

Building Capacities for Disaster Resilient Haryana Civil Hospital Safety Plan Mandi Khera Mewat 2016



**CENTRE FOR DISASTER MANAGEMENT
HARYANA INSTITUTE OF PUBLIC ADMINISTRATION
GURGAON**

Preface

In India, there is sheer negligence toward adherence of safety norms and safety practices. This makes many crucial institutions in our country vulnerable to disasters. It is a well acknowledged fact that disaster impact is terrible on unprepared institutions; therefore it is necessary to make serious attempts to install a system of disaster preparedness, mitigation response and recovery to make institutions capable of providing comprehensive response to the disaster situation. The booklet '**General Hospital Safety Plan, Mewat**' should be executed to reduce the impact of disasters on a very essential institution like Government Hospitals.

This document is helpful in understanding the significance of various disaster management activities needed to be performed for making premises of Govt. Hospital, Mandi Khera Mewat safer. It gives comprehensive information regarding hazards, its probability and methods to reduce its impact by planning, mitigating and building capacity of structural and non-structural components in the building.

With the advent of DM Act 2005, various institutional mechanisms established like SDMA, DDMA and funds which provide ideal platform for taking such crucial step. Under this umbrella, Hospital Emergency Preparedness Plan is being conducted under the project of 'Building disaster resilient Haryana' executed by Haryana Institute of Public Administration (HIPA) and funded by Haryana State Disaster Management Authority (HSDMA) under Capacity Building Fund of 13th Finance Commission.

We are thankful to HSDMA and HIPA for providing this appropriate opportunity towards making various institutions a safer place. We are also thankful for DDMA, Mewat for admirable support they have provided throughout.

FOREWARD

On the behalf of General Hospital Safety Committee Mandi Khera Mewat, I am pleased to present **Civil Hospital Safety Plan** Mewat 2016. The Plan is formulated through participatory approach and is precise and user friendly. I owe my sincere Gratitude to the Additional Chief Secretary and Financial Commissioner Government Haryana Revenue Disaster Management for taking up such initiatives. I am also thankful to the Director General Haryana Institute of Public Administration Gurgaon and the District Administration for admirable execution of these activities.

The Plan provides not only quick Guidelines to the Emergency responders but also shifts emphasis of the practitioner from active to proactive approach towards various safety measures.

I hope that the Plan succeeds to bring a culture of safety, disaster Preparedness and prevention measures to our General Hospital Staff.

Civil Surgeon
Mewat

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1. Introduction

1.1 General Information

Government General Hospital Mandig Khera, Mewat also called 'Al-Aafia Civil Hospital. It is situated on Delhi Alwar Raod Mandi Khera. It was built in 1995. It has 100 bed capacities and is well equipped.

1.2 Need of Plan

Hospitals play a critical role in health care infrastructure. Hospitals have a primary responsibility of saving lives, they also provide 24x7 emergency cares service and hence public perceive it as a vital resource centre for diagnosis, treatment and follow-up for comprehensive approach including both physical and psychological care and counseling. Hospitals are central to provide emergency care and hence when a disaster strike the society falls back upon the hospitals to provide immediate succor in the form of emergency medical care. Therefore, there is a need to safe guard the building and its resources to reduce the impact of any probable hazard.

1.3 Aim

The aim of Hospital Emergency Preparedness Plan is to document necessary preparedness measures that will prevent and mitigate probable losses from disasters and initiate a culture of safety by installing a mechanism for organised and systematic response for any disaster situation.

1.4 Objective

1. To prepare **emergency response teams** within GH Mandi khera Mewat so as to reduce the impact of the disaster.
2. To identify and suggest mitigation measures for various structural and non- structural hazards.
3. To formulate proper evacuation plan for emergency evacuation without causing panic.
4. To carry out safety audits for prevention of fires and electrical shock circuits.
5. To establish a mechanism for better coordination for disaster response.

1.5 Building Information

1. **Building address:** Al Aafia General Hospital Ferojpur Delhi Nuh Road Mandi Khera - 122108
2. **Person in-charge at building**
 - a. **Name:** Dr. Bal Krishna Rajaura
 - b. **Designation:** Civil Surgeon Mewat

c. Phone No:126,8661011 (O); 8295937194 (M)

3. Contact Details

Sr.No	Name	Designation	Mobile No.
	Dr. Shiv Kumar Kaushik	Dy.Civil Surgeon, Mewat	8901353537
	Dr. Kamal Mehra	--do--	7027838986
1.	Dr. R Batish	S.M.O.	
2.	Dr. Mohamad Farooq	Ortho	9999054546
3.	Dr. Anil Jain	Surgeon	
4.	Dr. Vikram	RMO	9671141312
5.	Dr. Gobind Narayan	BT	9416253586
6.	Dr. Parveen	M.O.	9991424553
7.	Dr. Ashish Singh	M.O.	
8.	Dr. Anil Yadav	Padiatrition	
9.	Smt. Usha Gupta	Nursing Supervisor	
10.	Sh. Sajid	Pharmacist	
11.	Sh. Vipin Dhiman	Biomedical Engineer	
12.	Sh. Vinod Malik	Lab Tch.	
13.	Sh. Rakesh	LT Blood Bank	92120-79622
14.	Dr. Balvinder		9416074212
15.	Dr. Shamim Ahmad		9813530786
16.	Dr. Krishan Kumar		9017940058
17.	Dr. Manish Khurana		8930880033
18.	Dr. Ravi Kant Kumar Sinha		9992144689
19.	Dr. Anil Kumar Yadav		9050577548
20.	Dr. Hemant Kumar		
21.	Dr. Devender Singh Solanki		986867832
22.	Dr. Raveesh Kanodia		8053816433
23.	Dr. Trilok Singh Yadav		9050250175
24.	Dr. Mohd Rizwan Alam.		9050439693
25.	Dr. Baljinder Singh		9860611139
26.	Dr. Nitish Agrwal		8053589747
27.	Dr. Pankaj Vats		8295958666
28.	Dr. Jitender		8930071502
29.	Dr. I.N.L Kumar		7730009635
30.	Dr. Tarun Singh		8901274123
31.	Dr. Raj Singh		

4. Building

- Height: **40' aprox**
- Area: **1.50 acres. aprox**

- c. Class of Construction (NBC, 2005): **R.C.C. Framework Structure (III Storied)**
- d. Year of Construction: **1994-95**

5. Stairs

- a. Number: 3 and 1 Ramp
- b. Location: i) near. Main Entrance Lobby ii) near Civil Surgeon Office iii) near RMO Room No 1
 - i. Ground Floor: **3**
 - ii. Floor 1: **3**
 - iii. Floor 2: **3**

6. Exits

- a. Number: **5**
- b. Type: **Covered**
- c. Location: **Adjoining Stairs**
 - i. Ground Floor: **5**
 - ii. Floor 1: **3**
 - iii. Floor 2: **3**

7. Lifts

- a. Number: **2**
- b. Type: **Left with Well**
- c. Location: **Front near Stairs**
 - i. Floor Ground: **2**
 - ii. Floor 1: **2**
 - iii. Floor 2: **2**
 - iv. Floor 3: **2**
- d. Operational: **No**

8. Storage of flammable material

- a. Type of material stored: **(Papers, Files, Alcohol, etc)**
- b. Amount stored: **Low quantity**
- c. Location: Ground Floor: **All floors in the Building**

9. Fire Alarm: NA

10. Sprinklers System Installed: NA

11. Sprinklers Functional : NA

12. Communication System

- a. Telephones: **Yes**
- b. Micro Phone: **NO**
- c. Cordless Phone: **22 Intercom**

d. Wireless: **NO**

13. Number of people employed: 200 aprox Employees

14. Average number of people in GH Mandi Khera Mewat on a working day: 3000 (Approximately)

15. Service Equipment

a. Electricity Generator: **2 NOS (Generator Capacity: 65 KVA)**

b. Fire Extinguishers: **10**

c. Sand Bucket: **Nil**

16. Fire Hydrant : NA

17. Alterations and repair in Building : Several (at various locations)

18. Places of Public Occupancies: All the Rooms

a. Assembly: Main Lobby near Main entrance

b. Open spaces: **Parking near the main Entrance**

19. Floor Plans

a. Floor Maps to be attached: **YES**

b. Command Post on the floor (preferably in the main lobby)

c. Refugee area : **Hall at OPD**

Hosp. Sattelige MAP see on Nex Page



2. Hazards, Vulnerability, Capacity and Risk Analysis (HRVCA)

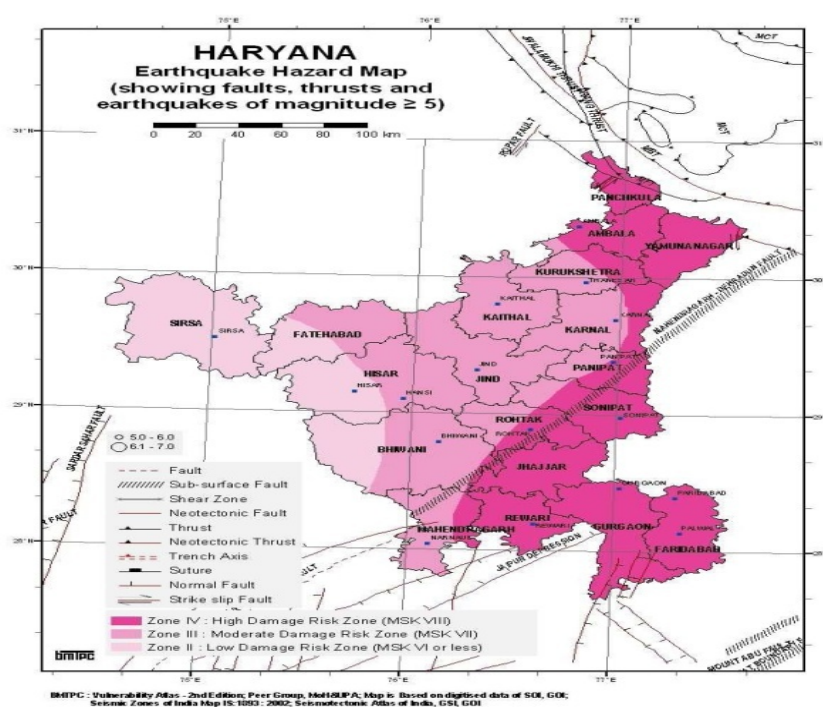
2.1 Hazards

Owing to the geographical location in Mewat the Mini- Secretariat have probability of following hazards.

	Hazards	Causes
1.	Earth-quakes	Mewat falls in Seismic Zone IV, High Damage Risk Zone
2.	Fires	Short circuit & presence of inflammable material like papers, files, etc.
3.	Extreme Wheather	Natural cause
4.	Bomb Threat	Critical Infrastructure of district (Threat can cause stampede and panic)

2.1.1 Earthquakes

Mewat falls in Earthquake Seismic Zone IV, i.e. High Damage Risk Zone. In this, zone earthquake of magnitude up to 8 are possible. In recent time Delhi, Mahendergarh which are in close proximity to Mewat has been experiencing minor shake frequently. The following map showing fault lines depression around Mewat.



2.1.2 Fire

Short circuit & presence of inflammable material like papers, files, etc in close proximity are basic causes of fire available in almost each room the mini- secretariat building. In addition during winters, heaters are used in many rooms. If proper care is not taken, these can cause fire. Therefore, fire is one of the probable hazards in the building.



Files and records showing in the picture are in risk to fire in the Hospital Building

2.1.3 Flood

As such there is no history of floods in Mewat. Even no major River and Natural Drains flowing Near Mewat So the possibility of flood in Mewat and General Hospital is less apart from this water logging problem May cause due to Heavy Rainfall and human negligence in clearing Drains of General Hospital

2.1.4 Extreme Weather

Owing to the geographical location and climatic conditions district faces extreme temperatures in months of December, January, May and June so extreme weather cannot be ignored as a Hazard in the General Hospital.

a) Cold Wave

During December and January, the average minimum temperature is recorded around 5-6°C which, at times, reaches as low as 0°C.

The cold wave is generally associated with Frost which is one of the reasons for huge crop losses in the so extreme weather cannot be ignored as a Hazard in the General Hospital.

b) Heat Wave

Heat Wave is very complex phenomenon resulting from a certain combination of the temperature, humidity air movement and duration. Heat wave is experienced as highest maximum temperature recorded from 45 to 48.50 C Heat waves generally observed in month of April, May and June.

In addition to Mewat also experience dust storms and wind storms frequently so Heat Wave can be Hazard in the General Hospital.

2.1.5 Bomb Threat

With the advent of Anit-National activities and anti-social elements, the incidents of bomb threats and bomb blast are increasing. As the General Hospital is critical Infrastructure of district District, there is possibility of such events.

It should be noted that the even a bomb threat can cause stampede in the building and cause panic.

2.2 Non-Structural Hazards

Mewat falls in Zone IV i.e. High Damage Risk zone for earthquake. It is well observed phenomenon that during earthquake injuries are caused due to structural and non- structural components in the building.

Therefore, owing to the type of work in General Hospital, there is presence of lots of material which can act as non- structural hazards during earthquake or any other emergency situation. This material includes glass window panes, computers, Almirah/cupboards, air conditioners, hanging photo frames, files stalks, plants pots etc. This material act as harmful non-structural hazard during an earthquake as it moves/ shakes freely and can hit a person causing severe injury.

It is estimated in research that about 50% of injuries that occur due to earthquake is because of non- structural hazards. The following are few examples:

2.2.1 Cupboards and Almirah

Almost every room in the General Hospita has cupboards and almirah placed at various locations in the room. These cup-boards can act major source of non –structural hazard within each room and in corridors especially during Earthquake. The smooth surface is very helping to move potential for blocking exits; blocking corridor passages, it may also fall on employees brake aluminium framed Glasses and can cause damage and injuries. The following are some pictures that showing how admiral and cupboard can be hazardous during earthquake and for evacuation.



Picture Showing smooth surface and with Non structure Hazards

2.2.2 Beehives

There are 18 big Beehives in the General Hospital. You are bound to feel threatened. A beehive can be dangerous if you do not understand the risks and adhere to various safety precautions. Once it became aggressive or attacked someone there can be chance of chaos and stamped situation in the General Hospita.



Picture showing Beehives in the Hospital

2.2.3 Hanging Hazards

Marbal type Red stone plates are fitted on the outer wall of the Hospital. These stones must have been pasted on the outer wall for beautification of the Hospital. No doubt it looks beautiful on these Red Stone Plates. But now these Stone plates are falling one by one

because the cement grapping power no longer to hold on the plates. Now it has becoming hanging hazards for the General public and patient. It can fall on anyone any time and injured.



Picture showing week and hanging Stones on the wall of Hospital

2.2.4. Seepage in the toilets

Most of toilets walls and in the General Hospital few points having seepage problem, due to seepage, outer wall of the building is getting Friable. Picture showing seepage inside toilet and friable outer wall of the building.



Picture showing seepage on inner and outer wall of the Hospital

2.2.5 Open swear Hols



**Picture showing Open Swear Hole n unhygienic condition in front of Hospital which can
be
Hazardous for the general people**

2.2.6 Cracks in Wall



Pictures showing big cracks in the newly constructed Mini Sect. building

2.2.7 Weakening Walls and Pillars of the Hospitals vulnerable to earthquake



**Pictures showing wall and pillars of the Building getting
Weak and Friable from its Base**

2.3 Vulnerability

Vulnerability is understood as the degree to which life or property can get impacted for various hazards. GH Mewat has 100 bed capacities which are extended to 200 during emergencies. This along with their relatives becomes the most vulnerable section. This vulnerable population can be further understood as following:

a) Recently Operated Patients

Recently operated patients are most vulnerable due to its conditions like patients under anesthesia, on ventilation, on oxygen etc. They are most dependent on the external help as they are unable to help themselves. They are also prone to various infections and in constant need of medication.

b) Physically challenged

Many patients with orthopedic problems pay regular visits in GH. These patients are partially dependent on others and are vulnerable during emergency situations.

c) Pregnant women

GH, Mewat treats various pregnant women every day. There are many deliveries being carried out daily. Therefore, pregnant women are sensitive section present in the GH.

d) Children

Newly born babies n children constitutes substantial share of vulnerable population at GH. They are vulnerable to hazards like stampede and other emergencies.

e) Weak and Sick

Other large section of the visitors is weak and sick patients. These patients are in immediate need of medicines and medical care. These patients also require attention during the emergency situation.

f) Relatives and Staff

As per the functioning GH Mewat hosts hundreds of patients daily. Moreover it also staff of around 200 persons present in GH on a working day.

3 Capacity Analysis

Capacity for disaster can be understood as any human or material resource that can reduce the impact of the disaster. This can be in the form of equipments, trainings, awareness, systems, plans, etc. The following are the capacities installed in the building:

1. Fire extinguishers
2. Communication System
3. Trained Human Resource System, etc

Apart from these, there are various external infrastructures, facilities and capacities which could be procured from nearby localities, districts, etc. during the disaster situation. Accordingly the details of Hazards, Risk, Vulnerability and Capacity analysis is given below:

4 Risk Analysis:

Risk is a function of Hazard, Vulnerability and capacity with direct relation to hazards and vulnerability and inverse to capacity. It can be expressed as:

$$\text{RISK} = \frac{\text{HAZARD} * \text{VULNERABILITY}}{\text{CAPACITY}}$$

	Hazard	Vulnerable Area	Capacity
High Risk	Fires	Record Room; Offices, staff and Officers	a) Fire Extinguishers- YES not functioning b) Fire Alarm- NO
	Electric Shock Circuit	Record Room; Offices, Staff	c) Fire Hydrant-NO d) Trained HR-Fire fighters NO First Aid: Yes

			e) Sprinklers-NO f) Smoke Detectors- No g) Staff trained: No
	Earthquake	Offices with high amount of non structural hazards; Public meeting; staff in offices	a) Earthquake resistant: In Risk Old Structure b) Safer Locations: Identified at Mail Entrance Point c) Trained staff: NO d) Open Spaces: Available and identified e) Evacuation Routes: Marked f) Staff Trained: No
Medium Risk	Floods	Staff , Record room & data on ground floor, computers	a) No Flood Risk accept water logging may cause due to negligence of drains clearance
	Extreme whether	Building; Staff	a) Lighting Conductor Installed: YES b) Proper earthing: YES
Low Risk	Storm	Building and Staff	a) Strong rooms: YES
	Cold Wave	Staff	a) Well constructed Building: YES
	Terrorist Attack	Staff, Records other property	a) Building evacuation mechanism: YES

Sr. No.	Hazard	Frequency	Severity
1.	Fire	H	H
2.	Earthquake	M	H
3.	Heavy rainfall and wind	M	M
4.	Extreme heat/Cold wave	L	M
5.	Bomb Treat/ Blast	L	H

3 Institutional Mechanism

3.1 District Disaster Management Authority

District Disaster Management Authority, Mewat plans, coordinates and implements all measures for the purposes of Disaster Management in accordance with the Guidelines laid down by NDMA and HSDMA. It gives direction to departments at district level and local authorities to take measures for prevention or mitigation of disasters and also monitors that they implement disaster management plans at their respective level. The members of DDMA are as under:

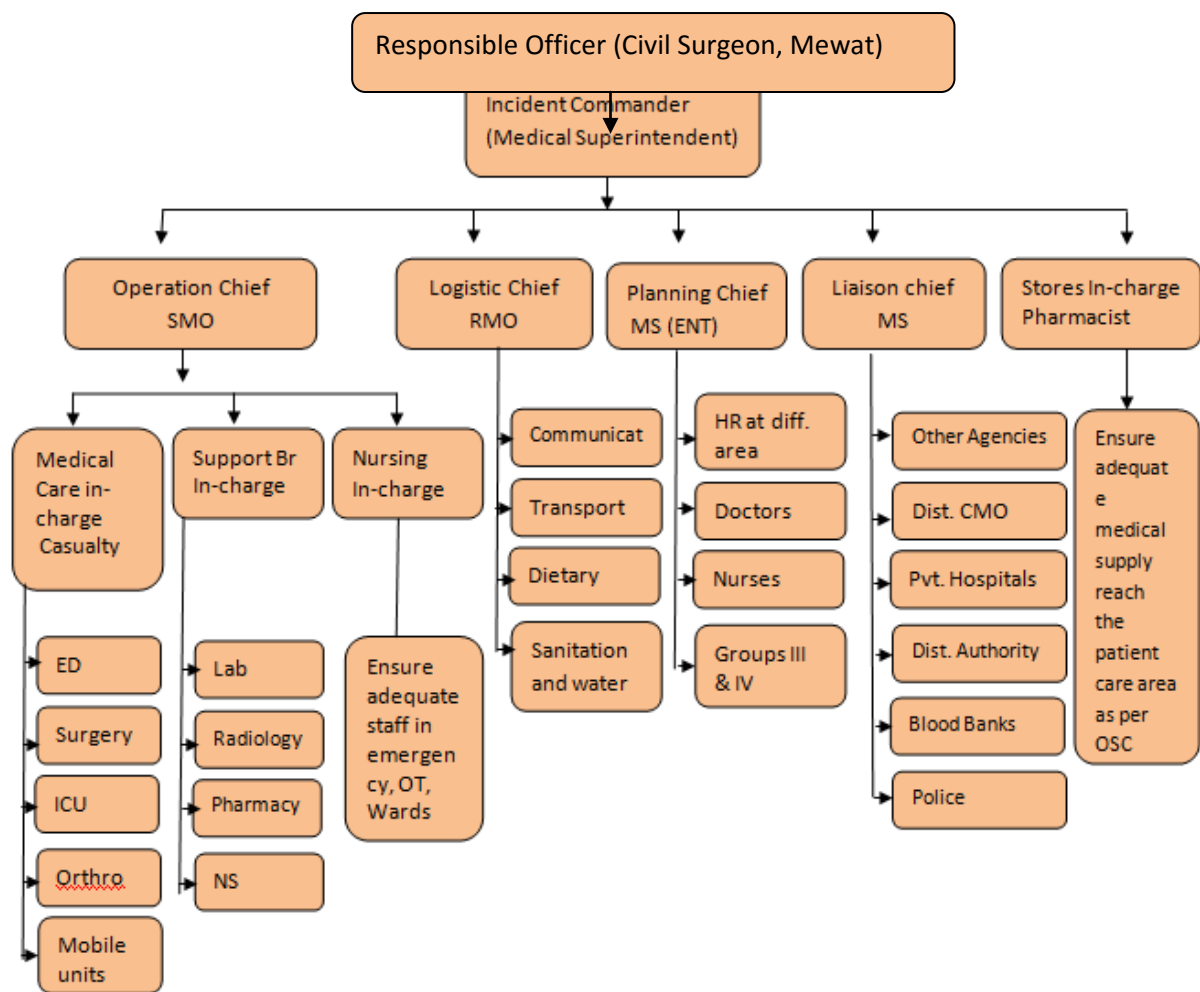
Members	Designation in DDMA
Deputy Commissioner, Mewat	Chairperson ex-officio
Chairman of Zila Parishad, Mewat	Co-Chairperson
Additional Deputy Commissioner, Mewat	Chief Executive Officer ex-officio
Superintendent of Police (Head quarters), Mewat	Member ex-officio
Chief Medical Officer, Mewat	Member ex-officio
Superintending Engineer, PWD(B&R), Mewat	Member
District Revenue and Disaster Management Officer, Mewat	Member

3.2 Hospital Disaster Management Committee

For addressing issues pertaining to the disaster management of GH Mewat, a committee of 16 members has been formed under the chairmanship of Medical Superintendent, Mewat. The following are the members of the team:

Sr.No	Name	Designation	Mobile No.
1.	Dr. Bal Krishna Rajaura	Civil Surgeon Mewat	Chairman
2.	Dr. R Batish	S.M.O.	Member
3.	Dr. Mohamad Farooq	Ortho	Member
4.	Dr. Anil Jain	Surgeon	Member
5.	Dr. Vikram	RMO	Member
6.	Dr. Gobind Narayan	BT	Member
7.	Dr. Parveen	M.O.	Member
8.	Dr. Ashish Singh	M.O.	Member
9.	Dr. Anil Yadav	Padiatrition	Member
10.	Smt. Usha Gupta	Nursing Supervisor	Member
11.	Sh. Sajid	Pharmacist	Member
12.	Sh. Vipin Dhiman	Biomedical Engineer	Member
13.	Sh. Vinod Malik	Lab Tch.	Member
14.	Sh. Rakesh	LT Blood Bank	Member

3.3 Incident Response System



Designation Roles and Responsibility as per IRS

Civil Surgeon, Mewat as Responsible Officer (RO)	<ol style="list-style-type: none"> 1. Over all supervision of an incident. 2. Ensure formation of Incident Response Teams (IRTs). 3. Ensure that a reasonable amount of imprest fund is sanctioned clearly delineating the procedure for emergency procurement if required. 4. Appoint /deploy, terminate and demobilise IRTs as and when required. 5. Decide overall incident objectives, priorities and ensure that Emergency Response Plan (ERP) is prepared by the IC and implemented accordingly. 6. Coordinate with the State Government for mobilisation of Armed Forces, Air support etc. as and when required. 7. Supervise overall Command, Control & Coordination of response, & other activities. 8. Mobilise experts and consultants in the relevant fields, if necessary. 9. Conduct post response review on performance of IRTs and take appropriate steps to improve performance. 10. Take such other necessary action as the situation demands.
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MS, Mewat Incident Commander (IC)	GH as	<ol style="list-style-type: none"> 1. Obtain information on: a. Incident situation status like number of people and the properties, documents, affected etc. b. Make an arrangement regarding availability and procurement of required resources. c. Equipments required for response .etc 2. Determine incident response strategies based on the available information and resources. 3. Identify, mobilise and allocate critical resources according to established priorities. 4. Establish appropriate Incident Response System with based on the span of control and scale of the incident. 5. Establish Incident Command Post (ICP) at a suitable place. 6. Ensure proper coordination among all sections of the IRTs, agencies working in the response activities. 7. Ensure that adequate safety measures for responders are in place. 8. Authorise release of information to the media. 9. Consider requirement of resources, equipment which are not available & discuss with Planning Section Chief & Logistics Section Chief & inform RO regarding their procurement/purchase. 10. Review public complaints and recommend suitable grievance redressal measures to the RO. 11. Perform any other duties that may be required for the management of the incident. Etc 12. Prepare an Emergency Response Plan (ERP) which should be reviewed annually and circulated to all concerned. 13. Hold General Hospital Safety meeting with its committee members.
Ex-MS Mewat Operation Section Chief (OSC)	GH as	<ol style="list-style-type: none"> 1. Coordinate among the activated Section Chiefs. 2. Manage all operations for the accomplishment of the incident objectives. 3. Ensure the overall safety of personnel involved in the response 4. Brief the personnel of IRTs at the beginning of each operational period

	& ensure the coordination and cooperation among them. 5. Consult the IC from time-to-time and keep him fully briefed. 6. Determine the need for additional resources & demands accordingly. 7. Ensure record of various activities performed and perform such other duties as assigned by RO / IC.
(Deputed by Civil Surgeon) Mewat as Liaison Officer (LO)	1. Maintain a list of concerned departments, agencies & their representatives at various locations whose resources/services may support during emergency. 2. Liaison with all concerned departments/agencies as per requirements. 3. Monitor operational challenges & potential inter-agencies/departmental problems. 4. Keep the IC/OSC informed about arrivals of the concerned departments & other agencies and their resources. 5. Maintain record of various activities performed and perform such other duties as assigned by IC/OSC.
RMO (Deputed by Civil Surgeon) as Logistics Section Chief (LSC)	1. Provide logistic support to the incident response teams. 2. Maintain a list of concerned departments, agencies & their representatives at various locations whose resources/services may support during emergency. 3. Keep IC/OSC informed on related financial & logistical issues. 4. Ensure that the hiring of the requisitioned resources is properly documented. 5. Ensure that record of various activities performed and perform any other duties as assigned by RO or IC.

4 Resource Mapping

4.1 On Site Resource Mapping

S. No	Name of resources	Location
1.	Fire fighting equipments	
2.	Water storage Capacity	2000kl aprox on roof
3.	No of Entries and exits	5 at ground floor; 3 1 st and 2 nd floors
4.	Police Control Room	-----
5.	Specialised fire fighting teams	-----
6.	Specialised Search and Rescue teams	-----
7.	Specialised first Aid teams	-----

a) Fire Extinguishers at GH:

Sr. No.	Type	Ground Floor	First Floor	Second Floor	Total
1.	ABC (5kg)	8	2	--	10
2.	WATER CO ₂ (9 liter)	--	--	--	--
3.	TOTAL	8	2		10

4.1 Off Site Resource Mapping

Sr. No	Institution	Distance/ Location	Contact No
3.	Police Control Room	25 KM	(100)
4.	Police Station, Nagina	3 KM	01274-221170
5.	Fire station,	25 KM	(101)
6.	NDRF, 8 th Battalion,	Ghaziabad	01202-766618
7.	Ambulance Services	0 KM	01274- 251473 (102)
8.	Armed Forces	54th Battalion Gurgaon	08571029737

5 Preparedness Measures

5.1 General Preparedness

- a. Prepare floor wise evacuation plans for the building.
- b. Floor shall be numbered at stairways and exits.
- c. The floor maps should direct proper information of safer routes, safer locations.
(Details of the floor-maps are attached in annexure)

5.1.1 Fire Hazards Preparedness

- a. A fire extinguisher is required to be within every 75 feet of area
- b. Fire extinguishers must be checked annually by a licensed service contractor.
- c. Fire extinguishers should not be hung higher than 5 feet from the floor to the top of the extinguisher
- d. Extinguishers are classified as "A", "B", or "C". Type "A" is required for ordinary (*wood, paper, some plastics, etc.*) hazards. Type "B" is required for liquid (*grease, paint, some plastics, etc.*) hazards. Type "C" is required for electrical hazards.
- e. Multi-purpose ("ABC") extinguishers are available for combined hazards and are the type **recommended**.
- f. CO₂ type fire extinguisher is required to be installed in areas where computer or other technical appliances are kept.
- g. Other extinguishers like (Water-CO₂) and AFFF shall also be kept ready at strategic location with consultation of Fire Officer.

5.1.2 Exits

- a. There must be at least two exits from every area.
- b. Exits must be accessible without the use of any key.
- c. Exits must be marked with illuminated exit signs that are working.
- d. A horizontal exit shall be equipped with at least one fire/smoke door with fire resistance, of self-closing type. Further, it is required to have direct connectivity to the fire escape staircase for evacuation.
- e. Doors in horizontal exits shall be open at all times from both sides
- f. Storage, furniture, trash, etc. are not allowed in corridors or stairways.
- g. Fire doors to stairways and storage rooms must close and latch automatically.
- h. Fire doors may not be blocked open.
- i. The walls and ceilings of corridors and stairs must be solid. Any holes or other damage must be repaired.
- j. Exits may not be hidden by draperies, furniture, etc.
- k. Exit doors must open outwardly.
- l. Exit doors shall not hinder the exit passage.
- m. Overhead or sliding doors shall not be installed.
- n. Exits must lead to refuge area or street or roof.
- o. Exit door shall not open immediately upon a flight of stairs.

- p. Mirrors shall not be placed in exit ways or exit doors to avoid confusion regarding the direction of exit.
- q. Exits path or corridors ways are to be kept clear.

5.1.3 Fire Alarms

- a. Every building must have a fire alarm system that is always working.
- b. Each bell or horn, manual alarm station, and smoke or heat detector must work.
- c. The alarm stations must be red, and may not be covered or blocked by furniture, posters, drapes, etc.
- d. Smoke detectors are required in every room used for sleeping and are recommended in the corridors and stairs.
- e. When it is sounding, the fire alarm must be heard in every area of the building.

5.1.4 Fire Hydrant

- a. Fire hydrants must be installed and strategically located.
- b. Fire hydrants must be checked every six months and proper functioning must be ensured.

5.1.5 Earthquake Hazard Preparedness

- a. Safe location for evacuation must be identified
- b. First Aid box must be prepared and placed strategically
- c. Any material potential of blocking exits must be removed.

5.1.6 Human Resources Data Updation

- a. Data regarding the human resources in the building must be regularly updated.
- b. Their newly appointed staff members must be trained and made aware for the plans
- c. Regular trainings of safety teams must be carried out.

5.1.7 Safety and Security of Documents

- a. The following steps should be taken well in advance for prevention of loss of any essential document at GH record room.
- b. The record room should be earmarked in the building for storage of old files, records and documents.
- c. All the important documents should be scanned and digitized and a copy of it can be kept at some alternate safe place.
- d. There should be regular disposal of files as per the existing government guidelines.
- e. All the departments and offices should have back-up of their necessary respective data in PCs/Laptops.
- f. Security of files/ documents/ PCs/ lap tops and use of pen drives and CDs should be elaborate.
- g. Regular check by department / section heads is recommended.
- h. Training regarding Dos and Don'ts is recommended.

5.2 Preparedness measures for Mass Casualty Incidents

5.2.1 Communication

- a. Appoint a public information spokesperson to coordinate hospital communication with the public, the media and health authorities.
- b. Designate a space for press conferences (outside the immediate proximity of the emergency department, triage/waiting areas and the command centre).
- c. Draft brief key messages for target audiences (e.g. patients, staff, public) in preparation for the most likely disaster scenarios.
- d. Ensure that all communications to the public, media, staff (in general) and health authorities are approved by the incident commander or hospital authorities.
- e. Establish streamlined mechanisms of information exchange between hospital administration, department/unit heads and facility staff.
- f. Brief hospital staff on their roles and responsibilities.
- g. Establish mechanisms for the appropriate and timely collection, processing and reporting of information to supervisory stakeholders (e.g. the government, health authorities), and through them to neighbouring hospitals, private practitioners and prehospital networks.
- h. Ensure that all decisions related to patient prioritization (e.g. adapted admission and discharge criteria, triage methods, infection prevention and control measures) are communicated to all relevant staff and stakeholders.
- i. Ensure the availability of reliable and sustainable primary and back-up communication systems (e.g. satellite phones, mobile devices, landlines, Internet connections, pagers, two-way radios, unlisted numbers), as well as access to an updated contact list.

5.2.2 Safety and Security

- a. Appoint a hospital security team responsible for all hospital safety and security activities.
- b. Prioritize security needs in collaboration with the hospital authorities. Identify areas where increased vulnerability is anticipated (e.g. entry/exits, food/water access points, pharmaceutical stockpiles).
- c. Ensure the early control of facility access point(s), triage site(s) and other areas of patient flow, traffic and parking. Limit visitor access as appropriate.
- d. Establish a reliable mode of identifying authorized hospital personnel, patients and visitors.
- e. Provide a mechanism for escorting emergency medical personnel and their families to patient care areas.
- f. Ensure that security measures required for safe and efficient hospital evacuation are clearly defined.
- g. Ensure that the rules for engagement in crowd control are clearly defined.

- h. Solicit frequent input from the hospital security team with a view to identifying potential safety and security challenges and constraints, including gaps in the management of hazardous materials and the prevention and control of infection.
- i. Identify information insecurity risks. Implement procedures to ensure the secure collection, storage and reporting of confidential information.
- j. Define the threshold and procedures for integrating local law enforcement and military in-hospital security operations.
- k. Establish an area for radioactive, biological and chemical decontamination and isolation.

5.2.3 Triage

- a. Designate an experienced triage officer to oversee all triage operations (e.g. a trauma or emergency physician or a well-trained emergency nurse in a supervisory position).
- b. Ensure that areas for receiving patients, as well as waiting areas, are effectively covered, secure from potential environmental hazards and provided with adequate work space, lighting and access to auxiliary power.
- c. Ensure that the triage area is in close proximity to essential personnel, medical supplies and key care services (e.g. the emergency department, operative suites, the intensive care unit).
- d. Ensure that entrance and exit routes to/from the triage area are clearly identified.
- e. Identify a contingency site for receipt and triage of mass-casualties.
- f. Identify an alternative waiting area for wounded patients able to walk.
- g. Establish a mass-casualty triage protocol based on severity of illness/injury, survivability and hospital capacity that follows internationally accepted principles and guidelines.
- h. Establish a clear method of patient triage identification; ensure adequate supply of triage tags.
- i. Identify a mechanism whereby the hospital emergency response plan can be activated from the emergency department or triage site.
- j. Ensure that adapted protocols on hospital admission, discharge, referral and operative suite access are operational when the disaster plan is activated to facilitate efficient patient processing.

5.2.4 Surge Capacity

- a. Calculate maximal capacity required for patient admission and care based not only on total number of beds required but also on availability of human and essential resources and the adaptability of facility space for critical care.
- b. Estimate the increase in demand for hospital services, using available planning assumptions and tools.
- c. Identify methods of expanding hospital inpatient capacity (taking physical space, staff, supplies and processes into consideration).
- d. Designate care areas for patient overflow (e.g. auditorium, lobby).
- e. Increase hospital capacity by outsourcing the care of non-critical patients to appropriate alternative treatment sites (e.g. outpatient departments adapted for

inpatient use, home care for low-severity illness, and chronic-care facilities for long-term patients) .

- f. Verify the availability of vehicles and resources required for patient transportation.
- g. Establish a contingency plan for interfacility patient transfer should traditional methods of transportation become unavailable.
- h. Identify potential gaps in the provision of medical care, with emphasis on critical and emergent surgical care. Address these gaps in coordination with the authorities and neighbouring and network hospitals.
- i. In coordination with the local authorities, identify additional sites that may be converted to patient care units (e.g. convalescent homes, hotels, schools, community centres, gyms).
- j. Prioritize/cancel nonessential services (e.g. elective surgery) when necessary.
- k. Adapt hospital admission and discharge criteria and prioritize clinical interventions according to available treatment capacity and demand.
- l. Designate an area for use as a temporary morgue. Ensure the adequate supply of body bags.
- m. Formulate a contingency plan for post mortem care with the appropriate partners (e.g. morticians, medical examiners and pathologists).

5.2.5 Continuity of Essential Services

- a. List all hospital services, ranking them in order of priority.
- b. Identify and maintain the essential hospital services, i.e. those that need to be available at all times in any circumstances.
- c. Identify the resources needed to ensure the continuity of essential hospital services, in particular those for the critically ill and other vulnerable groups (e.g. paediatric, elderly and disabled patients).
- d. Ensure the existence of a systematic and deployable evacuation plan that seeks to safeguard the continuity of critical care (including, for example, access to mechanical ventilation and life-sustaining medications).
- e. Coordinate with the health authorities, neighbouring hospitals and private practitioners on defining the roles and responsibilities of each member of the local health-care network to ensure the continuous provision of essential medical services throughout the community.
- f. Ensure the availability of appropriate back-up arrangements for essential life lines, including water, power and oxygen.
- g. Anticipate the impact of the most likely disaster events on hospital supplies of food and water. Take action to ensure the availability of adequate supplies.
- h. Ensure contingency mechanisms for the collection and disposal of human, hazardous and other hospital waste.

5.2.6 Human resource

- a. Update the hospital staff contact list.
- b. Estimate and continuously monitor staff absenteeism.

- c. Establish a clear staff sick-leave policy, including contingencies for ill or injured family members or dependents of staff.
- d. Identify the minimum needs in terms of health-care workers and other hospital staff to ensure the operational sufficiency of a given hospital department.
- e. Establish a contingency plan for the provision of food, water and living space for hospital personnel.
- f. Prioritize staffing requirements and distribute personnel accordingly.
- g. Recruit and train additional staff (e.g. retired staff, reserve military personnel, university affiliates/students and volunteers) according to the anticipated need.
- h. Address liability, insurance and temporary licensing issues relating to additional staff and volunteers who may be required to work in areas outside the scope of their training or for which they have no licence.
- i. Establish a system of rapidly providing health-care workers (e.g. voluntary medical personnel) with necessary credentials in an emergency situation, in accordance with hospital and health authority policy.
- j. Cross-train health-care providers in high-demand services (e.g. emergency, surgical, and intensive care units).
- k. Provide training and exercises in areas of potential increased clinical demand, including emergency and intensive care, to ensure adequate staff capacity and competency.
- l. Identify domestic support measures (e.g. travel, child care, care for ill or disabled family members) to enable staff flexibility for shift reassignment and longer working hours.
- m. Ensure adequate shift rotation and self-care for clinical staff to support morale and reduce medical error.
- n. Ensure the availability of multidisciplinary psychosocial support teams that include social workers, counsellors, interpreters and clergy for the families of staff and patients.
- o. Ensure that staff dealing with epidemic-prone respiratory illness is provided with the appropriate vaccinations, in accordance with national policy and guidelines of the health authority.

5.2.7 Logistic and Supply management

- a. Develop and maintain an updated inventory of all equipment, supplies and pharmaceuticals; establish a shortage-alert mechanism.
- b. Estimate the consumption of essential supplies and pharmaceuticals, (e.g. amount used per week) using the most likely disaster scenarios.
- c. Consult with authorities to ensure the continuous provision of essential medications and supplies (e.g. those available from institutional and central stockpiles and through emergency agreements with local suppliers and national and international aid agencies).
- d. Assess the quality of contingency items prior to purchase; request quality certification if available.

- e. Establish contingency agreements (e.g. memoranda of understanding, mutual aid agreements) with vendors to ensure the procurement and prompt delivery of equipment, supplies and other resources in times of shortage.
- f. Identify physical space within the hospital for the storage and stockpiling of additional supplies, taking ease of access, security, temperature, ventilation, light exposure, and humidity level into consideration. Ensure an uninterrupted cold chain for essential items requiring refrigeration.
- g. Stockpile essential supplies and pharmaceuticals in accordance with national guidelines. Ensure the timely use of stockpiled items to avoid loss due to expiration.
- h. Define the hospital pharmacy's role in providing pharmaceuticals to patients being treated at home or at alternative treatment sites.
- i. Ensure that a mechanism exists for the prompt maintenance and repair of equipment required for essential services. Postpone all non-essential services when necessary.
- j. Coordinate a contingency transportation strategy with pre-hospital networks and transportation services to ensure continuous patient transferral.

5.2.8 Post Disaster Recovery Plan

- a. Appoint a disaster recovery officer responsible for overseeing hospital recovery operations.
- b. Determine essential criteria and processes for incident demobilization and system recovery.
- c. In case of damage to a hospital building, ensure that a comprehensive structural integrity and safety assessment is performed.
- d. If evacuation is required, determine the time and resources needed to complete repairs and replacements before the facility can be reopened.
- e. Organize a team of hospital staff to carry out a post-action hospital inventory assessment; team members should include staff familiar with the location and inventory of equipment and supplies. Consider including equipment vendors to assess the status of sophisticated equipment that may need to be repaired or replaced.
- f. Provide a post-action report to hospital administration, emergency managers and appropriate stakeholders that includes an incident summary, a response assessment, and an expenses report.
- g. Organize professionally conducted debriefing for staff within 24–72 hours after the occurrence of the emergency incident to assist with coping and recovery, provide access to mental health resources and improve work performance.
- h. Establish a post-disaster employee recovery assistance programme according to staff needs, including, for example, counselling and family support services.
- i. Show appropriate recognition of the services provided by staff, volunteers, external personnel and donors during disaster response and recovery.

6. Prevention and Mitigation Measures

6.1 Prevention Measures

Disaster impact can be prevented for by strict adherence to the safety norms and practices given below:

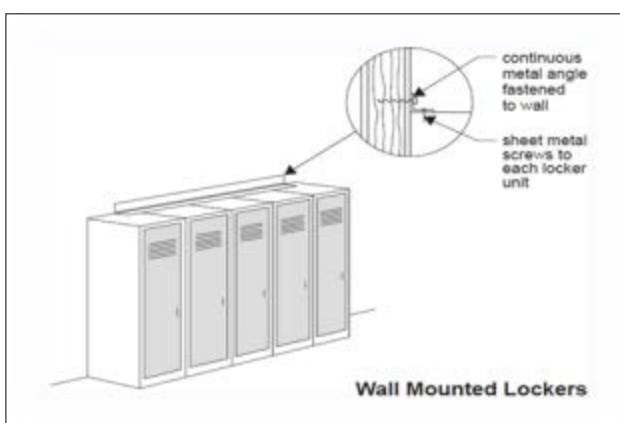
1. Building Codes: The Bureau of Indian Standards (BIS) has been publishing seismic hazard maps of India since 1962. The fifth revision of IS 1893 (1): 2002, which took place immediately after the devastating 2001 Bhuj earthquake.
2. Construction of earthquake resistance structure
3. Fire Safety Norms
4. Electrical Safety Norms
5. Other Guidelines issued by NDMA

6.2 Structural Mitigation

Owing to the old building structure in GH Mewat the building should be checked for structural safety through appropriate source and all the necessary measures for strengthening the structure should be followed.

6.3 Non-structural Mitigation

GH Mewat consists of various non- structural materials which add to its vulnerability towards disasters like earthquake and fire, therefore non- structural hazards are of more concern. It is an acknowledged fact that 50% of the injuries after any earthquake are caused by non- structural hazards. The following are the non- structural hazards that are present in the building along with the possible mitigation measures:



The following actions that should be taken to mitigate risk from cup boards or like objects:

- **Relocation:** All the cupboards that pose a risk should be relocated to such a place where it poses minimum chances of falling on individual or blocking any kind of exits.
- **Immobilization:** All such cupboards should be fixed to the wall or attach with each other so as to avoid free fall at the time of earthquake.

Figure: Immobilization of Cupboards can be done by fixing them against walls.

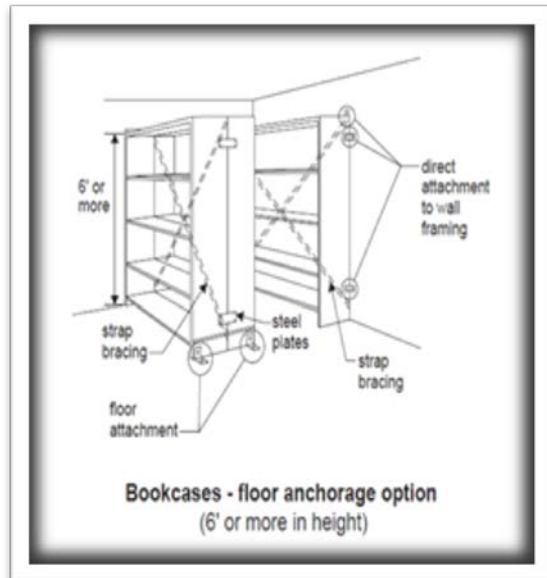


Figure showing various materials that can block exits and hamper evacuation, hence relocation should be done to make the exits free of any possible blockages.



Maintenance of building:

At many locations the building is seen to have crack in the plaster, ruptured ceiling and exposed pillars. Therefore, such locations in the building should be regularly monitored and necessary maintenance should be made.

7. Capacity Building Measures

7.1 Human Resource Capacity Building

With the objective of providing overall response to the disaster situation, the office of the Additional Deputy Commissioner, Mewat will organise specialised trainings for the human resources in the building. It will be in association of Centre for Disaster Management, HIPA. For this purpose for the financial year 2016-2017 a Research Officer, HIPA is placed in the District.

The following capacity building trainings should be arranged from time to time for the staff of GH, Mwat:

1) Techniques for Disaster Planning and Response

As the infrastructure and human resources in the GH, Mewat keep on changing, there is necessity for establishing the institutions for planning and response. Therefore, regular training should be given to the enable decision makers to plan for measure to tackle the disasters situation and take appropriate decision for management of the disasters.

2) HRVC (Structural and Non-Structural Identification)

Assessment of hazards and vulnerability is one of the tools for response, prevention, mitigation and planning for disaster. Therefore, the staff should be sensitized for identification of structural and non- structural hazards and its behaviour during disasters so that they can be made aware and trained for various do-s and don't-s during emergency situation.

3) Search and Rescue Techniques (SAR)

During emergency there is need of rescuing persons trapped in hazards zone. As disaster situation are associated with resource crunch and destruction of physical infrastructure, there is a need of learning and practising the search and rescue techniques by selected members of the staff. Therefore, regular sessions of SAR trainings should be organised for the staff.

4) Fire Fighting Techniques

It is observed that although GH, Mewat building has fire extinguishers installed still there is very low awareness regarding its usage in case of fire. Therefore, to make the staff aware of the techniques of using fire extinguishers regular trainings for fire fighting should be conducted.

5) First Aid and Basic Life Saving Skills

Disaster requires prompt response to save life. Therefore there is a need of first aid providers in complex so that they could respond within golden hour. Therefore, there is need of training staff for first aid and basic lifesaving skills regularly.

7.2 Equipment

For appropriate disaster response, along with trained human resources there is need of disaster response equipment. The equipment can be categorised for use by different responding teams. For, example, Search and Rescue team shall have ropes, stretchers, blankets, ladders, etc for conducting activities in SAR. Similarly, fire fighting teams should have fire extinguishers, fire hydrants, sand buckets, etc. First Aid teams should have bandages, first aid kits etc. Therefore, the equipment should be made available under capacity building fund.

Due care for maintenance and safety of these equipment should also be taken.

7.3 GH Mewat Emergency Preparedness Plan

To deliver proper response to the disaster situation there is need for comprehensive disaster management plan for the GH Mewat This plan contains the detail HRVC, prevention, mitigation and response plan. It should also have updated resource inventory and updated list of trained staff. This plan should be annually updated and discussed with all the stakeholders regularly. The Civil Surgeon, Mewat shall depute appropriate officers for updating of the plan.

7.4 Techniques of Triage

To deliver proper response to the Mass Casualty event the committee should arrange regular trainings for Doctors/ MOs for emergency triaging / colour coding. This training would help in prioritization of patients and help in provision of health care within golden hour. Therefore, the hospital disaster management committee shall make necessary arrangement for such trainings for Doctors to create a capable team for conducting triage.

7.5 Preparation of First Aid Parties

For providing effective medical response on the site of disasters, GH Mewat along with Health Department should conduct regular training of first-aid for ambulance staff, so that during mass casualty incidents, these parties can be responding effectively.

8. Response Plan

Disaster Response

Emergency response for any disaster incident will be of two kinds: 1) On-site Response and 2) Off-site Response.

8.1 On-Site Response

The Immediate response given by the on-site responders is said to be on-site response. The responders shall be the members of the staff of GH, Mewat which are trained for emergency response. The following is the on-site response mechanism for GH Mewat.

8.1.1 On-Site Response Mechanism

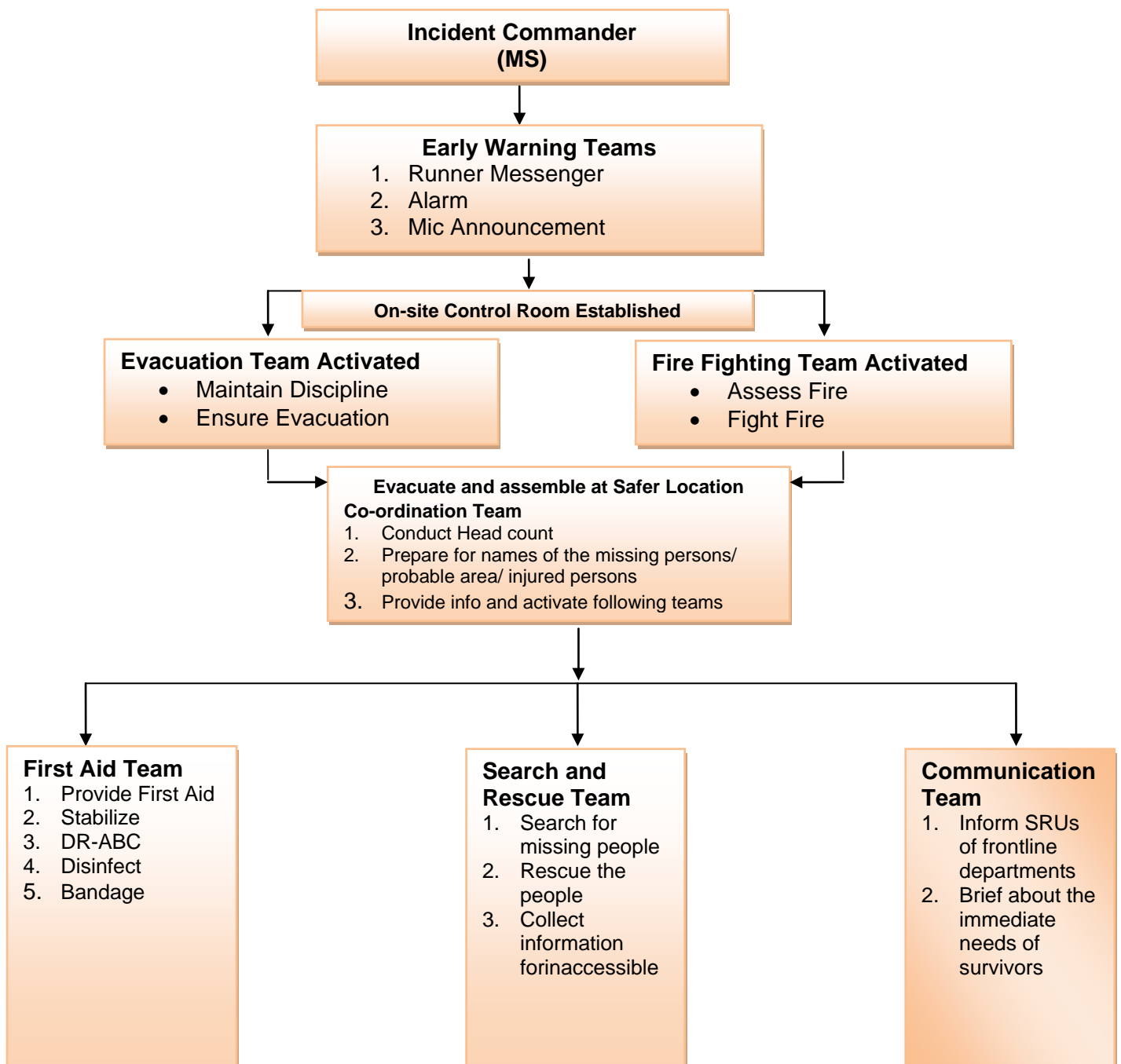
For the purpose of executing a comprehensive response to any emergency situation the following teams are trained for response of any emergency situation. All the activity will be ordered/directed by the Incident Commander and teams shall follow his/ her directions.

Name of the Team	Roles and Responsibility
Awareness Generation Team	<ol style="list-style-type: none">1. Conduct timely awareness generation activities for GH Staff2. Discuss and highlight GH Plan with the staff time to time.
Early Warning Team	<ol style="list-style-type: none">1. Run and issue warning to each room2. Ring alarm or Use mic system3. Use any other communication to issue warnings
Evacuation Team	<ol style="list-style-type: none">1. Identify safe evacuation routes and safe exits2. Ensure disciplined evacuation to safer location
Co-ordination Team	<ol style="list-style-type: none">1. Maintain department/ floor/wards wise updated data of the staff2. Assess evacuated and missing staff details and report to IC3. Seek any necessary help for the staff from IC and other response teams
Communication Team	<ol style="list-style-type: none">1. Inform the responder for any emergency situation2. Inform Ambulance, Fire Brigade, Police and other emergency responder about the situation and needs
Fire Fighting Teams	<ol style="list-style-type: none">1. Assess Fire2. Fight Fire as early as possible3. Inform IC is the fire goes beyond their capacity of extinguishment
Search and Rescue Team	<ol style="list-style-type: none">1. Search for missing persons2. Rescue missing persons in appropriate manner
First Aid Team	<ol style="list-style-type: none">1. Identify resources for first aid

	<ol style="list-style-type: none"> 2. Setup first aid delivery point- onsite 3. Provide necessary first aid to the injured
Road Safety and Traffic Management Teams	<ol style="list-style-type: none"> 1. Manage traffic on site 2. Manage crowd on site
Food and Water supplying Teams	<ol style="list-style-type: none"> 1. Ensure availability of drinking water on site 2. Ensure availability of food items if required.
Non- Structural Hazards Mitigation Team	<ol style="list-style-type: none"> 1. Identify non-structural hazards in the building 2. Make necessary measures for its mitigation 3. Ensure all the non-structural hazards are mitigated properly

8.1.2 Flowchart of command and control of on-site response

At the onset of the Hazards, the mechanism for Response is as follows:

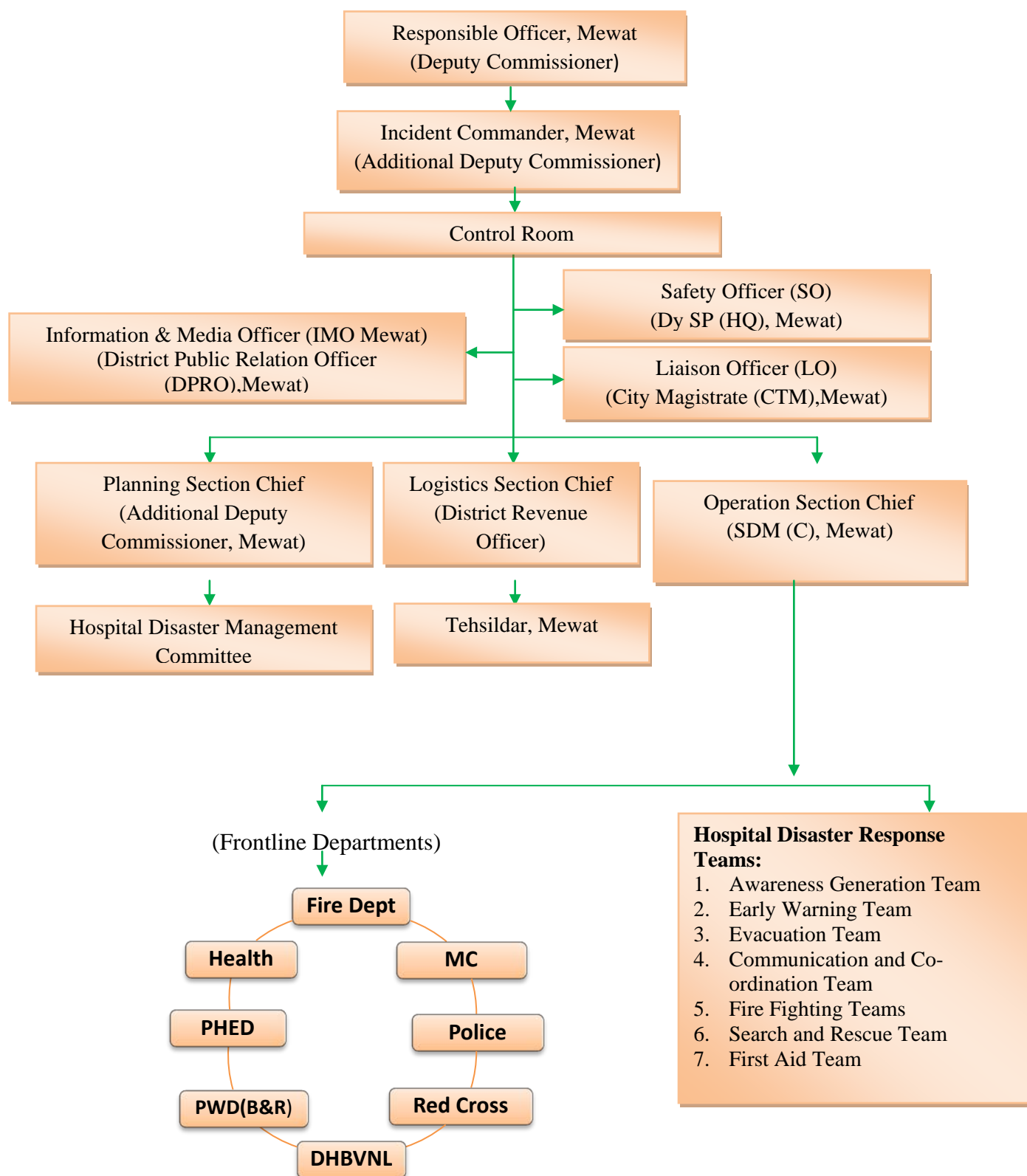


Response Teams Details

Sr. No	Name	Designation/ Office	Contact no.
Awareness Generation Team (Before Disaster)			
1.	Sh Asarul Haque		9813121207
2.	Sh.Niyaz Mohd		9992348934
3.	Sh. Mohan Shyam		9813677700
4.	Sh. Gorav		8059215657
Early Warning Team and Evacuation Teams			
1.	Sh. Shyam Babu		9996329117
2.	Mohd Akram Hussain		8295937216
3.	Sh. Jafar Ikbal		9813433997
4.	Ashish Gupta		9813292040
5.	Renu Singh		8814868592
Communication Team			
1.	Sh. Shankar Singh		9468395969
2.	Vipin Dhiman		8930367441
3.	Sh. Mohd Rasid		8813983041
Co-ordination Team			
1.	MR.SAHZAD		8295935343
2.	MR.KASAM		8295935358
3.	MR.ALIJAN		8295935331
4.	MR.SAEED		8295935324
Fire Fighting Teams			
1.	MRJAHUL HUQ		9050376786
2.	MR.ABBAS		8295935349
3.	MR.JAMSHED		8295935330
4.	Mr.Mustaq		8295935356
Search and Rescue Team			
1.	MR.AAZAD		8295935325
2.	Mr. MUBEEN		8295935353
3.	MR.ARSLEEM		8295935326
4.	MR.VARISH		8295935357
First Aid Team			
1.	Sh. Pawan Kuma		8930757944
2.	Sh. Vimlesh Narayan Tiwari		9728473773
3.	Mohd. Irshad		9992418904
4.	Sh.Parkash		----

8.2 Off- Site Response

For any off site response Incident Response System, (IRS) as per District Disaster Management Plan, Mewat shall be followed. The IRS flowchart of Command Staff is given below:



8.2.1 Response Branch: Details of Task Force

Sr. No	Department	Frontline Depts	Contact Details	
			Office	Mobile

1.	Police Department	SHO, Nagina	01274-221170	01274-221170
2.	Health Department	CMO, Mewat	126,8661011	8295937194
3.	Fire Department	FSO, Mewat	101,01267-274703	9416169786
4.	DVHBN	XEN, DVHBN, Mewat	-----	8059888366
5.	PWD (B&R)	XEN	01267,271237	09416485365
6.	PWD (B&R) Electrical	XEN, Gurgaon XEN, Mewat	-----	09810093550 09810093550
7.	Home Guards	District Commandant	-----	9416887323
8.	District Red Cross	Secy Red Cross	-----	9813453601

8.2.2 Department wise Roles and Responsibility

Sr. No.	Department	Responsibility
1.	Police Department	<ol style="list-style-type: none"> 1. Cordon of the area 2. Provide Security to the property/ records/ documents 3. Crowd Management 4. Communication (Wireless) 5. Maintain law and order
2.	Revenue Department	<ol style="list-style-type: none"> 1. Co-ordinate overall response 2. Provide/ procure response equipments
3.	Health Department	<ol style="list-style-type: none"> 1. Provide ambulances 2. Conduct Triage 3. Provide emergency medicine response
4.	Fire Department	<ol style="list-style-type: none"> 1. Assess Fire; Fight fire 2. Search and Rescue person
5.	DVHBN	<ol style="list-style-type: none"> 1. Provide electricity as and when required 2. Cut off power supply when needed 3. Provide generators during response
6.	PWD (B&R)	<ol style="list-style-type: none"> 1. Provide heavy duty equipment for response
7.	MC	<ol style="list-style-type: none"> 1. Provide JCBs, Cranes or other heavy duty equipment
8.	PHED	<ol style="list-style-type: none"> 1. Provide water through water tankers
9.	Any other Department	<ol style="list-style-type: none"> 1. Resources from any department can be procured during emergency as per the direction of the RO.

9. Emergency Medical Response for Mass Casualty Incident (MCI)

9.1 Establishment of Control Room

The office of the MS should act as the control and should have good communication network like landline, mobiles and if possible in-hospital CUG (Close User Group Mobile Connection). The MS should ensure that the control room should have all contact numbers of the hospitals, staff which is mentioned in the incident command. The control room should also have detailed contact numbers of District Medical Authorities, District Administration, Police, Fire Services, nearby hospitals, Private Physicians, Blood Banks, NGOs etc. which can be contacted if external help is needed.

9.2 Notification and Activation of Plan

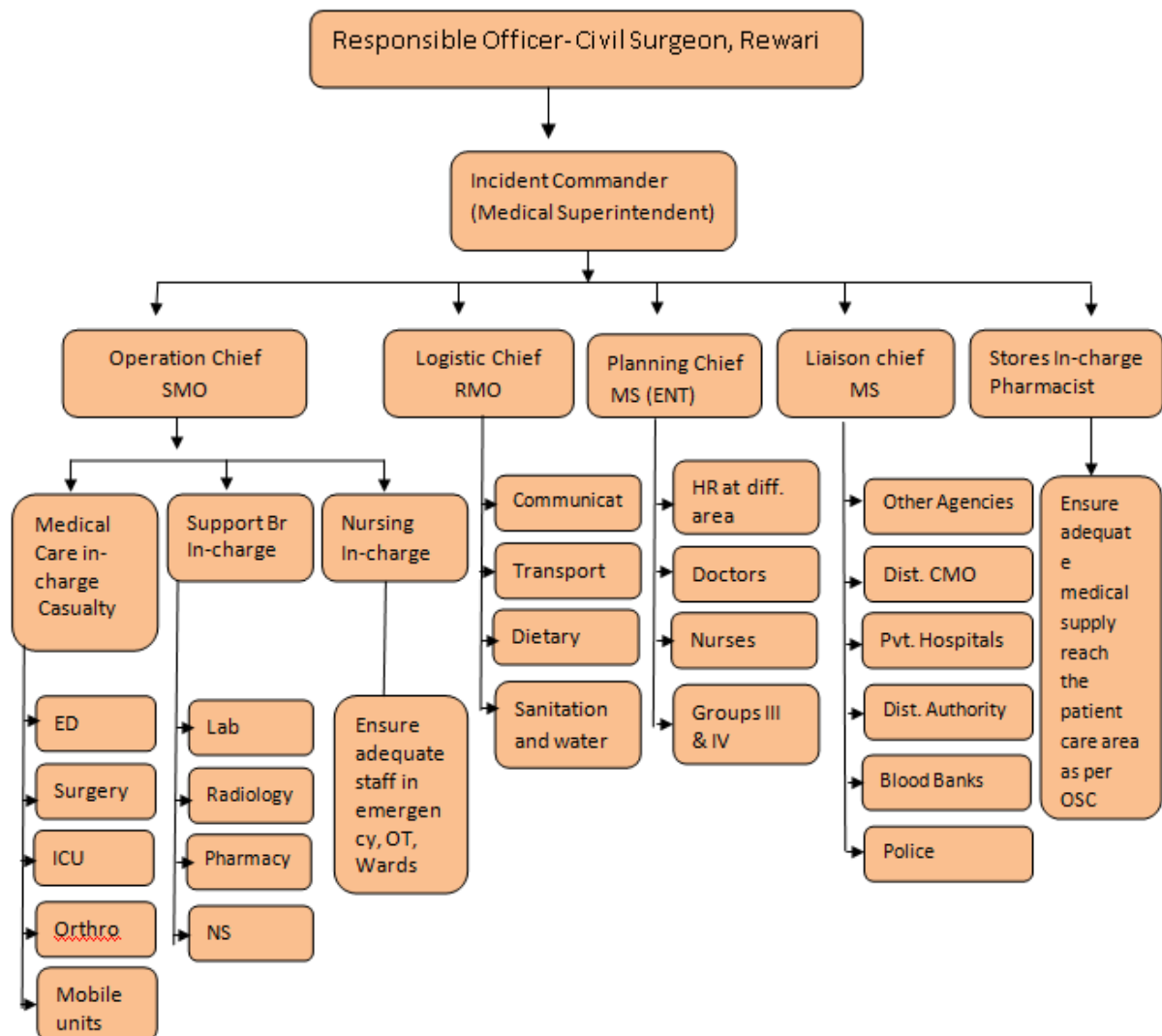
Information regarding the mass casualty incidents is received by the operator at district hospital from District CMO, Police, General Public. The person on the board verifies the incident and gathers information regarding:

- Nature and magnitude of event
- Possible numbers of victims
- Location Time of Incident
- Expected time of arrival of victims at district hospital

This person on the board passes the information to the Medical Superintendent who after knowing number of expected casualties activates the hospital emergency plan.

- All staff present in the hospital is asked to reach the patient receiving areas as described earlier.
- All Chief of respective areas to be contacted and informed according to the incident command structure.
- All the Chiefs of respective areas to reach the hospital and report to Medical Superintendent and carry out the requisite work of their areas. All the staff members report to the respective areas of work and take direct orders from their area Chief and also pass out the requirements to their superiors in vertical fashion who then passes on the requirements to the logistics/ stores department.

9.3 Activation of IRS



9.4 Organization of Patient Treatment Areas

The Operations Chief who is the senior surgeon should be actively involved in deciding about the organization of patient treatment areas as s/he will be the one responsible for all medical care in time of disaster. The disaster management committee should look into and chart the following areas in the hospital for patient care activities:

- a) **Patient Reception Area:** In this area the patients are received and triaged. The registration and documentation is also done in this area. This area should be just outside or nearby the emergency.
- b) **Patient Resuscitation Area:** This area is for priority 1 patients who require immediate stabilization and transfer for surgery. This area should be inside the emergency premises.

- c) **Patient Observation Area:** This area is kept for priority 2 patients who can wait for their definitive management for some time. This area should also be marked near the emergency.
- d) **Minor Treatment Area:** This area is earmarked for the priority 3 (walking wounded patients) and it can be away from the emergency and is generally in the out-patient department.
- e) **Operation Theatre:** The committee should decide the policy regarding vacation of the operation theatre when the disaster is declared. All elective surgeries should be suspended and OT should get ready for emergency victims.
- f) **Organization of Wards:** The emergency ward, surgery ward and orthopedic ward will be required to vacate some beds of elective patients by temporally discharging them. In case some other beds are vacant, these patients can be taken up on those beds.
- g) **Organization of the Mortuary:** The Medical Superintendent along with the MO I/C mortuary services organize the existing mortuary to take the load of MCI in case the mortuary area is not sufficient one specific area which ideally should be at the back side of the hospital to be earmarked keeping the dead bodies temporarily till they are identified or disposed.

9.5 Organization of Patient Transfer After Stabilization

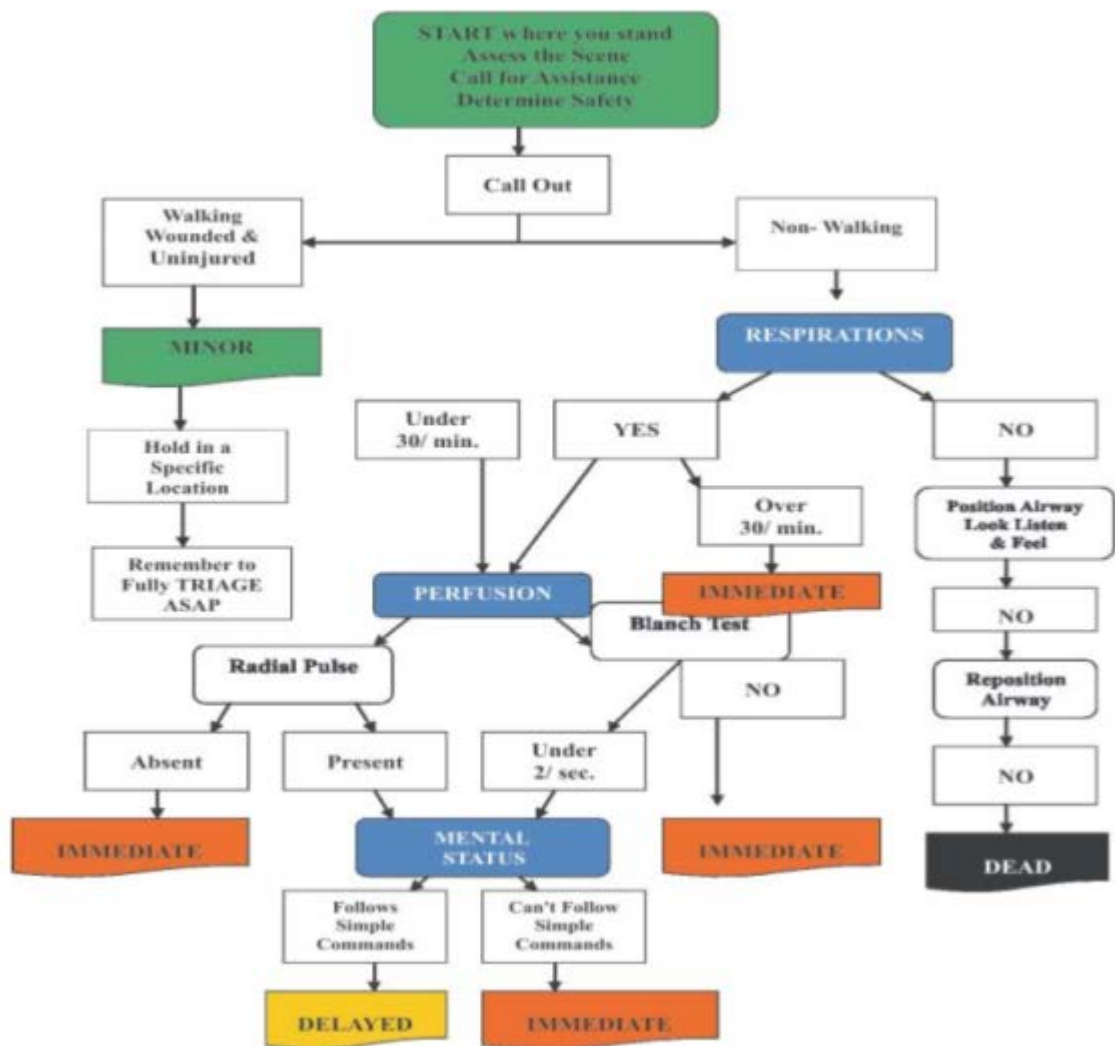
An area in the hospital should be earmarked as “patients transfer area” from where all patients who cannot be treated at district level hospital because of lack of resources can be transferred to the further higher centers. This area also will be under the Operations Chief

- a) **The Medical Support Services:** The Operation Chief also ensures that the necessary investigations (Radiology, Laboratory etc.) are not delayed he is assisted by the Support Branch In-charge.
- b) **The Nursing Services:** The In-charge Nursing Services should directly report to the Operation Chief and provide adequately nursing staff where ever needed
- c) **Organization of the Logistics:** The Logistics Chief has an important role to play once the disaster is declared she takes over the charge of all ancillary services of the hospital like Communication Transport Dietary Supply Sanitation Water & Electricity
- d) **Medical Supplies:** The Officer In-charge Stores should be called to the hospital if needed and s/he opens the hospital stores so that medical supplies are not hindered. In case there is a need s/he should be authorized to buy the necessary stocks on contingency basis.

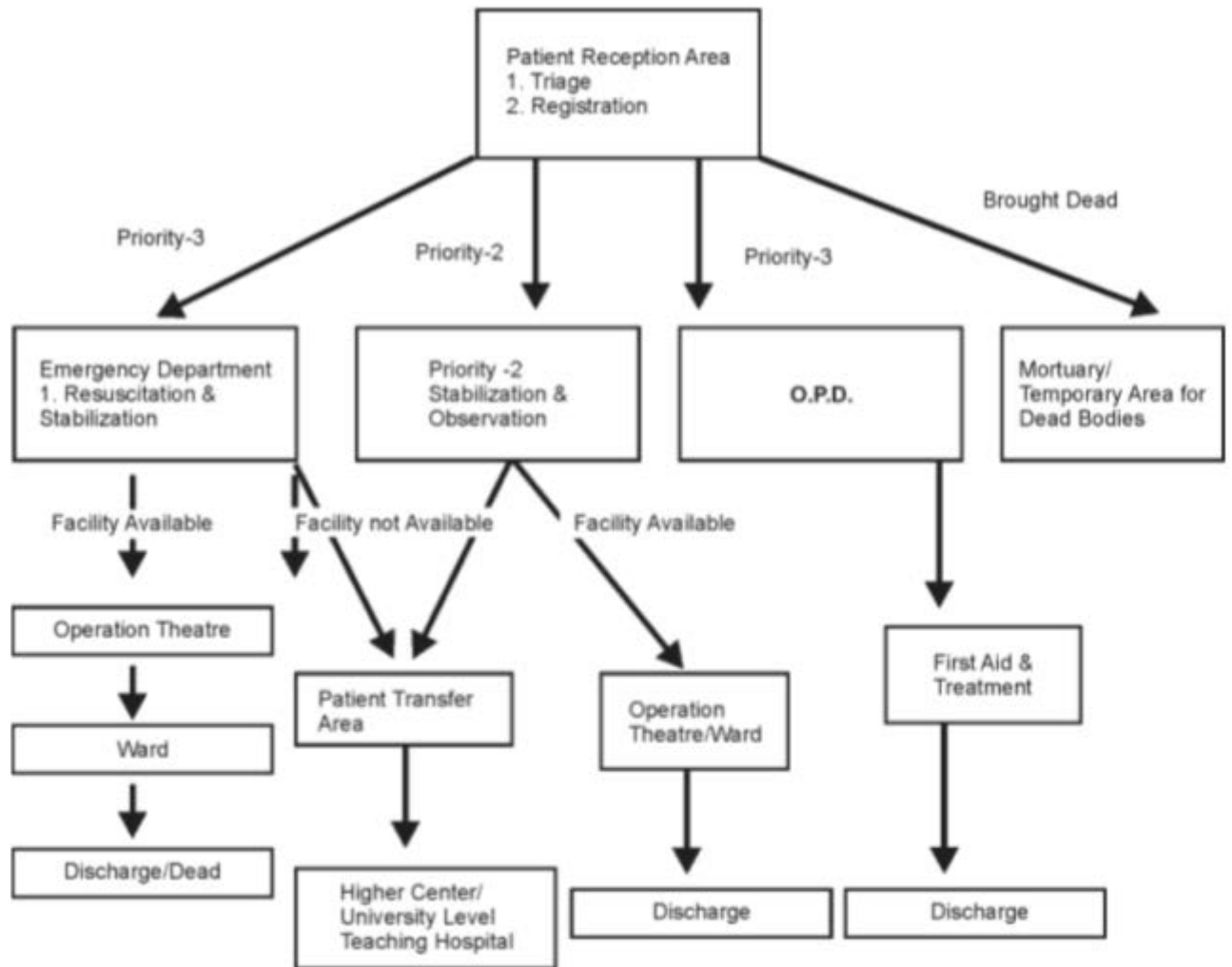
- e) **Security:** Most of the district hospitals do not have permanent security employed for the hospital premises and in general take the help of local police/ home guards for peace time security. In case the emergency plan is activated the Medical Superintendent should immediately inform the police who will be responsible for clearing the area for smooth entrance of the patients and the doctors and also to provide security to the hospital.
- f) **Public Relations Officer (PRO):** The disaster committee should decide one person preferably the Medical Superintendent who knows the overall picture of the mass casualty incident to brief the media. Media can also be used to disseminate public information regarding unknown and unattended patients in the hospital.

9.6 Triage

Doctors working in casualty will immediately conduct a triage i.e. sorting out case into 4 categories by putting coloured triage bands on patient's left/right upper arm and take steps accordingly, (i) Red: needing immediate resuscitation – in the red area i.e. Main Casualty Hall. (ii) Yellow: needing urgent medical attention and possible surgery after 4 to 6 hrs – in the yellow area i.e. disaster room. (iii) Green – walking wounded (non urgent ambulatory) needing first aid and delayed treatment – in the green area i.e. observation room. (iv) Black – dead, to be shifted to mortuary. Colour bands are available in the control room cupboard.



9.7 Expected Flow of Patients



Expected flow of patients during a Mass Casualty Event in a District Hospital

9.8 Deactivation of the Emergency Plan

Once the incident commander (Medical Superintendent) and the Chiefs of respective areas are convinced that there will be no more casualties who will come to the hospital they would take a decision to deactivate the plan and resume the normal functioning of the hospital. Once the decision is taken it is very difficult to reactivate the plan within a short period of time

9.9 Post Disaster Debriefing

The Medical Superintendent (MS) of the district hospital should sit down with his/her team after the disaster has been called off and prepare a report as to how things went during the disaster and what were the problem areas. This will help in developing a more robust plan for the next time.

10. Evacuation Plan

10.1 Purpose

Evacuation - the removal of patients, staff and/or visitors in response to a situation which renders any medical facility unsafe for occupancy or prevents the delivery of necessary patient care.

10.2 Types of Evacuation

Depending on the assessment of emergency the evacuation may be:

- a) **Partial Evacuation**- Patients are transferred within the hospital. There are two levels of a partial response:
 - i. **Horizontal Evacuation**- first response; patient movement occurs horizontally to one side of a set of fire barrier doors.
 - ii. **Vertical Evacuation** - movement of patients to a safe area on another floor or outside the building. This type of evacuation is more difficult due to stairways which will require carrying of non- ambulatory patients; elevators cannot be used.
- b) **Full Evacuation** - Patients are transferred from Hospital to an outside area, other hospitals, or other alternatives areas. Paramedic escorted patients will be diverted from the Emergency Department due to internal disruption. The building should be evacuated from the top down as evacuation at lower levels can be easily accelerated if the danger increases rapidly.

10.3 Need of evacuation: The following are cases/scenario for which emergency evacuation is necessarily implemented:

- 1. Fire
- 2. Explosion
- 3. Bomb threats
- 4. Release of hazardous chemical substances, in quantities or toxicity, which is threaten human health.
- 5. Building air contamination
- 6. Severe weather
- 7. Earthquake

10.4 Emergency Notification

The building occupants are notified of emergency through the use of the following:

- 1. Word of mouth
- 2. Fire alarm/ Other pre-designated Alarm
- 3. Mass Messaging service
- 4. Loud Speakers

10.5 Evacuation procedure

1. The person who detects fire or other threat activates response teams viz. fire fighting teams and evacuation teams by word of mouth.
2. At the word of mouth, it is the responsibility of all building occupants to evacuate immediately and proceed to predetermined assembly points, away from the building.
3. Building occupants are also responsible for ensuring that their patients/visitors/ follow the evacuation procedure described herein, and leave the building along with all other occupants.
4. Designated essential personnel needed to continue or shut down critical operations, while an evacuation is underway, are responsible for recognizing and/or determining when to abandon the operation and evacuate themselves.
5. New workers/Contract workers/ general public will be made familiar with the procedures outlined herein, and are expected to leave the building when the alarm sounds.
6. The evacuation team will be responsible for creating buddy-system for ensuring evacuation of vulnerable.
7. Any person unable to use stairs, or need assistance to evacuate, should proceed to the nearest designated "safe room" or remain in his/her office if safe. Emergency evacuation personnel will check "safe rooms", and ensure emergency response and rescue personnel are notified if someone has taken refuge there. They will also report any person taking refuge in offices in their areas.

10.6 Dos and don'ts for Evacuation

Whenever you hear the building alarm or are informed of a general building emergency,

1. Do not panic
2. Do not ignore alarm.
3. Leave the building immediately, in an orderly fashion.
4. Do not use elevators in case of fire and after earthquake situation.
5. All are directed to leave and assemble outside.
6. Follow quickest evacuation route from where you are (see posted floor evacuation diagram/map by elevator).
7. Do not go back to your office area for any reason.
8. Proceed to the designated emergency assembly point for your area. If the designated assembly point/area is unsafe or blocked due to the emergency, proceed to the alternate assembly point.
9. Report to your Work Area Rep. at the assembly point to be checked off as having evacuated safely; also report any knowledge of missing persons.
10. Return to the building only after emergency officials or building monitors give the all-clear signal. Silencing the Alarm doesn't mean the emergency is over.

10.7 Responsibility of Evacuation Teams

For the purpose of this Plan, Emergency Evacuation Personnel, and their alternates are regular employees who have been selected to help ensure that:

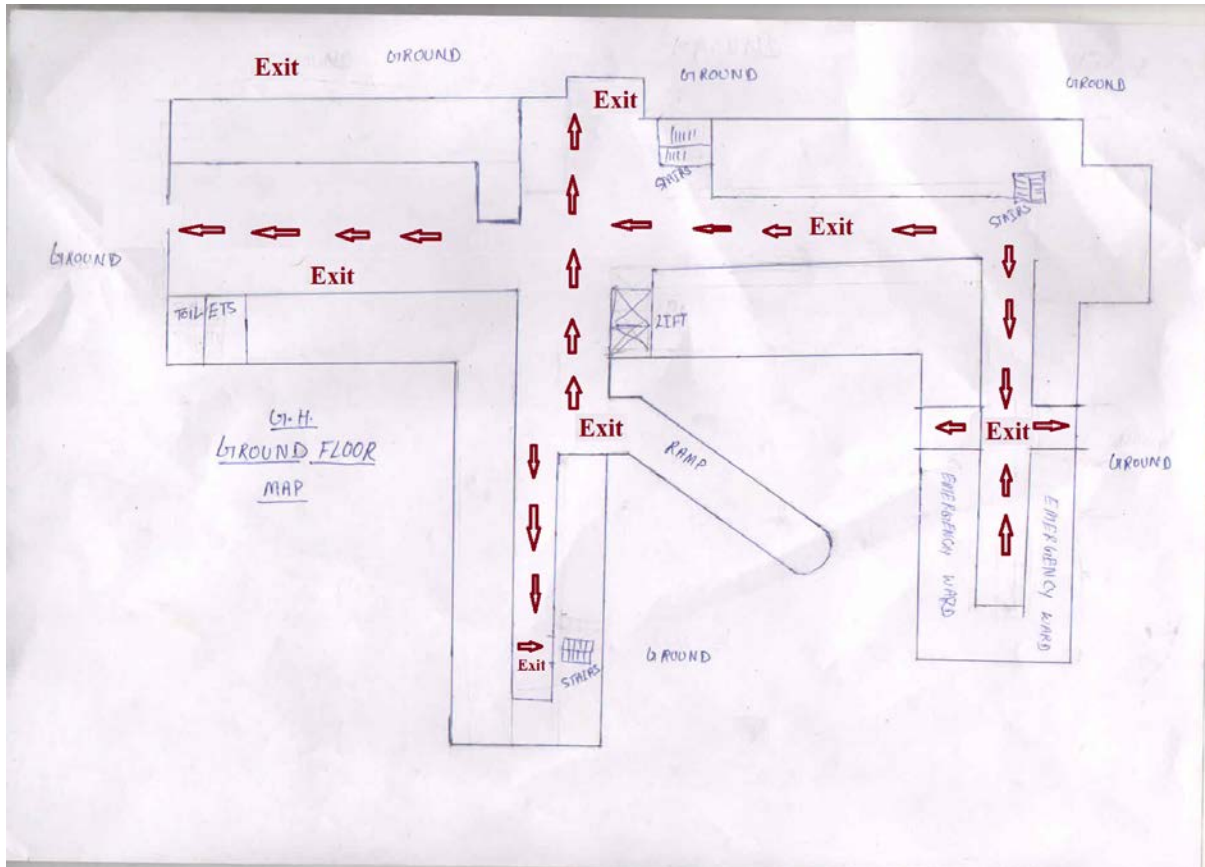
1. Evacuate most hazardous areas first (those closest to danger or farthest from exit).
2. Use nearest or safest appropriate exit. Sequence of evacuation should be:
 - a. Patients in immediate danger
 - b. Ambulatory patients
 - c. Semi-ambulatory patients
 - d. Non-ambulatory patients
3. Close all doors. If time permits, shut off oxygen, water, light and gas, if able.
4. Elevators may be used, except during a fire or after an earth quake

Building evacuation is carried out as planned,

- Evacuated occupants are directed to assigned assembly points where they will be accounted for, and
- Persons needing assistance to evacuate are attended.

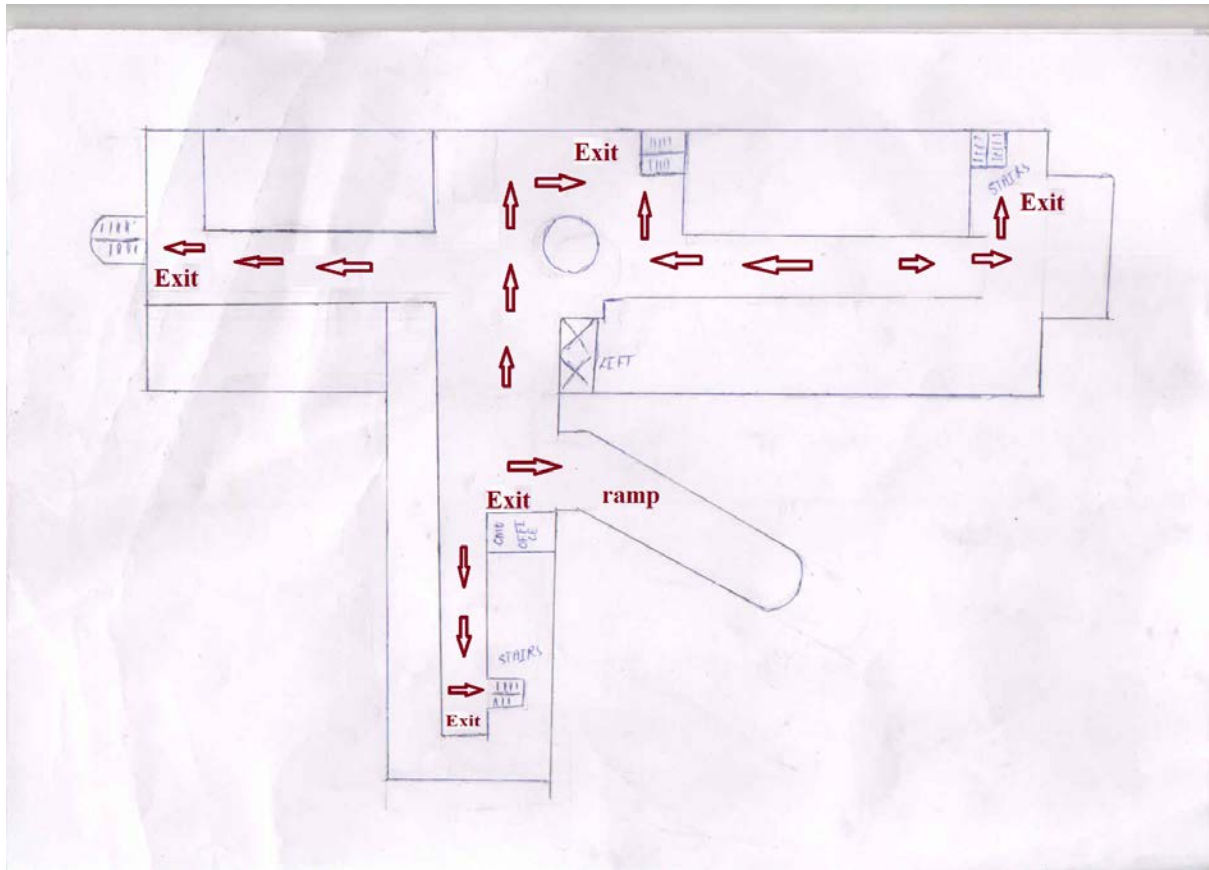
10.8 Evacuation Maps

a) Ground Floor



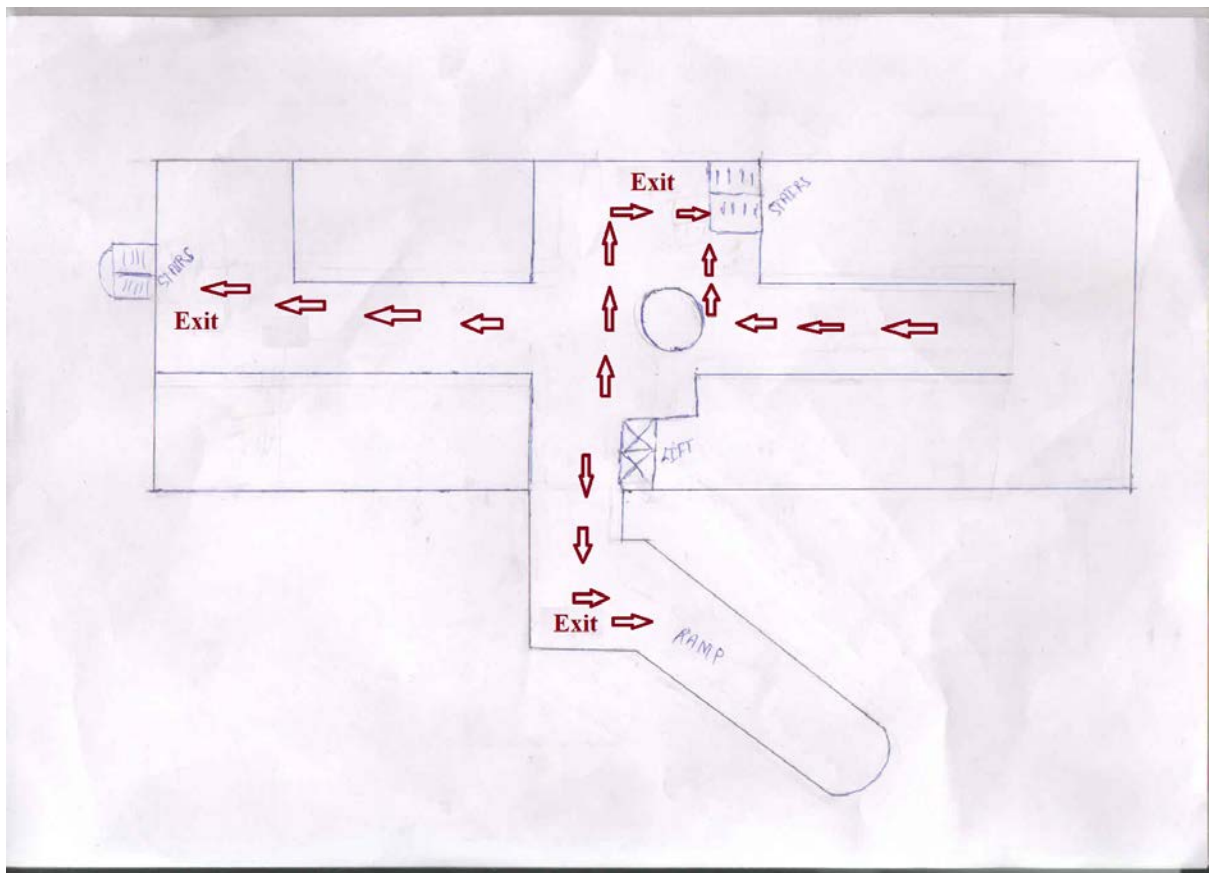
10.9 Evacuation Maps

b) I Floor



10.10 Evacuation Maps

c) II Floor



11. Mock Drill

Familiarizing everyone with their role in the situation or emergency that is drilled, demystifying and thus reducing fear and anxiety with the situation or emergency, and allows testing of an established plan to see whether it is likely to hold up during the situation or emergency. While Mock Drill will be followed given format below:-

MOCK DRILL REPORTING FORMAT		
Person in-charge of completing the format/ designation		Date of the drill
Time Alarm Sounded	Time drill Concluded	Time to evaluate
Type of Drill	Notification/Alert Method	Weather Condition
<input type="checkbox"/> Fire / Evacuation <input type="checkbox"/> Bomb Blast <input type="checkbox"/> Earthquake <input type="checkbox"/> Other:	<input type="checkbox"/> Bell or Buzzer <input type="checkbox"/> Enhanced Alert System <input type="checkbox"/> Phone <input type="checkbox"/> Voice Notification <input type="checkbox"/> Siren	<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain and wind <input type="checkbox"/> Hot/Cold
Participants		Situation at the Start of Drill
<input type="checkbox"/> Authorities <input type="checkbox"/> Safety Personnel <input type="checkbox"/> Employees/Staff <input type="checkbox"/> HOD <input type="checkbox"/> Fire Department <input type="checkbox"/> Emergency Medical Services <input type="checkbox"/> Police <input type="checkbox"/> Red Cross <input type="checkbox"/> Other		<input type="checkbox"/> Before Lunch Hours <input type="checkbox"/> During Lunch Hours <input type="checkbox"/> After Lunch Hours <input type="checkbox"/> Peak working Hour
Are Participants previously trained on emergency procedures		Employees previously trained on emergency procedures this year?
<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No
Incident Command System as per IRS used?		Incident Commander / Designation
<input type="checkbox"/> Yes <input type="checkbox"/> No		
Problems Encountered		
<input type="checkbox"/> Congestion in hallways <input type="checkbox"/> Alarm not heard <input type="checkbox"/> Employees unsure of does/don't <input type="checkbox"/> Staff unsure of responsibilities / response <input type="checkbox"/> Unable to lock doors <input type="checkbox"/> Windows left open <input type="checkbox"/> Doors left open <input type="checkbox"/> Lights left on		<input type="checkbox"/> Communication problems <input type="checkbox"/> Phone problems <input type="checkbox"/> Chaos <input type="checkbox"/> Long time to evacuate building <input type="checkbox"/> Personnel not serious about drill <input type="checkbox"/> Improper or unavailable supplies <input type="checkbox"/> Confusion <input type="checkbox"/> Doors or Exits blocked

<input type="checkbox"/> Personnel not accounted <input type="checkbox"/> Personnel run towards lifts <input type="checkbox"/> Lifts are not shut down. <input type="checkbox"/> Difficulties with evacuation of disabled personnel.	<input type="checkbox"/> Delay in Medical response <input type="checkbox"/> Delay in Fire service response <input type="checkbox"/> Delay in Security response <input type="checkbox"/> Interagency miscommunications <input type="checkbox"/> Command, Control & Coordination problem <input type="checkbox"/> Other:
Plan for Improvement	
<input type="checkbox"/> Additional training for emergency response team JC members. <input type="checkbox"/> Additional staff training <input type="checkbox"/> Address need for additional equipment/resources	<input type="checkbox"/> Improved emergency supplies <input type="checkbox"/> Cooperative planning with responders <input type="checkbox"/> Revised emergency response procedures <input type="checkbox"/> Other