



# Pan American Health Organization



*Regional Office of the  
World Health Organization*

<http://www.paho.org>

## Report on progress on safer and greener hospitals programs and the revised Hospital Safety Index

**Dr. Ciro Ugarte**

**Manager a.i.**

**Disaster Risk Reduction  
and Emergency Preparedness**





# Policy Commitments at Global and Regional Levels

- In **1976** after a series of disasters (70, 72, 76), the Ministers of Health in the Americas established the **Emergency Preparedness and Disaster Relief Program**.



## The trigger

The **1985** Mexico earthquake showed that having well prepared hospitals was not enough to cope with disasters.

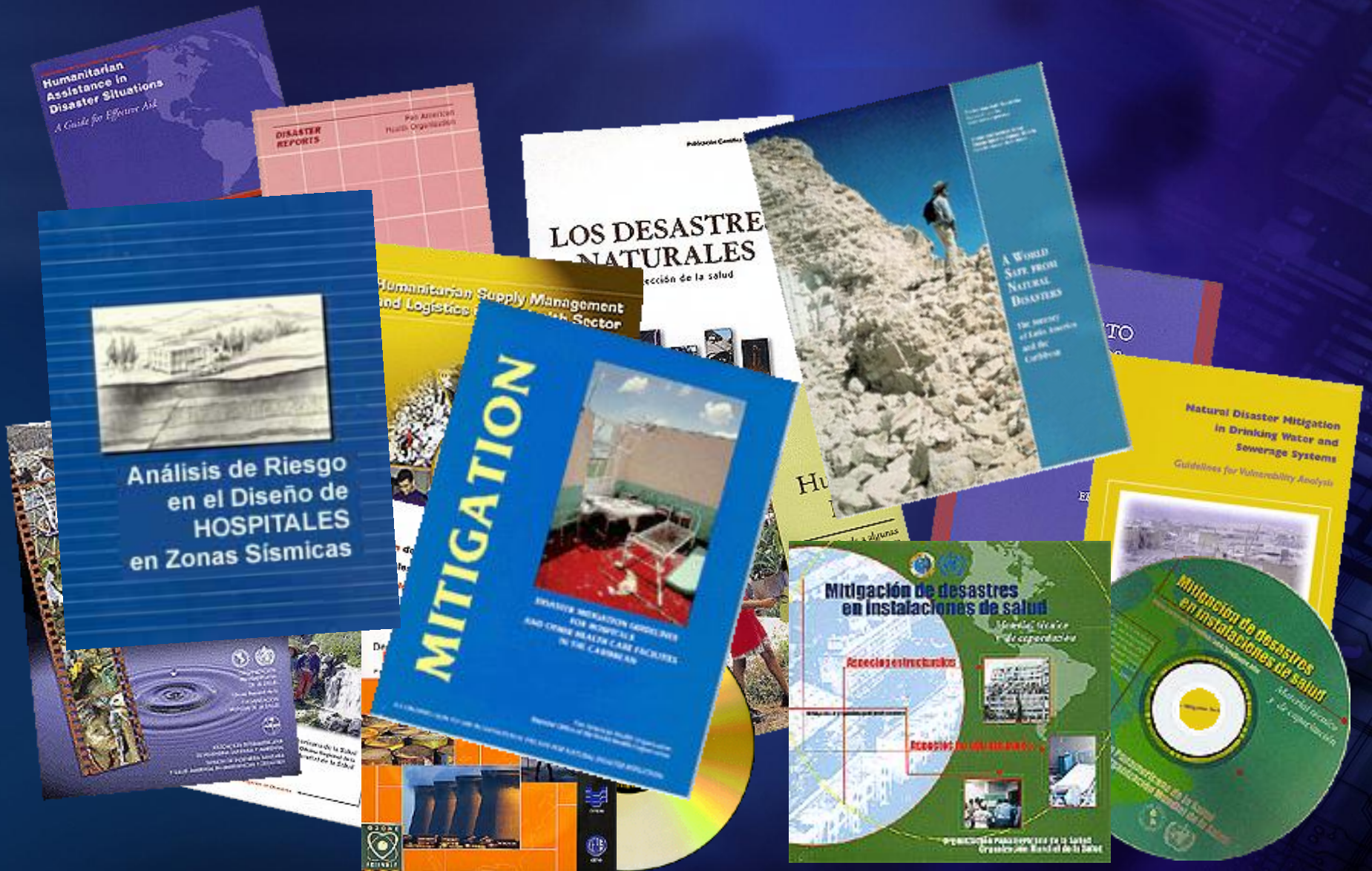
The ministers of health decided to implement **hospital mitigation** measures to prevent infrastructure collapse.



## **Long way from preparedness to mitigation**

- From 1985 to 2003, many initiatives were implemented to reduce the vulnerability of health facilities:
  - ✓ International Course on Planning, Design and Construction of Hospitals in Seismic Zones (1989)
  - ✓ Technical publications on mitigation in health facilities: structural, non-structural and functional. (1990)
  - ✓ International Conference on Vulnerability Reduction in Health Facilities (1996)
  - ✓ Hospitals Vulnerability Studies in more than a dozen countries. (1997-1998)
  - ✓ PAHO/WHO Collaborating Center (1995-2003)
  - ✓ Disaster Mitigation Advisory Group (DiMAG) (2003)

# Scientific Publications



# The problem

- More than 67% of the nearly 18,000 hospitals in Latin America and the Caribbean are located in high risk areas.
- Hospitals are a huge investment and represent close to 70% of the Ministries of Health budget.
- Consequence: 45 million people without proper health care and more than 9 billion dollars in direct costs.

**From**

**Vulnerability Reduction in  
Health Facilities**

**to**

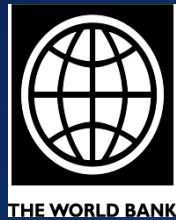
**Safe Hospitals**



# Regional Meeting

## Hospitals in Disasters: Handle with Care

El Salvador, 8-10 July 2003





PAN AMERICAN HEALTH ORGANIZATION  
WORLD HEALTH ORGANIZATION



**45th DIRECTING COUNCIL**  
56th SESSION OF THE REGIONAL COMMITTEE

*Washington, D.C., USA, 27 September-1 October 2004*

Adopt **“Hospitals Safe from Disasters”** as a national risk reduction policy, set the goal that all new hospitals are built with a level of protection that better guarantees their **remaining functional in disaster situations,**

and implement appropriate mitigation measures to retrofit existing health facilities, particularly those providing primary care.



# World Conference on Disaster Reduction

18-22 January 2005, Kobe, Hyogo, Japan

“Integrate disaster reduction planning in the health sector; Promote the goal of **Safe Hospitals** to ensure that all new hospitals are built with a level of protection that better guarantees their **remaining functional in disaster situations**,

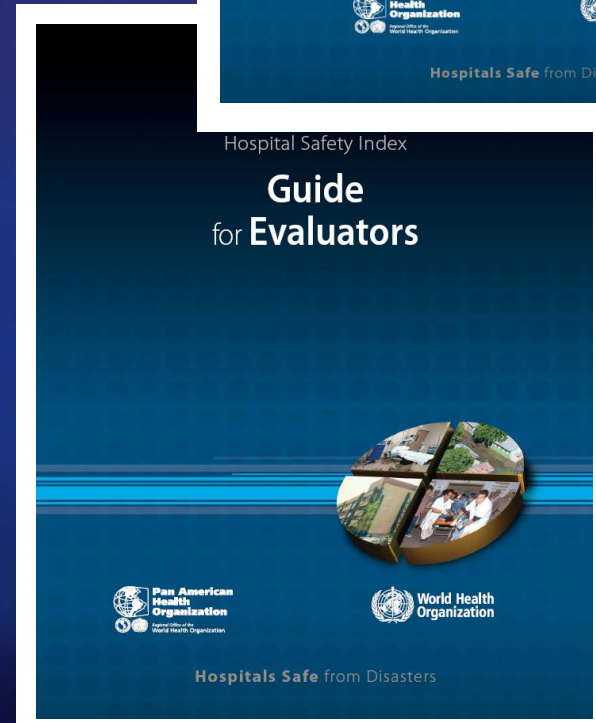
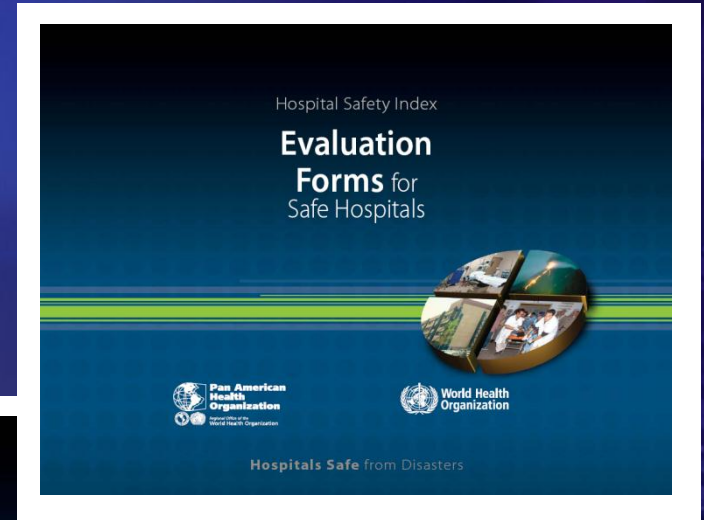
and implement appropriate mitigation measures to reinforce existing health facilities, particularly those providing primary care.”

# Levels of Protection

- I. Life Protection (patients, health personnel and visitors)
- II. Investment Protection (equipment, supplies, furniture and utility services)
- III. Operational Protection (facility's capacity to provide health care).

# Hospital Safety Index

- Safe Hospitals Checklist
- Mathematic Model (Safety Index Calculator)
- Hospital Safety Index



# Creating a National Safe Hospitals Program

## Hospitals Safe from Disasters

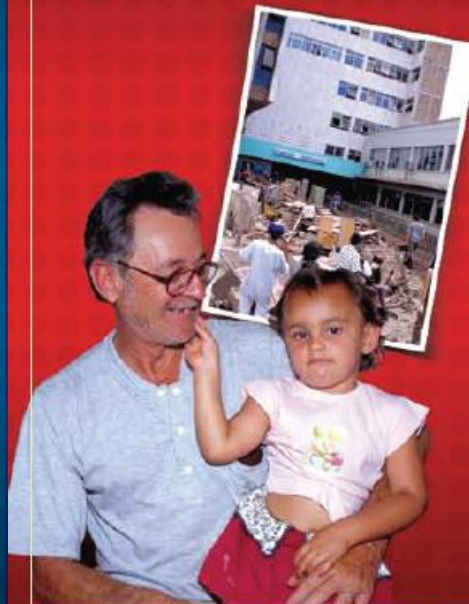
A Goal within our Reach



### Creating a National Safe Hospitals Program

#### Objectives

- Develop policies and norms for hospitals safe from disasters.
- Protect the lives of all occupants, the investment in the infrastructure, and the functionality of new health facilities and those identified as priority facilities in the health services network.
- Make existing national and international policies and norms on safe hospitals widely known and follow up their implementation on a regular basis.



### Strategies and Activities

#### National and international policy agreements

- Promote political and legislative decisions to establish a safe hospitals program in the Ministry of Health, other health sector institutions and regional organizations.
- Make a wide variety of national disaster prevention and response agencies key partners in achieving this goal, which was set forth in the Hyogo Framework for Action 2005 - 2015: Building the Resilience of Nations and Communities to Disasters.



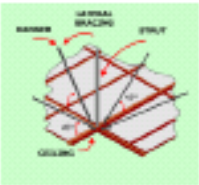
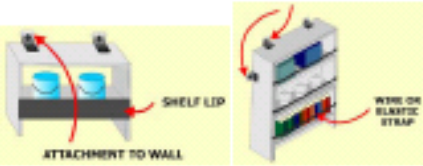
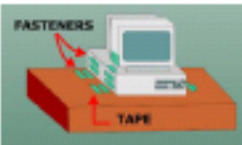
#### Develop and update norms and standards

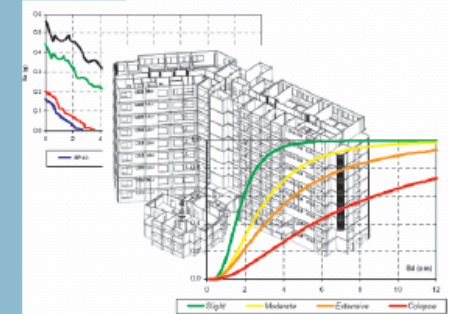
- Develop a national legal framework on safe hospitals.
- Prepare building codes, norms and procedures, technical manuals, protocols and regulations that support the implementation of a national program on hospitals safe from disasters.



# Europe

Table 4.2 Non-structural mitigation measures (ref: [4,12])

Existing hazard	Mitigation measure	Photo
Glass (partitions, windows)	Utilization of safety glass (expensive option). Covering with plastic transparent foil in order to prevent glass shattering.	
Suspended Ceilings	Adequately mounted to floor structure with restrainers (lateral bracing).	
Lighting	Properly protected and mounted to ceilings.	
Unfastened cabinets and shelves	Cabinets and shelves properly secured to the wall using angle brackets in order to avoid dislocation or overturning. Free standing units fastened with continuous angles to floor. The overturning of existing items secured by means of secure lip, metal wire or elastic straps. Install mechanical drawer latches and mechanical cabinet catches.	
Monitors, computers or similar equipment	To be fastened to table with adhesive tape or connecting straps.	



Seismic Vulnerability Assessment of a Key Health Facility in The former Yugoslav Republic of Macedonia

- a handbook -



## International Day for Disaster Reduction

Hospitals Safe from Disasters

14 October 2009 - London

2013

# South East Asia



Sardjito Hospital, 28 May 2006 morning.

**Regional Consultation of SEAR Member Countries on**  
**Keeping Health Facilities Safe from Disasters**

New Delhi, India  
15-17 April 2008



**World Health Organization**  
Regional Office for South-East Asia

## Checklist for Hospital Safety

Quick evaluation to assess building safety caused by earthquake

## KAJIAN CARA CEPAT KEAMANAN BANGUNAN TEMBOKAN SEDERHANA SATU ATAU DUA LANTAI YANG RUSAK AKIBAT GEMPA

Teddy Boen  
(tedboen@cbn.net.id)

### CATATAN :

Walaupun telah banyak waktu dan usaha yang dicurahkan untuk menyusun daftar cepat untuk bangunan sederhana yang rusak akibat gempa ini, tanggung jawab hasil pemakaian daftar cepat ini berada pada pihak yang memakainya.

**adpc**

**Asian Disaster Preparedness Center**

**adpc** 20 years  
of reducing disaster risks  
in Asia and the Pacific

Safe Hospital: The Key to deliver effective Emergency Medical Services

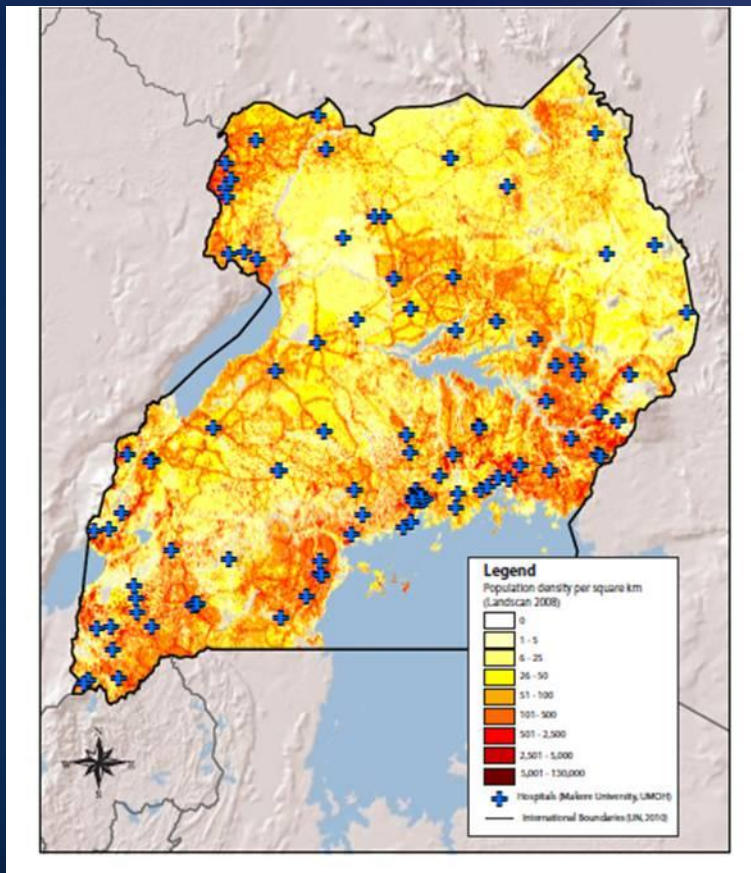


# Africa

## Uganda experience

Health facilities / services

Vulnerability / Capacity



➔ Missing health facility  
Vulnerability / capacity information

➔ Hospital Safety Index



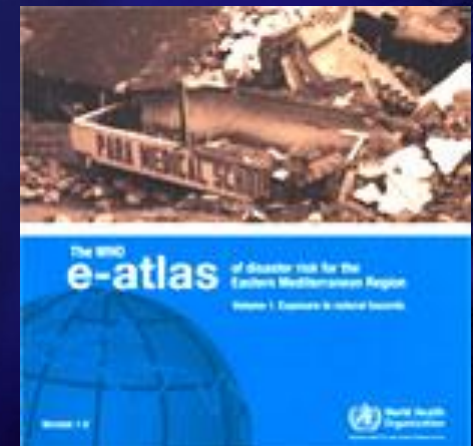
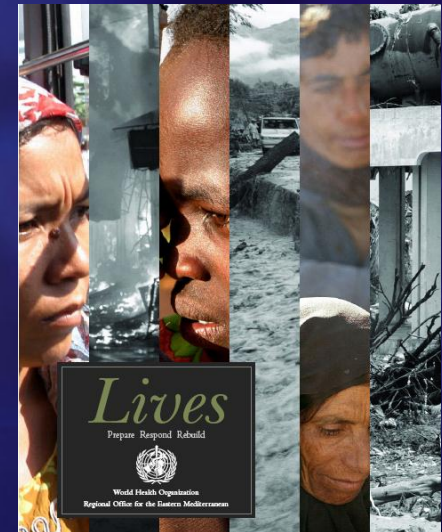
➔ Health Information System

➔ Health facility registry

# East Mediterranean

## المستشفيات المأمونة من الكوارث الطبيعية

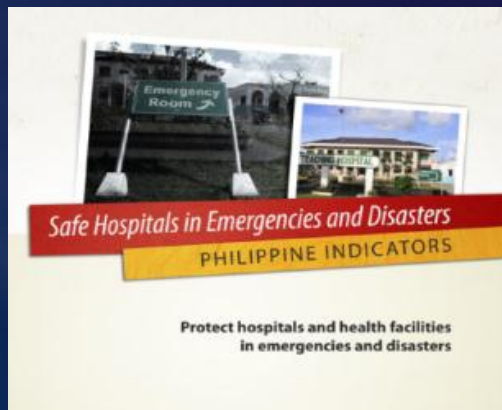
- The 2005 Pakistan Earthquake destroyed 388 of the 796 health facilities.
- A Group of Experts was created to validate safe hospital assessment tools and to elaborate a Regional Implementation Framework.
- Electronic Disaster Risk Atlas
- At least 5 countries are implementing a safe hospitals initiative.



# Western Pacific

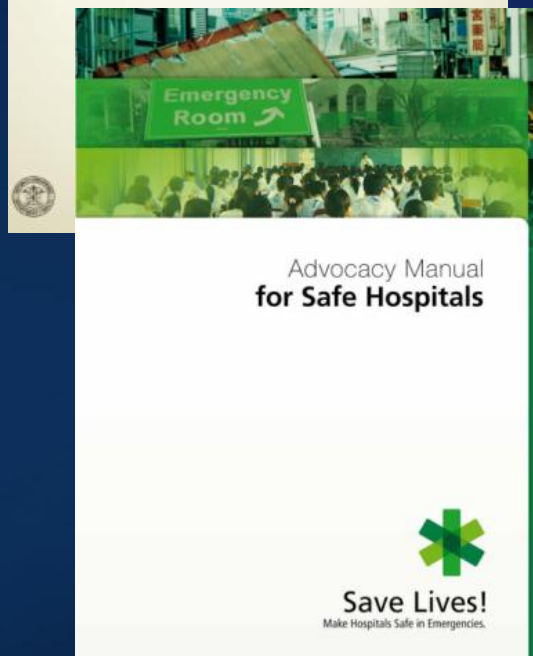


Save Lives!  
Make Hospitals Safe in Emergencies.



## Priority Actions:

- Hospital vulnerability assessment.
- Human resources for disaster management
- Capacity building for preparedness and responses.
- Technical cooperation to improve structural safety.
- Workshops, training activities and tools to promote safe hospitals policy.



## Bệnh viện an toàn trong tình huống khẩn cấp

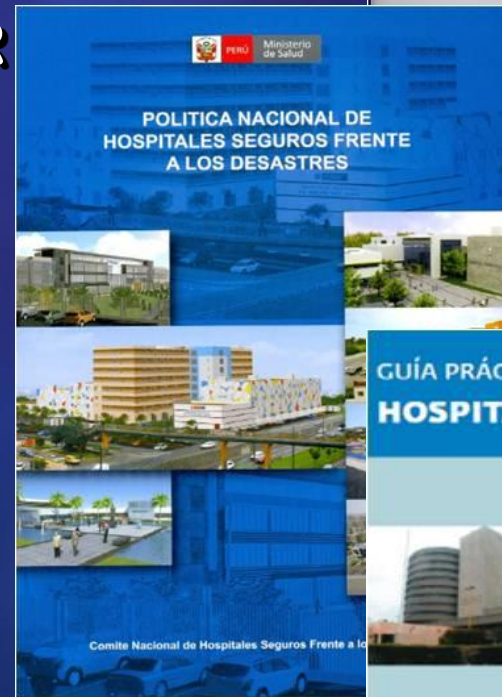
Các chỉ số về kết cấu, phi kết cấu và chức năng

Tổ chức Y tế Thế giới  
Văn phòng Khu vực Tây Thái Bình Dương  
2009



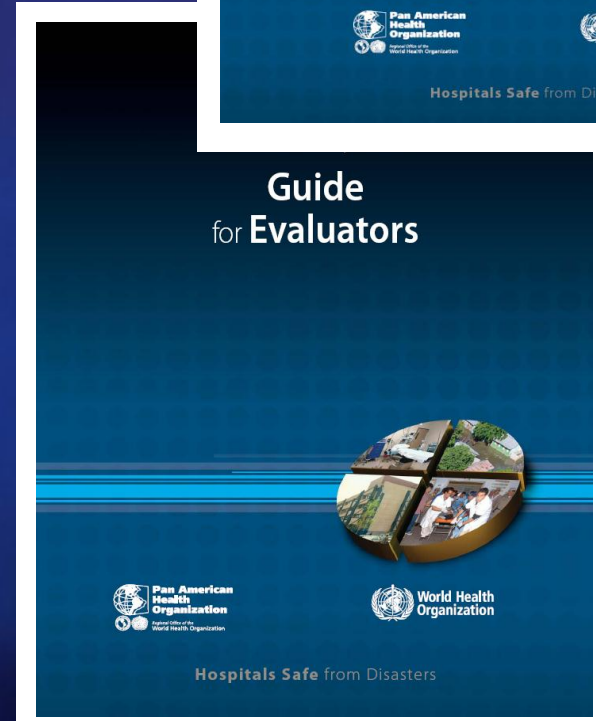
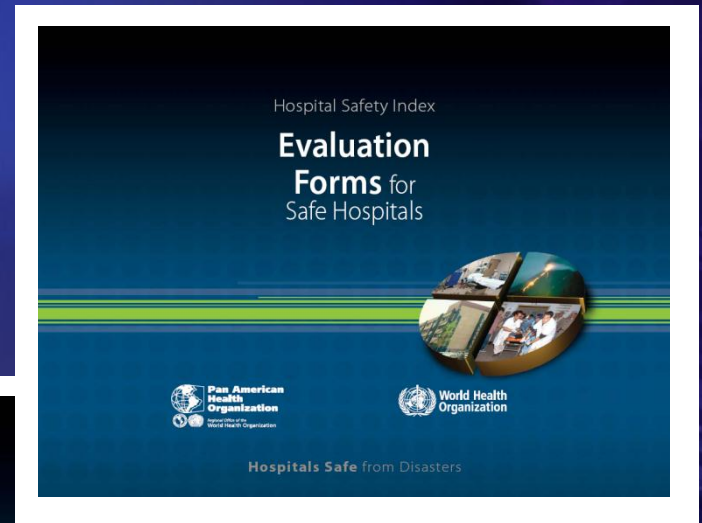
# Americas

- Regional Plan of Action on Safe Hospitals 2010-2015
- 28 countries have included DRR as a component of their HDP
- 32 countries and territories in the Region are applying the Hospital Safety Index.
- 20 Countries have a National Policy on Safe Hospitals and 17 have a Safe Hospitals Program.
- Almost all hospitals in category “C” and 40% of category “B” are implementing measures.



# Hospital Safety Index for Small and Medium Hospitals

- Safe Hospitals Checklist
- Mathematic Model (Safety Index Calculator)
- Hospital Safety Index



# Smart Hospitals Initiative



# Consider Climate change as a hazard

23



**EXPOSURE IS INCREASING !**



**Do not wait for the right answer!**

**Tropical Cyclones**

**Heavy rainfall / Flood**

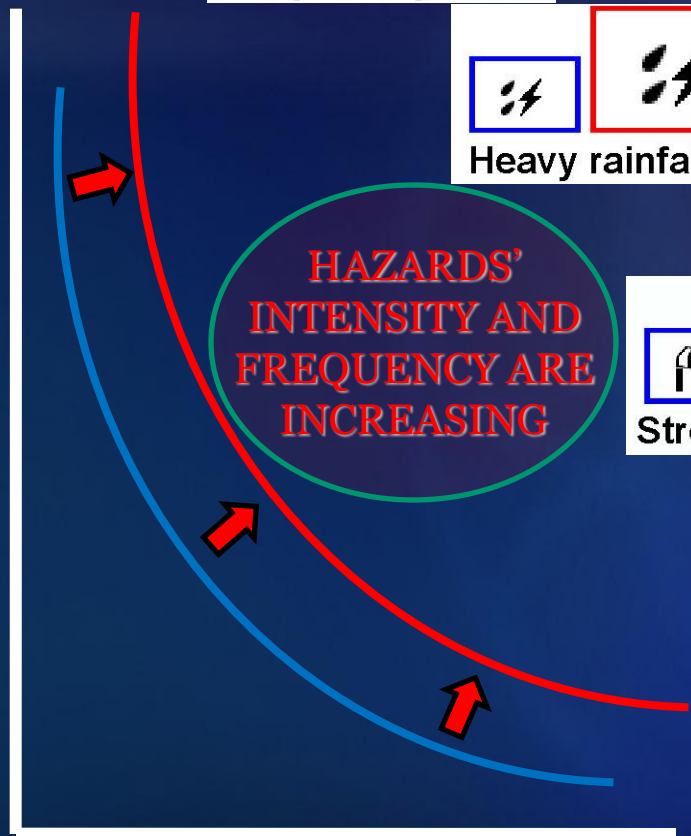
**Strong Wind**

**Coastal Marine Hazards**

**HAZARDS' INTENSITY AND FREQUENCY ARE INCREASING**

**INTENSITY**

**FREQUENCY**



# Climate change impact on hospitals

## Sea rise: location

- 60% world population lives close to the sea

## Extreme events: design

- a 10% increase of wind speed

## Reduce the carbon foot print: greening hospitals

- Brazil Hospitals use 10% of country's energy
- NHS/UK carbon footprint is 25% of total public sector emissions



# **Smart Hospitals are green and safe**

- Improving the structural safety of health care facilities;
- Reducing energy and water use;
- Boosting energy security with low carbon, renewable sources;
- Improving air quality and reducing harmful emissions;
- Strengthening disease surveillance and control;
- Equipping structures with efficient and environmentally friendly appliances and fixtures.

# **Baseline Assessment Tool**

- 1. Criteria for selecting a health care facility for green retrofitting**
- 2. Patient/Administrator Occupant Satisfaction Survey**
- 3. Baseline Information Requisition Checklist**
- 4. Property Condition Evaluation.**

# **The Green Checklist and Discussion Guide**

- 1. Green Checklist**
- 2. Discussion Guide – Renovations**
  - Water; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality**
- 3. Discussion Guide – Operations**
  - Chemical Management; Solid Waste Management; Environmental Services; Food Services; Environmentally-Preferable Purchasing**



# Hospital Safety Index CONCORD

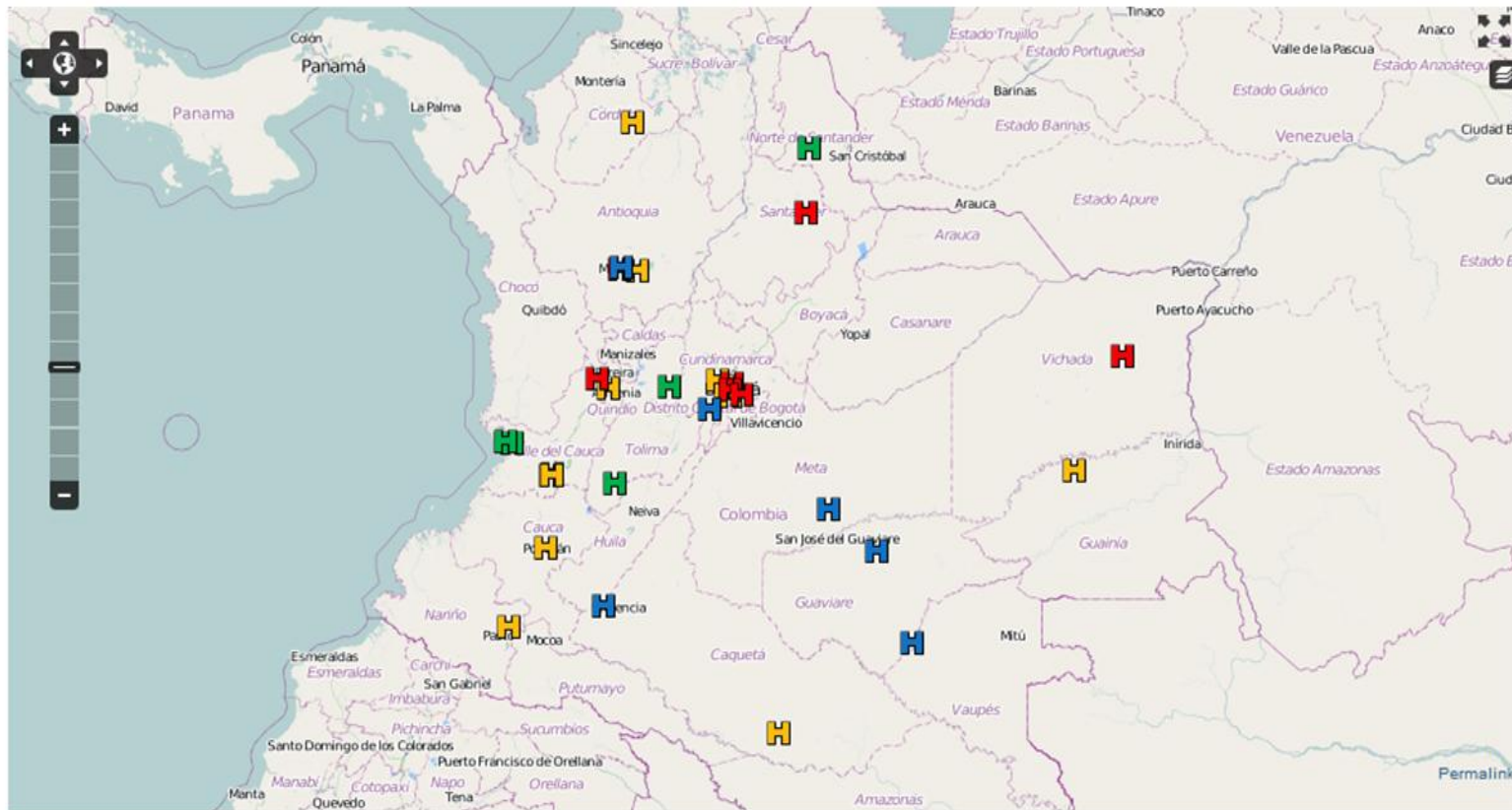


Safe Hospital

Home » Query the database

## Safe Hospitals Interactive Map

You can use the map to browse all the facilities in the database:



The colors correspond to the different categories in the Safe Hospitals classification: GREEN is category A, YELLOW is category B, and RED is category C. Facilities with a BLUE icon are those not evaluated yet.

# Plan of Action Monitoring

Safe Hospitals in the Americas DEC 2012.xls [Compatibility Mode] - Microsoft Excel																
PROGRESS REPORT ON THE IMPLEMENTATION OF SAFE HOSPITALS IN THE AMERICAS																
AS OF DECEMBER 2012																
	COUNTRY OR TERRITORY	NATIONAL POLICY ON SAFE HOSPITALS	SAFE HOSPITALS PROGRAM	SAFE HEALTH FACILITIES DESIGN NORMS	HEALTH FACILITIES MAINTENANCE NORMS	HOSPITAL DISASTER PLANNING NORMS	CIVIL PROTECTION PARTICIPATION	BUDGET FOR SAFE HOSPITALS ACTIVITIES	ACREDITATION INCLUDES SAFE HOSPITALS	COUNTRIES THAT APPLY SAFETY INDEX	EVALUATORS TEAM TRAINED	INDEPENDENT ASSESSMENT OF HOSPITAL SAFETY	COUNTRIES IMPROVING HOSPITAL SAFETY	NUMBER OF EVALUATORS	TOTAL NUMBER OF HOSPITALS AS OF 2001	NUMBER OF HOSPITALS ASSESSED
45	TOTAL	20	17	21	14	22	17	8	10	32	34	9	13	2658	17618	1524
35	COUNTRIES	18	16	17	11	17	15	6	9	30	31	9	13	2652	17579	1522
11	TERRITORIES	2	1	4	3	5	2	2	1	2	3	0	0	6	39	2
	% OF COUNTRIES	51%	46%	49%	31%	49%	43%	17%	26%	86%	89%	26%	37%			
	PERCENTAGE OF TOTAL	44%	38%	47%	31%	49%	38%	18%	22%	71%	76%	20%	29%		100%	9%
1	ANGUILA					1		1	1	1	1			2	2	1
1	ANTIGUA & BARBUDA										1			2	3	
1	ARGENTINA			1		1	1		1	1	1	1		294	2780	29
1	ARUBA														1	
1	BAHAMAS				1	1		1	1	1	1			4	5	3
1	BARBADOS					1				1	1		1	6	8	1
1	BELIZE			1		1				1	1			2	10	4
1	BERMUDA														2	
1	BOLIVIA	1	1	1			1		1	1	1		1	50	385	8
1	BRAZIL			1	1		1			1	1			2	6124	
1	BRITISH VIRGIN ISLANDS			1		1								1	2	
1	CANADA												1			
1	CAYMAN ISLANDS	1		1	1	1	1								3	
1	CHILE	1	1	1	1	1	1	1	1	1	1		1	35	385	5
1	COLOMBIA	1	1	1	1	1	1	1	1	1	1		1	171	1053	5
1	COSTA RICA	1	1	1	1	1	1		1	1	1			6	33	23
1	CUBA	1	1	1	1	1	1	1	1	1	1			4	243	7
1	DOMINICA									1	1			3	1	1
1	DOMINICAN REPUBLIC	1	1	1						1	1	1	1	155	213	31
1	ECUADOR	1	1			1	1			1	1	1	1	14	299	25
1	EL SALVADOR	1	1	1	1	1	1			1	1		1	58	78	15

# From Theory to Practice in the Health Sector

- **In theory**, the health sector should be able to ensure that all health facilities are safe from disasters.
- **In practice**, it is necessary to begin ensuring the safety of those health services that are located in high risk areas and provide essential life-saving health care services.



# Pan American Health Organization



*Regional Office of the  
World Health Organization*

<http://www.paho.org>

## Report on progress on safer and greener hospitals programs and the revised Hospital Safety Index

**Dr. Ciro Ugarte**

**Manager a.i.**

**Disaster Risk Reduction  
and Emergency Preparedness**

