

# Workshops on Hospital Preparedness for Disasters in India

A GeoHazards Society (GHS)-World Health Organization (WHO)  
India Initiative



# Workshops on Hospital Preparedness for Disasters in India

A GeoHazards Society (GHS)-World Health Organization (WHO) India Initiative

**WHO India Country Office**



## Table of contents

1. Preamble	1
2. Importance of Hospital Safety	1
3. Disaster Preparedness in Hospitals in India	2
4. The GHS-WHO Partnership	3
5. The Workshop Series	3
6. Methodology	4
7. General Approach	4
8. Participation	4
9. The Workshop Series	4
10. Shimla	5
11. Guwahati	7
12. Aizawl	9
13. Mumbai	11
14. Thiruvananthapuram	15
15. Follow up actions	16
16. Conclusion and next steps	17
17. Appendix	

**Workshops on Hospital Preparedness for Disasters in India:  
A GeoHazards Society (GHS)-World Health Organization (WHO) India Initiative**

**Preamble**

Recent experiences from Indian earthquakes have underscored the poor performance of critical care facilities such as hospitals in the aftermath of disasters and the need to undertake disaster risk reduction in these lifelines in India. To address the need for functional hospitals and to increase awareness on hospital disaster safety, GeoHazards Society, New Delhi (GHS), with support from WHO India Country Office conducted a series of sensitization workshops in five critical hospitals in cities across India with moderate to severe disaster risk following the International Day for Disaster Risk reduction 2011.

**Importance of Hospital Safety**

Risk mitigation in health facilities need special attention due to the high levels of occupancy in them and also for the critical role these are expected to play in a post- disaster scenario. Recent experiences in disasters have exposed the poor performance of these lifelines, with some of these becoming victims themselves rather than saviors for the community. A fully functional hospital will be in a position to extend all the critical care and medical support that a community invariably needs in a post-disaster scenario. On the other hand, if the hospitals lose functionality, the dependent community suffers as a consequence. Loss of functionality can happen in even the most prepared facilities as can be understood from the cases of the Olive View Hospital in the U.S and the Miyagi Hospital in Japan (detailed below).

The original Olive View hospital building in California had been destroyed in the 1971 San Fernando earthquake and when it was rebuilt, the authorities took extreme care to build the facility as per the new state-wide performance standards to maintain functionality. This helped the building and contents of the buildings to sustain the 1994 Northridge earthquake shaking without significant damage. However, the fire sprinkler lines in the building broke, causing a flood like situation and Olive View Hospital had to evacuate patients instead of taking in people injured in the earthquake. The hospital had to be closed for repairs for four weeks which was essentially the golden period for caring for earthquake victims.

Another case in point is the Shizugawa Public Hospital in Miyagi, Japan around 300 meters from the ocean. The hospital had drawn lessons from earlier tsunamis in the area (2.8m high) and had put all critical patient accommodation from the third floor upwards considering tsunami heights double that (5.6m) experienced in the region. However, the tsunami triggered by the Great East Japan Earthquake on March 11, 2011 reached unprecedented heights and several patients and health care

professionals who were unable to make it to higher floors perished. It is significant that despite the precautions taken by the hospital, the location of power generators on the lower levels did not allow them to provide back up power that would have helped maintain life-support to many critical patients. Thus small gaps in the hospital disaster preparedness plan resulted in the hospital turning into a victim of the disaster when it could have provided succour to the community at a time when this was most needed.

A majority of the districts in India are prone to multiple hazards and the performance of the health facilities in these will have a direct relation to the human losses in the event of a disaster. This was demonstrated during the 2001 Bhuj earthquake when the main health facilities in the entire district of Kachchh collapsed rendering them incapable of extending much needed medical services and leaving thousands of people without access to immediately needed medical attention. More life and limb were lost than would have been if the medical facilities had survived the earthquake and remained functional during the 'golden hours' following the earthquake.

### **Disaster Preparedness in Hospitals in India**

Most of the hospitals in India have not taken safety as a serious issue. While the health sector has placed a great deal of emphasis on the eradication of diseases, they have not given adequate emphasis on maintaining the *functionality* of the health facilities after a disaster and how preparedness planning can help these facilities remain functional. Without inputs on preparedness planning, many hospitals lack a clear understanding of the complexities of handling an emergency, and are not prepared to handle disaster situations. There is an urgent need to raise the level of performance of hospitals during and after any disastrous event such as an earthquake so that these remain **fully functional** after any catastrophic event. For this, it is not enough that the hospital building is strong enough to withstand the effects of an earthquake, but all the critical equipment and services in the building have to remain secure and running to operate at over 300% of its design capacity to serve the dependant community after any major disaster. Besides a safe structure and functional equipments, the other aspects that affect the functionality of hospitals are safe and prepared staff members, functional utility services; medical supplies, communications etc. However, the initial step in getting health facilities prepared have to start with enhancing awareness on the hazards, the effects of the hazards and the steps that can be taken to mitigate the impact of these hazards in health facilities. Therefore it is important that the decision makers in health facilities understand the importance of the factors affecting functional continuity and take steps to mitigate these. Making a health facility safer is as much about having vision and commitment as it is about actual resources.

## **The GHS-WHO Partnership**

Understanding the urgent need of raising awareness among decision makers in the health sector and also to create models in different parts of the country, GHS with support from WHO India office organized a series of workshops for Safe Hospitals to underline the importance of Hospital Safety and Preparedness in some of the most hazard prone cities of the country. The workshops held in five Indian cities located in areas of moderate to severe seismic hazard (from Seismic Zone III-V) was aimed at sensitizing and creating awareness within the hospital administration in the target hospitals with the aim to guide them into the path of preparedness through a participatory and discussion based approach. The participants were first made aware of their levels of hazard exposure, and then sensitized to the effects that the disasters may have on the capacity of the hospitals to meet the demands in the post disaster scenario and also the steps that can be taken by them to increase the capability of their Health facilities to keep functioning in a post disaster scenario.

## **The Workshop Series**

It was decided that the workshops will be held in important hospitals in cities prone to multiple hazards in partnership with the State Disaster Management Authorities. After discussions with the WHO officials, it was decided that five capital cities of multi hazard prone states would be targeted and the cities of Aizawl, Guwahati, Mumbai, Shimla and Thiruvananthapuram were finalized. The Hospitals were finalized in coordination with the state Government agencies and by carrying out the sensitization workshops, GHS expects to initiate the administrations concerned to start taking steps to mitigate future hazardous events. It is expected that the State Governments will carry the initiative forward with the host hospitals as pilot initiatives which can be replicated in other hospitals in the city and elsewhere in the State.

Table 1: List of workshops

<b>Date</b>	<b>Location</b>	<b>Hospital</b>
23.11.2011	Shimla	Indira Gandhi Medical College and Hospital
25.11.2011	Guwahati	Mahendra Mohan Choudhuri Civil Hospital
28.11.2011	Aizawl	Aizawl Civil Hospital
1.12.2011	Mumbai	Cama Hospital
2.2.2011	Thiruvananthapuram	Government Hospital Peroorkada

## **Methodology**

A broad framework for conducting the workshops was decided upon through discussions between GHS experts and WHO, considering the levels of awareness on Hospital disaster safety in these hospitals. These are:

### **General Approach**

1. GHS coordinated with the State government for all arrangements for workshops in all five disaster prone cities across India.
2. The hospitals that will be used by the community in these cities were selected in consultation with the local governments

### **Participation**

1. The participants were from the Hospital Administration department, doctors, and other paramedic officers of the hospital.
2. In at least one instance, participants were drawn from the nearby hospitals.

### **The Workshop Series**

The workshops were conducted through both interactive PowerPoint presentations and hands-on activities. In the presentations the experts focused on the local hazards, the need of hospital safety, and how each hospital can take positive steps towards safety and preparedness drawing upon experiences from across the world. After the initial set of presentations, the participants were divided into two groups and involved in two different sets of activities. One activity taught them how to assess the various non structural hazards within the hospital campus and the other group gained knowledge on how to prepare an Emergency Plan for the hospital. The groups presented their findings. The sensitization workshops ended with feedback sessions from the participants. The key point of all the workshops was the degree of interactions that were done. Many questions and issues on hospital safety in general and disaster preparedness in particular, emerged through the deliberations.



## 1. Shimla

The first of the five workshops was held on November 23, 2011, at the Indira Gandhi Medical College and Hospital (IGMCH) in Shimla, Himachal Pradesh, located in Seismic Zone IV as per the Seismic Zone Map of India (IS 1893, Part 1, 2002). The Himachal Pradesh State Disaster Management Authority (HPSDMA) coordinated with the hospital. The IGMCH is the largest and most important medical college and hospital in the state of Himachal, having a total of 872 beds spread over thirty two departments. The Hospital also has its own Blood Bank, The hospital will clearly play a major role in providing medical support and emergency services to a large dependent community spread over the entire state, in the event of any disaster, and needs to achieve a high level of disaster preparedness.

The workshop was inaugurated by the Principal, Dr. S.S. Kaushal. Senior Medical Superintendent Dr. K.S. Rana was present throughout the one day workshop and took a keen interest in the deliberations. There were a total of 25 participants including one PWD engineer, doctors, nurses, maintenance people, and two SDMA officials.

Presentations were delivered by Mr. Hari Kumar and Mr. Peniel Malakar. Topics covered were (1) the hazard profile of the state and Shimla in particular with reference to the close proximity to the Main Boundary Thrust (MBT) and the Main Central Thrust (MCT), areas of high tectonic activity, (2) historical occurrences of earthquakes in the region and their impacts, (3) elements of disaster risk vis-à-vis vulnerability,





capacities and hazard, (4) elements of disaster risk reduction through increasing capacity and reducing vulnerability, (5) effect of disasters on health facilities, (6) Demand Capacity Functions for hospitals in a post disaster situation, (7) consequences of earthquake damage, (8) ingredients of a functional hospital, (9) steps towards a safe hospital, (10) Processes for developing a Disaster Management (DM) Plan, and (11) Personal and Family Preparedness for health care professionals. Within these broad categories, there was discussion and a breakout session on non structural falling hazards that can and do lead to compromised functionality in hospitals in the aftermath of a disaster.



The Shimla workshop was highly interactive and can be best described as a discussion workshop where a number of important issues emerged through exhaustive discussions between the participants and the resource persons. The Principal and Medical Superintendent participated actively in the discussions encouraging all staff members to be involved. There were many discussions specially with respect to formation of the Hospital DM Plan, involvement of DM department, Fire Department, etc which also led to a proposal to retrofit a few of the critical buildings within the hospital complex. However, through discussions it emerged that retrofitting may not be a viable option if the retrofitting cost would likely be more than 33-35% of the replacement cost. During the practical exercises, the importance and criticality of falling hazards was well understood as the participants realized the importance of keeping any such falling hazards away from exits. The importance of protecting hospital equipment from damage was underscored in the lecture sessions and pointed out to the participants during the practical exercises.

At the end of the deliberations, the Principal and MS through exhaustive discussions with the participants, resolved to create a Hospital Safety Committee for developing the Disaster Management Plan for the hospital. These key decision makers demonstrated their seriousness and requested state DM department and GHS to assist them in the process. HPSDMA coordinated the entire programme and the State Project Officer, Govt. of Himachal Pradesh, Shri D C Rana was present throughout and promised all support to the hospital.

## 2. Guwahati

The second of the five workshops was held on November 25, 2011, at the Mahendra Mohan Choudhuri Civil Hospital (MMCH) in Guwahati, Assam, in Seismic Zone V. Guwahati is also prone to floods, fires, high winds and landslides. The Assam State Disaster Management Authority (ASDMA) coordinated with the hospital in making all the arrangements. The MMCH is one of the most strategically located hospitals in the heart of the city that has a large catchment area spread over the city, with no other private or major government hospital being situated nearby. During the Panbazar bomb blasts of 30th Oct 2008 it was the main hospital which served hundreds of injured people. With a capacity of 280 beds, and a Blood Bank, this hospital needs to be prepared to handle greatly enhanced demands in the aftermath of a disastrous event such as an earthquake. The workshop was inaugurated by Joint Director, District Civil Hospitals, Dr (Mrs.). B Deori. There were a total of 32 participants including doctors, nurses, and ASDMA officials.

Presentations were delivered by Mr. Hari Kumar and Mr. Mrinal Nath. Topics covered were (1) the hazard profile of the state and Guwahati, (2) historical occurrences of earthquakes in the region and their impacts, particularly the 1897 Shillong Earthquake and the 1950 Independence Day Earthquake that had far reaching impacts on the topography, (3) elements of disaster risk vis-à-vis vulnerability, capacities and hazard, (4) elements of disaster risk reduction through



increasing capacity and reducing vulnerability, (5) effect of disasters on health facilities, (6) Demand Capacity Functions for hospitals in a post disaster situation, (7) consequences of earthquake damage, (8) Ingredients of a functional hospital, (9) steps towards a safe hospital, (10) Processes for developing a DM Plan, and (11) Personal and Family Preparedness for health care professionals.



The National Disaster Management Authority (NDMA), Government of India has selected this hospital as one of the hospitals to be retrofitted under the National Earthquake Risk Mitigation Project (NERMP). Recognizing that the hospital building is a key player in post earthquake functionality, ASDMA had conducted a Rapid Visual Survey (RVS) of the building in an attempt to identify the vulnerabilities and their likely impact on hospital functionality in a post disaster scenario. However, no formal steps have been taken so far towards a comprehensive disaster management plan for the hospital, as such. Hence, this workshop served as a sensitization and awareness building exercise for the participants. It was an eye opener to the hospital staff and stakeholders on the need for taking steps towards improving the safety of non-structural elements and also to develop a disaster management plan for the hospital and to get the staff members prepared. State Project Officer, Govt. of Assam, Mrs. Nandita Hazarika addressed the gathering and made a commitment to carry forward the disaster risk reduction activities in the hospitals with complete engagement with the ASDMA which has designated a staff member to follow up DRM matters with the hospital administration. During the training, there was a hazard identification exercise within the hospital and this served to sensitize the hospital personnel on the possible ways that these could impede hospital functionality and compromise safety of hospital occupants in the aftermath of a disaster such as an earthquake.





### 3. Aizawl

The third of the five workshops was held on November 28, 2011, at the Aizawl Civil Hospital (ACH) in Aizawl, Mizoram, in Seismic Zone V. Aizawl is also prone to Landslides, Fires and high winds. The Revenue and Disaster management department, Govt. of Mizoram coordinated with the hospital in making all the arrangements. The ACH is the largest and most important hospital in the state of Mizoram with a total of 300 beds. Located in downtown Aizawl, it will be the place where a majority of the injured will be brought if the State is affected by any disastrous event. The workshop was inaugurated by Mr. Dominic Lalhmangaiha, State Project Officer (Disaster Management), Govt. of Mizoram and Medical Superintendent Dr. Lalbiak Kima officiated as Chief Guest. There were a total of 42 participants including doctors, nurses, and Government officials from the Health and Disaster Management departments.

This workshop was the very first exposure to disaster risk reduction for the Aizawl Civil Hospital and all the participants were keen to learn about the hazard profile of the city and how to mitigate the same. Presentations were delivered by Mr. Hari Kumar and Mr. Mrinal Nath. Topics covered were (1) the hazard profile of the state and Aizawl, (2) historical occurrences of earthquakes in the region and their impacts, particularly the 1897 Great Assam Earthquake and the 1950 Independence Day Earthquake that had far reaching impacts on the topography, (3)



elements of disaster risk vis-à-vis vulnerability, capacities and hazard in health facilities, (4) elements of disaster risk reduction through increasing capacity and reducing vulnerability, (5) effect of disasters on health facilities, (6) Demand Capacity Functions for hospitals in a post disaster situation, (7) consequences of earthquake damage, (8) Ingredients of a functional hospital, (9) steps towards a safe hospital, (10) Processes for developing a DM Plan, and (11) Personal and Family Preparedness for health care professionals.

Mr. Hari Kumar introduced the participants to the hazard profile of the state of Mizoram through hazard maps for the different natural hazards that the state is exposed to. With all districts of the state in Seismic Zone V, and being located in a part of the country that falls within the highest seismic hazard category, the hazard exposure of Aizawl is extremely high. The town can experience shaking intensities of IX and above on account of its highly vulnerable location. The implications of this was explained to the participants in detail as this was their first exposure to any sensitization and awareness building program on disaster risk mitigation. The importance of hospitals retaining their functionality was also discussed with the participants.

There were detailed discussions on structural safety as the participants realized how this could impair the functionality of the hospital in a post disaster scenario. There were concerns about the older constructions in the hospital. This workshop also brought to light the issues pertaining to structural safety and



proximity of some hospital structures to landslide prone areas. Though the engineers had assured them that the newer constructions were as per IS Codes and hence safe, there was concern that part of the hospital adjoins a landslide prone area. Participants were shown the effects of ground failure on buildings and functionality of hospital buildings and this initiated a detailed discussion on



continuity of functioning of the hospital in an emergency whereupon it was decided that the hospital administration would propose the relocation of critical functions to safer zones within the hospital. GHS resource person Mrinal Nath conducted the breakout sessions on Hazard Identification within the hospital and on the importance of personal preparedness for medical personnel.

The hospital administration and the health care professionals involved in the hospital had no perception of disaster management since no previous exercises had been done in the hospital till this workshop. Through discussions, it was resolved that the hospital would take up the formation of Disaster Management Teams. The Nursing Superintendent was keen to undertake this and be a part of the Hospital Disaster Management Team to undertake a hazard identification exercise throughout the hospital. Fire safety was discussed extensively and during the hazard identification exercise, inadequacy of fire exits in the hospital emerged as a key area of concern for the hospital staff. This workshop and the breakout sessions served to bring this potentially dangerous issue to the notice of the hospital administration. Accessibility to the hospital in a post disaster scenario was another critical issue that came up during the discussions.



#### 4. Mumbai

The fourth of the five workshops was held on December 1, 2011, at the Cama Hospital in Mumbai, Maharashtra, in Seismic Zone III, the moderate risk zone which also includes Latur, Jabalpur and Ahmedabad which have been affected in previous earthquakes. Mumbai is also prone to floods, landslides, cyclones and tsunamis. The Maharashtra State Disaster Management Authority (MSDMA) coordinated with the hospital in making all the arrangements. The Cama Hospital with 367 beds and its own Blood Bank is one of the important hospitals based in the heart of the city. The workshop was inaugurated by the Medical Superintendent Dr. Rajshri Katke. There were a total of 93 participants including doctors, nurses, and MSDMA officials.

The workshop was conducted by GHS resource persons, Mr. Hari Kumar and Ms. Aparna Kanda. The Cama Hospital had earlier been a victim of the Mumbai terror attacks of November 26, 2008. Terrorists had targeted several crowded locations in and around Colaba for three consecutive days, killing 164 people and wounding at least 308, and taking hostages. The Cama Hospital was one of the victims of the terror attack and hence was no strangers to disaster, though the exposure had been to a man-made disaster. Participants shared their experiences from 26/11 in which three of their personnel lost their lives. Bullet holes riddled the walls of the corridor and the lift door in front of the auditorium where the workshop was held.



Leveraging on this unfortunate event, the Maharashtra State Disaster Management Authority selected the Cama Hospital for initiating and putting in place a Disaster Management Plan. During the pre-workshop discussions on disaster planning and preparedness, the participants made the point that the terror attack had been handled without any preparedness and at least one participant wondered if formal disaster preparedness exercises are really required.

As in the other workshops, the topics of discussion included (1) the hazard profile of the state and Mumbai, (2) historical occurrences of natural disasters in the region, (3) elements of disaster risk vis-à-vis vulnerability, capacities and hazard, (4) elements of disaster risk reduction through increasing capacity and reducing vulnerability, (5) effect of disasters on health facilities, (6) Demand Capacity Functions for hospitals in a post disaster situation, (7) consequences of earthquake damage, (8) ingredients of a functional hospital, (9) steps towards a safe hospital, (10) Processes for developing a DM Plan, and (11) Personal and Family Preparedness for health care professionals.

Since the Cama Hospital has already experienced and survived a disastrous terror attack and that too, without any formal exposure to disaster preparedness before the terror strike, there was a perception that preparedness is an automatic and spontaneous response and may not require formal training. Keeping this in mind, the GHS resource team had threadbare discussions on the preparedness issue, by putting forth three possible disaster scenarios, namely, (1) a disaster happening within the hospital and only affecting the hospital, (2) where a disaster has happened in the city where a large number of victims have been brought to the



hospital, (3) where both the city and the hospital will be affected such as in an earthquake. Detailed aspects relating to maintaining the functionality of a hospital in all three post disaster scenarios were then discussed. These aspects included safe structures, staff safety and preparedness, non structural hazards and their mitigation. Various options for reducing risk in hospitals also discussed. The DM Expert, Mrs. Aparna Kanda explained the steps involved in Hospital Disaster Preparedness Planning, and the importance of forming disaster management teams within the hospital. The staff members present resolved that the Cama Hospital would immediately start setting up the teams and requested Ms. Kanda for assistance in setting these up and a schedule drawn up to take this further.

## 5. Thiruvananthapuram

The fifth and last of the five workshops was held on December 2, 2011, at the Government Hospital Peroorkada, Thiruvananthapuram in Kerala, located in Seismic Zone III. The Directorate of Health Services decided to invite doctors from other important hospitals in the city considering the importance of the event. The Institute of Land and Disaster

Management, Government of Kerala represented by a Member of the Kerala State Disaster Management Authority coordinated with the hospital in making all the arrangements. The workshop was inaugurated by Deputy Director, Directorate of Health Services. The Medical Superintendent Dr. Ambili Kannan addressed the participants. There

were a total of 64 participants including doctors, nurses, and KSDMA officials. There were participants from the Trivandrum General Hospital, Thycaud Hospital etc.

The workshop was conducted by GHS resource persons, Mr. Hari Kumar and Dr. K. G Thara. This workshop was the very first exposure to disaster risk reduction for the Hospital and all the participants were keen to learn about the hazard profile of the city, the possible effects in hospitals and how to mitigate the effects of the same. Topics covered were (1) the hazard profile of the state, (2) historical occurrences of disasters in the region and their impacts, (3) elements of disaster risk vis-à-vis vulnerability, capacities and hazard, (4) elements of disaster risk reduction through increasing





capacity and reducing vulnerability, (5) effect of disasters on health facilities, (6) Demand Capacity Functions for hospitals in a post disaster situation, (7) consequences of earthquake damage, (8) Ingredients of a functional hospital, (9) steps towards a safe hospital, (10) Processes for developing a DM Plan, and (11) Personal and Family Preparedness for health care professionals.



As the hospital has no system in place for disaster management and preparedness planning, the Medical Superintendent resolved to take immediate steps to form a Hospital Safety Committee and prepare disaster management teams. She also requested the Institute of Land and Disaster Management for continued assistance in carrying the Disaster Management Agenda forward.



### Follow up actions

In the weeks following the Workshop series, GHS has tied up with the local partners (SDMA) for following up on the formation of the Hospital Safety Committee in each of the Hospitals. GHS Resource persons in Mumbai and Trivandrum have visited the hospitals again to initiate the Disaster Management Planning meetings. In, Aizawl and Guwahati, GHS is in constant touch with the hospital administrations through the State Government to plan out future activities. In Shimla, the HPSDMA and the local Fire Service have started fire safety training programmes on Saturday afternoons for the staff members. It was interesting to note that GHS received calls from all five Hospital administrators in the days following the fire at AMRI Hospital in Kolkata to express the timeliness of our workshops (the last workshop was held one week before the fire tragedy) and reiterated their commitment to take the activities forward. As a direct impact of the WHO-GHS workshop series, GHS has been contacted by District Disaster Management Authorities (DDMA) of Kanpur and Ghaziabad for conducting similar workshops for Hospital Administrators in these cities. The workshop for Kanpur DDMA was held successfully on 23<sup>rd</sup> December 2011 with 91 participants.

## Conclusion and next steps

The GHS-WHO workshop series was an important intervention in the health sector in these States with multiple hazards. Though these States may have taken many steps towards disaster mitigation in other sectors, there has been no intervention for Hospital Safety. At least, Assam and Maharashtra are seen as leaders in disaster management initiatives and even in these States, no interventions in Hospital Safety have been carried out. If this should be seen as a reflection of the state of affairs in all States, there is a dire need for carrying out similar programmes in all States. The Workshop series was an important starting point for our country striving to reach its goals as per the Hyogo framework. The Hyogo Framework for Action 2005-2015 (HFA), adopted at the World Conference on Disaster Reduction in January 2005, put forth the following priority for action to measure the commitment to and success of national emergency risk reduction programmes: Integrate disaster risk reduction planning into the health sector; promote the goal of “hospitals safe from disasters” by ensuring that all new hospitals are built with a level of resilience that strengthens their capacity to remain functional in disaster situations and implement mitigation measures to reinforce existing health facilities...”

While hospital safety is explicitly included as an action agenda within the Hyogo Framework, the National Disaster Management Authority’s (NDMA) Policy document on Earthquakes is not yet explicit about hospital safety though it does mention the need for keeping lifeline buildings and structures fully operational during and after disasters. However, it does not address the important issue of hospital preparedness and mitigation planning in hospitals for facing disasters. The hospital safety workshop series did attract the attention of the Honorable Vice-Chairman and Members of the NDMA and was- along with the AMRI Hospital fire in Kolkata- one of the reasons that a Core group was constituted by NDMA to develop guidelines and a National action Plan for Hospital Safety. The awareness generated and the follow up activities will help create models for the working group of NDMA and also to understand the realistic timelines for the effort required nationwide.

The workshop series in five hospitals nationwide was conceived as a necessary first step in explicitly bringing hospital safety into sharp focus within the broad framework of the Hyogo Protocol and the national Earthquake Policy. NDMA has expressed a keen interest in learning about the outcome of the workshop series and it is envisaged that this can serve as a pilot exercise in mainstreaming hospital safety into disaster risk reduction activities in every State in a time bound manner.



## Appendix

### **Resource Persons**

GHS was responsible for conducting the workshop and arranged experts to deliver presentations.

### **Logistics:**

1. GHS arranged for relevant resource materials for the attendees.
2. Host hospital was requested to arrange refreshments between the workshops on payment basis.
3. GHS Resource Persons travelled to the cities to conduct the workshops.
4. The series of workshops in five cities were covered in 12 working days.
5. The arrangements for travel and accommodation were made by GHS.
6. All the preparation of presentation and formulation activities of the workshops was undertaken by GHS.

### **Resource Material:**

GHS arranged for resource material to distribute among the participants of each workshop.

- 1) Hospital safety manual *“Reducing Earthquake Risk in Hospitals from Equipment, Contents, Architectural Elements and Building Utility Systems”* 3 copies were handed over to each venue hospital. This is a comprehensive manual for non structural risk mitigation inside a hospital.
- 2) A handout as *“A Disaster Safety Checklist for Hospital Administrators”* was distributed to all participants. This is a four pages concise document for hospital administrator to prepare a hospital to face disastrous event.
- 3) A handout as *“Disaster Preparedness Plan for Families”* was distributed to all participants. The families of each doctor and hospital staff should be prepared beforehand so that he/she can give time to the hospital and patients after a disaster. This document will help the staffs to prepare their family disaster management plan.
- 4) A note pad, pen and a cover file was also provided to each participant.
- 5) The respective State Disaster Management Authorities also provided some relevant resource materials in the resource material kit.

## Participants List:

Please find the list of participants according to venue as below:

### Participants in Indira Gandhi Medical College & Hospital, Shimla

Sl. No.	Name	Designation
1	Dr. S S Kaushal	Principal IGMC
2	Dr. K S Rana	Senior Medical Superintendent
3	Dr. Anil Malhotra	Nodal Officer Disaster Management and Professor Surgery
4	Dr. Reena Thakur	Hospital Administrator
5	Mr. Deepale Raj Chauhan	Asstt. Engineer, HPPWD
6	Mr. Ambika Sharma	Add. Asstt. Engineer, HPPWD
7	Mr. D C Rana	Project Officer, SDMA (HP)
8	Mr. Roop Kaushal	Administrative Officer
9	Dr. Ramesh Kumar	Associate Professor
10	Dr. Rajin Raina	Associate Professor, Medicine
11	Dr. Rajiv Kumar Seam	Radiology Head
12	Dr. Surinder Singh	Professor & Head, Anesthesia
13	Dr. Ajay Sood	Professor, Anesthesia
14	Dr. Anil Ohri	Professor
15	Mr. B R Vyas	Asstt. Controller
16	Mr. Devender Pal	Section Officer
17	Surinder Bramta	Physical Instructor
18	Mr. Surjeet S Mehta	Junior Engineer
19	Mr. Kulbhushan Singh	A E (Elect) HPPWD
20	Mr. S L Gupta	Asstt. Malaria Officer
21	Dr. Sanjeev Asotra	Asstt. Professor, Cardiology
22	Dr. Lalit Chandrakant	Deputy Medical Superintendent
23	Dr. R S Negi	Asstt Professor, Medicine
24	Dr. R S Mishra	Asstt. Professor, ENT
25	Ms. Bhawani Negi	Correspondent, Hindustan Times

**Participants in Mahendra Mohan Chaudhari Hospital, Guwahati**

<b>Sl. No.</b>	<b>Name</b>	<b>Designation</b>
1	Dr. (Mrs.) B Deori	Joint Director, District Hospitals
2	Dr. Rajeev Kumar Sharma	Dy. Superintendent MMCH
3	Dr. Satyendra N Chaudhury	Chief Medical Officer, MMCH
4	Dr. Barnali Das	M & HO-I
5	Dr. Phulmati Mazumdar	Matron, MMCH
6	Ms. Basanti Devi	Asstt Matron
7	Mrs. Sewali Kalita	Sister Incharge
8	Ms. Tanushree Pathak	Hospital Administrator
9	Mr. Pradip Chutia	Office Asstt.
10	Mr. Mukti Goswami	Head Pharmacist
11	Mr. Chavitra Sarma	Laboratory Asstt.
12	Mr. Debeswar Sarma	Laboratory Asstt.
13	Mrs. Rajila Roy	S/N SCNU
14	Ms. Nilima Borah	S/I NGW
15	Ms. Sanli Choudhuri	S/N MMW
16	Ms. Phulumai Begum	S/N MGW
17	Ms. Kusum Phukan	S/I Children MGW
18	Ms. Nirala Kakati	S/N MMW
19	Ms. Rina Chutia	S/N Female Eye & ENT
20	Ms. Sabitri Saikia	S/N FSW +FFPc
21	Ms. Nirujani Deka Baruah	S/I ENT
22	Ms. Sukla Das Gupta	S/I OT
23	Ms. Ganaprava Borah Das	S/I MSW
24	Ms. Arjana Saikia	S/N OT
25	Mr. Sachindra Nath Saikia	OT
26	Ms. Mandira Das	S/N FSW
27	Mr. Mukta Ram Deka	Project Officer ASDMA
28	Ms. Sushmita Dutta	Project Officer ASDMA
29	Mr. B M Lahon	Project Officer ASDMA
30	Mr. Rajesh Dutta	Engg. Consultant ASDMA
31	Mr. Mirza Mahammad Islam	Project Manager ASDMA
32	Mr. Pradeep Sena Sinha	Technical Asstt ASDMA

### Participants in Civil Hospital, Aizawl

Sl. No.	Name	Designation
1	Dr. Lalbbiak Kima	Medical Superintendent
2	Dr. Lalringmaia	Consultant Child Health
3	Dr. Changthanchhange	Consultant Emergency
4	Dr. Lalmengmai	Consultant Neurology
5	Mr. R Zosanlizuah	MRO , MRD
6	Dr. Lalmuanplui	MRI MRD
7	Lalhnunagliana	MRI MRD
8	Dr. T Calzohiana	Consultant RD +I
9	Mr. R Zaichhanthang	Senior Technician RD +I
10	Dr. F Harris	Consultant Biochemistry
11	Dr. Lalrozama	Consultant
12	Dr. Thomas Zimuene	Consultant Surgery
13	Dr. Mary Manpuii Ralte	Consultant
14	Dr. K Lalbiakzhek	Consultant
15	Dr. RC Dayals	Consultant Obs& G
16	Dr. Lalthanzuelli	Blood Bank Consultant
17	Dr. Lalhuwa Chhanka	Consultant CH A
18	Ms. C Thanthrangi	Staff Nurse
19	Ms. U Zodrigkani	Staff Nurse
20	Dr. P C H Nghaka	Consultant Ortho
21	Dr. Rosgngkaia	Consultant Medicine
22	Dr. K K Chhetri	Consultant Ortho
23	Dr. Lalsiampara	Consultant ENT
24	Dr. H Lianthagpui	Consultant Dental
25	Mr. Lalzarmawii	J D Dental
26	Dr. S T Lalmaljela	Consultant Surgery
27	Dr. T C Nunga	HoD Ortho
28	Dr. Loway V Lalzarhiand	Consultant Cardiology
29	Dr. Vanlabianna Chhyts	Specialist Anesthesiology
30	Dr. R L Nunlham	Consultant
31	Ms. Lalremmauii	Nursing Suptd.
32	Dr. K L Ramsangn	Consultant
33	Ms. Lalrammani Partu	Staff Nurse
34	Ms. Venus Lalrenusangi	Staff Nurse CHA
35	Ms. C Zosangliani	Staff Nurse FSW
36	Ms. J Lalrinmamii	Staff Nurse FSW
37	Ms. Lalenpmanii Sailo	NS
38	Mr. T Vanlalyhaking	J E
39	Dr. Muky Zodmpina	Specialist Anesthesiology
40	Mr. T Lalbaikdike	Electrician
41	Mr. Jonathan L Hnamte	Correspondent AIR
42	Mr. P B Lalrammanii	Sub Editor, The Aizawl Post

### Participants in Cama Hospital, Mumbai

Sl. No.	Name	Designation
1	Dr. (Mrs.) Rajshri Katke	Medical Superintendent
2	Dr. (Mrs.) Kumdukar	Associate Prof. Pathology
3	Dr. Nanda. S. D.	Associate Prof. OBGY
4	Dr. Nisha Thakur	JR 3
5	Dr. Abhimanyu Singh	Intern
6	Dr. Priyanka Singh	Intern
7	Dr. Ashwini Shinde	Intern
8	Dr. Deepa Varjari	Intern
9	Mrs. C P Lod	Matron
10	Mrs. S A Surguni	Sister
11	Ms. Parchi P Chavan	Staff Nurse
12	Ms. Madhuri S Rahate	Staff Nurse
13	Ms. Bhagyashree B Shinde	Staff Nurse
14	Ms. Pardeshi Mangal D	Sister Paed Ward
15	Ms. Sheela Gaikwad	Staff Nurse
16	Ms. Deepali D Pawar	Staff Nurse
17	Ms. Nisha Marlankar	Staff Nurse
18	Ms. Hadaliku U	PHN
19	Ms. Abhyankar S	PHN
20	Ms. Bher M B	Sister Incharge
21	Mrs. Hajure Pratibha	Sister Incharge
22	Mrs. Rekha S Shetty	Staff Nurse
23	Mrs. Akansha A Ghadigaonkar	Staff Nurse
24	Ms. Seena S Kerke	Staff Nurse
25	Ms. Shobha N Kerkerbi	Staff Nurse
26	Ms. Waghapurkar Nanda	Staff Nurse
27	Ms. Teresa J Mantade	PHN
28	Mrs. Wadelkar D D	Nursing Officer
29	Mrs. Poonam Kumbhar	Staff Nurse
30	Ms. Vidhya Rerandhakar	Sister Incharge
31	Ms. Shrivastava M	Staff Nurse
32	Dr. Dhruv Gohil	Resident Doctor
33	Dr. Surendra D Nikhate	Resident Doctor
34	Dr. Amruta Deshpande	JR, Pathology
35	Mr. Bhalchandra P B	Lab Technician, Pathology
36	Mr. Mukesh Waghela	Lab Technician, Pathology
37	Mr. Tambe D K	Lab Technician, Pathology
38	Mrs. Alka M Rajput	Lab Technician, Pathology
39	Mr. Datta Sapnar	Lab Technician, Pathology

40	Mrs. Bakal Surekha	PHN class
41	Ms. Sheikh K U	Nursing Student
42	Ms. Kamble AA	Nursing Student
43	Ms. Jadhev I S	Nursing Student
44	Ms. Jadhav J D	Nursing Student
45	Ms. Mendare S T	Nursing Student
46	Ms. Shamshad Tamboli	Nursing Student
47	Ms. Chapalagaonkar S P	Nursing Student
48	Ms. Asha Eknath	Nursing Student
49	Ms. Ratan Mainkar	Nursing Student
50	Ms. Madane V D	Nursing Student
51	Ms. Rupnaushree Soneli	Nursing Student
52	Ms. Shirke Madhuri	Nursing Student
53	Ms .Shinde Asha	Nursing Student
54	Ms. Rekha Gedam	Nursing Student
55	Ms. Kale Suneta D	Nursing Student
56	Ms. Kulkarni Sharmila	Nursing Student
57	Ms. Suprya Ramesh Date	Nursing Student
58	Ms. Geeta Gajanan	Nursing Student
59	Ms. Alka Mallikarjun Swami	Nursing Student
60	Ms. Nirmal Shivasharan	Nursing Student
61	Ms. Barde Pushpa Dattatrya	Nursing Student
62	Ms. Mankame Geeta Ravindra	Nursing Student
63	Ms. Telonge Tanuja	Nursing Student
64	Ms. Betalej J R	Nursing Student
65	Ms. Sabale P G	Nursing Student
66	Ms. Rane H H	Nursing Student
67	Ms. Patil A R	Nursing Student
68	Ms. Malgene P G	Nursing Student
69	Ms. Otai P M	Nursing Student
70	Ms. Arti Gaikunde	Nursing Student
71	Ms. Gayatri Vijay Kate	Nursing Student
72	Ms. Pratiksha Sadanand Thakre	Nursing Student
73	Ms. Sanjivani Prakash Tandel	Nursing Student
74	Ms. Sujata Bendu Parad	Nursing Student
75	Ms. Sunita Sitram Karande	Nursing Student
76	Ms. Swati Dada Kale	Nursing Student
77	Ms. Kalawati Balasaheb Jadha	Nursing Student



78	Ms. Kadam Asha Pandarang	Nursing Student
79	Ms. Sonali Tangi	Nursing Student
80	Ms. Indira Gajanan Jadhur	Nursing Student
81	Ms. Damini Dangare	Nursing Student
82	Ms. Jyoti Pawar	Nursing Student
83	Ms. Varsha Phule	Nursing Student
84	Ms. Amuta Lakane	Nursing Student
85	Ms. Nandini Belose	Nursing Student
86	Ms. Chitra Jadhav	Nursing Student
87	Ms. Varsha A Surve	Nursing Student
88	Ms. A A Kadum	Nursing Student
89	Ms. Ulka K Jadhav	Nursing Student
90	Ms. Sanita H Salve	Nursing Student
91	Ms. Anuradha S Kadam	Nursing Student
92	Mr. Asif Reshamwala	Member RADHEE
93	Dr. Rita Savla	Director RADHEE

**Participants in Government Hospital Peroorkada, Thiruvananthapuram**

Sl. No.	Name	Designation
1	Dr. Ambili Kamalan	Medical Superintendent
2	Mr. S Sharafudeen	Junior Superintendent
3	Dr. K Sashikumar	Consultant Physician
4	Dr. V Shantha	Consultant Physician
5	Dr. Ajitha N Nair	Consultant Physician
6	Mr. R Jayachandran Nair	Head supervisor
7	Mr. Jayakumar G	Head Inspector
8	Mr. Shiroh A R	Junior Superintendent
9	Dr. Ganga Ramaraj	Consultant Physician
10	Ms. Sushma S	Head Nurse
11	Ms. Lathikadevi P	Head Nurse
12	MS. Shreelatha V	Head Nurse
13	Mr. S Kasthoori	Pharmacist
14	Ms. Preetha S	Pharmacist
15	Ms. Shajeela J	LD Clerk
16	Ms. Shahida Beevi A	UD Clerk
17	Ms. Rani Chalkapani	PRO
18	Ms. T Yeshudasan	ALO
19	Mr. Kanakauma K L	Nursing Superintendent
20	Ms. Usha P P	Nursing Superintendent
21	Ms. E D Baby	Nursing Superintendent
22	Ms. Sheeja Sreekumar	Nursing Tutor
23	Ms. Lincymal M Joseph	Nursing College Asstt Professor

24	Ms. Meera Murali	BSc Nursing student
25	Ms. Nandita Nair	BSc Nursing student
26	Mr. Rahul V R	BSc Nursing student
27	Mr. Abhijith AV	BSc Nursing student
28	Ms. Kavitha KS	BSc Nursing student
29	Ms. Divya A S	BSc Nursing student
30	Ms. Anju M P	BSc Nursing student
31	Ms. Soumya S Nair	BSc Nursing student
32	Ms. Nimisha H R	BSc Nursing student
33	Mr. Deepak M S	BSc Nursing student
34	Ms. Anju B Nelson	BSc Nursing student
35	Ms. Dhanya Vijayan	BSc Nursing student
36	Ms. Sandhyalakshmi P	BSc Nursing student
37	Ms. Ajith V S	BSc Nursing student
38	Ms. Jyothi Rani R	BSc Nursing student
39	Ms. Jawala J C	BSc Nursing student
40	Ms. Talajamme S	Staff Nurse
41	Ms. Shreekumar C R	Staff Nurse
42	Ms. B Ambiliakumari	Head Nurse
43	Ms. C Geetha Kumari	JPHN
44	Ms. S Vanaja	LHT
45	Ms. Ambily K S	Head Nurse
46	Ms. Jaleelabeevi M	Head Nurse
47	Ms. Sabitha Jayakumar	BSc Nursing student
48	Ms. Remya Krishnan R	BSc Nursing student
49	Ms. Vidya S	BSc Nursing student
50	Mr. C Sahadudeen	LS & T
51	Ms. Lakshmi J S	BSc Nursing student
52	Mr. Sureswally Amme	Nursing Superintendent
53	Ms. Sailaja Kumari S	Head Nurse
54	Ms. Vimala L	Blood Bank Technician
55	Ms. Preetha Kumari R	Staff Nurse
56	Ms. Neetha B S	Staff Nurse
57	Mr. R S Remani	Technician
58	Ms. Nisha P Nair	Staff Nurse
59	Mr. S Raji	Laboratory Technician

**Thank You**

January 2012

---

*Supported by:*

**WHO India Country Office**  
New Delhi

*Conducted by:*



[www.geohaz.in](http://www.geohaz.in)