Student Guide for Volunteer Training Course

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GeoHazards International
A Nonprofit Working Toward Global Earthquake Safety

Training Materials for School Earthquake Safety

December 2008

PREFACE

This guidebook is for you to take notes during the presentations on earthquake safety so you can remember the most important parts. You can always go back to your notes if you forget or have any questions about earthquakes and how to prepare for them. These presentations will teach you many aspects of earthquakes. They will include information on: earthquake basics; earthquake hazard in the Delhi region; damage caused by earthquakes; how to reduce damage from earthquakes; how to prepare an emergency preparedness plan; and what to do during and after an earthquake. Taking careful notes is very important! If you follow the advice given, you can prevent injuries and losses from earthquakes. It can even save your life and the lives of people you love! We hope you will learn from these presentations and will tell your family and friends about it so all of you will be safer during the next earthquake.

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School Earthquake Safety

Training Session 1: Learning How to Prepare Schools for Earthquakes

DECITEL

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What Happens In an Earthquake

Quiz

Do you know what to do in an earthquake?

A. Run outside
B. Panic!
C. Crouch down, under a table if possible, covering your head until the shaking stops

Recent Earthquakes in India

Earthquakes Can Affect Gurgaon

Past earthquakes that caused damage in Delhi region:

- 1505 Nepal border earthquake – damaged Agra
- 1720 Gharwal Himalayas earthquake – damaged Old Delhi
- 1803 Baharat earthquake – damaged Qutab Minar

Many other earthquakes felt in Delhi that caused little or no damage

Ahmedabad after the Bhuj Earthquake

Schools are Vulnerable to Earthquakes

- In the past 35 years:
  - More than 21,000 children killed in schools
  - Hundreds of schools with major damage but no children inside at the time of the earthquake

Simple Actions Can Save Children's Lives

School in Mexico City, 1985

Child during earthquake drill in Ludlow Castle Govt. School, Delhi

Program Objective and Activities

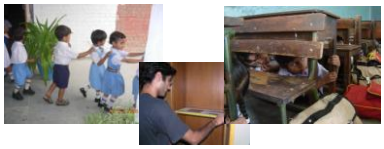
Objective:

- Improve earthquake safety in schools in Gurgaon

Activities:

- Two half-day training sessions
- Work with one school to improve their earthquake safety
- After working with us in this school, you can work in additional schools

Purpose of the Training Sessions



To turn all of you into change agents who can guide schools in Gurgaon to take steps to make them safer in future earthquakes

We Will Start Working in One School

Gyan Devi Public School, Senior Secondary

- Sector 17, Gurgaon, Haryana

At This School We Will:

Work with the Principal, teachers, parents and students to:

- Build awareness of earthquake risk and how to reduce and manage that risk
- Prepare school emergency plans that describe what to do before, during and after earthquakes
- Secure falling hazards, furniture, appliances and other contents that fall, slide or topple during earthquakes
- Encourage preparedness at home for teachers and parents

Your Role

- Meet with school Principals, teachers, students and parents
- Lead, teach, and show them how to take earthquake safety steps
- Continue this work in additional schools
- Represent Bechtel Corporation and GeoHazards International

The Project is Not

- An engineering project: we cannot deal with buildings
- A guarantee of earthquake safety

Overview of Training Program

- Day One (Today)
  - Review earthquake basics
  - Learn about school earthquake preparedness plans
  - Learn how to reduce falling hazards
- Day Two (15 March)
  - Practice reducing falling hazards
  - Learn how to plan and conduct meetings with principal, teachers, students and parents

Today's Schedule

14:30	Introduction
14:45	Earthquake Basics
15:15	Break
15:25	Earthquake Preparedness
16:00	Making Your Environment Safer
16:30	Wrap Up

Questions?

Earthquake Basics

GeoHazards International
A Nonprofit Working Toward Global Earthquake Safety

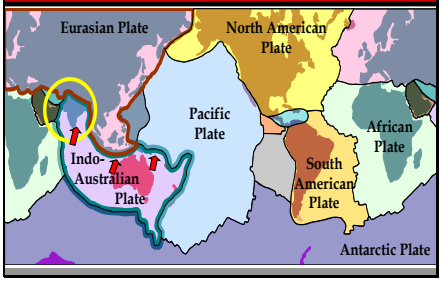
What's Covered in this Session

- What causes earthquakes in India?
- How you measure an earthquake's strength?
- How likely it is that an earthquake will occur in Gurgaon?
- What might happen in to schools in Gurgaon if an earthquake happened tomorrow?

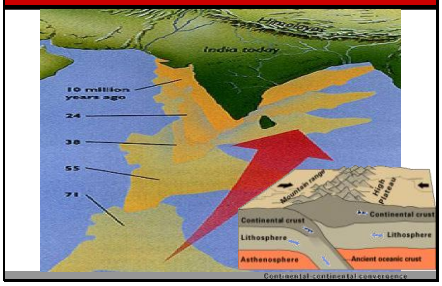
Why You Need to Know This

- School administrators, teachers, students and parents will ask you questions
- You need to understand the basics of how earthquakes cause damage and injuries *so you can help prevent them*

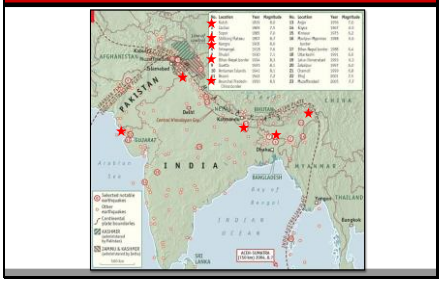
Plate Tectonics



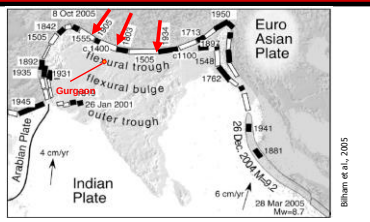
Northward Movement of India



Past Earthquakes in India



Seismic Gaps



- Sections of the faults north of Gurgaon have not ruptured in an earthquake for hundreds of years
- Scientists expect large earthquakes to occur in these gaps

Earthquakes Happen on Faults

A fault is a weak zone in the rocks where relative movement can occur to relieve pressure.

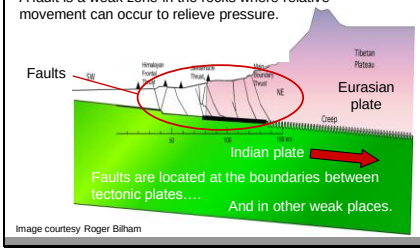
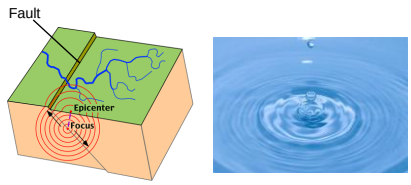


Image courtesy Roger Bilham

What happens when a fault breaks?



Energy radiates as waves – like ripples in a pond.
These waves shake the ground.

Image source: www.fleetfiretimbers.com

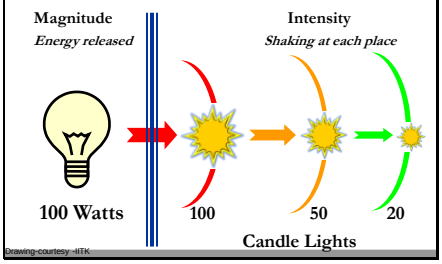
Does it Matter When an Earthquake Strikes?

Date	Event	Time	Magnitude	Max. Intensity	Deaths
16 June 1819	Cutch	11:00	8.3	IX	1,500
12 June 1897	Assam	16:25	8.7	XII	1,500
8 Feb. 1900	Coimbatore	03:11	6.0	VII	Nil
4 Apr. 1905	Kangra	06:10	8.0	X	19,000
15 Jan. 1934	Bihar-Nepal	14:13	8.3	X	11,000
15 Aug. 1950	Assam	19:39	8.6	X	1,530
21 Jul. 1956	Anjar	21:02	6.1	IX	115
10 Dec. 1967	Koyna	04:30	6.5	VIII	200
23 Mar. 1970	Bharuch	20:56	5.2	VII	30
21 Aug. 1988	Bihar-Nepal	04:39	6.6	IX	1,004
20 Oct. 1991	Uttarkashi	02:53	6.4	IX	768
30 Sep. 1993	Killari (Latur)	03:53	6.2	VIII	7,928
22 May 1997	Jabalpur	04:22	6.0	VIII	38
29 Mar. 1999	Chamoli	00:35	6.6	VIII	63
26 Jan. 2001	Bhuj	08:46	7.7	X	13,805

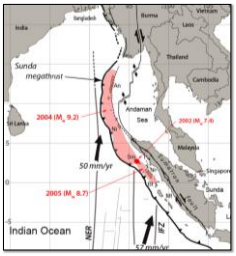
How strong was that earthquake?

- *Magnitude* tells you how **big** the earthquake was
- *Intensity* tells you how **strongly the ground shook** at your location

Magnitude vs. Intensity

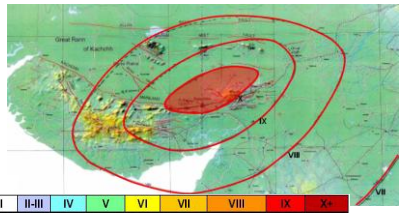


What does magnitude tell you?



- How much energy the earthquake released
- Area of that fault broke, approximately
- Larger magnitude = stronger shaking over larger area
- Every increase in magnitude by 1.0 represents 31 times more energy released
- Energy released by M 8.0 earthquake is ~1000 times more than by M 6.0 earthquake.

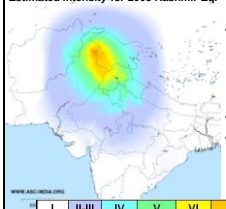
2005 Gujarat Earthquake



I	II-III	IV	V	VI	VII	VIII	IX	X+
Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy

What does intensity tell you?

Estimated intensity for 2005 Kashmir Eq.



- How strong the shaking is at a location
- Depends on
  - Magnitude of earthquake
  - Distance from earthquake source
  - Local geology and soil
- Measured on scale of I to XII
- Based on
  - Human perception of shaking
  - Damage to buildings
  - Effects on nature

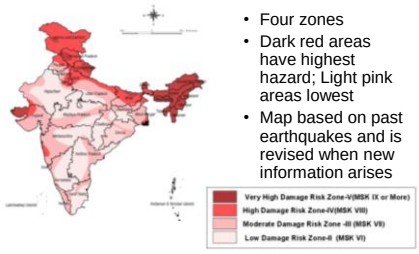
I	II-III	IV	V	VI	VII	VIII	IX	X+
Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy

How strong might the shaking be?

A Seismic Hazard Map shows the level of shaking expected in various locations:

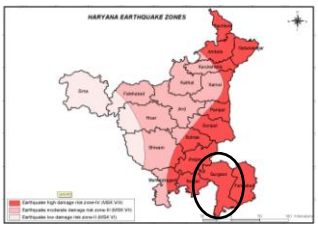
- Developed by analyzing shaking caused by all possible earthquakes on area faults
- Results combined and presented on a map

Seismic Hazard Map for India



- Four zones
- Dark red areas have highest hazard; Light pink areas lowest
- Map based on past earthquakes and is revised when new information arises

Seismic Hazard in Gurgaon



Gurgaon is in the second-highest zone

Can we predict earthquakes?

- No, not for the foreseeable future
- The earth is too unpredictable and we don't know enough
- But we can say **where** earthquakes are likely to strike in the future, based on plate tectonics and history
- We can estimate the **consequences** ahead of time and prepare ourselves

Consequences of Earthquakes

Damaged Buildings

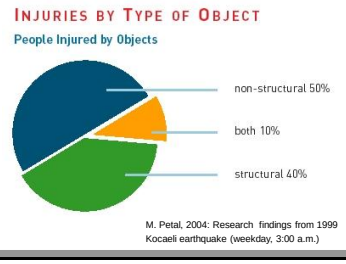
Poorly designed or built structures can collapse


Photos from National Information Service for Earthquake Engineering, UC Berkeley

Consequences of Earthquakes

People Killed, Injured and Disabled


Research Findings



M. Petal, 2004: Research findings from 1999 Kocaeli earthquake (weekday, 3:00 a.m.)

Consequences of Earthquakes

Objects Inside Buildings Fall, Slide, or Topple

- People can be injured
- Valuable objects can be destroyed
- Records can be lost
- Undamaged buildings are not usable

More Examples of Damage

Examples of Damage Inside Schools

Securing Objects in Buildings is a Major Focus of Our Project

- Inexpensive way to avoid injuries in earthquakes (unlike improving buildings, which requires money and special expertise)
- Anyone can learn to do this, including principals, teachers, parents and students

Exercise

Summary

- India is pushing into China, which causes earthquakes
- Damaging earthquakes will continue to happen in India
- Earthquakes happen when faults break
- Gurgaon is located in the “High Damage Risk Zone” on India’s Seismic Hazard Map
- Earthquakes cannot be predicted, but their consequences can be.
- Damage to a building’s contents can cause injuries and even deaths
- You can prepare

Questions?

Earthquake Preparedness

GeoHazards International
A Nonprofit Working Toward Global Earthquake Safety

What's Covered in this Session

- What happens during an earthquake
- Preparedness planning
- What to do during and after an earthquake

Why is this important?

- Being prepared can save lives
- You will lead the school committees to create a preparedness plan

What happens in a school during a large earthquake?

- Violent shaking
- Falling items
- Very hazardous locations, such as near windows or in chemistry lab
- Injuries
- Power outage
- No telephone service
- Fires might develop
- Blocked doors and exits
- Damaged and cluttered hallways or stairways
- Students are frightened and separated from their families
- Dangerous routes home

What are the consequences?

How do schools respond?

Unprepared School

Fear
Panic
Disorder
Confusion
Lack of proper response
Unnecessary consequences

Prepared School

Less fear
Lives saved
Fewer losses
Injuries prevented
Organized evacuations
Devastating consequences reduced

How should schools prepare?

Develop a school preparedness plan
Educate, train and drill

How do we help schools achieve this?

Getting Started

(1) Discuss everything with Principal
(2) Form a committee to organize the preparedness plan
(3) Assign responsibilities to teachers and students
(4) Plan evacuations
(5) Prepare an evacuation map
(6) Adopt a student release policy
(7) Prepare response kits

Discussions Should Cover…

✓Lessons, policies, approach
✓Activities and plans
✓Earthquake effects in the context of the actual school
- age and number of students
- building size and layout
- falling hazards

✓Consequent issues

Responsibilities Should Include…

1) Ensuring overall school and student safety (Principal)
2) Preparing and planning the emergency and evacuation plans (Principal or teacher)
3) Assisting students in each classroom (teachers)
4) Searching for missing students and teachers
5) Conducting first aid (all teachers)
6) Checking the building for safety (an engineer)
7) Gathering and disseminating reliable information (communications coordinator)

Other Responsibilities…

- Communicating good information
- Assistance to emergency responders
- Collaboration between everyone, including students

Planning Evacuations

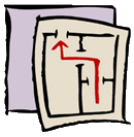
- Get plans of all the buildings on the campus
- Identify outside safe areas
  - Away from electric wires, buildings and traffic
  - Estimate the number of students each area can hold
- Divide classrooms into zones
- Identify exit routes for each zone

Planning Evacuations

- Create buddy system
- Develop alternative evacuation routes
- Plan for disabled students who might need help evacuating

Developing Evacuation Maps

- Mark evacuation routes for each zone
- Mark locations of first-aid kits and fire extinguishers
- Mark area to treat injured students or teachers
- Print maps and place one in each classroom



Student Release Policy

- Create list of people authorized to collect each student
- Have emergency contact information for every student
- Keep records: Record when each student leaves, to whom the student was released, where they intend to go.
- Allow for students to return to school if necessary
- Discuss the policy with teachers and parents AND have their instructions and forms in a safe place and available for use after an earthquake

Safety Kit

1) First aid kit
2) Flashlight, work gloves
3) Water (4 liters/person for 3 days), high energy food (3-5 day supply)
4) Blankets, tents
5) Radio and emergency lights
6) Fire extinguisher, bucket of sand, fire blanket

Educate, Train and Drill

- Educate all students and teachers about how to react to an earthquake
- Hold discussions with teachers, students and parents about the school emergency plan
- Practice earthquake drill and evacuations
- Revise plan accordingly

Lessons for Parents, Teachers, Students

These should cover:

- What do to during an earthquake
- What to do after an earthquake
- Fire safety
- Evacuation plan
- Student release policy

During an Earthquake

- Students and teachers shout “earthquake”
- Move away from:
  - Cabinets, bookshelves
  - Windows, glass
- Duck, Cover and Hold On
- Protect head and neck
- Cover nose and mouth with a cloth
- Remain calm, do not run

After an Earthquake

- The teacher surveys room and identifies injuries
- Student buddies help each other and injured or disabled students
- Do NOT light flames
- Teachers take roll and identify missing students

After an Earthquake

- Do not move seriously injured students unless there is additional danger
- Send medical care for those seriously injured
- Students leave the room together and follow the evacuation route to the designated safe area walking quickly, but safely

After Evacuation

- Provide first aid for injured students
- Students remain in designated safe area
- Teacher locates missing students
- Students kept together until
  - Instructions are received that it is safe to return to the classroom, or
  - Students are released to a parent or guardian

Fire Safety

- Stop, Drop and Roll
- Stay low and cover mouth to avoid inhaling smoke
- How to use fire extinguishers
- Reduce ignition sources: frayed cords, flammable or combustible liquids near heat sources

Practice Evacuations

- Hold practice drills at least twice a year
- Ensure it is at a time when everyone is at school
- Sound an alarm and instruct the teachers to shout: ”Earthquake!”

Practice Evacuations

- Students and teachers should Drop, Cover and Hold On until a second alarm announces that it is over (after about 45 seconds)
- Students should evacuate to safe areas
- Upon return, discuss the experience and report suggestions to the earthquake committee

Safety at Home

- Students spend more time at home than at school
- Families should:
  - Fix falling hazards
  - Develop an evacuation plan
  - Practice Drop, Cover and Hold and evacuation
  - Have emergency contact information
  - Store emergency supplies
- Students should share family emergency plans at school

Summary

- Preparedness is a process that involves those affected, discusses expectations and plans the response
- Preparedness requires practice
- Handouts
  - A checklist for how to make a school emergency plan
  - Guidance for a home earthquake plan
- Earthquake preparedness is useful for other hazards such as fires

Questions?

Making Your Environment Safer

GeoHazards International
A Nonprofit Working Toward Global Earthquake Safety

What's Covered in this Session

- Which objects could fall, slide, or topple?
- What might happen if these objects fall, slide, or topple?
- What can be done to prevent this?

Why is this important?

- Objects can fall or topple, injuring or even killing schoolchildren
- Objects can slide or topple, blocking exits and impeding a safe, quick evacuation
- We can easily prevent these consequences with simple, inexpensive measures

What might be a hazard here?

- Look around the room and identify objects that could fall, slide, or topple over in an earthquake.
- What could happen if these things fell, slid, or toppled over?

What we just did is called a hazard hunt

You will lead the school safety committee through this exercise. Here are some tips:

- Look at each room in the school with "Earthquake Eyes"
- Take some time and sit in each room, at child level
- Ask yourself "if a major earthquake hit right now, what could injure me?"
- Mark the hazards on the form we'll give you, using one form per room.

What can happen if an object falls, slides, or topples?

- It could injure or even kill a child
- It could block an exit
- It could break and have to be replaced

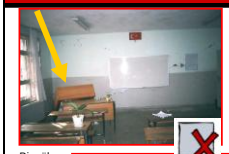
Also, for some items:

- Hazardous chemicals could spill
- Gas could leak and start a fire or explode
- Records could get mixed up

Items in Schools that Can be Hazards

- Storage Cabinets
- Display Cabinets
- Library Shelves
- Laboratory and Office Equipment
- Hazardous Materials and Chemicals
- Light Fixtures
- Large Windows
- Coolers and Air Conditioners
- Water Tanks

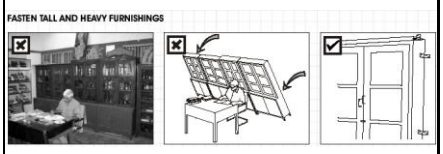
Tall and Heavy Furniture



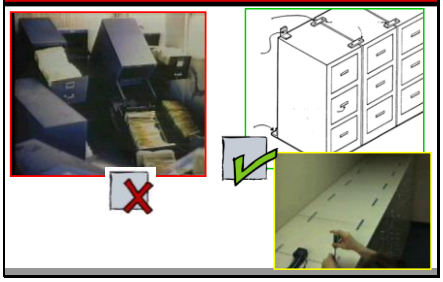
Bingöl, Turkey

Northridge, California

How Do We Secure Tall Items?



File Cabinets



Storage Cabinets

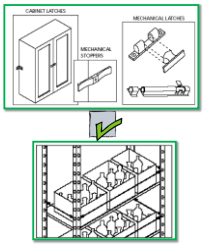
Need to attach cabinet to wall and make sure it has a latch

Shelves and Their Contents

Ways to Secure Shelf Contents

More Ways to Secure Shelf Contents

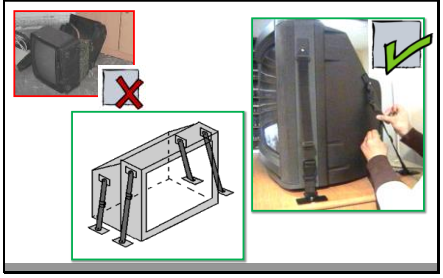
Storing Chemicals in the Science Lab



- Not enough just to restrain cabinet
- Need latch on door
- Need to keep chemicals inside from spilling or mixing
- Use bins and padding

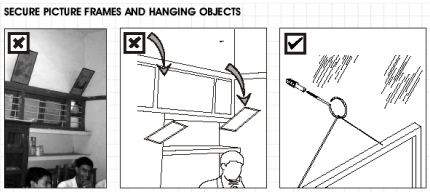
Classroom and Office Equipment

Electronic Equipment

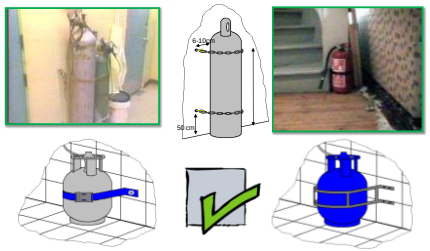


Laboratory Equipment

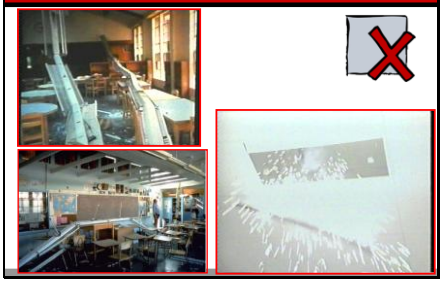
Hanging Objects



Gas Canisters and Extinguishers



Light Fixtures



Light Fixtures

Windows and Glass

Glass hazards are found in:

- Large windows
- Interior and exterior doors
- Large mirrors and picture frames

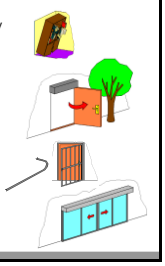
Adapazari, Turkey. Dr. Charles Scawthorn,MCEER

Mitigation:

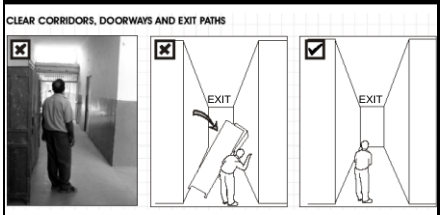
- Use tempered glass
- Use film on large glass pieces if breakage poses a serious threat

Exits

- Keep items that may hinder evacuation away from exit doors.
- **Install door opening to outside. Keep fire exits open or install panic bars inside.**
- Ensure that doors open easily. Place strong levers near heavy exit doors and barred windows.
- Create wide exits.



Exits



Prioritize

As you tackle what needs to be done, think about how to prioritize:

1. Secure life threatening items first (eg. thing that can fall on people lying down or sitting, or things blocking exit)

2. Secure those things that have significant economic value (e.g., computer, a/v equipment) or that would prevent continuity of important functions

3. Secure those items that will let you live more comfortably (e.g., family heirlooms, breakables)

Graphics courtesy BU-KOERI, Turkey

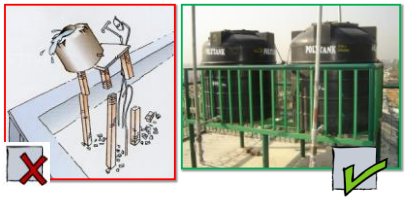
When to ask for help

You need to make sure that the school safety committee knows when to ask for help:

- For permanent systems attached to the building:
  - Exterior Cladding
  - Plumbing and electrical systems
  - Interior walls
- For furniture or equipment heavier than 100 kg

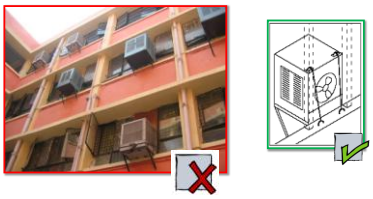
Have a qualified engineer or architect (maybe you!) design how to brace these items

Water Tanks



Graphics courtesy NSET Nepal

Coolers and Air Conditioners



Summary

- Objects can fall, topple or slide and injure children
- Things can break and need to be replaced
- Chemicals can spill
- Objects can block exits
- These things are easily preventable with simple methods
- Objects over 100 kg and tanks need to be braced with the help of an engineer

Questions?

School Earthquake Safety

Training Session 2: Preparing to Work in a School

GeoHazards International
A Nonprofit Working Toward Global Earthquake Safety

Reminder: Program Objective and Activities

Objective:

- Improve earthquake safety in schools in Gurgaon

Activities:

- Two half-day training sessions
- Work with one school to improve their earthquake safety
- After working with us in this school, you can work in additional schools

So Far We've Covered:

- Earthquake Basics
- Earthquake Preparedness Planning
- Falling, Sliding and Toppling Hazards

Today we will:

- Practice anchoring falling hazards
- Practice making an evacuation plan
- Plan our activities at Gyan Devi Senior Secondary School

Today's schedule

9:00	Introduction
9:10	Practice: Hazard Hunt and Anchoring Falling Hazards
10:30	Practice: Evacuation Planning
11:00	Break
11:15	Planning Our Work in the School
12:45	Wrap Up

Questions?

Homework

Last time we gave you some homework:

- Family disaster plan
- Think about how you would anchor a refrigerator

Practice: Hazard Hunt and Anchoring Falling Hazards

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In this session we will:

- Conduct a hazard hunt using the "Hazard Hunt Checklist"
- Anchor some hazardous items

The checklist includes:

- Identifying falling, sliding and toppling hazards
- Deciding whether they need to be fastened or moved
- Identifying supplies and tools required

Purpose

- To teach you how to secure objects properly.

  You will need to:
  - know how to secure objects at the school so you can teach and supervise others to do it properly
  - identify materials to purchase for securing objects
  - identify the proper tools to use
- To get your hands dirty!

The way you secure objects depends on:

- The size, weight, and material of the object
- The surface that you secure the object to (e.g., material wall is made out of)
- The use of the object (does it need to be moved regularly?)

Examples from a local school


Examples from a local school


Examples from a classroom


Examples from outdoors


Examples of doors and gates


Now we'll go find some falling hazards

Practice: Evacuation Planning

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Purpose

- To teach you how to prepare an evacuation plan

  You will need to help the school committee to:
  - Assign responsibilities
  - Identify safe assembly areas
  - Plan the evacuation route
  - Account for everyone

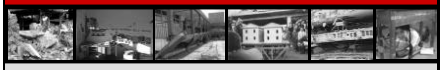
In this session we will:

- Develop an evacuation plan for the ground floor of this building

Principles for Evacuation Plans

- Locate safe open areas for assembly after evacuation
- Assign each classroom a route and a safe assembly area
- Routes should be direct
- Younger children evacuate first
- Older children can take longer routes if necessary
- Prevent congestion in corridors and stairs

Planning Our Work in Gyan Devi Senior Secondary School



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Overview of Activities at Gyan Devi Senior Secondary School

Step 1: Meet with school administrators
Step 2: Conduct sensitization program for teachers, staff and committee
Step 3: Conduct sensitization program for students
Step 4: Conduct hazard hunt
Step 5: Develop emergency preparedness plan
Step 6: Secure falling hazards at school
Step 7: Conduct evacuation drill
Step 8: Discuss emergency plan with parents
Step 9: Discuss earthquake safety at home
Step 10: Evaluate our work

In this session we will:

- Discuss our overall approach
- Plan how to do each step
- Assign leaders for key tasks

Your Role Is

- To guide, inspire and help the school to prepare for earthquakes
- To lead from the side, not from the front

Your Role Is Not

- To do everything for them
- To be "experts"

Tips for Success

People learn best through activities	People don't learn well through lectures
The plan will be most effective if the school makes it themselves	The plan is useless if no one knows what's in it
We want to get people excited and thinking about earthquake safety	This is more important than creating a "perfect" plan
We should teach people how to prepare for earthquakes	We should avoid frightening people

Planning for Step 1

- **Step 1: Meet with school administrators**
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of Step 1: Meet with School Administrators

- Form a school earthquake safety committee
  - Principal
  - Two teachers
  - Two students (one boy and one girl)
  - Maintenance person
  - Parent
- Plan future activities
- Listen to their priorities, ideas and concerns

Discussion of Step 1

- What issues do you think will come up in this meeting?
- What materials should we bring?
- Should we work in teams?

Planning for Step 2

- Step 1: Meet with school administrators
- **Step 2: Conduct sensitization program for teachers, staff and committee**
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of step 2: Conduct sensitization program for teachers, staff and committee

- Meet with the school safety committee to explain the project
- Hold a sensitization session for teachers, staff and committee
- Present information on:
  - The project
  - Earthquake basics
  - How to prepare a school emergency plan
  - How to mitigate falling hazards
- Encourage them to participate

Discussion of Step 2

- How can we make this program interesting for teachers and committee?
- What types of questions might the teachers and committee ask?
- How should we organize this event?
- How long should the sensitization program be?
- Who will give the sensitization presentations?

Planning for Step 3

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- **Step 3: Conduct sensitization program for students**
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of step 3: Conduct sensitization program for students

- To teach children positive steps they can take to prepare for earthquakes
- To inform children what to do during an earthquake
- *Not* to frighten children

Discussion of step 3

- How can we make this program fun and interesting for children?
- How can we avoid scaring the children?
- What types of questions might the children ask?
- How should we organize this event?
- How do we address children of different ages?

Planning for Step 4

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- **Step 4: Conduct hazard hunt**
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of Step 4: Conduct Hazard Hunt

- Explain how to identify falling hazards to the school earthquake safety committee
- Explain how to set priorities for securing hazards

Setting Priorities

- Divide hazards into three categories
  - Life threatening
  - Impedes evacuation
  - Cost to replace
- Assign priorities
  - High for life threatening hazards
  - Medium for hazards impeding evacuation
  - Low for items that are costly to replace
- Final priorities determined by administration
  - Consider fixing easier items first

Discussion of Step 4

- In which areas of the school do we conduct the hazard hunt?
- Who should participate in the hazard hunt?
- What will we need to bring?
- How will we convey the information to the principal?

Planning for Step 5

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- **Step 5: Develop emergency preparedness plan**
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of Step 5: Develop Emergency Preparedness Plan

- Describe the contents of a school emergency preparedness plan
- Complete “Checklist to Create a School Emergency Preparedness Plan” with committee
- Create a written plan for the school based on discussions with the committee

Some Step 5 activities happen early, others happen later

- Some parts of checklist must happen before other steps start, such as
  - Assigning emergency roles
  - Developing release policy
  - Creating an evacuation plan
- Other parts of checklist are part of our steps:
  - Hazard hunt and securing hazards (steps 4 and 6)
  - Evacuation drill (step 7)
  - Discussions with parents (steps 8 and 9)
- The committee should present the plan to the school

Sample Plans

Teacher Responsibilities

- Will teachers stay on duty or go home?
- Need to decide which teachers stay and which go home
- Teachers need to prepare at home so they can do their jobs

Student Release Policy

- Disaster dangers
  - Physical dangers
  - Social dangers
- Hold and care for students as long as necessary
- Release only to pre-approved persons
- Keep records
  - Student name and class
  - Person taking custody
  - Time and date of release
  - Destination

Discussion of Step 5

- How many meetings with the School Earthquake Safety Committee will this require?
- What issues do you think will be most difficult for them to understand or agree on?
- Is there ever a perfect plan?
- Is a plan a living document?

Planning for Step 6

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- **Step 6: Secure falling hazards at school**
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of Step 6: Secure Falling Hazards at School

- Secure the falling, sliding and toppling hazards in the school
- Teach members of the School Earthquake Safety Committee what they need to know to do this in all other rooms and to secure new or moved furniture

Discussion of Step 6

- Who will do the physical labor?
- Who will bring supplies and tools?
- What problems might we encounter?

Planning for Step 7

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- **Step 7: Conduct evacuation drill**
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of Step 7:Conduct Evacuation Drill

- Let administrators, teachers and students practice evacuating so they will know what to do during an emergency
- Identify problems with evacuation plans so they can be remedied
- Be sure students know how to evacuate safely

Safe Evacuation Procedures

- Everyone drop, cover and hold
- Teacher assesses injuries
- Teacher or door monitor gives instruction to evacuate
- Door monitor opens door
- Students walk briskly in a line but do not run
- Use the buddy system
- Teacher makes sure all students are out and leaves last
- Teacher takes roll at assembly area
- Students remain until released

Discussion of Step 7

- How can we best prepare to make this drill run smoothly?
- What do we need to make sure teachers and administrators know before this drill?
- What do students need to know before this drill?
- How do we evaluate the success of this drill?
- Do we involve local fire service personnel?

Planning for Step 8

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- **Step 8: Discuss emergency plan with parents**
- Step 9: Discuss earthquake safety at home
- Step 10: Evaluate our work

Goals of Step 8: Discuss Emergency Plan with Parents

- Make sure parents know their responsibilities after an earthquake
- Give parents confidence that the school is planning for emergencies
- Inform parents of student release policy
- Get names of persons authorized to collect students

Discussion of Step 8

- What questions do you think parents will have?
- What is the best way to prepare for this activity?
- Who should set up the meeting with the parents?

Planning for Step 9

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- **Step 9: Discuss earthquake safety at home**
- Step 10: Evaluate our work

Goals of Step 9: Discuss Earthquake Safety at Home

- Encourage families to prepare their homes for earthquakes
  - Home hazard hunt
  - Fix falling hazards
  - Prepare emergency supplies
- Encourage families to prepare family emergency plans

Discussion of Step 9

- What questions do you think parents will have?
- What will be the most effective ways to encourage families to prepare at home?
- What is the best way to prepare for this activity?

Planning for Step 10

- Step 1: Meet with school administrators
- Step 2: Conduct sensitization program for teachers, staff and committee
- Step 3: Conduct sensitization program for students
- Step 4: Conduct hazard hunt
- Step 5: Develop emergency preparedness plan
- Step 6: Secure falling hazards at school
- Step 7: Conduct evacuation drill
- Step 8: Discuss emergency plan with parents
- Step 9: Discuss earthquake safety at home
- **Step 10: Evaluate our work**

Goals of Step 10: Evaluate Our Work

- Develop ideas to improve these activities
- Make our next school project in Gurgaon more successful

Putting the Plan in Action

We need five leaders

- Primary liaison with school
- Lead person for hazard hunt
- Lead person for emergency preparedness plan
- Lead person for evacuation drill
- Lead person for student, teacher and parent sensitization

What each leader does…

- Primary liaison with school
  - Act as key point of contact
  - Organize meetings and events
  - Organize school safety committee
- Lead person for securing falling hazards
  - Lead hazard hunt
  - Identify supplies needed to secure hazards
  - Lead/supervise securing hazards

What each leader does…

- Lead person for emergency preparedness plan
  - Guide committee through checklist
  - Create the emergency preparedness plan document
- Lead person for evacuation drill
  - Plan drill with committee
  - Be at school on day of drill to coordinate event

What each leader does…

- Lead person for student, teacher and parent sensitization
  - Adapt materials for teachers about emergency plan, what to teach students and conducting the drill
  - Adapt materials for parents about school emergency plan and preparedness at home

Let's identify these leaders now

- Primary liaison with school
- Lead person for hazard hunt
- Lead person for emergency preparedness plan
- Lead person for evacuation drill
- Lead person for student, teacher and parent sensitization

Questions?

Wrap Up

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What We Did Today

- Practiced anchoring falling hazards
- Practiced making an evacuation plan
- Reviewed example school emergency plans
- Planned our activities at Gyan Devi Senior Secondary School

Evaluating Our Training Program

- Do you feel comfortable with your knowledge?
- Should we cover additional topics?
- Should we cover any topics in greater depth?

Making the Project Sustainable

- Encourage the school earthquake safety committee to assist another Gyan Devi group school
- Continue to support the school if they need further assistance or have questions
- Adopt additional schools
- GHI can help

Thank You

GeoHazards International
A Nonprofit Working Toward Global Earthquake Safety

www.geohaz.org

For any assistance please contact Hari Kumar
hari@geohaz.org Mobile: 9810600821

Hazard Hunt Checklist for Schools

School Name:	Date of Hazard Hunt:
Building Name:	Hazard Hunt Conducted By:
Room Name/Number:	

Potential Hazards	Check if item is present	Does item need to be moved?	anchored?	Supplies needed	Tools needed
Furniture and Equipment:					
Bookshelves	☐	☐	☐		
Storage cabinets	☐	☐	☐		
Display cupboards	☐	☐	☐		
Filing cabinets	☐	☐	☐		
Countertop equipment	☐	☐	☐		
Computer equipment	☐	☐	☐		
Photocopy machines	☐	☐	☐		
Gas cylinders or tanks	☐	☐	☐		
Fire extinguishers	☐	☐	☐		
Storage racks	☐	☐	☐		
Refrigerators	☐	☐	☐		
Water heaters and pipes	☐	☐	☐		
Kitchen equipment	☐	☐	☐		
Ceiling and Overhead:					
Light fixtures	☐	☐	☐		
Suspended ceiling	☐	☐	☐		
Coolers or AC units	☐	☐	☐		
Exterior:					
Sunshades & canopies	☐	☐	☐		
Masonry parapets	☐	☐	☐		
Items sitting on parapets & railings	☐	☐	☐		
Overhead electrical wires	☐	☐	☐		
Water tanks	☐	☐	☐		
Wall Mounted Items:					
Shelving	☐	☐	☐		
Framed pictures	☐	☐	☐		
Wall-mounted cabinets	☐	☐	☐		
Wall-mounted equipment	☐	☐	☐		
Jallies	☐	☐	☐		
Windows	☐	☐	☐		
Others:					
Doors don't swing out	☐				
No fire extinguishers	☐				
	☐	☐	☐		

Notes:

Prioritization and Cost Estimate Form for Mitigating Falling Hazards in Schools

School Name:	Date:

Item Description	Device Type	Rate (Rs.)	Quantity	Priority			Amount (Rs.) for High Priority	Amount (Rs.) for Medium and Low Priority
				High	Med	Low		
				☐	☐	☐		
				☐	☐	☐		
				☐	☐	☐		
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				☐	☐	☐		
Total Amounts (Rs.)								

Notes: