. either seismic zone V & IV or seismic zone IV & III). The state has in the past experienced major earthquakes; the worst was the 1934 earthquake in which more than 10,000 people lost their lives, followed by 1988 earthquake.

Drought :-

Though the climate of Bihar is favourable for production of various crops, the agriculture of the state is dependent on behaviour of monsoon and distribution of rainfall. Although the average rainfall in the state is 1120 mm, considerable variations occur between the different parts of the State. Large part of the state is now increasingly vulnerable to drought due to climate change. In the absence of adequate rainfall, most part of Bihar including North Bihar which is prone to floods faces drought situations. South and South West Bihar are more vulnerable and often experiences severe drought situations.

Other Hazards :-

Apart from the above hazards, the state is also prone to cold and heat waves, Cyclonic storms (high speed winds) and other human-induced hazards like fire, epidemics, road / boat accidents, stampedes etc. Incidences of fire are mainly local in nature but have a severe impact on villages. Since a majority of Kucha houses have thatch roofs and wooden structures, in the summer months when winds are high, fires from the traditional stoves spread to damage entire villages.

Initiatives of BSDMA towards making disaster resilient Bihar :-
Though the state is a multi-hazard prone state, it has also been moving towards greater disaster resilience. Bihar State Disaster Management Authority (BSDMA), together with Disaster Management Department of Government of Bihar, has been taking various initiatives towards awareness generation and capacity building of various stakeholders and also the affected population. Emphasis of BSDMA has been towards structural and non-structural strengthening of the system to reduce disaster risks and mitigate their impacts. Safety Weeks (Road Safety, Earthquake Safety, Fire Safety & Flood Safety), training of stakeholders, safe school programmes, safe construction guidelines, Free Earthquake Safety Clinic & Centre, wide circulation of IEC materials etc. are some of the important initiatives of the Authority.

	must imbibe the principles of disaster risk management	NDMA and roles and responsibilities assigned to them in NDMP 2019 towards disaster risk reduction and management.
2	Agenda – 2: Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states	Disaster Management Plans of Ministries / Departments and States to focus on all sectors of people and institutions and act as per roles and responsibilities assigned in NDMP for different disasters. Involvement of SMEs, Private sector, Public Private Partnership, involvement of Corporate sector in capacity building and resource development, knowledge management etc. should be focused on.
3	Agenda – 3: Women's leadership and greater involvement should be central to disaster risk management	<p>In order to promote greater involvement and leadership of women in disaster risk management, special emphasis to be laid by Ministries / Departments and States to make an inclusive Plan with special emphasis on issues concerning women.</p> <p>There is a need to promote women's leadership and active participation in disaster risk reduction as indicated in objectives of NDMP 2019.</p> <p>The Plan also emphasises that as the disaster impacts are not gender neutral, hence adequate attention must be paid to promote gender justice and equity in post disaster recovery programs.</p> <p>Role of women during reconstruction and recovery programmes after disasters are to be given due consideration. Owner Driven Reconstruction (ODR) is one way where women can take leadership role in monitoring implementation of safe housing technology.</p> <p>Women can also be empowered by creating their Self Help Groups for livelihood opportunities. It needs to go beyond traditional income generating activities and aim at enhancing skills as masons, carpenters, trading of local products, developing local shops for housing, sanitation and other materials, etc.</p> <p>In the NDMP, States have been given responsibilities for empowering women, especially regarding their leadership in DRR.</p>

4.	Agenda – 4: Invest in risk mapping globally to improve global understanding of Nature and disaster risks	Understanding Risk is one of the six thematic areas in NDMP for all disasters, which includes risk mapping / zonation etc.
5.	Agenda – 5: Leverage technology to enhance the efficiency of disaster risk management efforts	<p>Effective use of science, technology and traditional knowledge in all aspects of DRR.</p> <p>Institutional arrangements and capacity development (institutional, human, community, technology, etc.) for DRR in mainstreaming DRR and creating the enabling environment for it emerging from the global practices.</p> <p>Deploying advanced technology and equipment to be included in the Capacity Building Themes for DRR.</p> <p>Use of ICT and advance technologies for EWS</p>
6.	Agenda – 6: Develop a network of universities to work on disaster-related issues	Academic and technical institutions / Universities to be given the responsibilities of documentation, training, research etc. in the field of DRR concerning various disasters.
7.	Agenda – 7: Utilise the opportunities provided by social media and mobile technologies for disaster risk reduction	Extensive IEC campaigns to create awareness through print, electronic and social media
8.	Agenda – 8: Build on local capacity and initiative to enhance disaster risk reduction	<p>NDMP Vision to be followed for this – Make India disaster resilient across all sectors, achieve substantial and inclusive disaster risk reduction by building local capacities starting with the poor and decreasing significantly the loss of lives, livelihoods, and assets in different forms including economic, physical, social, cultural, and environmental while enhancing the ability to cope with disasters at all levels.</p> <p>‘Strengthen disaster risk governance at all levels from local to centre’ and ‘Empower both local authorities and communities as partners to reduce and manage disaster risks’.</p>

Hon'ble Prime Minister's 10 Point Agenda

1-All development sectors must imbibe the principals of disaster risk management.

NDMA various Guideline as stated in NDMP 2019 towards mitigation of disaster risk and proper management is being followed in DDU Div of EC.RLY.

2- Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states.

Necessary coverage as per Guideline of NDMP for different type of disasters like Derailment, Fire, Chemical hazard, earth quake, landslides etc has been incorporated in preparing of DMP -2021 of DDU Division.

3- Women's leadership and greater involvement should be central to disaster risk management.

In DDU Division the participation of women's has been ensured to handle different type of the rail accidents. They are specifically assigned management of Medical and Security.

4-Invest in risk mapping globally to improve global understanding of nature and disaster risks.

The mapping of risk particularly natural calamities like flood, land slide, earth quake, Cold and hot weather, Thunder storm etc has been done and action has been taken accordingly e.g preparation of hand book for monsoon patrolling, arrangement of Ash loaded wagons, availability of lightning arrester, Fog safe device etc.

5-Leverage technology to enhance the efficiency of disaster risk management efforts.

In Railway various technological input has been made to reduce the risk of disaster like provision of vigilance control device, Fire alarm system, Fog safe device, Anti-collision device, use of LHB coaches, RRI System etc.

6- Develop a network of universities to work on disaster related issues.

In Railway RDSO/LKO,NAIR/VADODARA,IRISET/SECUNDERABAD,ZRTI/BHULI, IRITEM/LKO,IRIMEE/JMP etc are institutions for safe design of Rolling stock, Track, Signal etc and technical training to the officers and staff.

7-Utilise the opportunities provided by social media and mobile technologies for disaster risk reduction.

Utilization of social media and mobile technology is being done for mitigation of disaster risk. Safety awareness campaign through Group messages and videos

depicting lesson learnt from previous incidences are also shown to the concerned staff for further prevention of accidents in future.

8- Build on local capacity and initiative to enhance disaster risk reduction.

Involvement of people surrounding the railway premises including Railway tracks buildings and other installations is being ensured through public awareness campaign, Pamphlet distribution, Nukkad Natak, counseling and awarding such person who played role in detecting abnormality, informing in time to the railway authority thus reducing the risk of disaster and saving accident.

9-Make use of every opportunity to learn from disaster and to achieve that, there must be studies on the lesson after every disaster.

Detailed analysis and lesson learnt from previous incidences are being regularly discussed in departmental seminars and counseling to the field staff stating them about incidences happened in past, its causes and recommendations for preventing repetition of such faults.

10- Bring about greater cohesion in international response to disaster.

Efforts are made to get cohesion with other agencies like NDRF etc for getting better exposure about different types of disasters and way to handle. In this regard annual joint mock drills are also organized involving all stake holders.

VULNERABILITY ATLAS

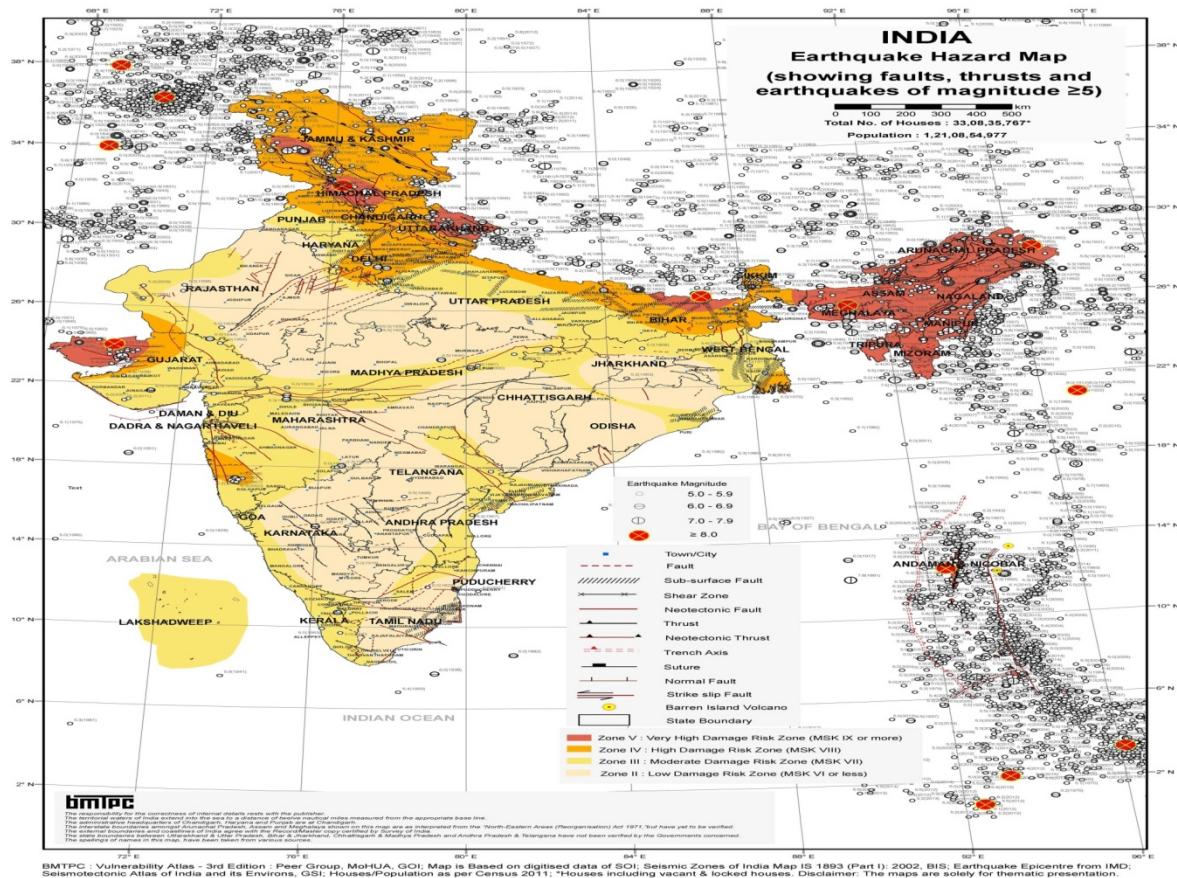
The vulnerability Atlas created by building materials and technology promotion council (BMTPC) and updated in 2019 depicts details about different types of hazard like earthquake, Flood, Land slide, Thunder storm, Wind etc.

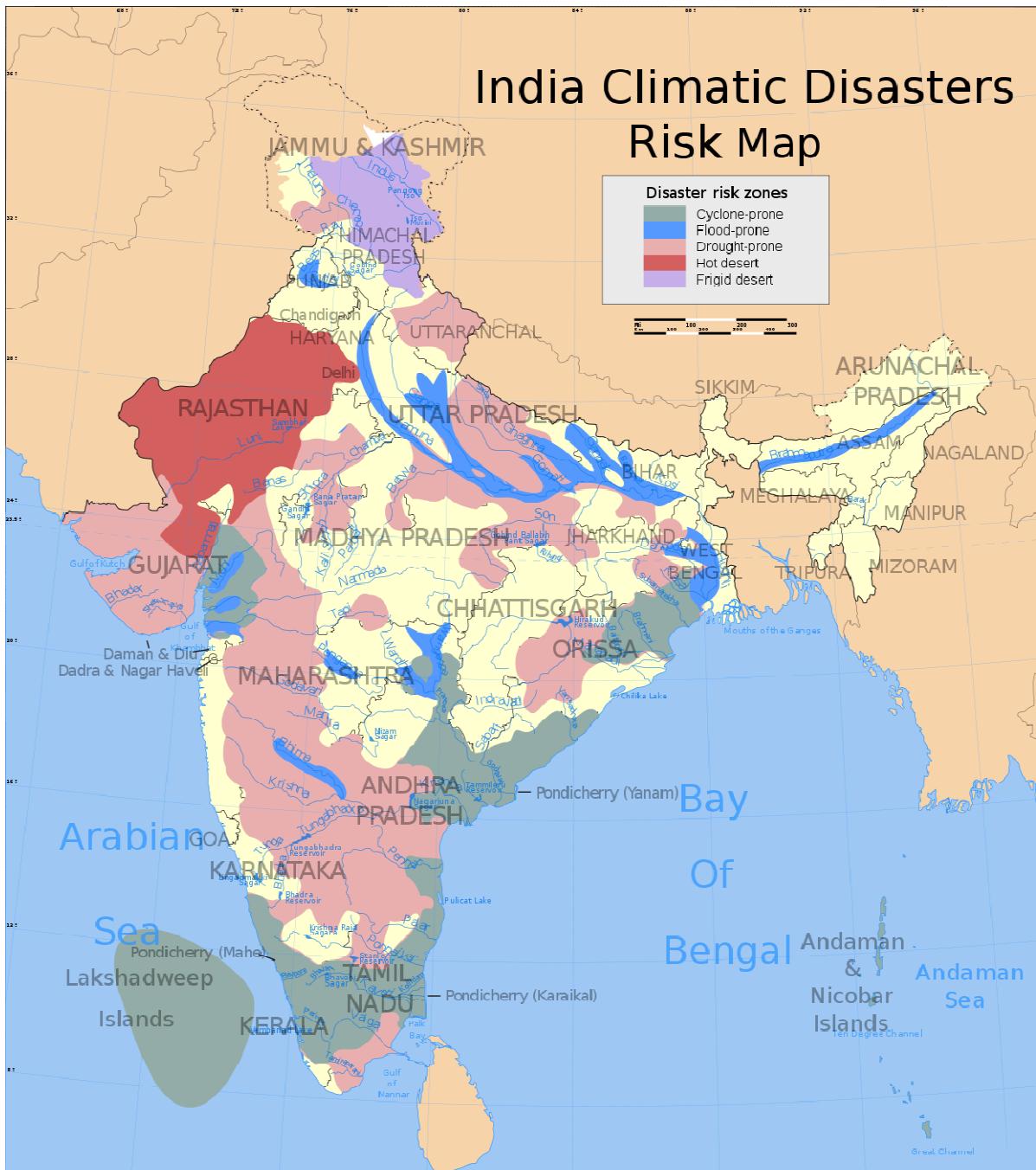
DDU Division of E.C Rly has been covered in three states

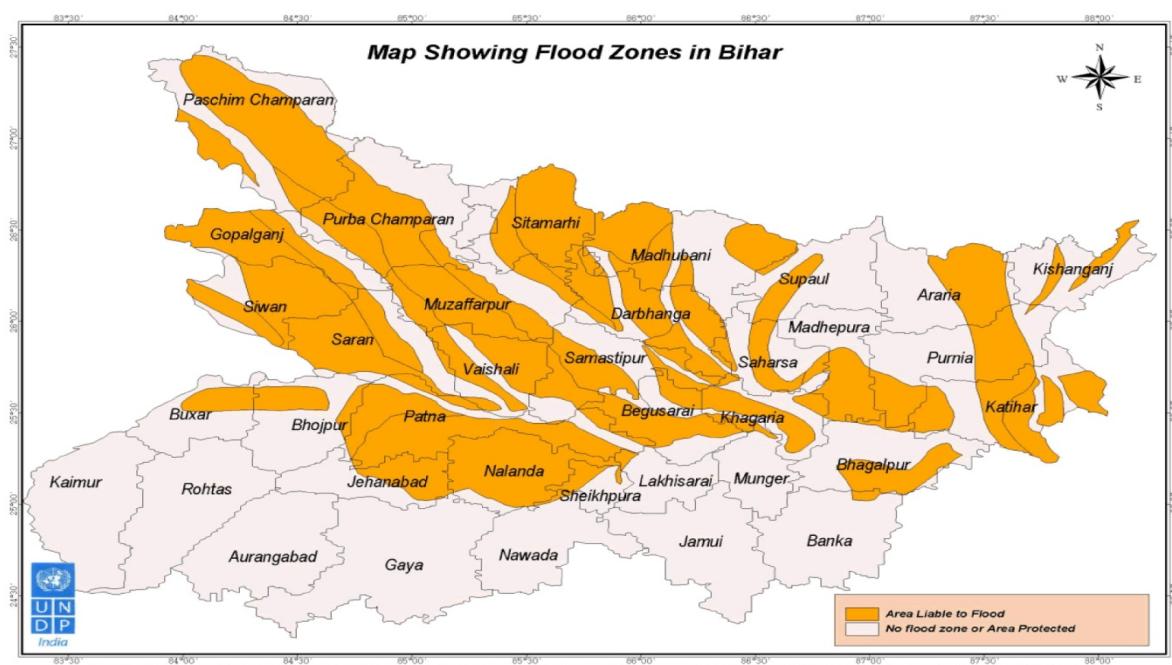
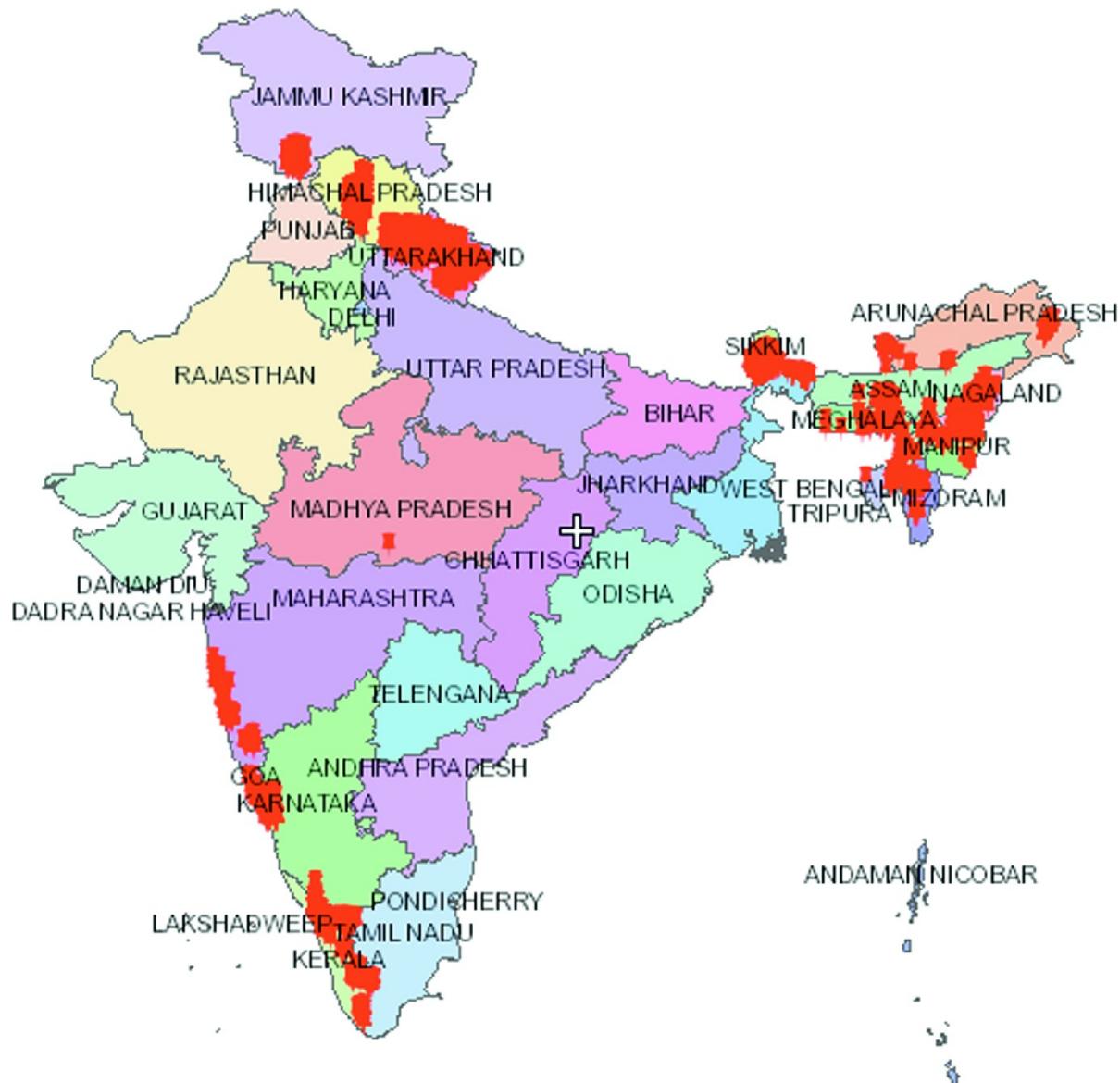
- A) UTTAR PRADESH with Chandauli District.
- B) BIHAR with Kaimur, Rohtas, Bhojpur, Aurangabad and Gaya Districts.
- C) JHARKHAND with Palamu District.

In reference of BMTPC the risk of different types of hazards is given as below:-

SL	STATE	DISTRICT	HAZARD RISK			REMARKS
			Flood	Earth Quake	Land slide	
1	Uttar Pradesh	Chandauli	Yes	Moderate	--	
	Bihar	Kaimur Rohtas Bhojpur Aurangabad Gaya	- Yes - - -	Moderate Moderate Moderate Moderate Moderate	-- -- --- --- ---	
	Jharkhand	Palamu	--	Moderate	---	







SYSTEM MAP PT.DEEN DAYAL UPADHYAYA DIVISION

