

Safety Index for Hospitals a PAHO/DiMAG initiative

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Consultant to, and supported by, PAHO

A Member of the Global Alliance for Disaster Reduction

Leading role of the health sector in safer construction

CUBiC – Ministers of Health

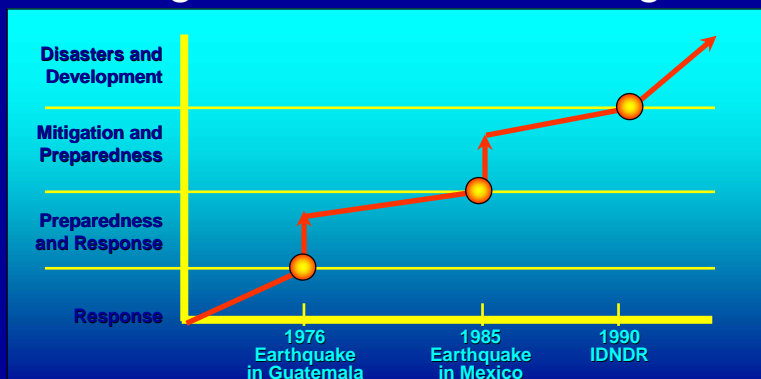
18 years ago PAHO promoted vulnerability assessments of existing health-care facilities.

PAHO: Emergency Preparedness and Disaster Relief Coordination Program

The Ministries of Health and PAHO:

- vulnerability surveys
- retrofitting of existing facilities
- reconstruction with mitigation
- independent reviews of designs of new facilities
- workshops for the construction industry

The Americas and the Caribbean move from *ad hoc* Disaster Response to Damage Prevention and Mitigation



History

- 1979 – First Caribbean Disaster Preparedness Conference (St Lucia)
- 1980 – Caribbean Disaster Preparedness Seminar (Dominican Republic)
- 1980s – PCDPPP
- 1990s – IDNDR
- 1996 – International Conference on Disaster Mitigation in Health Facilities (Mexico)
- 1997-98 – Two meetings of Expert Committee (Mexico & ??)
- 1999-2000 – DIPECHO-I
- 2002-3 – DIPECHO-III
- 2003 – First meeting of new Expert Committee, DiMAG|GAMiD (Sint Maarten)



PAHO Expert Committee

- Addressing Natural hazards
- Geographic area: Bermuda, Caribbean islands, Belize, Guyana, Suriname
- Advising ministries of health at the pre-conception stage of projects on the design team, the design criteria, standards for design
- Advising ministries of health on vulnerability analyses and monitoring the implementation of recommendations

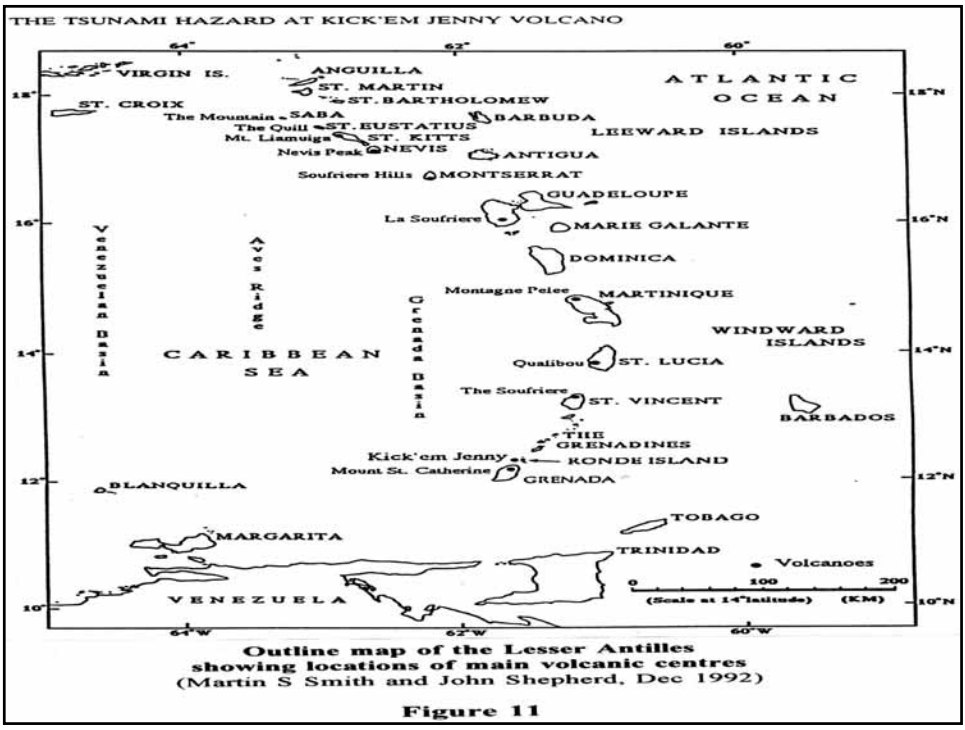
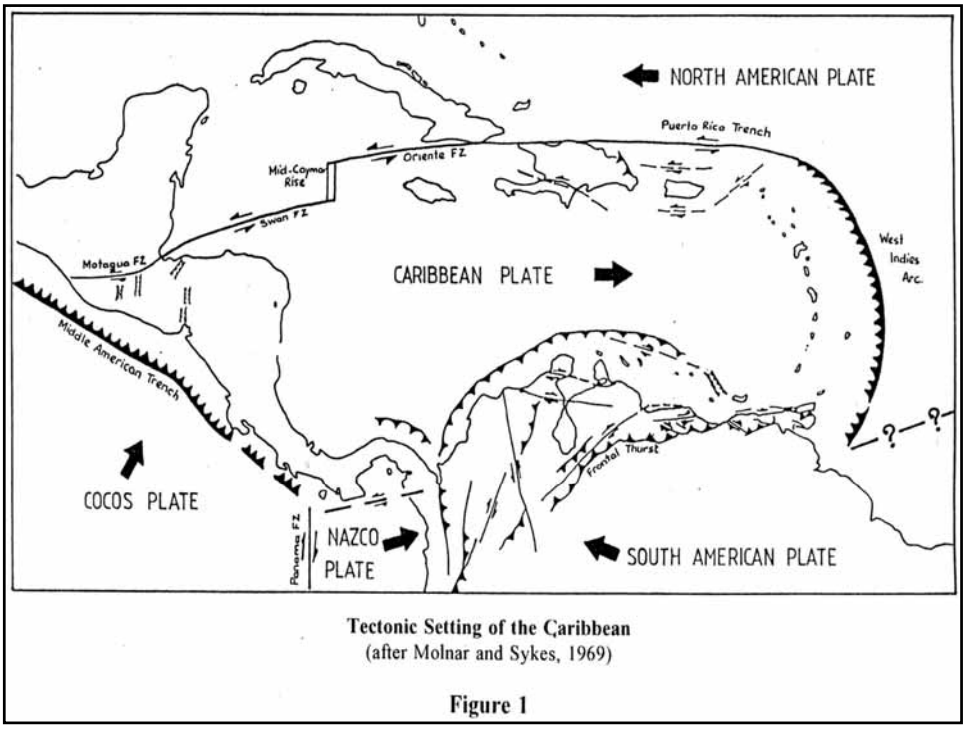
The name

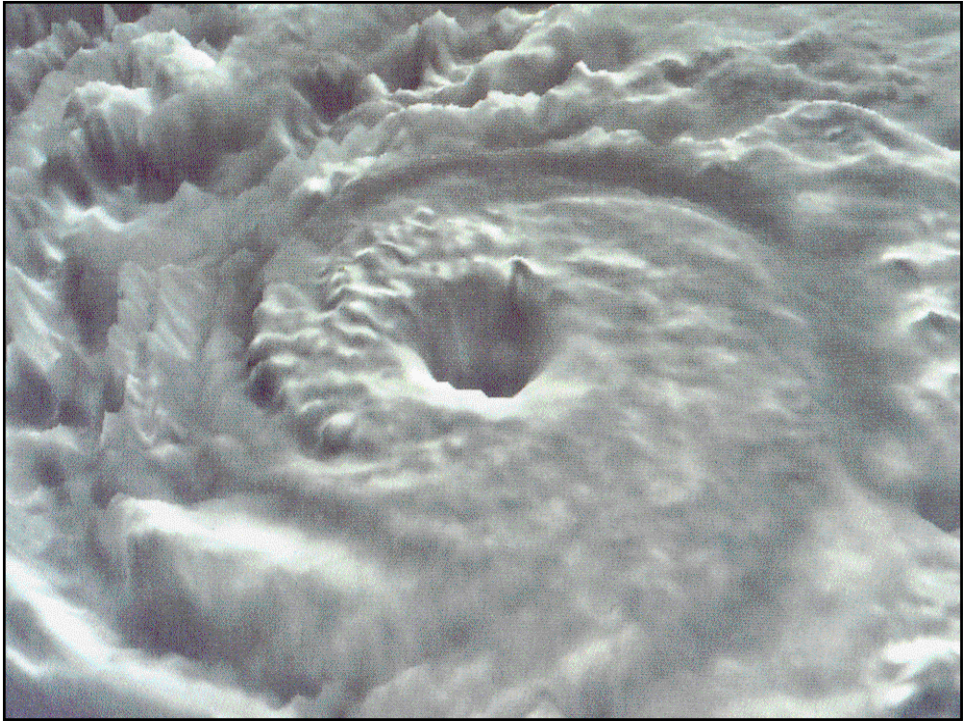
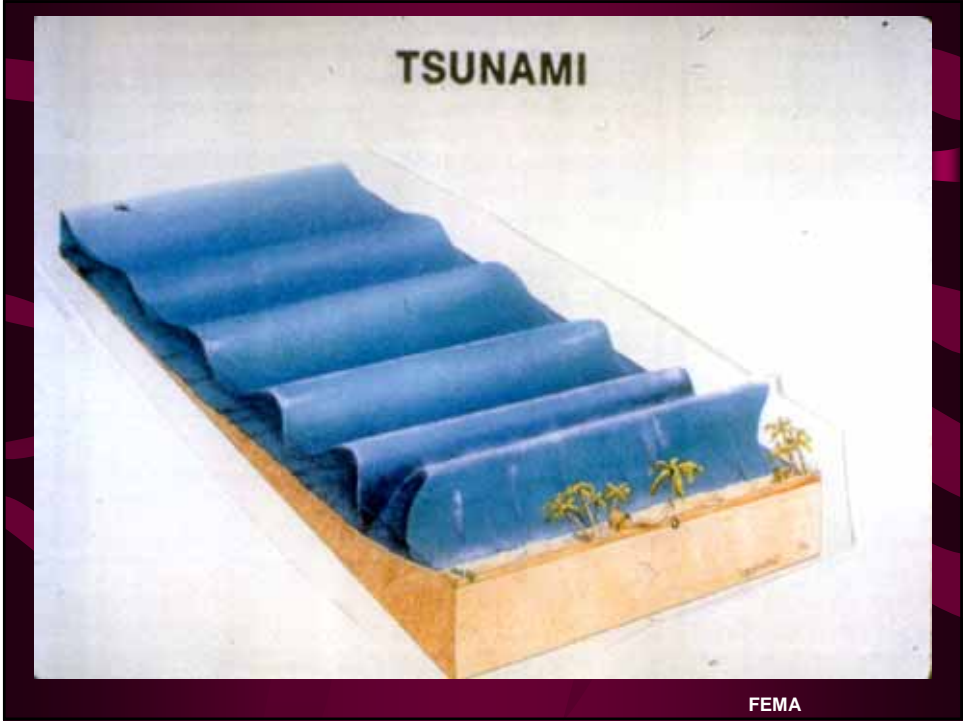
- a **Disaster Mitigation Advisory Group**
for Health Facilities
- b **DiMAG|GAMiD**
- c **Grupo Asesor de la Mitigación de**
Desastres para las Instalaciones de
Salud

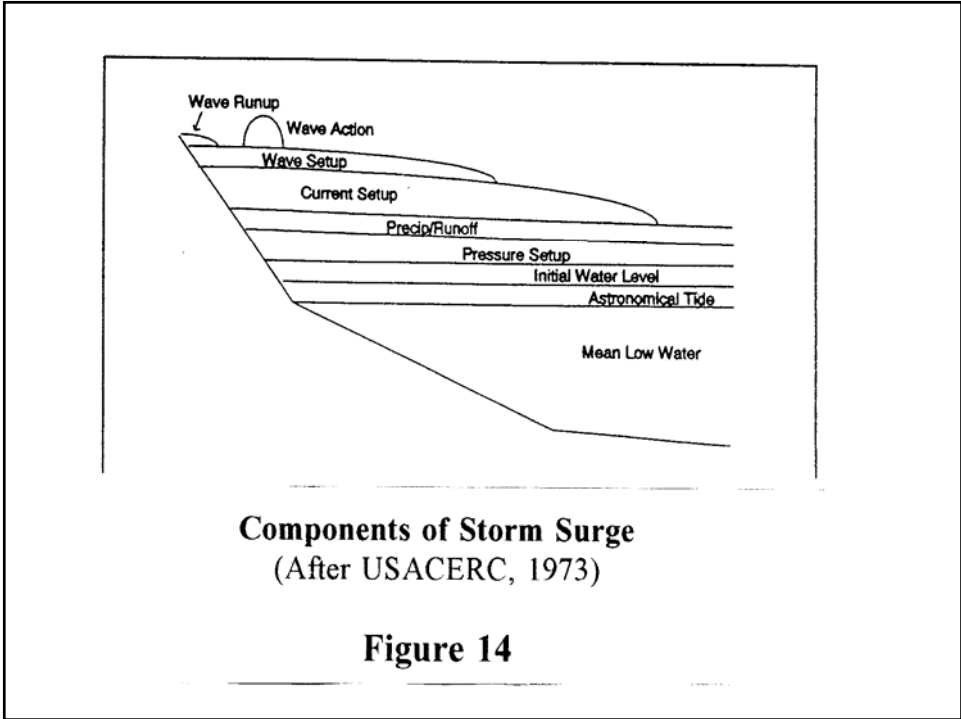
Caribbean Natural Hazards

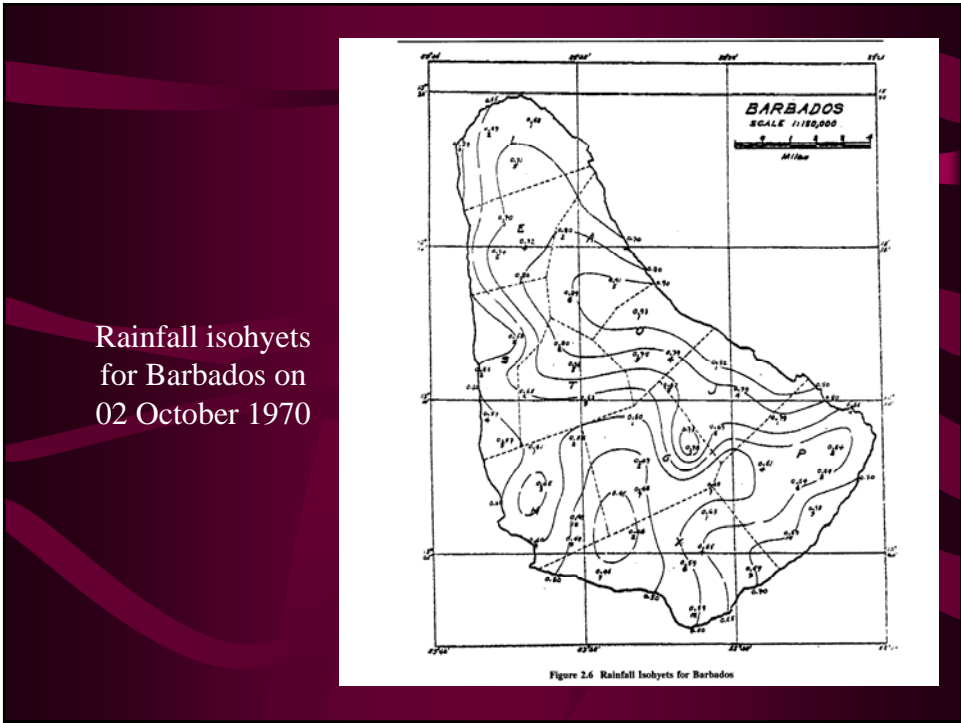
Earthquakes
Volcanic activity
Tsunamis
Hurricanes
Storm surge and wave action
Torrential rains

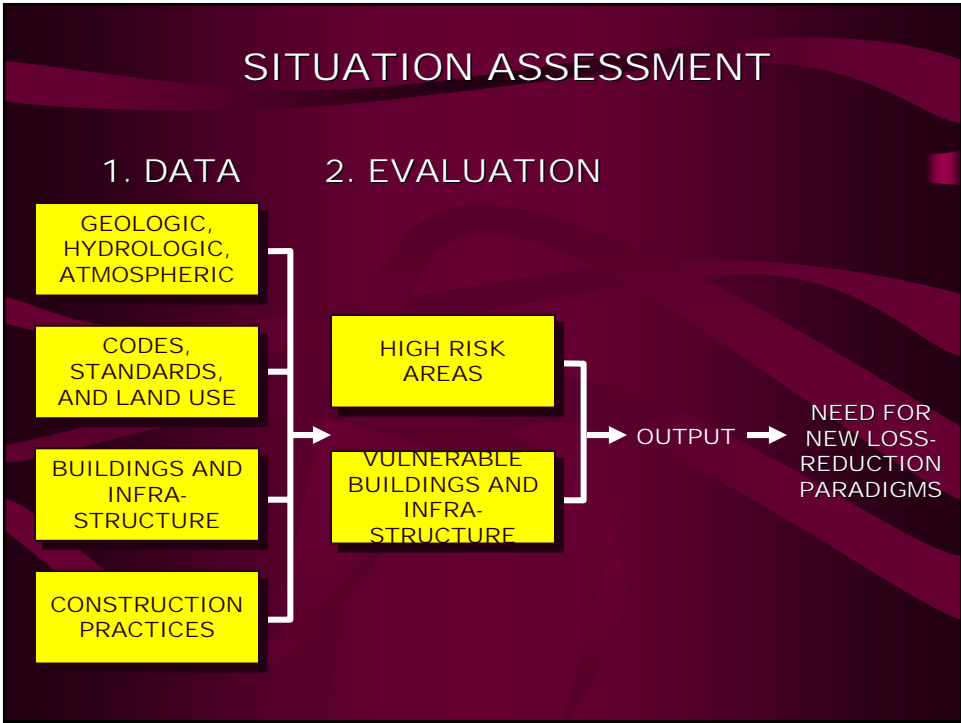
Since these are most of the natural hazards which affect the whole world, the Caribbean is a suitable test location for systems related to natural-hazard risk reduction programmes.











The Overall, Long-term Plan

- 1 **List** those buildings and facilities which are important.
- 2 Carry out **qualitative assessments** of the facilities listed in 1.
- 3 Carry out **analytical evaluations** of buildings scheduled for early action.
- 4 Embark on a programme of **reduction of vulnerability** where this is shown to exist. Such a programme would follow a **priority listing** of facilities requiring improvement.

Qualitative Assessments and Analytical Evaluations

- a) structure
 - earthquake
 - wind
- b) non-structure
 - earthquake
 - wind

Qualitative Evaluation

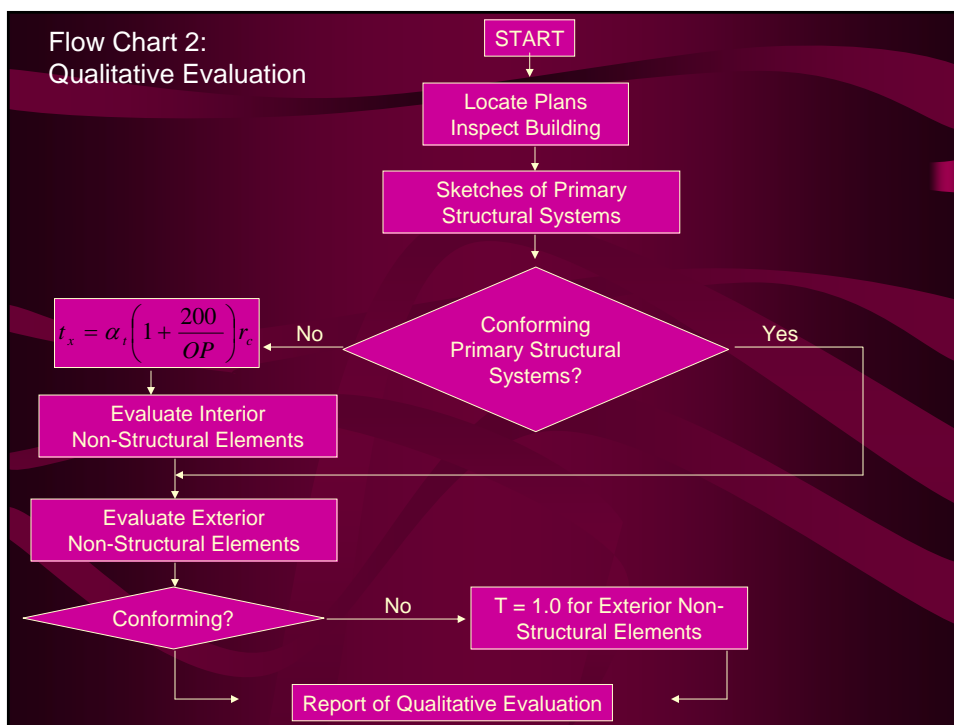
- o no exhaustive testing of materials nor sophisticated analysis
- o careful review of data, inspection of building without destructive testing and basic analysis
- o knowledge and maturity of engineering judgement

Flow Chart 2

t_x = length of time permitted for the reduction of vulnerability

α_t = factor determined by policy makers (say 20 to 35 years)

r_c = ratio of existing "strength" to desired "strength".

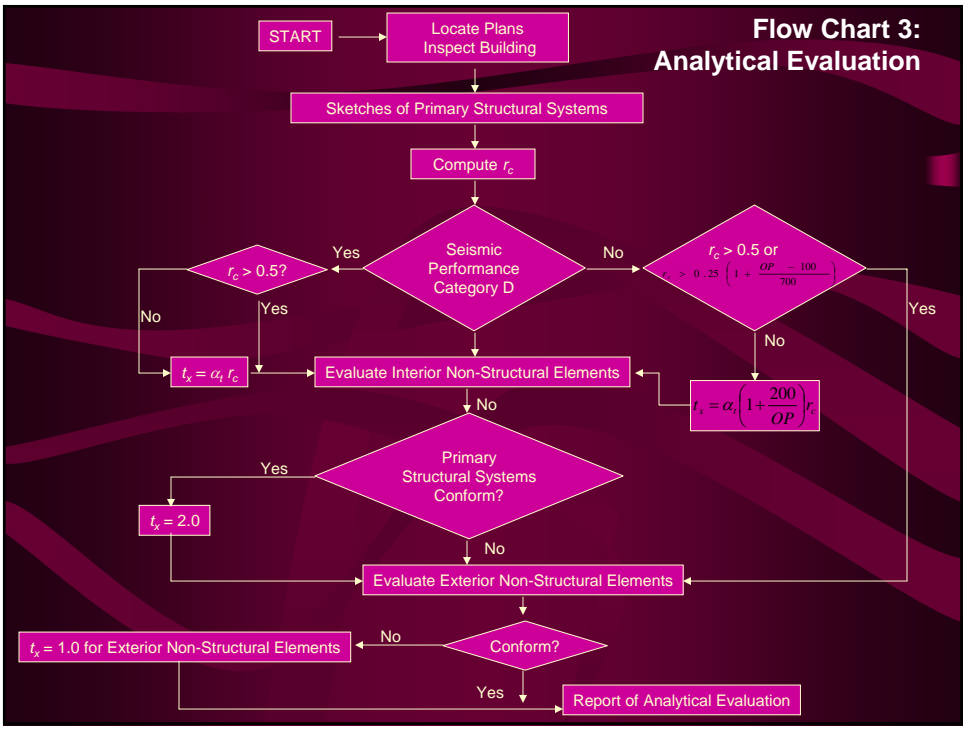


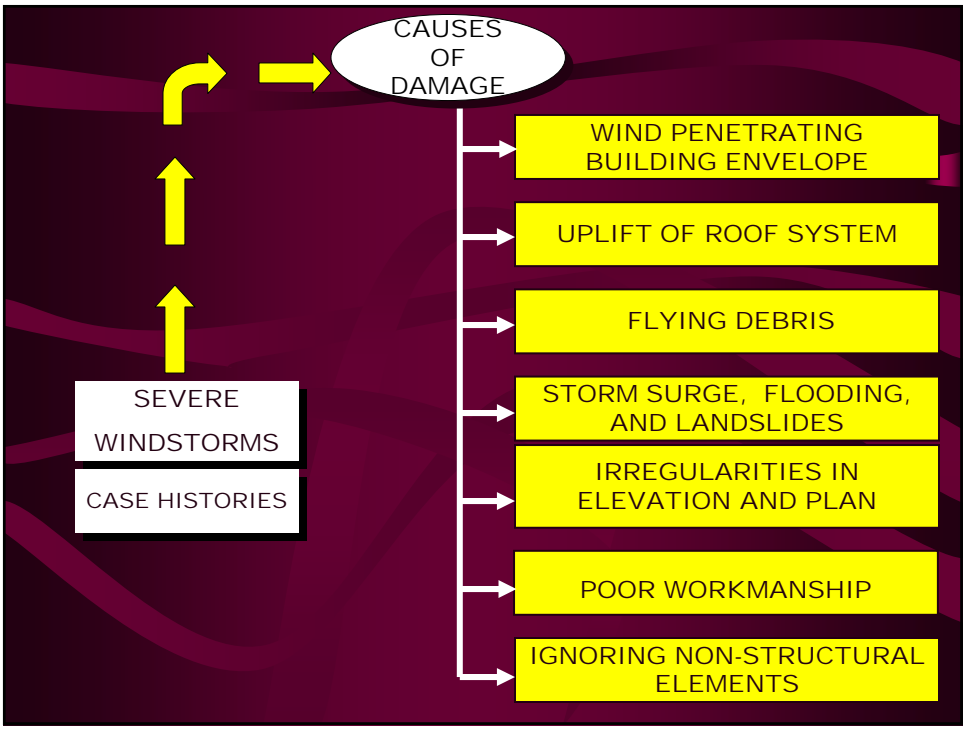
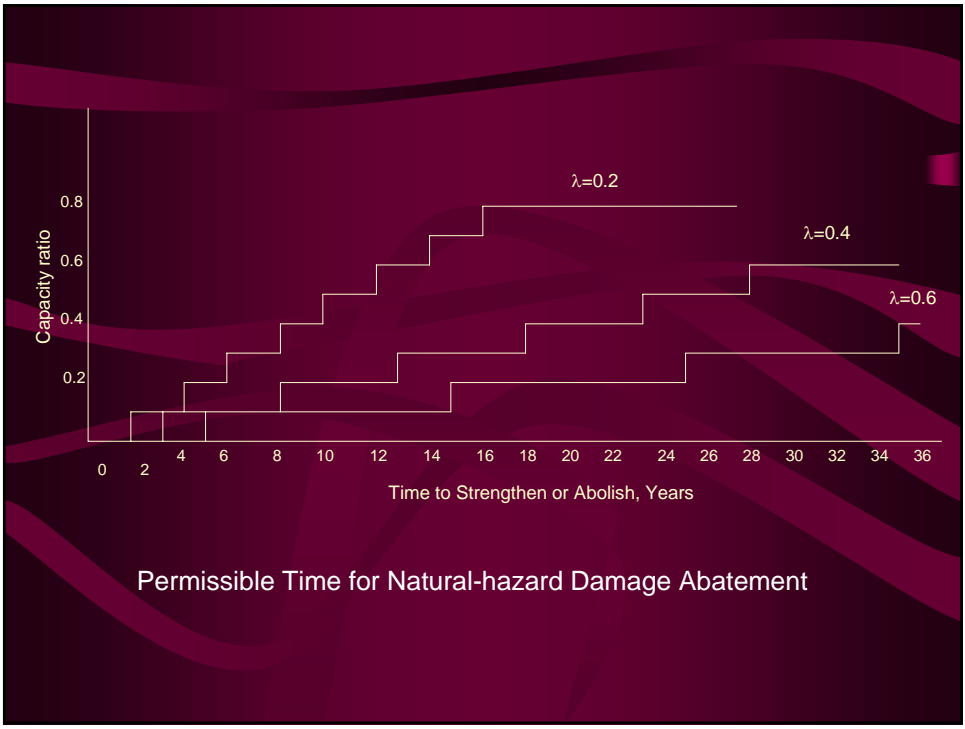
Analytical Evaluation

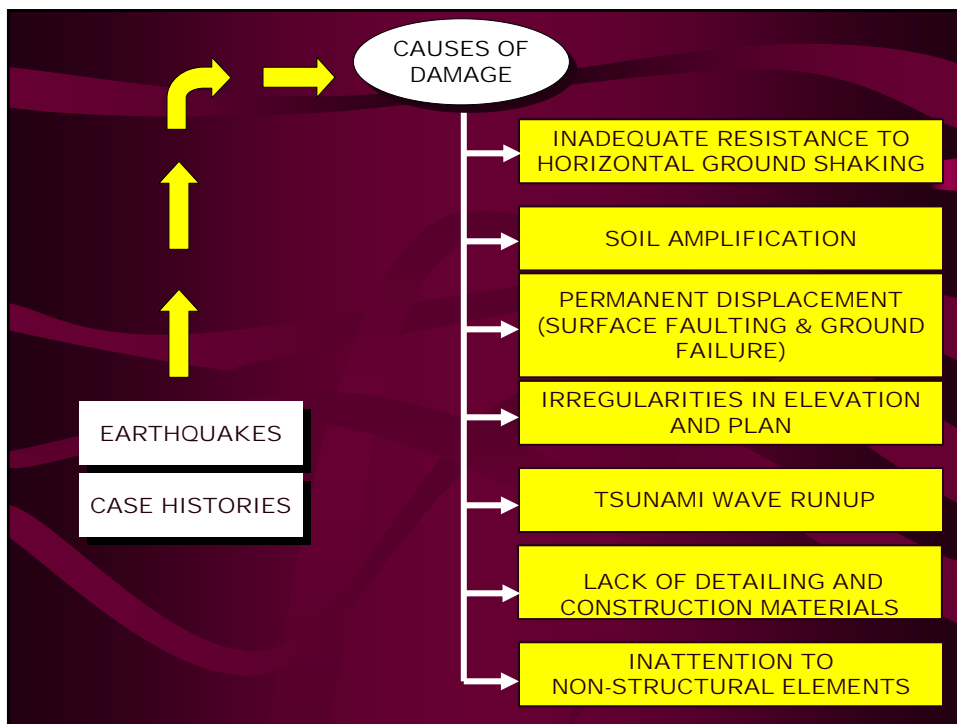
Facilities whose performances are deemed to be doubtful, when evaluated qualitatively, will be subjected to an analytic evaluation.

Time-consuming and expensive exercise to be carried out only when the funds are available for implementing the possible action indicated by this evaluation.

Flow Chart 3







The *Hospital Safety Index* is a tool for the *Qualitative Assessment* of the facility. It also assists in determining a *Priority Listing* of facilities requiring improvement.

The Hospital Safety Index is divided into the following sections:

- 1- Elements relating to the geographic location of the health facility;
- 2- Structural safety of the building;
- 3- Elements related to nonstructural safety;
- 4- Hospital organisation, preparedness and operational safety.

Elements relating to the geographic location of the health facility is divided into the following sub-sections:

- 1.1 Hospital location (including Geological phenomena, Hydro-meteorological phenomena, Social and organizational phenomena, Environmental phenomena, Chemical and/or technological phenomena);
- 1.2 Geotechnical properties of the soil

Structural safety of the building is divided into the following sub-sections:

2.1 Safety taking into account history of facility;

2.2 Safety of the structural system and type of materials used in the building

Elements related to nonstructural safety is divided into the following sub-sections:

3.1 Critical systems (including Electrical system, Telecommunications system, Water supply system, Fuel storage – gas and diesel, Medical gases – oxygen, nitrous oxide, etc);

3.2 Heating, ventilation, and air-conditioning systems in critical areas;

3.3 Office and storeroom furnishings and equipment – (fixed and movable) including computers, printers, etc;

3.4 Medical and laboratory equipment and supplies used for diagnosis and treatment;

3.5 Architectural elements.

Hospital organisation, preparedness and safety is divided into the following sub-sections:

4.1 Organization of the Hospital Disaster Committee and the Emergency Operations Centre;

4.2 Operational plan for internal or external disasters;

4.3 Contingency plans for medical treatment during different types of disasters;

4.4 Plans for the operation, preventive maintenance, and restoration of critical services;

4.5 Availability of medicines, supplies, instruments, and other equipment for disasters.

The Hospital Safety Index

Field Evaluation Forms

SAFE HOSPITALS CHECKLIST

1. Elements relating to the geographic location of the health facility to be evaluated [mark with an (X) where applicable].

1.1 Hospital location Refer to hazard maps. Request the hospital team to provide the map(s) showing hazards at the site of the building.	Safety Level The following elements indicate the level of SAFETY, NOT of risk.			
	NO HAZ ARD	YES		
		LOW	AVERAGE	HIGH
Geological phenomena				
<ul style="list-style-type: none"> Earthquakes Rate the safety level of the hospital in terms of geological and soil analyses. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Volcanic eruptions Refer to hazard maps to rate the safety level of the hospital in terms of its proximity to volcanoes and volcanic activity, lava and pyroclastic flow, and ash fall. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Landslides Refer to hazard maps to rate the safety level of the hospital in terms of landslides caused by unstable soils (among other causes). 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Tsunamis Refer to hazard maps to rate the safety level of the hospital in terms of previous tsunami events caused by submarine volcanic or seismic activity. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Others (specify) Refer to hazard maps to identify other geological phenomena not listed above. Specify the hazard and rate the corresponding safety level of the hospital. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydro-meteorological phenomena				
<ul style="list-style-type: none"> Hurricanes Refer to hazard maps to rate the safety level of the hospital in terms of hurricanes. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Torrential Rains Rate the safety level of the hospital in relation to flooding due to rainfall and location based on observation and the history of such events. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Storm surge Identify previous events that did or did not cause flooding in or around the hospital. Rate the safety level of the hospital in terms of such events. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Landslides Refer to geological maps to rate the level of safety of the hospital in relation to landslides caused by saturated soils. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<ul style="list-style-type: none"> • Others (specify) Refer to the hazard maps to identify other hydro-meteorological phenomena not listed above. Specify the hazard and rate the corresponding safety level of the hospital. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social and organizational phenomena				
<ul style="list-style-type: none"> • Population centres Rate the safety level of the hospital taking into account its location, the type of population it serves, and its proximity to population centres. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Displaced populations Rate the safety level of the hospital considering people who have been displaced as a result of war, socio-political circumstances, or due to immigration and emigration. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Others (specify) If other social phenomena affect the safety of the hospital, specify them and rate the safety of the hospital accordingly. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental phenomena				
<ul style="list-style-type: none"> • Epidemics With reference to any past incidents at the hospital and specific pathogens, rate the safety level of the hospital in terms of epidemics. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Contamination (systems) With reference to any past incidents involving contamination and specific pathogens, rate the safety level of the hospital in terms of contamination of its systems. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Infestations With reference to the location and past incidents at the hospital, rate the safety level in terms of infestations (flies, fleas, rodents, etc.). 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Others (specify) With reference to any past incidents at the hospital, specify any other environmental phenomena not included above that might compromise the level of safety of the hospital. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical and/or technological phenomena				
<ul style="list-style-type: none"> • Explosions Refer to maps showing the hospital's location as well as the 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

building interior, and rate the level of hospital safety in the case of explosions.				
<ul style="list-style-type: none"> Fires Refer to maps of the hospital's location as well as the building interior and rate the level of hospital safety in the case of fire.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Leaks of hazardous materials Refer to maps of the hospital's location as well as the building's interior and rate the level of hospital safety in the case of hazardous material leaks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Others (specify) Considering any past events at the hospital, specify any other chemical or technical hazard not included above that might compromise the level of safety of the hospital, and rate the level of safety to such hazards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.2 Geotechnical properties of the soil	Safety Level			
	NO	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Liquefaction Refer to the geotechnical soil analysis and rate the level of hospital safety in terms of risks posed by saturated and loose subsoils.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Clay soils Refer to soils maps and rate the level of hospital safety in terms of hazards posed by clay soils.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Unstable slopes Refer to geologic maps, noting the presence of slopes that could affect the hospital's safety.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments on Section 1. The evaluator should use the space below to comment on the results of this section, and provide his/her name and signature.

Name/signature of evaluator _____

2. Structural safety of the building

Columns, beams, walls, floor slabs, etc., are structural elements that form part of the load-bearing system of the building. When possible, these elements should be evaluated by structural engineers.

2.1 Safety taking into account history of facility	Safety Level		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> There has been prior structural damage to the hospital as a result of natural phenomena <p>Determine whether structural reports indicate that the level of safety has been compromised. <i>Low = Major damage; Average = Average/moderate damage; High = Minor damage.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Was the hospital repaired or reconstructed using current safety standards? <p>Verify whether the building was repaired, the date of repairs, and whether repairs were carried out using current standards for safe buildings. <i>Low = Standards not applied; Average = Standards partially applied; High = Standards fully applied;</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Has the hospital been remodelled or modified? <p>Verify whether modifications were carried out using current standards for safe buildings <i>Low = Standards not applied; Average = Standards partially applied; High = Standards fully applied.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Safety of the structural system and type of materials used in the building	Safety Level		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Construction quality <p><i>Low = Deterioration caused by weathering; cracks on the first floor and irregular elevation of buildings; Average = Deterioration caused only by weathering; High = Good; no deterioration or cracks observed.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition of building materials <p><i>Low = Rust with flaking; cracks larger than 3mm; Average = Cracks between 1 and 3 mm; rust powder present; High = Cracks less than 1 mm; no rust.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Interaction of nonstructural elements with the structure <p><i>Low = Separation is less than 0.5% of the height of the shorter building; Average = Separation is 0.5%–1.5% of the height of the shorter building. High = Separation is more than 1.5% of the height of the shorter building.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Proximity of buildings (hazards of pounding, wind tunnel effects, fires, etc.) <p><i>Low = Separation is less than 0.5% of the height of the shorter of two adjacent buildings; Average = Separation is between 0.5% and 1.5% of the height of the shorter of two adjacent buildings; High = Separation is more than 1.5% of the height of the shorter of two adjacent buildings.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Structural redundancy <p><i>Low = Less than three lines of resistance in each direction; Average = Three lines of resistance in each direction or lines without orthogonal orientation; High = More than three lines of resistance in each orthogonal direction of the building.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Structural detailing including connections <p><i>Low = Built before the 1970s; Average = Built in the 1970s or 1980s; High = Built in the 1990s or later</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Safety of foundations <p><i>Low = Information is lacking; foundation depth is less than 1.5 m; Average = Plans and soil analysis are lacking; foundation depth is more than 1.5 m; High = Plans, soil studies</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>are available; foundation depth is more than 1.5 m.</i>			
<ul style="list-style-type: none"> Irregularities in the plan (rigidity, mass, and resistance) <i>Low = Shapes are irregular and structure is not uniform; Average = Shapes are irregular but structure is uniform; Average = Shapes are regular and structure has uniform plan.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Irregularities in elevation (rigidity, mass, and resistance) <i>Low = Stories with different heights, discontinuous, irregular elements; Average = Stories with similar heights (they do not differ by more than 20%); there are no discontinuous or irregular elements. High = Stories of similar height (they do not differ by more than 20%); there are no discontinuous or irregular elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Structural adaptation to various phenomena (meteorological, geological, among others) <i>The evaluation will be similar but focused on given events (for example, hurricanes and floods).</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments regarding results of section 2: _____

Name/signature of evaluator _____

3. Elements related to nonstructural safety

These elements do not form part of the load-bearing system of the building. They include architectural elements, equipment, and necessary systems for the operation of the building.

3.1 Critical systems	Safety Level		
Electrical system	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Generator has capacity to meet 100% of demand. Verify that the generator begins to operate within seconds of the hospital losing power, covering power demands in the emergency department, intensive care unit, disinfection and sterilization unit, surgery, etc. <i>Low = 0–30%; Average = 31–70%; High = 71–100%</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Regular tests of generator performance are carried out in critical areas. <i>Low = > 3 months; Average = 1–3 months; High = < 1 month.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Generator protected from damage due to natural phenomena <i>Low = No; Average = Partially; High = Yes.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Safety of electrical cables <i>Low = No; Average = Partially; High = Yes.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Redundancy in main power supply <i>Low = No; Average = Partially; High = Yes.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Protection for control panel, overload breaker switch, and cable Check the accessibility as well as condition and operation of the electrical control panel. <i>Low = No; Average = Partially; High = Yes.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Lighting system for critical areas of the hospital Review lighting for emergency unit, intensive care unit, sterilization and disinfection unit, surgery, etc., testing the level of lighting and function of lighting fixtures. <i>Low = No; Average = Partially; High = Yes.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> External electrical systems installed on hospital grounds Determine whether there are electrical substations or transformers that might jeopardise the safety level of the hospital. <i>Low = No electrical substation installed in hospitals grounds; Average = Substations installed but does not provide enough power to hospital; High = Electrical substation installed and provides enough power to the hospital.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telecommunications system			
<ul style="list-style-type: none"> Condition of antennas and antenna bracing Verify that antennas and lightning rods have bracing/supports that increase the safety level of the hospital. <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition of low current systems (Internet connections/cables) Verify that cables are properly connected in strategic areas to avoid system overload. <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition of alternative communication system <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition of anchors and braces for equipment and cables 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Verify that telecommunications equipment are anchored for increased security. <i>Low = Poor; Average = Satisfactory; High = Good.</i>			
<ul style="list-style-type: none"> Condition of external telecommunications systems installed on hospital grounds Verify that no exterior telecommunications systems interfere with the safety level of the hospital. <i>Low = No external communication installed; Average = External communication installed but not fully operational; High = External communication installed and fully operational.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Site has adequate conditions for telecommunications systems. <i>Low = Poor; Average = Satisfactory; High = Good.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Safety of public communications systems. <i>Low = Poor; Average = Satisfactory; High = Good.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water supply system			
<ul style="list-style-type: none"> Water tank has sufficient reserve to provide at least 300 litres daily per bed for 72 hours Verify that water storage is sufficient to satisfy user demand for three days. <i>Low = Sufficient for 24 hours or less; Average = Sufficient for more than 24 hours but less than 72 hours; High = Guaranteed to cover at least 72 hours.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Water storage tanks are in protected locations Visit the water tanks to determine the safety of the installations and of the site. <i>Low = The site is susceptible to structural or nonstructural failure; Average = Failure would not cause collapse of structure; High = Low possibility of functional failure.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Alternative water supply system to major distribution network. Identify the agency responsible for timely restoration of water service in case the system fails and service is interrupted. <i>Low = Provides less than 30% of demand; Average = Provides 30% but less than 100% of demand; High = There is a source certified to supply 100% of daily demand.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Safety of water distribution system (valves, pipes, connections) Ensure proper function of storage cisterns (free of leaks and harmful agents). <i>Low = Less than 60% are in good operational condition; Average = between 60% and 80% are in good condition; High = Above 80% are in good condition.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Supplementary pumping system Identify the agency responsible for timely restoration of service in case the system fails and service is interrupted. <i>Low = There is no back-up pump and operational capacity does not meet daily demand; Average = All pumps are in satisfactory condition; High = All pumps and back-up systems are operational.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel storage (gas, diesel)			
<ul style="list-style-type: none"> Fuel tanks have at least 5-day capacity Verify that the hospital has a fuel storage tank of adequate size and safety. <i>Low = Less than 3-day capacity; Average = 3- to 5-day capacity; High = Capacity for 5 or more days.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Fuel tanks and/or cylinders are anchored and in secure location <i>Low = There are no anchors and the tank enclosure is unsafe; Average = Anchors are inadequate; High = Anchors are in good condition and the tank enclosure is adequate.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Fuel storage is accessible and in secure location Verify that the tanks containing flammable liquids are accessible but at a safe distance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

from the hospital. <i>Low = There is a risk of failure or tanks are not accessible; Average = One of the two conditions have been met; High = The fuel storage tanks are accessible and they are located in a secure site.</i>			
<ul style="list-style-type: none"> Safety of the fuel distribution system (valves, pipes, and connections) <i>Low = Less than 60% of system is in good operational condition; Average = between 60% and 80% of system is in good operational condition; High = More than 80% of system is in good operational condition.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical gases (oxygen, nitrous oxide, etc.)			
<ul style="list-style-type: none"> Sufficient storage for minimum of 15-day supply <i>Low = Less than 10-day capacity; Average = Capacity for between 10 and 15 days; High = Capacity for at least 15 days.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Anchors for tanks, cylinders, and related equipment <i>Low = Anchors are lacking; Average = Quality of anchors is inadequate; High = Anchors are of good quality.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Availability of alternative sources of medical gases <i>Low = Alternative sources are lacking or are in poor condition; Average = Alternative sources exist but their condition is below standard; High = Alternative sources exist and are in good condition.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Secure and appropriate locations for storage of medical gases <i>Low = The locations are unsafe; Average = The locations are moderately safe but hazards exist; High = The locations are safe and there are no hazards</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Safety of medical gas distribution system (valves, pipes, connections) <i>Low = Less than 60% of system is in good working condition; Average = Between 60% and 80% of system is in good working condition; High = More than 80% of system is in good working condition.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Protection of medical gas tanks and/or cylinders and related equipment <i>High = There are areas used exclusively for this equipment and they are operated by qualified personnel, Average = Areas exclusively for this equipment OR operated by qualified personnel, Low = No exclusives areas AND no qualified personnel to operate them</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Adequate safety in storage areas Verify that tanks and cylinders in storage area are stored safely <i>Low = Tanks and cylinders are loose and unsecured, Average = Some tanks and cylinders are secured and anchored ; High = Tanks and cylinders are safely anchored and secured.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Heating, ventilation, and air-conditioning (HVAC) systems in critical areas	Safety Level		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Adequate bracing for ducts and review of flexibility of the ducts and piping that cross expansion joints <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition of piping, connections, and valves <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition of anchors for central heating and/or hot water equipment <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<ul style="list-style-type: none"> • Condition of anchors for central air-conditioning equipment <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Adequate location of enclosures for HVAC equipment <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Adequate safety of enclosures for HVAC equipment <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Operational condition of equipment (boiler, air-conditioning systems, exhaust, etc.) <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3 Office and storeroom furnishings and equipment (fixed and movable) including computers, printers, etc.	Safety Level		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> • Anchors for shelving and shelf contents secured Verify that shelves are anchored to the walls and/or are braced and that contents are secured. <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Safety of computers and printers Verify that computer tables are secure and table wheels are locked. <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Condition of office furnishings and other equipment Check anchors and/or bracing on furnishings in offices. <i>Low = Poor; Average = Satisfactory; High = Good.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4 Medical and laboratory equipment and supplies used for diagnosis and treatment	Safety Level		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> • Medical equipment in operating theatres and recovery rooms Verify that lamps, equipment for anaesthesia and surgical tables are secure and that table or cart wheels are locked. <i>Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Condition and safety of radiology equipment Verify that the X-ray tables are secured and the wheels on X-ray equipment have functional brakes. <i>Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Condition and safety of laboratory equipment <i>Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Condition and safety of medical equipment in emergency room <i>Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Condition and safety of medical equipment in intensive care unit <i>Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Condition and safety of medical equipment in the pharmacy <i>Low = The equipment is in poor condition or it is not secured; Average = The</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.			
<ul style="list-style-type: none"> Condition and safety of medical equipment in the sterilization and disinfection unit Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of medical equipment in neonatal unit Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of medical equipment in burn unit Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of medical equipment in nuclear medicine and radiation therapy unit Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of medical equipment in other services Low = More than 20% of the essential equipment for a system's operation is at risk of material or functional failure and/or if nonessential equipment puts the entire service's operation at direct or indirect risk; Average = Neither "Low" nor "High"; High = 100% of the essential equipment and at least 80% of the nonessential equipment is secured. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Anchors for shelving and safety of medical contents Low = Shelves are anchored or shelf contents are secured in 0% to 20% of cases; Average = Shelves are anchored or shelf contents are secured in 20% to 80% of cases; High = More than 80% of shelves are anchored and the contents of shelves are secured. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3.5 Architectural elements	Safety Level		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Condition and safety of doors and entrances Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage to these elements. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of windows and shutters Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage to these elements. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of other elements of the building envelope Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage to these elements.. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of roofing 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<p><i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>			
<p>• Condition and safety of railings/parapets <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Condition and safety of walls <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Condition and safety of other outside elements (cornices, ornaments, etc.) <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Safe conditions for vehicle and pedestrian circulation outside of building <i>.Low = Damages to structure or road and walkways will impede access to buildings or endanger vehicles and pedestrians; Average = Damages to structure or road and walkways will not impede vehicle and pedestrian traffic; High = No or slight damage will not impede vehicle and pedestrian traffic</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Condition and safety of internal circulation <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Condition and safety of internal walls and partitions <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Condition and safety of false or suspended ceilings <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Condition and safety of lighting system <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>elements.</i>			
<ul style="list-style-type: none"> Condition and safety of fire suppression system <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of elevator system <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of stairways <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Condition and safety of floor coverings <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Hospital access <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Other elements <i>Low = High potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; Average = Moderate potential for damage to element(s) that may impede the performance of this and other components, systems, or operations; High = No potential for damage.to these elements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments on point 3:

Name/signature of evaluator _____

4. Hospital organisation, preparedness and safety.

This refers to level of preparedness of hospital staff as well as the implementation of the hospital disaster plan.

4.3.1 Organization of the Hospital Disaster Committee and the Emergency Operations Centre Assess the level of organisation achieved by the hospital management team.	Level of Organization		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Committee has been formally established to respond to major emergencies or disasters Obtain a copy of the Committee's terms of reference and most recent meeting minutes and verify that the list of members corresponds to current personnel. <i>Low = Non-existent; Average = Exists; High = Exists and is functioning.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> The Committee's membership is multi-disciplinary Verify that the committee's membership is drawn from diverse disciplines. <i>Low = 0-2 disciplines represented; Average = 3-4 disciplines represented; High = 5 or more disciplines represented (e.g., hospital director, nursing director, maintenance engineer, chief of emergency unit, chief of medicine, chief of surgery, chief of laboratory and support services, among others).</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Each member has specific responsibilities Verify that members' assigned responsibilities are in writing, describing their specific roles. <i>Low = Responsibilities not assigned; Average = Responsibilities have been officially assigned; High = All members know their responsibilities.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> The hospital has an Emergency Operations Centre (EOC) Verify that a room has been designated for operational command and that all means of communication are present and functional (telephone, fax, Internet, etc.). <i>Low = Nonexistent; Average = Room has been officially assigned; High = EOC exists and is operational.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> The EOC is in a protected and safe location Take into account accessibility, safety, and protection when checking the room used for the EOC. <i>Low = The room is not in a safe location; Average = The location is moderately safe and protected; High = The EOC is safe, protected and easily accessible.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> The EOC has a computer system and computers Verify that equipment is available and cabling etc. installed. <i>Low = Not available; Average = Some available/no cabling; High = The EOC has all computer system requirements.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Both internal and external communication systems in the EOC operate correctly. Determine whether there is a paging or a public address system and whether the operators know the emergency codes and how to use it. <i>Low = Does not function/ nonexistent; Average = Partially operational; High = Complete and functional.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> The EOC has an alternative communications system Determine whether, besides the switchboard, there is an alternative communications system (e.g. cellular etc.). <i>Low = Nonexistent; Average = Partial; High = Alternative in place and functional.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> The EOC has adequate equipment and furnishings Verify that there are desks, chairs, power outlets, lighting, water supply, and drainage. <i>Low = None; Average = Some but insufficient; High = Fully furnished and equipped.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<ul style="list-style-type: none"> • An up-to-date telephone directory is available in the EOC Request the directory containing numbers of all support services needed in an emergency (randomly confirm telephone numbers). <i>Low = No; Average = Directory exists but is not up-to-date; High = Available and current.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • “Action Cards” available for key personnel Obtain cards that describe the assigned duties of key members of hospital staff and that specify his/her participation in case of an internal or external disaster. <i>Low = Not available; Average = Insufficient (numbers and quality); High = All key staff have cards.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.2 Operational plan for internal or external disasters	Level of Implementation		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> • Strengthen essential hospital services The plan specifies actions to be taken before, during, and after a disaster in the hospital’s essential services (emergency room, intensive care unit, disinfection and sterilization unit, surgery, among others). <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Procedures to activate and deactivate the plan Verify that there are procedures for how, when, and by whom the plan is activated/deactivated. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Special administrative procedures for disasters Verify that the plan includes procedures for contracting personnel and for procurements in case of disaster. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained in procedures; High = Plan exists, personnel have been trained, and resources are in place to carry out the procedures.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Financial resources for emergencies are budgeted and guaranteed Verify that the hospital has a specific budget for use in disaster situations. <i>Low = Not budgeted; Average = Funds likely to cover less than 72 hours are budgeted; High = Sufficient funds guaranteed for 72 hours or more.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Procedures for expanding usable space, including the availability of extra beds The plan should identify physical spaces that can be equipped to treat mass casualties or for additional inpatient areas.. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out expansion of space.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Procedures for admission to the emergency department The plan should specify the places and personnel responsible for carrying out triage. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out triage.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Procedures to expand emergency department and other critical services The plan should include the approach to and actions needed to increase the capacity of the hospital’s critical services. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i>			
<p>• Procedures to protect patients' medical records. Security and the movement of medical and other critical records are included in the plan.. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Regular safety inspections are conducted by the appropriate authority During safety inspections, the expiration and/or recharge dates of fire extinguishers and dates of flow tests of fire hydrants should be noted. Logbooks with records of tests on this equipment as well as dates of visits of civil defence personnel should be examined. <i>Low = Inspections do not occur; Average = Partial or outdated inspection; High = Inspections are complete and up-to-date.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Procedures for hospital epidemiologic surveillance Verify that the hospital's Epidemiologic Surveillance Committee has specific procedures for disaster incidents or treatment of mass casualties. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Procedures for preparing sites for temporary placement of dead bodies and for forensic medicine Verify that the plan includes specific arrangements for pathology and a site for the placement of multiple cadavers. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Transport and logistic support The plan provides for ambulances and official vehicles for the hospital. <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Food and supplies for hospital staff during the emergency The plan specifies actions to be taken to provide food and other supplies to staff and funds are included in the budget. <i>Low = Nonexistent; Average = Covers less than 72 hours; High = Guaranteed for at least 72 hours.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>
<p>• Measures to ensure the well-being of additional personnel mobilized during the emergency. The plan sets out the procedures for ensuring the welfare and safety of all staff of the hospital both at work and at home. <i>Low = Nonexistent; Average = Measures cover less than 72 hours. High = Measures are ensured for at least 72 hours.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>• Cooperative arrangements with local emergency plans There are written arrangements regarding cooperation between the hospital and community authorities. <i>Low = No arrangements exist; Average = Cooperative</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

arrangements exist but are not operational; High = Cooperative arrangements exist and are operational.			
<ul style="list-style-type: none"> Preparation of a census of admitted patients and those referred to other hospitals <p>The plan has specific forms that facilitate the listing of patients during emergencies. Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Procedures for communicating with the public and media <p>The hospital disaster plan specifies who is responsible for communicating with the public and media in case of disaster (generally the highest person in the chain of command at the time of the event). Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Procedures for response during evening, weekend, and holiday shifts <p>Plan includes procedures and contact information to call out staff out of normal working hours. Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Simulation exercises and drills <p>The plan is tested regularly through simulations and drills, evaluated and amended as appropriate. Low = Plan is not tested; Average = Plan is tested less frequently than annually.; High = Plan is tested at least annually, reviewed and amended.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.3 Contingency plans for medical treatment during different types of disasters	Level of implementation		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Tsunamis, volcanoes, and landslides <p>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Social conflict and terrorism <p>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Floods and hurricanes <p>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Fires and explosions <p>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Chemical accidents and exposure to ionizing radiation <p>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<ul style="list-style-type: none"> • Pathogens with epidemic potential <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Psycho-social treatment for patients, families, and health workers <i>Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Control of infections acquired during hospitalization Request the corresponding hospital manual and verify whether procedures are in force for controlling infections acquired during hospitalization (nosocomial infections). <i>Low = Manual does not exist or exists only as a document; Average = Manual exists and personnel have been trained; High = Manual exists, personnel have been trained, and resources are available to implement measures.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.3.4 Plans for the operation, preventive maintenance, and restoration of critical services Measure the accessibility, legitimacy, and availability of those documents that are essential when attending to an emergency	Level of Availability		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> • Electric power supply and back-up generators Obtain the operations manual for the back-up electric generator as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to restore electric power.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Drinking water supply Obtain the operations manual for the water supply system as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to restore water supply.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Fuel reserves Obtain the operations manual for fuel supply, as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to restore fuel supplies.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Medical gases Obtain the operations manual for the medical gases supply system, as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to restore medical gas systems.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Standard and back-up communications systems Obtain the operations manual for the communications system as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to restore communications system.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Wastewater systems Ensure that the hospital wastewater disposal system is appropriate and is regularly 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

maintained. <i>Low = Unsatisfactory system for wastewater disposal; Average = System satisfactory but little or no evidence of compliance and maintenance; High = Satisfactory disposal system with evidence of compliance and maintenance..</i>			
<ul style="list-style-type: none"> • Solid waste management Obtain the manual on solid waste management, as well as the records showing waste collection and subsequent disposal. <i>Low = Documentation does not exist; Average = Documentation exists but incomplete or out of date. High = Documentation exists, personnel have been trained, and resources are in place to restore solid waste management.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Maintenance of the fire suppression system Obtain the manual for the fire suppression systems, as well as the records showing preventive maintenance on fire extinguishers and fire hydrants. <i>Low = Documentation does not exist; Average = Documentation exists but incomplete or out of date.; High = Documentation exists, personnel have been trained, and resources are in place to restore the fire suppression system.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5 Availability of medicines, supplies, instruments, and other equipment for disasters	Level of Availability		
	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> • Medicines <i>Check if inventory of stock of essential drugs is available Low = Nonexistent; Average = Available but not current; High = Available and current..</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Items for treatment and other supplies Check that the disinfection and sterilization unit has a supply of sterilized materials for use in an emergency (it is recommended that the supplies be rotated the day after sterilization). <i>Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Instruments Verify the existence and maintenance of specific instruments used in emergencies. <i>Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Medical gases Verify the arrangements for obtaining medical gases, and ensure in an emergency <i>Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Mechanical volume ventilators Obtain the operations manual as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to maintain the equipment..</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Electro-medical equipment Obtain the operations manual as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to maintain the equipment</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Life-support equipment Obtain the operations manual as well as the preventive maintenance records. <i>Low = Documentation does not exist; Average = Documentation exists; High = Documentation exists, personnel have been trained, and resources are in place to maintain the equipment</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<ul style="list-style-type: none"> • Personal protection equipment for epidemics (disposable) Verify the stocks of personal protection equipment for staff working in areas of initial contact. <i>Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Crash cart for cardiopulmonary arrest Verify the locations of crash carts for treatment of cardiopulmonary arrest. <i>Low = Nonexistent; Average = Present but insufficient; High = Sufficient numbers in good condition..</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Triage tags and other supplies for managing mass casualties Verify that the emergency department has a supply of triage tags and other supplies to distribute in case of mass casualties. <i>Low = Nonexistent; Average = Supply covers up to 50 casualties; High = Supply covers more than 50 casualties.</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments on section 4:

Name/signature of evaluator _____

Bibliography

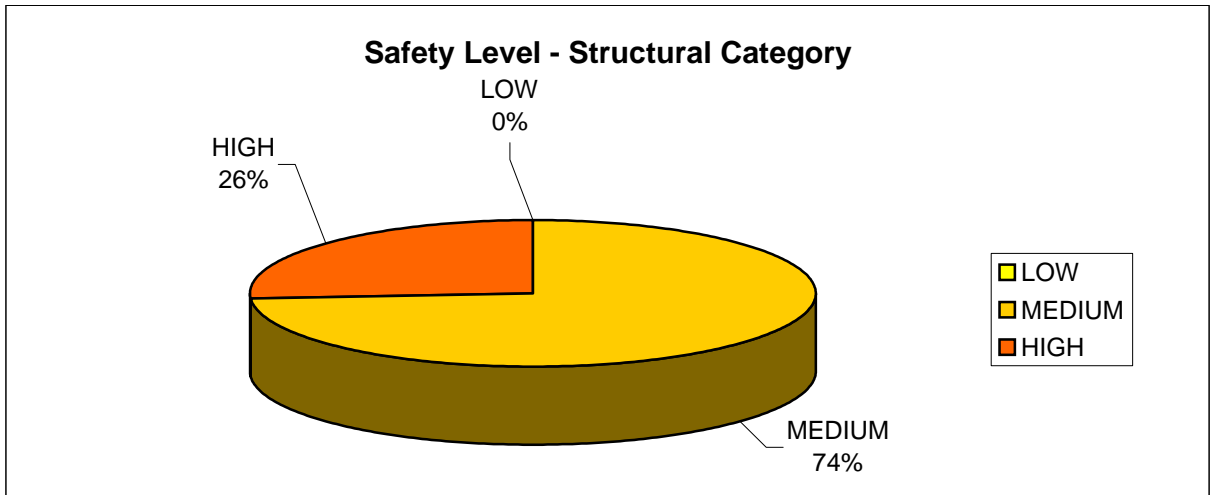
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1.3.1 Hospital Location Use hazard maps, if available	Safety Level			
	NO	LOW	MEDIUM	HIGH
Geological Hazards				
Earthquakes		1		
Volcanic Eruptions		1		
Landslides		1		
Tsunamis		1		
Others (specify)				
Hydrometeorological Hazards				
Hurricanes			1	
Torrential rains			1	
Storm surge and waves		1		
Landslides			1	
Social unrest				
Population concentrations			1	
Displaced Persons				1
Others (specify)				
Sanitary-Ecological Hazards				
Epidemics				1
Contamination (systems)			1	
Infestation			1	
Others (specify)				
Chemical-Technological Hazards				
Explosions			1	
Fires			1	
Hazardous materials spills				1
Others (specify)				
1.3.2 Soil Geotechnical Properties				
Liquefaction		1		
Sensitive Clays		1		
Unstable slopes		1		

Step 1: Use **only** a number "1" when answering questions affirmatively. **Do not** answer a question if it is not measurable or not relevant for the health facility under evaluation.

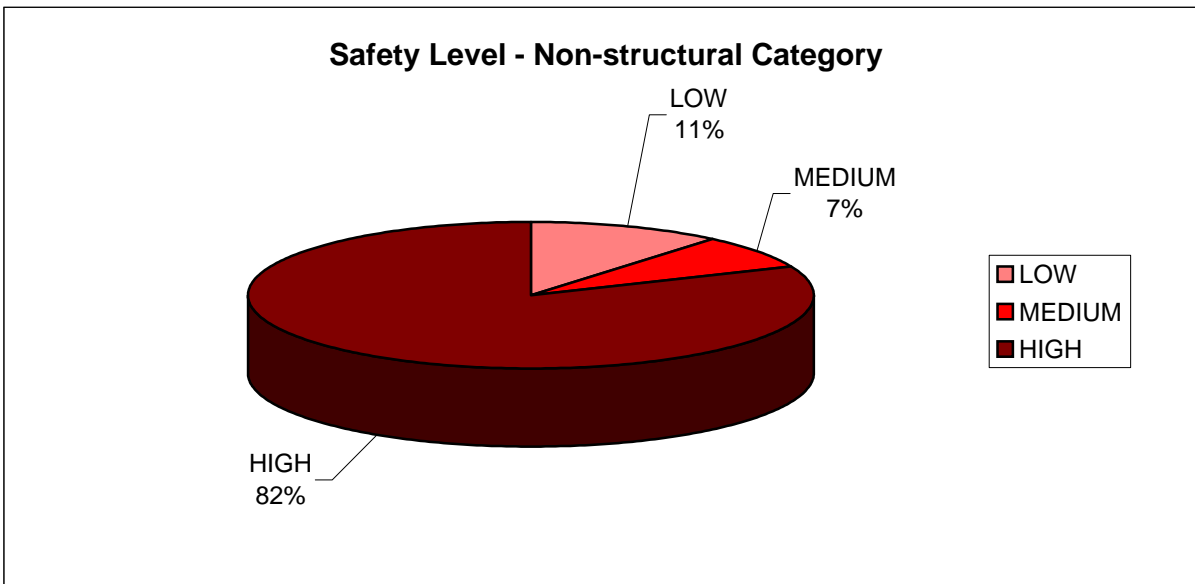
2.3.1 Safety due to the history of the establishment		Safety Degree			
Was the hospital exposed to a significant hazardous event in the last 30 years? (If no, go to 2.3.2)		LOW	MEDIUM	HIGH	Check
1	Did the hospital suffer any significant structural damage?		1		YES
2	Did the hospital suffer any minor structural damage?		1		YES
3	Was the hospital repaired using appropriate/current standards?		1		YES
2.3.2 Safety due to architectural configuration		Safety Degree			
		LOW	MEDIUM	HIGH	Check
4	Separation joints (existence and condition)		1		YES
5	Proximity of buildings (hammering, funneling of wind, fire, etc.)			1	YES
6	Plan irregularities		1		YES
7	Elevation irregularities		1		YES
8	Road access		1		YES
9	External circulation within the complex			1	YES
10	Internal circulation (including stairs and elevators)			1	YES
11	Remodeling and adaptation of buildings		1		YES
2.3.3 Safety due to structural systems and building materials used		Safety Degree			
		LOW	MEDIUM	HIGH	Check
12	Soil-structure interaction		1		YES
13	Foundations			1	YES
14	Short columns		1		YES
15	Spacing of columns (structural redundancy)		1		YES
16	Beam column relationship		1		YES
17	Beam configuration		1		YES
18	Shear walls		1		YES
19	Influence of partitions on structures		1		YES
20	"Soft storeys" (different heights between floors or free space from the ground floor)		1		YES
21	Structural irregularities		1		YES
22	Mass concentration by location: water tanks or heavy equipment on the upper floors of the building			1	YES
23	Construction materials			1	YES
TOTAL STRUCTURAL		0	17	6	23
					Each Question weights
					2.17%



3.3.1 Utilities (installations)		Safety Degree			
Electric system		LOW	MEDIUM	HIGH	Check
1	Standby generator can supply 100% of demand and is tested regularly.			1	YES
2	Redundancy in municipal power supply.	1			YES
3	Systems have a control panel with an overload switch and duly protected electrical wiring.			1	YES
4	Lighting system in key hospital locations.			1	YES
5	Underground external electrical distribution system within the perimeter of the hospital site.			1	YES
Telecommunication system					
6	Condition of antenna and supporting frames.				No Answer
7	Check paging system and Internet connections/cables.				No Answer
8	Check anchorage of equipment and support of cables.	1			YES
9	Underground communication systems within perimeter of the hospital.				No Answer
Water storage system					
10	Onsite water storage capacity for 3 days (2,000 liters per bed per day)			1	YES
11	Outdoor tanks are in a secure and protected location.			1	YES
12	Underground storage with protection.				No Answer
13	Redundant main water supply.				No Answer
14	Safety of valves and couplings.			1	YES
Fuel storage (Gas, gasoline or diesel):					
15	Capacity of fuel tanks for at least 5 days.			1	YES
16	Bolted and well protected permanent tanks.			1	YES
17	Location of gas cylinder storage.		1		YES
18	Secure storage for cylinders.		1		YES
Medical gases (oxygen, nitrogen, etc.)					
19	Sufficient storage for at least 15 days.			1	YES
20	Alternative source for medical gases is available.			1	YES
21	Secure storage for cylinders.			1	YES
22	Appropriate safety valves			1	YES
3.3.2 Heating, ventilation and air-conditioning systems for critical areas					
23	Adequate duct supports and check for accommodation of movement where ducts and pipes traverse separation joints.			1	YES
24	Check couplings and water pipes for potential leaks.			1	YES
25	Check safety valves and medical gas pipes for potential leaks.			1	YES
26	Check anchorage of central heating and/or hot water equipment			1	YES
27	Check support for tubes, ducts and cables			1	YES
28	Check anchorage of central air conditioning equipment			1	YES
3.3.3 Furniture and fixed and movable office equipment (Includes computers, printers etc)					
29	Check anchorage of shelving and restraints for contents				No Answer
30	Office furniture				No Answer
31	Computer and printing equipment fixed				No Answer
3.3.4 Medical equipment used for diagnosis and treatment					
32	Fixed medical equipment in the Operating Room			1	YES

33	Fixed medical equipment of Diagnostic Imaging			1	YES
34	Fixed medical equipment (others)	1			YES
35	Movable medical equipment is bolted to walls/floors (e.g. beds, cots, incubators, dialysis equipments, monitors, stretchers, wheelchairs)			1	YES
3.3.5 Architectural elements					
36	Check envelope/perimeter of building including external doors, windows and eaves' soffits, for water ingress/leakage and flying debris.				No Answer
37	Check lamination or poly-carbonation glazing of partitions, windows and doors.				No Answer
38	Check anchorage of cornices, false ceilings, lighting fixtures.				No Answer
39	Check anchorage of external finish.				No Answer
40	Check anchorage of appendage.				No Answer
41	Check stability of partitions.				No Answer
TOTAL NON-STRUCTURAL		3	2	22	27

Each Question weights	1.11%
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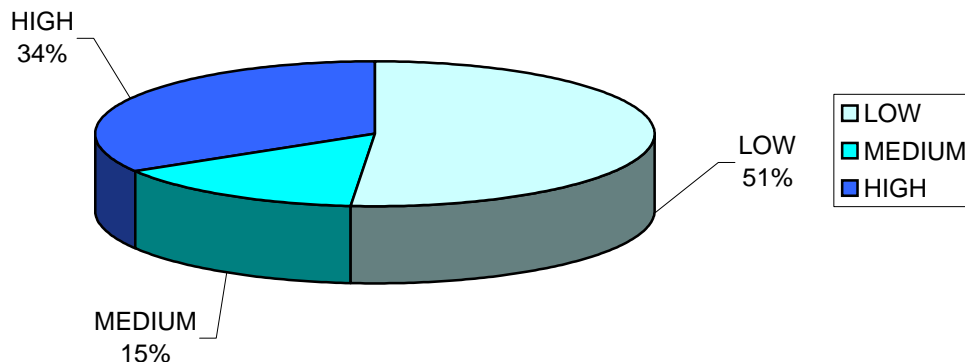
4.3.1 Internal organization for actions during serious disasters		Level of Organization			
		LOW	MEDIUM	HIGH	Check
1	Task force to respond to major emergencies and disasters.			1	YES
2	The committee is multidisciplinary.			1	YES
3	Each member has specific responsibilities assigned.			1	YES
4	The hospital has established and staffed a command center.			1	YES
5	The center is located in a safe and secure location.			1	YES
6	The center's information systems and computers are operational and have Internet access.	1			YES
7	Internal and external communication systems work properly.	1			YES
8	Alternate communication system is in place.	1			YES
9	Center is properly furnished and equipped.	1			YES
10	Updated telephone contact lists are available.	1			YES
11	"Action Cards" are available.			1	YES
4.3.2 Operational plan for internal/external serious hazardous events		Implementation Level			
		LOW	MEDIUM	HIGH	Check
12	Strengthening of the institution's essential services.		1		YES

13	Procedures for plan's activation and de-activation.		1		YES
14	Emergency administrative procedures.		1		YES
15	Emergency financial resources budgeted and guaranteed.	1			YES
16	Space identified for emergency uses including bed capacity.			1	YES
17	Procedures to implement emergency admissions policies.	1			YES
18	Procedures to prepare emergency room and other critical areas.		1		YES
19	Procedures for securing medical records.	1			YES
20	Regular inspections by the fire authorities.	1			YES
21	Regular inspections by the national emergency authorities.	1			YES
22	Procedures for epidemiological surveillance (in hospital).			1	YES
23	Procedures for temporary body storage sites and forensic medicine locations.			1	YES
24	Procedures for management of hazardous or infectious materials.	1			YES
25	Transportation and logistics support.			1	YES
26	Dietary rations for staff during emergency situations.			1	YES
27	Emergency accommodations for staff.		1		YES
28	Contingency plan covers measures to ensure well being of staff.			1	YES
29	Operational plan is linked to community emergency plan.	1			YES
30	Plan includes measures to keep track of admitted patients and those referred to other hospitals.			1	YES
31	Plan includes steps to hire additional personnel during disasters.			1	YES
	4.3.3 Specific guidelines and procedures for contingency cases including triage, stabilization and treatment.	Implementation Level			
		LOW	MEDIUM	HIGH	Check
32	Casualty management during geological disasters.	1			YES
33	Casualty management during hydrometeorological disasters.	1			YES
34	Casualty management during public health emergencies.	1			YES
35	Casualty management during social unrest or terrorism.	1			YES
36	Casualty management during chemical or technological disasters.	1			YES
37	Management of burn victims.	1			YES
38	Management and care of ionizing radiation victims.	1			YES
39	Casualty management of infectious agents in epidemics and/or potential pandemic.	1			YES
40	Psychological support for disaster victims and hospital staff.	1			YES
41	Space equipment and procedures for decontamination and disinfection.	1			YES
42	Emergency Resuscitation Room.		1		YES
	4.3.4 Guidelines and manuals for planned preventive maintenance and repair of vital services	Available and applied			
		LOW	MEDIUM	HIGH	Check
43	Electric power supply and auxiliary energy plants.	1			YES
44	Potable water supply.	1			YES
45	Fuel reserves.		1		YES
46	Medical gases.			1	YES
47	Regular and alternate communication systems.	1			YES
48	Common radio frequency with response agencies (police, fire).	1			YES
49	Buildings, equipment and grounds.		1		YES
50	Sewerage systems.	1			YES
51	Waste disposal.			1	YES
52	System maintenance against fires (extinguishers, sprinkler and alarm systems).	1			YES
	4.3.5 Emergency medicines, medical supplies and equipment	Availability Degree			
		LOW	MEDIUM	HIGH	Check
53	Essential drugs are inventoried and updated regularly.			1	YES

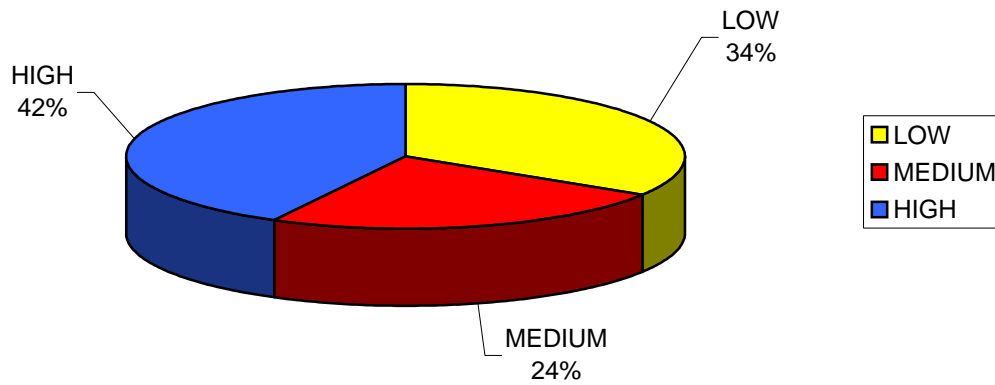
54	Medical supplies/materials are inventoried and updated regularly.			1	YES
55	Basic equipment for handling emergencies.		1		YES
56	Medical gases.			1	YES
57	Mechanical ventilation equipment (volumetric type).		1		YES
58	Electro-medical equipment.			1	YES
59	Life-support equipment.			1	YES
60	Protective equipment for epidemics (disposable materials).			1	YES
61	Cardiac arrest trolley (crash cart).			1	YES
62	Triage tags and other mass casualty supplies.			1	YES
4.3.6 Staff education and training programs for emergency and disaster management		Development Degree			
		LOW	MEDIUM	HIGH	Check
63	Education and training programs are provided regularly.	1			YES
64	Programs are accredited by the appropriate entities.	1			YES
65	Simulations and drills (at least once a year).	1			YES
66	Staff is trained in using fire response systems.	1			YES
67	Team development trainings.	1			YES
68	Emergency maintenance teams for medical gases and utilities.	1			YES
69	Fire fighting teams	1			YES
70	Security teams.	1			YES
71	Evacuation support team.	1			YES
72	Basic life-support teams.	1			YES
73	Psycho-social support team.	1			YES
74	Personnel trained in advanced courses (cardiac, trauma, pediatric and pre-hospital life support courses).	1			YES
4.3.7 Security and Safety Plan		Implementation Degree			
		LOW	MEDIUM	HIGH	Check
75	Staff identification (including for emergency teams) procedures are in place.	1			YES
76	Building's surveillance and security systems.		1		YES
77	Procedures for public and press communications.			1	YES
78	Specific action plan in case of a fire.			1	YES
79	Hospital evacuation routes are marked, lighted and unobstructed.		1		YES
80	Assembly area is safe and previously identified.			1	YES
TOTAL FUNCTIONAL		41	12	27	80
OVERALL TOTAL		44	31	55	130

Each Question weights 0.25%

Safety Level - Functional Category



Safety Level - All Categories



Step 2: Before moving on to the next step in the Safety Index (black tab found below), ensure that there are no "ERROR" messages in the Check column. In case an "ERROR" message is shown, refer back to that specific question and answer it according to Step 1. Charts and formulas will not calculate

Step 3: Tabulate responses according to category.

Category	Unlikely to function		Likely to function		Highly likely to function		Total
Structural	0	0%	17	74%	6	26%	23
Non-structural	3	11%	2	7%	22	81%	27
Functional	41	51%	12	15%	27	34%	80

Step 4: Input vertical weights to be used. Below are figures agreed upon by DIMAG.

Vertical Weight	
Structural	0.5
Non-structural	0.3
Functional	0.2

Category	Unlikely to function		Likely to function		Highly likely to function		Total
Structural	0	0%	17	37%	6	13%	50%
Non-structural	3	3%	2	2%	22	24%	30%
Functional	41	10%	12	3%	27	7%	20%
Total		14%		42%		44%	100%

Step 5: Input horizontal weights to be used. Below are figures agreed upon by DIMAG.

Horizontal weight		Safety factors
Unlikely to function	1	0.136
Likely to function	2	0.844
Highly likely to function	4	1.770

Lower horizontal weight factor

Upper horizontal factor

Overall safety Factor **2.749**

Step 6: Calculate range to be used in safety/unsafety index formulas (see comment)

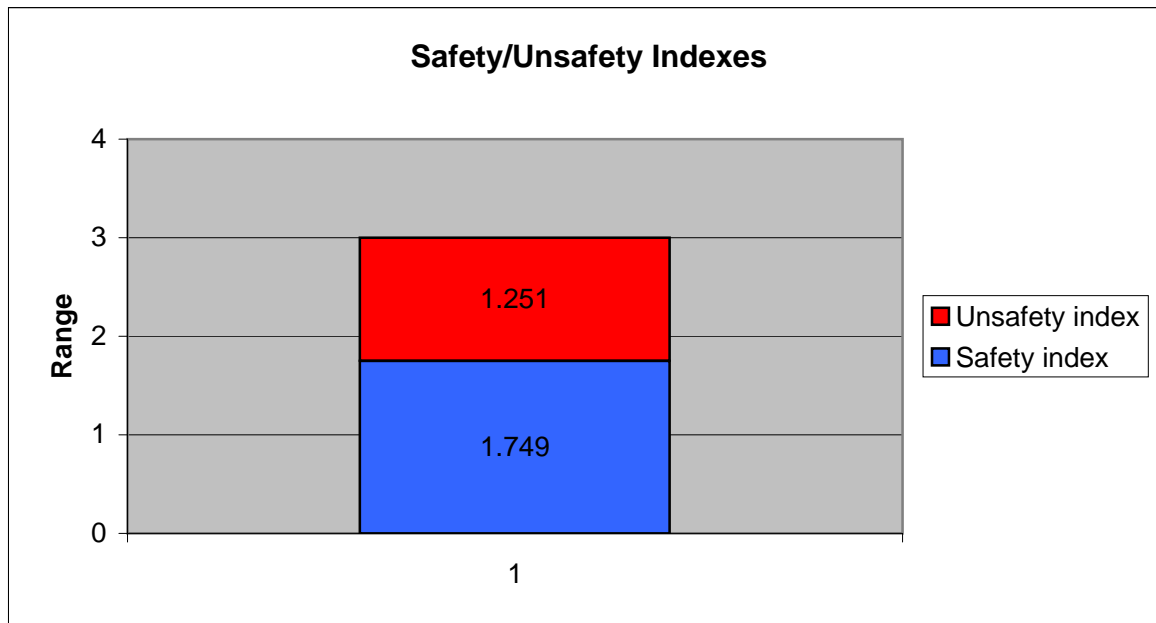
$$\text{Range} = \text{Upper horizontal weight factor} - \text{lower horizontal factor} = 4 - 1 = 3$$

Step 7: Calculate safety index and unsafety index.

$$\text{Safety Index} = S = \frac{\text{Safety factor} - \text{Lower Range Limit}}{\text{Range}} = 0.583$$

$$\text{Unsafety Index} = 1-S = \frac{\text{Upper range limit} - \text{Safety Factor}}{\text{Range}} = 0.417$$

Safety index	1.749	58%
Unsafety index	1.251	42%



Step 8: Compare safety index with base recommendations.

Safety index	Category Type	What should be done?
0 – 0.35	Category C	Urgent measures are required immediately, as the health facility’s current safety levels are not sufficient to protect patients and staff during and after a disaster event.
0.36 – 0.65	Category B	Necessary measures are required at some point, as the health facility’s current safety levels can potentially put at risk patients and staff during and after a disaster event.
0.66 – 1	Category A	Preventative measures are suggested at some point, as the health facility’s current safety levels can cause acceptable damages, which nevertheless reduce the overall safety level of the installation.

Health Facility Status **Category B**

1. **NAME OF HOSPITAL:** XYZ Hospital
2. **CITY:** ABC City
3. **COUNTRY:** DEF Country
4. **DATE OF ASSESSMENT:** day – month – year
5. **NAMES OF ASSESSORS:** A N Other and colleague
6. **ASSESSMENT RATINGS AND COMMENTS:**

6.1. SUMMARY:

	Low Safety	Medium Safety	High safety
Structural:	0%	74%	28%
Non-structural:	11%	7%	82%
Functional capacity:	51%	15%	34%
Overall:	34%	24%	42%

6.2. LOCATION: Generally the site was identified as vulnerable to geological hazards such as earthquakes, volcanic eruptions, landslides, tsunamis and also to storm surge and waves. Risks from soil properties such as liquefaction, sensitive clays and unstable slopes were also identified.

6.3. STRUCTURAL SAFETY: The structure of the buildings was rated as generally safe particularly in relation to the layout and circulation within and between buildings and the foundations and construction materials.

6.4. NON-STRUCTURAL SAFETY: With the exception of redundancy in the mains water supply, electrical, water and medical gas systems were rated as safe. Anchorage of telecommunication equipment, the location and secure storage of gas cylinders and fixed medical equipment were also identified as requiring measures to improve safety.

6.5. FUNCTIONAL CAPACITY: Attention is required to basic aspects of emergency planning including the information and communication systems for the emergency operations centre and to specific aspects of the emergency operations plan particularly procedures to access financial resources and implement emergency admissions policy and securing medical records.

The plan needs to address the management of hazardous materials and be linked with the community. Guidelines for all aspects of mass casualty management need to be developed and also for planned preventive maintenance of essential services.

Major safety concerns were identified in the areas of staff education and training programmes for emergency and disaster management.

- 7. SAFETY INDEX AND COMMENTS:** The overall safety Index for the Hospital was calculated at 0.58 placing the facility in the range 0.36-0.65 as a Category B institution. This indicates that the facility's current safety levels can potentially put patients and staff at risk.

The detailed analysis above indicates that the safety of the institution would be improved significantly by attention to some non-structural but mainly functional aspects. These are addressed in the specific recommendations below.

8. SPECIFIC RECOMMENDATIONS:

- 8.1.** Review the arrangements for the emergency operations centre with particular attention to information and communication systems and furniture and equipment.
- 8.2.** Review and document procedures to access funds in an emergency, an emergency admissions policy and security of medical records.
- 8.3.** Invite regular inspections of the buildings by the fire authorities and implement their recommendations as a matter of priority.
- 8.4.** Review procedures for the management of hazardous or infectious materials.
- 8.5.** Review and update emergency and security plans paying special attention to mass casualty management and the items identified as "Low safety" in the assessment instrument.
- 8.6.** Review procedures for the planned preventive maintenance of essential services and implement new measures as required.
- 8.7.** Provide staff training programmes and test the plans with simulations and drills.