

**Community-Based
Disaster Risk Reduction**

MAKING SCHOOLS SAFER



Course Material

The Training
and Learning
Circle



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Disaster Risk Reduction**

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November 2009

The Training
and Learning
Circle

Introduction

The Training and Learning Circle (TLC) is a network of training institutions and universities that has been organised to re-examine, strengthen, and facilitate the crucial interface between training and education for community based disaster risk reduction (CBDRR). The TLC aims to strengthen the capacity of training institutions and universities by reviewing existing and developing new learner-centred learning materials and methodologies. The TLC enhances learning through South-South knowledge and solution exchanges, with a focus on addressing systemic gaps and topics in training and education that would benefit from a sector-wide approach. All India Disaster Mitigation Institute (AIDMI) is promoting and facilitating the formation of TLC in India, and Asia, together with the ProVention Consortium, the Asian Disaster Preparedness Centre (ADPC), the Centre for Disaster Preparedness (CDP) in the Philippines, and the UNDP's Special Unit for South-South Cooperation.

Title: Making Schools Safer

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Why Create a Knowledge Product on Making Schools Safer?

As part of wider efforts to expand local options for disaster risk management, AIDMI recently conducted a review of training materials used by agencies participating in the TLC network. The range of materials now available demonstrates important progress in the past five years but a number of gaps remain. Based on these gaps, AIDMI is developing a series of knowledge products that can be used by training institutions in the network to address key issues of CBDRR, as suggested by the TLC's key objectives, activities and outcomes.

CBDRR for safer schools was identified as one of the key gaps in terms of training materials; AIDMI has produced this module to address this unmet need. Much of the content for the module has emerged from AIDMI's experience with the Child's Right to Safer Schools Campaign. This experience began in 2001 after the Gujarat earthquake and has now seen wider acceptance in India and in other countries. These experiences and good practice have been consolidated into this module to increase the level of disaster education amongst teachers, children and the community.

Unsafe schools are a reality. In developing countries like India, schools are often located in vulnerable areas and unprepared to respond to emergencies. In recent years, India's schools have sustained many catastrophic incidents: a fire led to the deaths of over 400 people – about half of them students – at a school's prize giving ceremony in Haryana in 1995; the Bhuj earthquake caused the deaths of 971 students and 31 teachers in Gujarat in 2001; a fire at the Lord Krishna School in Tamil Nadu took the lives of 94 children in 2004; thousands of students and teachers were killed, injured or otherwise affected in the 2004 South Asia tsunami; and 15 children and 3 teachers died in a boat accident during a school picnic at Kerala in 2007.

These tragic events represent a few major hazards to which school children are susceptible; these and other hazards pose a regular threat. The promotion of disaster awareness, preparedness and mitigation in schools across Asia has enormous potential for diminishing the occurrence and impact of such emergencies. In the end, it is parents and school children that can make schools safer. It is our intent this knowledge product will help trainers across the region extend safety with teachers and households in poor and disaster-prone areas.

Mihir R. Bhatt

All India Disaster Mitigation Institute

Foreword

The Special Unit for South-South Cooperation (SU-SSC) in United Nations Development Program (UNDP) aims to promote and support cooperation between and among developing countries. From its inception, it has been actively engaged in supporting initiatives to create a body of knowledge based on lessons learned and rich practice of Southern partners. In 2005, the SU-SSC began to get involved in assisting efforts on community based disaster risk reduction and since then, it has published several knowledge products derived from the experiences of organisations working with communities. One major initiative that it has supported is the setting up of the Training and Learning Circle (TLC) on Community Based Disaster Risk Management in India and the Philippines in 2007. The SU-SSC thanks its core partners, the Asian Disaster Preparedness Center (ADPC), All India Disaster Mitigation Institute (AIDMI), Center for Disaster Preparedness (CDP) and Provention Consortium for initiating the development of this knowledge product

The TLC aims to strengthen the capacity of trainers, training institutions and educational institutions (primarily, but not limited to, universities) by developing new learner-centered materials and methodologies to propagate community based disaster risk management. It is along this line, that the AIDMI conducted a review of existing training materials from its TLC partners in India and found that one of the gaps is in Community Based Disaster Risk Management for Making Schools Safer. Based on AIDMI's substantial experience in its campaign on Children's Right to Safer Schools, it was able to develop a Training Manual on Making Schools Safer. The manual would be most useful for school administrators and teachers in India and other countries in the South, particularly in earthquake prone countries. This manual is even more relevant today after the earthquake that hit the province of Padang in Indonesia on the first of October 2009, which destroyed many buildings. This knowledge product covers:

- 1) The importance of reducing risks in schools,
- 2) The necessity of conducting a School Safety Audit,
- 3) Successful school safety initiatives that can be replicated, and
- 4) Ways to integrate disaster risk reduction into school curricula to empower children in promoting safer communities.

The SU-SSC sees the publication of this material as a milestone in keeping schools safe for our children. Schools nurture the light of the future, the children. It is our hope that this material would be widely disseminated and embraced with enthusiasm by school authorities in vulnerable countries. This material, if widely adopted and customised to the specific situations of a country, would bring us closer to realising the aim of building a culture of safety and resilience.

Yiping Zhou

Executive Director

Special Unit for South-south Cooperation in UNDP

Overview of the Making Schools Safer Series

The "Making Schools Safer Series" has been developed by the All India Disaster Mitigation Institute as one of the key activities of the Training and Learning Circle.

This module uses the experience of many different actors across Asia, including NGOs, INGOs, CBOs and Government. This experience has been consolidated into guidelines and methods for teachers to include scientific and practical knowledge for DRR within curricula, as well as fun ways of getting children to play an important role in reducing risk in school and the community. This module aims to turn disaster and safety knowledge into action that can save lives and create safer schools, thus encouraging the attendance of children, especially girls.

How to Use this Course Material

The four modules in the knowledge product may be used in isolation as singular training seminars, or alternatively used together within a daylong training session. Each module is designed to last 1h 30mins, so a daylong session of 4 modules will last at least 6h, plus at least 1h in breaks. The modules are designed for delivery to a group of teachers, whether they are from just one or a variety of different schools.

Additional information on how to implement each module can be found in each module's Facilitator's Note. There is also optional guidance material for trainers wishing to hold a daylong session, including opening and closing activities.

Outline of Modules

Module 1 - Introduction to School Safety in India

The module has the following aims:

- Introduce CBDRR
- Train teachers in natural and manmade hazards, as well as safety issues
- Allow teachers to learn lessons from past examples of disasters and safety hazards that have affected children

This module uses the experience of AIDMI's Child's Right to Safer Schools Campaign, as well as its experience in teaching about hazards and disasters. The aim is to provide teachers with a strong knowledge base about why CBDRR is relevant to them, their school and their students. This will then be enhanced with training about the basics of natural disasters and safety matters. The findings of AIDMI's School Safety Audits of 60 schools across 6 states of India show that teachers do not possess sufficient knowledge about the risks children face at school, the risks and effects of disasters, and the means to protect the children from them. It will not be possible to equip children with practical knowledge about disasters (such as Do's and Don'ts before, during and after) if their teachers do not possess such knowledge.

Module 2 - Conducting a School Safety Audit

The module has the following aims:

- Explain the purpose of a school safety audit
- Share the findings of AIDMI's school safety audits
- Provide teachers with the tools to design and conduct their own school safety audits

This module uses the experience of AIDMI's School Safety Audit system to enable teachers to assess their own school's safety. This includes assessments of disaster and safety knowledge and awareness, as well as physical and organisational means of increasing safety and preparedness. The goal of the school safety audit is to identify areas that require improvement, so this training will empower teachers as disaster managers in their community.

A more concise version of the assessment methods used in the School Safety Audit system will be provided to teachers in the form of a checklist. The module will also provide teachers with ideas about how to tailor the audit to their school and community. Module 4 will provide information on how to turn deficiencies into action.

Module 3 - Case Examples of School Safety Initiatives in India

The module has the following aims:

- Provide teachers with examples of successful CBDRR in Indian schools
- Encourage the development of ideas for action

This module uses the experience of NGOs and INGOs working on safer schools in India. By providing teachers with examples of good practice, this module provides an introduction to preparedness and mitigation solutions. After reviewing the case studies, teachers will be encouraged to identify elements that they could use in their own schools.

Modules 4 - Guidelines for Integrating Disaster Education

The module has the following aims:

- Provide teachers with the means to include disaster education in their school's curriculum
- Suggest methods of empowering students as active disaster managers in their communities.

Abbreviations

ADPC	Asian Disaster Preparedness Center
AIDMI	All India Disaster Mitigation Institute
CBDRR	Community Based Disaster Risk Reduction
CBO	Community Based Organisation
CBSE	Central Board of Secondary Education
CDP	Center for Disaster Preparedness
COPRAP	Child Oriented Participatory Risk Assessment and Planning
CPR	Cardiopulmonary Resuscitation
CRA	Community Risk Assessment
DRR	Disaster Risk Reduction
GIS	Geographical Information System
GO	Government Organisation
GOLFRE	Global Open Learning Forum on Risk Education
GSDMA	Gujarat State Disaster Management Authority
IEC	Information, Education and Communication
KGBV	Kasturba Gandhi Balika Vidyalaya
LoC	Line of Control
MDG	Millennium Development Goal
NGO	Non Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
Risk RED	Risk Reduction Education for Disasters
SBST	School of Building Science and Technology
SDMP	School Disaster Management Plans
SEEDS	Sustainable Environment and Ecological Development Society
SU-SSC	Special Unit for South-South Cooperation
SWOT	Strength Weakness Opportunities Threats
TLC	Training and Learning Circle
UEVRP	Urban Earthquake Vulnerability Reduction Programme
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction

Module 1

Introduction to School Safety in India



Introduction to School Safety in India



Learning Objectives

By the end of this module you should be able to:

- Define disasters, hazards, vulnerabilities, capacities and disaster risks
- Describe the disaster situation in India
- Describe the vulnerability of schools in India and the possible effects of disasters
- Explain the need for school safety
- Explain the role of schools in times of disaster



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1.1 Disaster Definitions

Generally disaster is defined as an event that causes sudden disruption to the normal life of a society and causes damage to property and lives, to such an extent that the affected society is not able to cope using its own resources.

More important than the classification of disasters is the concept that lies behind a disaster. A disaster is not just the occurrence of an event such as an earthquake, flood, conflict, health epidemic or an industrial accident; a disaster occurs if that event/process negatively impacts human populations. Disasters combine two elements: hazard, and the vulnerability of affected people.

"A disaster occurs when a hazard exposes the vulnerability of individuals and communities in such a way that their lives are directly threatened or sufficient harm has been done to their community's economic and social structure to undermine their ability to survive."

1.2 Disaster Risk: The Relationship between Hazard, Vulnerability, and Capacity¹

Risk is commonly used to mean the probability or likelihood of meeting danger or suffering harm and loss. Risk is sometimes taken as synonymous with hazard but risk has an additional implication of the chance of a particular hazard occurring. It is also the exposure of something of human value (life, property, and the environment) to a hazard and is often regarded as the probability of loss. Disaster Risk can be represented as:

Disaster Risk = Hazard × Vulnerability ÷ Capacity

Hazard is an event or an occurrence that has the potential for causing injuries or damage to property or the environment. The magnitude of the phenomenon, the probability of its occurrence and the extent and severity of the impact can vary. In many cases, these effects can be anticipated and estimated. Communities may be exposed to multiple hazards at the same time when different hazards occur simultaneously. Hazards can be concatenated, such as an earthquake causing landslides or fires.

Vulnerability is a set of consequential conditions, which adversely affect a community's ability to prevent, mitigate, prepare for and respond to events.

Vulnerability can be physical/material like the geographical location and the socio economic resources of the people. For example, poor people who have few physical/material resources usually suffer more from disaster than rich people. People who are poor might live on marginal lands, might have no savings or insurance and may be in poor health. These factors make them more vulnerable to disasters and mean that they have a harder time surviving and recovering from a calamity than people who are better off economically.

Vulnerability can also be social and organisational. Experience shows that people who have been 'marginalised' in social, economic or political terms are highly vulnerable to disasters,

¹ From: AIDMI - School Safety Trainings Module 1

whereas groups which are well organised and well resourced suffer less when catastrophes strike.

Vulnerability can also be attitudinal and motivational. Experience also shows that people who do not have confidence in their ability to affect change and feel defeated by events they cannot control are harder hit by disasters. This is in contrast to those who have a sense of their ability to bring about the changes they desire.

Capacity is the degree to which a community can intervene and manage a hazard in order to reduce potential impact. The higher the capacity of a school to cope with disaster the less it is vulnerable to disasters. This implies that based on the people's perception of their disaster risk, they are able to make decisions to adapt to, modify or ignore the risk. Like vulnerability, capacity can be physical or material, social or organisational, attitudinal and motivational, and can be found on different levels.

Therefore schools or communities are not helpless victims but have 'coping' mechanisms on which to build for emergency response and recovery. A viable track to reduce vulnerability for schools can be increasing their social and organisational capacities. These resources exist in households, schools and communities and enable them to prepare for, mitigate, withstand, and quickly recover from disaster.

Capacities of schools include, among other things, building safety, emergency planning, and knowledge of school staff and students. Social relations and school culture may also contribute to the capacity of a school to minimise the impact of a hazard.

1.3 Hazards and their Classifications²

There are many kinds of disasters and various classifications. Traditionally a distinction is made between natural and man-made disasters. Identifiable human actions are the principal, direct causes in man-made disasters or emergencies. This mainly involves situations in which civilian populations suffer casualties, losses of property, basic services and means of livelihood as a result of war, civil strife, other conflict or detrimental policy implementation.

Natural disasters can be classified according to the type of natural force: biological events such as plague and malaria; water and climate related events such as cyclone, flood and drought; and geophysical events such as earthquake, volcanic eruption, tsunami and landslide. Extreme climatological, hydrological or geological processes are one cause of natural disasters.

Technological disasters include industrial accidents, server pollution accidents, nuclear accidents, air crashes, major fires or explosions that affect a large amount of people, property, infrastructure, or economic activity.

The speed of onset is an important criterion for disaster managers. A disaster can develop slowly until it reaches a point where survival is ultimately jeopardised, as with droughts, or it can start suddenly and immediately affect human lives and social structures, as with cyclones.

² From: AIDMI - School Safety Trainings Module 1

Hazard Classification*

Hazard

A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Natural Hazards

Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. Natural hazards can be classified according to their geological, hydrometeorological or biological origins.

Origin	Phenomena / Examples
<p>Hydrometeorological hazards Natural processes or phenomena of atmospheric, hydrological or oceanographic nature.</p>	<ul style="list-style-type: none"> • Floods, debris and mudflows • Tropical cyclones, storm surges, wind, rain and other severe storms, blizzards, lightning • Drought, desertification, wildland fires, temperature extremes, sand or dust storms • Permafrost, snow avalanches
<p>Geological hazards Natural earth processes or phenomena that include processes of endogenous origin or tectonic or exogenous origin, such as mass movements.</p>	<ul style="list-style-type: none"> • Earthquake, tsunamis • Volcanic activity and emissions • Mass movements, landslides, rockslides, liquefaction, sub-marine slides • Surface collapse, geological fault activity
<p>Biological hazards Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances.</p>	<ul style="list-style-type: none"> • Outbreaks of epidemic diseases, plant or animal contagion and extensive infestations.

Technological Hazards

Danger associated with technological or industrial accidents, infrastructure failures or certain human activities which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation, sometimes referred to as anthropogenic hazards. Examples include industrial pollution, nuclear release and radioactivity, toxic waste, dam failure, transport, industrial or technological accidents (explosion, fires, spills).

Environmental Degradation

Processes induced by human behavior and activities (sometimes combined with natural hazards) that damage the natural resource base or adversely alter natural processes or ecosystems. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards. Examples include land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea level rise and ozone depletion.

* From UNISDR publication on Living with Risk (2004).

1.4 Disaster Effects on Schools³

Disasters can have several negative impacts on schools. Not all disasters strike the schools directly and immediately. Sometimes schools are affected indirectly through students, staff and their families. Schools can be affected also in short or long term phases. An example of direct effect of disaster event on a school is an earthquake that damages the school building. Damages to the school infrastructure are directly related to reduction in school hours, and consequently, to a decrease in the quality of education. If a school is unusable, the children will have to go to other schools, often in shifts, and their education suffers. School hours may also be cancelled because teachers are busy helping their communities meet recovery needs. If students have been left anxious, uprooted, out of classrooms for long periods or relocated to other facilities, this disrupts their education and increases their stress.

An indirect effect of disasters on schools can be seen in increased dropout rates of students in the wake of earthquakes, droughts or communal riots. It is a common for students to leave school after a disaster event, either because their parents need them to work for their livelihood, or because they are afraid of sending their children back to an unsafe school environment. Additionally, children may feel unable to attend classes or have problems concentrating because they are suffering from psychosocial impacts of disasters.

In Ahmedabad, municipal schools were closed for several months following the earthquake in 2001. After the communal riots of 2002 some schools were used as refugee camps. During the

Select School Disaster Incidents in India

- December 23, 1995. Nearly 425 people, many of them school children, perished as they tried to escape the flames during a school prize giving ceremony in the town of Dabwali, Haryana.
- January 26, 2001, Gujarat earthquake. 971 students and 31 teachers died.
- July 18, 2004, Kumbhkonom fire tragedy. A deadly fire raged through Lord Krishna School killing 93 children, all below the age of 11.
- December 26, 2004, South Indian tsunami. Thousands of school children and many teachers died or were reported missing in Tamil Nadu, and Andoman-Nicobar Islands.
- October 8, 2005, Kashmir earthquake. The death toll was huge, especially for school children.
- May 2006, Kashmir boat tragedy. The incident involved the drowning of one teacher and 21 school children in Wullar Lake of Kashmir.
- February 20, 2007, Kerala boat tragedy. 15 children and 3 teachers died when they were crossing a river with a tattered boat on their way back from a school picnic.
- April 16, 2008, Baroda bus tragedy. 47 students died traveling to a school in Baroda when the bus fell into the Narmada canal.
- January 21, 2009, Morbi road accident. 33 primary schoolchildren were injured when their jeep overturned on their way to school.
- January 21, 2009, Guda Malani road accident. 12 school children were killed and 26 were injured in Guda Malani town of Rajasthan.

3 From: AIDMI - School Safety Trainings Module 2

riots students missed classes, as their parents were afraid to send their children to school in affected areas.

Thus vulnerability of school facilities must not be seen only in terms of the need to prevent catastrophic damage that may destroy the buildings and cause injuries. It is also necessary to prevent situations that may affect the continuity of the services that schools provide.

Direct Effects:

- Damaged school buildings
- Injured students, teachers, school staff

Indirect Effects:

- Increased Drop out rates
- Lost of trust in education institution
- Decrease in education quality
- Increased stress
- Psycho Social Impacts

1.5 Schools Role in the Community⁴

School buildings often serve multiple purposes in a community. For most of the day, they house children, teachers and school staff. In addition to their role as learning centres, they may serve as gathering places for community events and fundraisers, meeting places for clubs and religious organisations, storage places for books and technical equipment, and public shelters in emergencies. The communities identify with schools because they are key institutions for development. When a school building is vulnerable to natural hazards, the welfare of the entire community is at risk. The safety of educational institutions contributes directly to the quality of education. To protect students is to protect one of the most important resources of communities.

As vulnerable as schools are they offer a broad range of opportunities to mitigate and respond to disaster for the whole community. As a gathering place for different members of the community, schools can disseminate information on disaster and create awareness of risks. Teaching disaster preparedness to children in schools works as a multiplier as children may transfer acquired knowledge to their families. This helps to build capacities for the whole community.

When an extreme natural event is expected, emergency shelters, often school buildings, may be opened to house the local population and keep them out of harm's way. Schools are used as emergency shelters after a disaster strikes, to temporarily house populations whose homes have been destroyed or are no longer safe because of damage from hurricanes, floods, earthquakes, or riots. Water, food and other needed items can be distributed in schools. In these situations, the structural soundness of the building is depended on to protect the population from the elements.

⁴ From: AIDMI - School Safety Trainings Module 2

Building safer school environments in urban and rural areas is part of creating safer and disaster resistant communities, and part of general disaster mitigation. Safer schools help guarantee continuity of education. School safety should be a part of village/city planning. Disaster plans should include provisions for damaged school buildings, occupied school buildings or displacement of students, all of which disrupt educational activities. Alternative arrangements to provide a suitable place with adequate facilities for students to continue their education are necessary until the original building is safe for use.

1.6 Hazards Affecting Schools in India⁵

The potential hazards in India are numerous. India's location and geographical features render it vulnerable to a number of natural hazards including cyclone, drought, floods, earthquake, fire, landslides and avalanches.

Apart from natural hazards India is vulnerable to numerous man-made disasters as current trends in industrialisation, level of economic development, rapid population growth, patterns of human settlement and environmental degradation increase the region's vulnerability. In addition, parts of India are affected by conflicts and riots. Regions in India may be exposed to multiple hazards in very small time.

The disaster situation in India is worsening for many. The Central Water Commission, a nodal government agency, has noted that 11.2 per cent of India is flood prone. In 1998, floods inundated 37 per cent of India. The country's 7,516-km coastline is continuously whipped by high velocity winds that pummel the east coast states of Orissa and Andhra Pradesh every year, causing widespread damage. Earthquakes raze the northern Himalayan region and the Deccan plateau in southern and central India. It is estimated that 57 per cent of India is earthquake-prone.

Compounding the variety of natural disasters is the heterogeneity of man-made disasters. Communal and caste riots pepper the country. The virtual militant-security forces siege in the Kashmir valley and the northeastern states has engendered hardships and casualties among large numbers of civilians. In India, the number of internally displaced people caused by 'development' projects was over 21.3 million in 1990 and is probably 30 million today, according to the Indian Social Institute. As for non-conventional disasters: the cost of road accidents is equivalent to 1 per cent of country's Gross National Product. The number of four-wheeled vehicles increased 23 per cent to 4.5 million between 1990 and 1993 and it has been forecast that 267 million vehicles will be on the roads by 2050.

The country's disaster situation is, on the face of it, a challenging picture. With mounting human costs and a barrage of criticism, experts agree today that a shift of emphasis towards disaster preparedness and better advance work at the grassroots level is imperative. A multi-sectoral approach, involving the government, NGO's, academics and the affected communities is slowly gaining currency in India. To meet the challenge of preparing for, responding to, and equipping the community to deal with the cocktail of disasters will be the greatest humanitarian challenge for India in the coming millennium.

5 From: AIDMI - southasiadisasters.net Issue 16

Hazards and Children in India

In the past 20 years we have seen an increase in disasters and the affects they have on children. In 2004, 94 children perished in a fiery blaze in Kumbhakonam and 931 students were crushed to death from the Gujarat earthquake in 2001. These numbers show us how vulnerable our school children are. What actions must be taken to ensure this does not happen again? What programmes have been developed to stop these tragedies? What are other countries, the international community and NGOs doing to offer a safe learning environment to children? What best practices can we draw from these experiences?

India is a country with diverse range of disaster risks: 70% of the cultivable land is prone to drought, 60% of the land is prone to earthquakes, 12% to floods, and 8% to cyclones. Overall, 85% of the land area is vulnerable to numerous natural hazards and 22 states are categorised as multi hazards regions. In the decade of 1990 - 2000 an average of about 30 million people have been affected and 4,344 people have died in India every year due to disasters. In 2001 alone, disasters have affected 36,536,831 people and killed 20,814. Nearly three million people worldwide may have been killed in the past 20 years due to natural disasters such as landslides, earthquakes, floods, snow avalanches, and cyclones. 90% of death caused by the natural disasters and 95% of the all disaster related deaths worldwide occur in developing countries. India accounts for the second largest share in these numbers (source: Disaster Management in India; A Status Report, GoI Ministry of Home Affairs, 2004).

With a large percentage of the Indian population living in poverty (36% living below the official poverty line) and with a literacy rate of just over 50%, it is imperative for the future development of India that children have access to education. Over 78 million children are currently in need of schooling. To meet this great demand, many schools are overburdened and compromise on safety. More and more children go to schools that are exposed to risk from fire hazards, earthquakes, floods, cyclones, pollution, food poisoning, stampedes and other hazards. Below are details on some of the most significant.

1.6.1 Earthquakes⁶

Earthquakes strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70 to 75 earthquakes occur throughout the world.

An earthquake is a sudden, rapid shaking of the earth caused by breaking and shifting of rock beneath the earth's surface. For hundred of millions years, the forces plate tectonics have shaped the earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the move is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middles of the plates.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge,

⁶ From: AIDMI - School Safety Trainings Module 1 and 5

destructive ocean waves (tsunamis). Building foundations resting on an unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during earthquake. When an earthquake occurs in a populated area it may cause deaths and injuries and extensive property damage.

Where earthquakes have occurred in the past, they will happen again. Learn whether earthquakes are a risk in your area by contacting your local emergency organisations.

Expect aftershocks. Aftershocks are smaller earthquakes that follow the main shock and can cause further damage to weakened buildings. After-shocks can occur in the first hours, days, weeks, or even months after the quake. Be aware that some earthquakes are actually foreshocks, and a larger earthquake might occur.

Ground movements during an earthquake are seldom the direct cause of death or injury. Most earthquake-related injuries result from collapsing walls, flying glass, and falling objects as a result of the ground shaking or people trying to move more than a few feet during the shaking. Much of the damage is predictable and preventable.

Earthquakes unleash energies on the scale of nuclear explosions. While they rarely announce their arrival in advance, even moderate earthquakes can leave behind death and destruction that occupy victims and caregivers for years. Earthquakes occur when the plates of the crust are moving in different directions. The rocks in the crust begin to bend because of the pressure, just as a stick bends if you press on it. When it cannot take the pressure anymore, it snaps and breaks. The resulting vibrations of waves in the solid crust travel outwards from the centre of disturbances as one main shock with fore and aftershocks. The point at which the shock occurs is known as the origin of focus, or the epicentre. Earthquakes occur mostly along the edges of the largest plates of the earth's crust. Most of the world earthquakes occur in two belts. One runs around the edge of the Pacific Ocean, the other stretches from Southern Europe to Southern Asia. About two-thirds of all large earthquakes are located in the so-called 'Ring of Fire' around the Pacific. Within the Asia Pacific region, earthquakes occur at the junctions of the Pacific plate with the Indo-Australian plate. At these plate borders, many countries in the region, including India suffer from earthquake. Earthquakes raze the northern Himalayan region and the Deccan plateau in southern and central India. 57% of land area in India is considered Earthquake prone. The main seismic regions in India are Kashmir and the Western Himalayas, the Central Himalayas (including Nepal Himalayas), Northeast India, the Indo-Gangetic basin and Rajasthan, Combay and the Rann of Kutch, Peninsular India (Deccan Plateau) and Andaman and Nicobar Islands. Earthquakes strike suddenly without warning, and are unpredictable.

On the 26th of January 2001, the day of the fatal earthquake, schools were closed because of the public holiday. But as it was the country's 51st Republic Day many schools were conducting parades and were hoisting the national flag on school grounds. An earthquake measuring 7.7 on the Richter scale struck at 8:46 AM local time, according to the United States Geological Survey.

Two particularly telling incidents occurred in Ahmedabad's schools. The Swaminarayan School was closed for classes, but exams were conducted for the 11th standard science students when the earthquake struck, leading to a great rush among students. Many of them could escape, but 50 students and 3 teachers were trapped in the rubble of the collapsing building. At another affected school where students had gathered to celebrate Republic Day, they just had

hoisted the flag and were moving into the classrooms when a slab from a 70-foot parapet wall fell off leaving 10 students dead and 70 injured.

In the Gujarat town of Anjar, about 400 school children and their teachers were covered by tons of falling masonry while walking in a Republic Day parade. Eight were pulled out alive.

In general School buildings suffered severe damage, thousands of schoolrooms were destroyed and damaged by the earthquake. Up to five million children were affected by the earthquake in India. According to UNICEF between 1.5 and 2.5 million children under the age of 14 lost family members, their homes or their schools in the worst hit parts of Gujarat. State-wide, about 15,000 primary schools - half the pre-quake total- were damaged or destroyed by the quake.

The state Government of Gujarat reported in April 2001 that more than 9,500 schools had been destroyed in the January 26 earthquakes, along with 300 hospitals and 800 early childhood development centres.

Many schools in Ahmedabad are located in crowded areas amidst tall buildings. They lack safety evacuation systems and emergency plans, which could have saved lives during the earthquake and will be needed to save lives for disasters that may occur in the future. Classrooms and schools are overcrowded. The corridors and the staircases are too narrow. Many access roads to the school are narrow, making it difficult for police and the fire fighters to reach the school.

The experiences in Gujarat and especially in Ahmedabad have revealed high vulnerability in schools. The School of Building Science and Technology (SBST) and Centre for Environmental Planning and Technology conducted a survey on school building vulnerability and school preparedness in Ahmedabad. They investigated the following aspects: general conditions (e.g. accident history), architectural conditions (e.g. location of staircase), structural conditions (e.g. building shape), functional/operational conditions (e.g. condition of electronic panels), external conditions (access for fire fighters), and school preparedness (e.g. records of mock drills, emergency plans).

The survey covered 5 municipal and 32 private schools in Ahmedabad, which were selected by area. Although the study cannot be generalised, the results are striking. On the additive index for school vulnerability, 16 schools were rated dangerously vulnerable, 16 schools mostly vulnerable, 4 schools highly vulnerable, and only one school was rated moderately vulnerable.

The SBST study offered several criticisms of school administration in Gujarat:

- The Gujarat secondary education board does not lay down any specifications for the way in which the school building or the staircase have to be constructed. It only says that each pupil of std. 8th, 9th and 10th should have 8 sq.ft. of space or that a classroom with no more than 50 students should be built on 20sq.mt.
- Despite all this, out of 451 secondary schools, 396 have been receiving financial grants regularly from the educational departments and inspectors of Ahmedabad district education office have been issuing all clear certificates every year after physical verification or sometimes even without verification.
- There is no model suggested by the education department for the school design and layout.

- The building bylaws should not provide varying width of staircase put to different use like commercial, educational or residential. The staircase should be treated during construction in a manner that will lend more stability to it by arming it with shear walls.
- Even after the Prakash school incident, the state government continues to permit schools to function from commercial high rises, even from shopping plazas that do not have the ground or an open space.
- Some accidents could have been avoidable and lives could have been saved if the administration and municipals had more capacities to control and sanction schools and make emergency plans, and drills compulsory for schools.

1.6.2 Cyclone/Hurricane⁷

The term 'cyclone' denotes all tropical storms. It is known as a "hurricane" in the Atlantic and the Eastern Pacific, and a "typhoon" in the Western Pacific. Cyclones are usually located approximately 30 degrees above and below the equator. They vary in diameter from 50 km to 320 km, but their effects dominate thousands of square kilometres of ocean surface and the lower atmosphere. The perimeter may measure 1,000 km, but the powerhouse is located within the 100 km radius.

Nearer the centre, or "eye" of the storm, winds may hit 320 kmph. Tropical cyclones spin clockwise in the northern hemisphere and counter clockwise in the southern hemisphere. Between five and 20km tall when fully formed, cyclones are like leviathans-emboldened by contact with warmer seawater and air, they become self-sustaining and bloat until they hit cool land or ocean. Tropical cyclones generally move to the west-northwest initially and north-eastward later. Being of oceanic origin they generally hit the east coast of the continents.

Soon after crossing the coast, they begin to dissipate, de-energised by friction with land and the lack of moisture. The atmospheric pressure at the eye rapidly rises and normalises. They may continue to blast more than 160 km inland, but damage is limited to 50-60 km beyond the coastline. Sometimes, rebuffed by a cool sea or land surface instead of a warm one, cyclones reverse, return to sea to breath deep, and come ashore at unpredictable locations. Cyclones do most damage to structures, fatalities come from rain and flooding that follow. In shallow water, tropical cyclones whip up low waves that translate into long and powerful shore currents.

Cyclones are associated with strong winds, torrential rains and storm surges. Storm surges or tidal waves occur when the level of the sea is raised by direct wind-driven water combined with an uplift of the sea surface induced by the low pressure at the cyclone centre.

Cyclone formation requires warm seas and still air. In the Bay of Bengal, these are the conditions normally occur in the months of April-May and October-November. The frequency of tropical cyclones is the lowest in the Bay of Bengal and the Arabian Sea and they are mostly moderate in intensity. But the storm surges make them ferocious when they cross the shoreline. Some 15% of the world's tropical cyclones originate in the Bay of Bengal and cause severe flooding and devastating tidal surges to the East Coast of India and Bangladesh. On an average six cyclones form in the Indian seas out of which the distribution in the Bay of Bengal and the

⁷ From: AIDMI - School Safety Trainings Module 1

Arabian Sea is in the ratio of 4:1. The Indian subcontinent is the worst cyclone-affected part in the world, as a result of a low depth ocean bed topography and coastal configurations.

Its 7,516-km long coastline is vulnerable to the impacts of tropical cyclones that develop in the north of the Indian Ocean (Bay of Bengal and the Arabian Sea). Among the states in the East Coast the frequency of the cyclone crossing the coast is more in Orissa followed by Andhra Pradesh and Tamil Nadu and finally West Bengal. Orissa and Andhra Pradesh are struck every year, causing incalculable damage. There are two cyclone seasons for India. The first is the Pre-monsoon Season (April and May) and the second is post-monsoon season (October to December). The cyclones of the Post-Monsoon season are more intense than those of the Pre-monsoon season.

There are 3 main physical characteristics of cyclones/ hurricanes that effect populations:

- High wind speeds
 - o Batter and destroy buildings - putting human life at risk
 - o Pick up debris - causing significant damage to buildings and risk to human life
- High precipitation intensity
 - o Causes widespread flooding, with the related effects of damage to buildings and property, risk of drowning, water contamination, etc
- Storm Surges
 - o Wind and low pressure causes a swell in sea water, resulting in large waves that inundate the coast
 - o These cause further flooding and damage, having an increased negative effect on coastal communities

1.6.3 Tsunami⁸

Tsunamis, also known as seismic sea waves, are a series of enormous waves created by an underwater disturbance such as an earthquake, landslide, volcanic eruption, or meteorite. A tsunami can move hundreds of miles per hour in the open ocean and smash into land with waves as high as 100 feet or more.

From the area where the tsunami originates, waves travel outward in all directions. Once the wave approaches the shore, it builds in height. The topography of the coastline and the ocean floor will influence the size of the wave. There may be more than one wave and the succeeding one may be larger than the one before. That is why a small tsunami at one beach can be a giant wave a few miles away.

Earthquake-induced movement of the ocean floor most often generates tsunamis. If a major earthquake or landslide occurs close to shore, the first wave in a series could reach the beach in a few minutes, even before a warning is issued. Areas are at greater risk if they are less than 25 feet above sea level and within a mile of the shoreline. Drowning is the most common cause of death associated with a tsunami. Tsunami waves and the receding water are very destructive to

⁸ From: AIDMI - School Safety Trainings Module 5 and From: University of Birmingham - Tsunami lectures.

structures in the run-up zone. Other hazards include flooding, contamination of drinking water, and fires from gas lines or ruptured tanks.

In the past, tsunamis were often referred to as "tidal waves" by many English-speaking people. The term "tidal wave" is a misnomer. Tsunami is a Japanese word represented by two characters: "tsu" and "nami". The character "tsu" means harbour, while the character "nami" means wave.

An average of 12 tsunamis occur every year. Since 1850 alone, tsunamis have been responsible for the loss of over 420,000 lives and billions of dollars of damage to coastal structures and in habitats.

There was plenty of time for evacuation in Hilo, Hawaii, as the Chilean tsunami raced across the Pacific Ocean on May 22, 1960. At 6:47 p.m. Hawaiian time, the U.S. Coast and Geodetic Survey issued an official warning that waves were expected to reach Hilo at about midnight. Around 8:30 p.m., coastal sirens in Hilo sounded and continued to sound intermittently for 20 minutes.

When the first wave, only a few feet high, arrived just after midnight, hundreds of people were still at home on low ground in Hilo. Others, thinking that the danger had passed, returned to Hilo before the highest wave of the tsunami struck at 1:04 a.m. on May 23.

The December 2004 Indian Ocean tsunami had the following results in India⁹: 252 schools in Tamil Nadu were left in need of complete reconstruction, 19 in need of major repairs and 49 in need of minor repairs. In the Andaman and Nicobar Islands, 78 teachers were listed as dead or missing. 25% of primary schools, 33% of upper primary schools and 31% of senior secondary schools were seriously damaged.

1.6.4 Accidents and Fire¹⁰

Accidents can occur at any school, large or small scale. Following are some examples:

- Road accidents and other related hazards on children's way to and from school
- Keeping of dangerous substances used for science class and school maintenance
- Safety of trees and bushes on-site (sharp plants, falling branches, etc)
- Resistance to monsoon rains
- Safety of electrical equipment
- Tripping and falling hazards
- Adequate hygiene and sanitation
- Safety on school trips (e.g. Kerala boat tragedy)

At 6:40pm February 20, 2007, 15 children and 3 teachers died when they were crossing a river with a tattered boat on their way back from a picnic. Altogether 216 students and 12 teachers went together but few of them knew how to swim. A hole was discovered when they were

9 AIDMI. 2008. School Safety Audit Report. Ahmedabad: AIDMI

10 From: AIDMI - southasiadiasters.net Issue 16 and From: AIDMI - School Safety Trainings Module 1

boarding on the boat but none paid much attention to it. Overloading was clear, but everyone was in such a hurry to go back with the private boat without government license at such a late timing. The school authority and local government has reposed immediately after the accident but lives lost could never return.

Too many tragedies have demonstrated the importance of promoting school safety and taking every measure to insure children's security when they are studying in school. Apart from disaster preparedness, we must address other safety issues: Is there anything sharp or dangerous that can cause injuries in the classroom? Are there poisonous chemicals in the laboratory, within reach of children? Do children play games safely? Do they know how to get on and get off buses safely on the way to school? Do they know how to cross the road? Do they know how to deal with strangers?

Fires have more localised effects but the frequency of fire incidents is rising, leading to huge losses. Fires are very common in slums and squatter settlements in large cities and in high-rise buildings. Incidents of Fire occurring in rural areas during summer season are also high and are compounded by the wind.

A fire at a private school at Kumbhakonam in Tamil Nadu killed 90 students. The school was not built according to fire safety rules, making escape for the students impossible when the fire broke out. The Statesman writes, July 20, 2004: "The school building had a thatched roof - a tinder box waiting to go up in flames. Fire extinguishers were not in sight, the lane of the school building was so narrow that fire-tenders had problems getting to the spot. About 900 children were crammed into the three-storied building with only a single narrow staircase serving as both entrance and exit." Another major criticism went to the teachers, who according to the witnesses did little to help the students.

The city of Kumbhakonam is located in the Tanjavur district of Tamil Nadu, 320 kilometres from the city of Chennai. Saraswathi Public High School is at the centre of Kumbhakonam and has a student body of around 800 children and employs a meal scheme in support of children of low-income families. This offers many poor children access to education, but if schools lack building and fire codes it can turn into a disaster quickly. This is what happened in Kumbhakonam, where a deadly fire killed 94 children. This could have been avoided if proper instruction had been given to the children.

On the July 16th 2004, major ignorance was the main factor causing this unfortunate disaster. When a fire broke out in the kitchen, the teacher in a classroom on the third floor instructed the children to remain calm while they investigated what was the cause of the smoke. The teacher, discovering what the cause of smoke was, could not make it back to the children to help them evacuate the building. The classroom, which was designed to be an open space, had been covered with a thatched roof and added walls, which allowed the fire to spread from the walls to the roof. While the roof was burning the children were helplessly sitting on the floor. The only evacuation door in the classroom was closed and the children, too young to open it, couldn't escape from the blaze. The faulty construction of walls could not support the burning roof, which ended up collapsing onto the children.

The fire brigade responded to the accident immediately but it was difficult for them to access the school because of the narrow roads and a crowd that had gathered to see what the commotion was. They were able to rescue some children, but 14 of those rescued died later in hospital. The

education department authorities immediately took action and arrested the principal and some schoolteachers.

1.6.5 Floods¹¹

Floods are among the most frequent and costly natural disasters in terms of human hardship and economic loss. Flooding occurs in known floodplains when prolonged rainfall over several days, intense rainfall over a short period of time, or an ice or debris jam causes a river or a stream to overflow and flood the surrounding area. Melting snow can combine with rain in the winter and early spring; severe thunderstorms can bring heavy rain in the spring and summer; or tropical cyclones can bring intense rainfall to the coastal and inland states in the summer and fall.

Flash floods occur within six hours of a rain event, or after a dam or levee failure, or following a sudden release of water held by an ice or debris. You will not always have a warning that these deadly sudden floods are coming. So if you live in areas prone to flash floods, plan now to protect your school and family.

As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanisation increases runoff two to six times over what would occur on natural terrain. During periods of urban flooding, streets can become swift moving rivers, while basements and viaducts can become death traps as they fill with water.

Several factors contribute to flooding. Two key elements are rainfall intensity and duration. Intensity is the rate of rainfall, and duration is how long the rain lasts. Topography, soil conditions, and ground cover also play important roles. Most flash flooding is caused by slow-moving thunderstorms, thunderstorms repeatedly moving over the same area, or heavy rainfalls from hurricanes and tropical storms. Floods, on the other hand, can be slow- or fast-rising, but generally develop over a period of hours and days.

Floods can roll boulders, tear out trees, destroy buildings and bridges, and scour out new channels. Floodwaters can reach heights of 10 to 20 feet and often carry a deadly cargo of debris. Flood-producing rains can also trigger catastrophic debris slides.

Floods are the most frequently occurring and most destructive forms of natural disasters in the South Asia region. Floods include seasonal flooding, flash flooding, urban flooding due to inadequate drainage facilities, and those associated with tidal events induced by typhoons in coastal areas. In India 11.2% of the area is flood prone. 40 million hectares of agricultural land are at risk of flooding. Seventy five percent of rainfall is concentrated over four months of monsoon (June-September) and as a result almost all the rivers carry heavy discharge during this period. The problem of sediment deposit, drainage congestion and synchronisation of river floods compound the flood hazard with sea tides in the coastal plains. Brahmaputra and the Gangetic Basin are the most flood prone areas. The other flood prone areas are the northwest region of west flowing rivers such as Narmada and Tapi, central India and the Deccan region with major east flowing rivers like Mahandi, Krishna and Cavery. The most flood prone states are Uttar Pradesh, Bihar, West Bengal, Assam and Orissa. Floods are also serious in Andhra

11 From: AIDMI - School Safety Trainings Module 1 and 5

Pradesh, Gujarat, Karnataka, Kerala and Tamil Nadu. Areas affected by floods can also be affected by drought.

Origins of Flood Hazards¹²

The principle cause of flooding in most cases is prolonged or intense rainfall. Floods may be described by their various causes, speed of onset and potential damage. The following broad categories can be adopted for flood classification:

- Flash floods, which build up rapidly as a result of surface runoff.
- Floods due to snowmelts.
- Floods due to the failure of flood defence infrastructure, e.g. dams
- Floods arising from the raising of natural ground water levels.
- Floods from inadequate surface water drainage in urban areas.
- Tidal surges and other marine conditions leading to coastal flooding.

The National Disaster Management Authority in India has released its first guidelines on Management of Floods. For more information: <http://ndma.gov.in/ndma/floodguidelines.htm>

Effects of Floods on Schools

- Structural damage and water damage to interior property - forced long closures
- Structures may be permanently weakened
- Poor attendance as floodwaters hamper journey to school and children's homes and families may be effected
- Unsafe environment - higher numbers of biting insects and animals, contaminated water leads to spread of disease
- Higher risk of electrocution
- Risk of drowning and injury

1.6.6 Landslide and Mudflows¹³

Landslides, which are common in the hills and mountainous areas of the region, occur frequently in India. Although topography is the primary cause, human activities such as deforestation, cultivation and construction destabilise already fragile slopes. Landslides are a serious geological hazard common in the hilly regions of India. The Himalayas, North Eastern Hill ranges and the Western Ghats and Nilgris experience considerable landslide activity of varying intensities. River erosions, seismic movements and heavy rainfalls cause considerable

¹² From: University of Birmingham - Floods Lecture

¹³ From: AIDMI - School Safety Trainings Module 1 and 5

activity. Heavy monsoon rainfall, often in association with cyclonic disturbances, results in considerable landslide activity on the slopes of the Western Ghats.

Mudflows (debris flows) are common types of fast moving landslides that occur during intense rainfall, rapid flows of water due to melting of snow occur in steep hill slides.

Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Gravity is the force driving landslide movement. Factors that allow the force of gravity to overcome the resistance of earth material to landslide movement include: saturation by water, steepening of slopes by erosion or construction, alternate freezing or thawing, earthquake shaking, and volcanic eruptions.

Landslides are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompanies these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides.

Debris flows, sometimes referred to as mudslides, mudflows, lahars, or debris avalanches, are common types of fast-moving landslides. These flows generally occur during periods of intense rainfall or rapid snow melt. They usually start on steep hillsides as shallow landslides that liquefy and accelerate to speeds that are typically about 10 miles per hour, but can exceed 35 miles per hour. The consistency of debris flows ranges from watery mud to thick, rocky mud that can carry large items such as boulders, trees, and cars. Debris flows from many different sources can combine in channels, and their destructive power may be greatly increased. They continue flowing down hills and through channels, growing in volume with the addition of water, sand, mud, boulders, trees, and other materials. When the flows reach flatter ground, the debris spreads over a broad area, sometimes accumulating in thick deposits that can wreak havoc in developed areas.

Wildfires can also lead to destructive debris flow activity. Learn whether landslides or debris flows have occurred in your area by contacting local officials, state geological surveys or departments of natural resources, and university departments of geology.

1.6.7 Avalanches¹⁴

Avalanches constitute major hazards in the higher reaches of the Himalayas. Severe snow avalanches occur in Jammu and Kashmir, Himachal Pradesh, and the Hills of Western Uttar Pradesh.

1.6.8 Technological Accidents¹⁵

Rapid industrialisation in the region increases the risk of technological accidents. The 1984 Bhopal accident in a town of over a million people in India is cited as the world's worst industrial disaster. Accident rates in the Gas, Fire and Explosive Sectors are quite high.

¹⁴ From: AIDMI - School Safety Trainings Module 1

¹⁵ From: AIDMI - School Safety Trainings Module 1

1.6.9 Riots and Conflicts¹⁶

Communal and caste riots pepper the country. In 2002, local riots broke out between Muslim and Hindu populations in Gujarat. Over 1000 people were killed, and many more displaced.

While the number of conflicts arising from liberation movements have been on the decline in the 1990s, ethnic conflicts continue to rise. Some conflict areas in India include Punjab, Kashmir, Nagaland (between India and Myanmar) and Assam.

1.6.10 Drought¹⁷

Drought is among the most serious problems that India faces. From time to time major droughts are experienced in India. Nineteen percent of India's total area, with 12% of its total population, is considered drought prone. An estimated 28% of its total cultivable area is drought prone. Droughts may lead to large-scale losses of assets and livestock, and high mortality due to starvation.

Droughts usually occur from March to June and from October until the monsoon. Drought prone areas include Rajasthan, Gujarat, Uttar Pradesh, Vidarbha, Tamil Nadu, Kashmir, Rayalseema, Telengana, North Karnataka, Bihar, Orissa, coastal Andhra Pradesh, West Bengal, Kerala, Uttar, Madhya Pradesh, Maharashtra, Punjab, and Assam.

India has a largely monsoon dependent irrigation network. An erratic pattern, both low (less than 750 mm) and medium (750-1125 mm) makes 68 per cent of the total area vulnerable to periodic droughts. A 100-year analysis reveals that the frequency of occurrence of below normal rainfall in arid, semi-arid and sub-humid areas is 54-57%. Severe and rare droughts occur in arid and semi-arid zones every 8-9 years. Semi-arid and arid climatic zones are subject to about 50 per cent of severe droughts that cover generally 76% of the area.

16 From: AIDMI - School Safety Trainings Module 1

17 From: AIDMI - School Safety Trainings Module 1

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Annex 1: Pin-up Hazard Information for Schools

Disaster Mitigation through Tidal Learning

Science in the Service of School Safety
Ganges York Learning Institute for AICMR
Scientific Awareness for All



Tsunami

HOW DOES IT OCCUR? STEPS TO MITIGATE ITS IMPACT

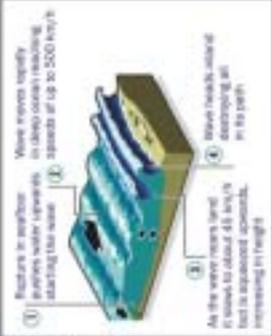
Scientific Information on Tsunami: Steps for Mitigating its Impact

Tsunami: Cause and Effect

What is a tsunami?
The word tsunami is derived from Japanese language, 'tsu' meaning harbour and 'nami' meaning wave. Tsunamis occur due to submarine earthquakes, volcanoes and landslides as well as meteoritic impact on seas, causing tidal waves.

How do tsunamis differ from other sea waves?
Tsunamis have certain characteristics that make them different from other sea waves. Tsunamis originate when ocean water is vertically displaced during large earthquakes or other phenomena. In open water, the waves may travel at speeds as great as 800 km per hour, and the distance between successive crests may exceed 100 km. Wave heights in deep water may be less than 1 m, but when the waves enter shallow coastal water and feel the surface, they slow to less than 60 km per hour, and wave heights may increase to more than 15 m.

What happens when a tsunami approaches the land?
The heightened waves of tsunami can be overwhelmingly devastating on coasts. They wash away almost everything in their way. They can topple buildings and other constructions, root out trees and cause erosion of coastal sand.



When Tsunami Come?

How to mitigate the impacts?

- Do not destroy coastal vegetation that forms a natural buffer to tsunamis.
- Promote natural vegetation like mangroves and coconuts. They can act as natural barrier to tsunamis
- Keep sand bags on coasts
- Keep rescue and relief teams ready for effective response
- Be prepared to shift low-lying communities to safer places
- Develop a people-centred warning system
- Keep water purifying medicines (chlorine tablets), dry snacks, milk powder for children, first aid kits and other important materials properly so that they would easily be available in an emergency

In the immediate aftermath

- Non- and less-affected individuals should join rescue and relief efforts
- Do not use wet electrical appliances
- Do not try to swim and walk in accumulated water

After a tsunami

- Do not eat food that has come in contact with tsunami water
- Drink boiled water
- Take special care of the elderly, women and children
- Make water supply accessible to all





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Avalanche

HOW DOES IT OCCUR? STEPS TO MITIGATE ITS IMPACT

Scientific Information on Avalanche: Steps for Mitigating its Impact

Disaster Mitigation Through Virtual Learning
 Science in the Service of School Safety
 Courses of Total Learning Initiatives on RACHA
 Scientific Initiatives by AICTE

What is an Avalanche?

A mass of earth, rock, ice, or snow dislodged from a mountainside by any sort of tremor or disturbance may produce an avalanche. The material may travel on a trapped packet of air, like a hovercraft, or if the mass is huge the greatest danger may be from the air pushed ahead of it. This may fan out sideways like a komado, lifting trees, boulders, and rooftops in its path. In any case avalanche are responsible for much erosion, particularly in areas where they are almost seasonal events; and they frequently constitute a threat to both property and life.

What conditions cause an avalanche?

Weather/Snowfall: Avalanches are most likely to run either during or immediately after a storm where there has been significant snowfall. The 24 hours following a heavy snow-storm are the most critical. Snowfall amounts of one foot or more (frequent in mountainous areas) create the most hazardous situations, producing avalanches that are often large enough to block highways and cause major destruction.

Temperature: Because snow is a good insulator, small temperature changes do not have as much effect on snowpack as larger or longer changes do. Changes that last

several hours or days, such as a warm front moving through, can gradually increase temperatures that cause melting within the snowpack. This can seriously weaken some of the upper layers of snow, creating increased avalanche potential, particularly in combination with other factors.

Wind Direction: Wind usually blows up one side of a slope or mountain (the windward side), and down the other (the leeward side). Blowing up the windward slope, wind will "scour" snow off the surface, carry it over the summit, and deposit it on the leeward side. What this does is pack snow unevenly on the leeward side, making it more prone to avalanche. A cornice or icy overhang at the top of a mountain or ridge is a telltale sign of wind scouring. It is safer to travel on the back, or windward side of such a slope, where the snow layer is thinner and wind-packed.

Slope Angle: Most avalanches occur on slopes between 30 and 45 degrees, but can occur on any slope angles given the right conditions.



Very wet snow will be well lubricated with water, meaning it might avalanche on a slope of only 10 to 25 degrees. Very dry or granular snow will most likely avalanche on a slope close to the 22 degree angle of repose.

Types of Avalanche

Powder Avalanche: A mass of loosely packed snow that begins with a piece of falling rock or ice. The largest and most destructive is a powder avalanche. A piece of falling ice or rock starts a mass of loose snow sliding down the mountain.

Wet Avalanche: A flow of snow, ice, rock, and other material that occurs as a result of thawing. The second type is a wet avalanche. These occur mostly late in the snow season when the snowpack is deep and the thaw is just beginning.

Slab Avalanche: A mass of snow, ice and possibly other material caused when a large slab of snow breaks free from the layers beneath. A slab avalanche is most deadly. The weight of a skier is enough to break a slab away from the layers beneath.

Cornice: An overhanging mass of snow, ice, or rock usually on a ridge. Wind can also blow snow into a huge, dense drift or cornice on the crest of a ridge.

Pyroclastic flow: A flow of hot gases, soot, and lava formed by volcanic action. This gray cloud is one of the most lethal forms of avalanche in the world. It comes out of an erupting volcano. It's called a pyroclastic flow.

Rock Avalanche: A mass of boulders, rocks, and other material that slides down an incline riding on a layer of smaller rocks. Rock avalanches are the strongest of nature's forces. Giant boulders "float" on tons of solid rock.

Safety tips against an Avalanche

Safety First: Heed warning signs in avalanche-prone areas. Stay alert in backcountry areas, and never travel alone. Travel single file (not side by side) in backcountry. Remain consistently aware of changing weather or temperature conditions. Don't travel through or go skiing in an avalanche-prone area.

Equipment: Carry safety equipment, including a long probe, a small shovel, and an emergency avalanche rescue beacon that signals your location.

Caught: If caught in the path of an avalanche, try to get to the side of it. If you can't, grab a tree as an anchor. If swept into an avalanche, "swim" with the slide to stay as close to the surface as you can.

Call for help: Contact local officials and departments of natural resources for immediately help.



Disaster Mitigation Through Joyful Learning
 Science in the Service of a Better World
 Scientific Research for a Safer India

Landslide HOW DOES IT OCCUR? STEPS TO MITIGATE ITS IMPACT

Scientific Information on Landslide: Steps for Mitigating its Impact

What is a Landslide?

Landslides are a sudden movement of rock and soil that occurs when the ground surface is shaken, oversteeped, or inadequately supported. The most dramatic and devastating landslides occur in mountainous areas and can involve the collapse of entire hillsides.

Natural Causes:

- Erosion by rivers and glaciers
- Creation of over steepened slopes by sea waves
- Rock and soil slopes are weakened when rainfall saturates pore spaces
- Shaking by earthquakes may cause weak, metastable slopes to fail
- Volcanic eruptions produce loose ash deposits, heavy rain, and debris flows
- Thunder may trigger failure of weak slopes
- Groundwater pressure may destabilise the slopes.



Safety Tips against Landslides

Before Landslides

- Do not build houses in landslide-prone areas such as steep slopes and slopes being undercut by rivers.
- Contact local officials, state geological surveys or departments of natural resources, and university departments of geology.
- Ask for information on landslides in your area and specific information on areas vulnerable to landslides.

Recognise Landslide Warning Signs

- Changes occur in your landscape such as patterns of storm-water drainage on slopes (especially the places where runoff water converges) land movement, small slides, flows, and progressively leaning trees.
- New cracks appear in plaster, tile, brick, or foundations.
- Outside walls, walks, or stairs begin pulling away from the building.
- Slowly developing, widening cracks appear on the ground or on paved areas such as streets or driveways.
- Underground utility lines break.
- Water breaks through the ground surface in new locations.
- Fences, retaining walls, utility poles, or trees tilt or move.
- A faint rumbling sound that increases in volume is noticeable as the landslide nears.

During Landslides

- If you are in areas susceptible to landslides, consider leaving if it is safe to do so. If you remain at home, move to a second story if possible.
- Listen for any unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together. A trickle of flowing or falling mud or debris may precede larger landslides. Moving debris can flow quickly and sometimes without warning.
- Listen to weather forecasts on radio and television.
- Stay alert and awake. Be aware that intense, short bursts of rain may be particularly dangerous, especially after longer periods of heavy rainfall and damp weather.

Human Causes:

- Vibrations from machinery
- Road construction
- Blasting
- Stockpiling of rocks or ores
- Deforestation in shallow soils
- Mining
- Logging
- Overgrazing

- Be especially alert when driving. Watch the road for collapsed pavement, mud, fallen rocks, and other indications of possible debris flows.
- Inform affected neighbors. Help neighbors who may need assistance to evacuate.
- Contact your local fire, police, or public-works departments.

After Landslides

- Stay away from the slide area. There may be danger of additional slides.
- Check the building foundation and surrounding land for damage.
- Listen to local radio or television stations for the latest emergency information.
- Check for injured and trapped persons near the slide, without entering the direct slide area. Direct rescuers to their locations.
- Help individuals who may require special assistance - infants, elderly people, and people with disabilities.
- Look for and report broken utility lines and damaged roadways and railways to appropriate authorities.
- Seek advice from geotechnical experts for evaluating landslide hazards or designing corrective techniques to reduce landslide risk.



Disaster Mitigation
Through Joyful Learning

Science in the Service of School Safety
Group of Joyful Learning Initiatives on
Scientific Awareness by AIDMI

Flood: Cause and Effect



Types of Floods and its Varied Impacts

- There are several types of flood. Examples are river floods, floods caused by dam failure, floods caused by melted ice, floods caused by heavy rain and floods caused by cyclones.
- Floods can cause damage to dams, river embankments, river mouths, buildings, infrastructure, people, land and crops.



Flood

HOW DOES IT OCCUR?

STEPS TO MITIGATE ITS IMPACT

Scientific Information on Floods:
Steps for Mitigating its Impact



Safety Tips for Surviving Floods

- Get information about safe roads and know about safer places that are near you.
- If there is a threat of flooding, move food, drinking water, important documents and valuables to upper floors.
- Check whether material inside shops, commercial complexes and industries are secure against floods or not.
- Keeps water purifying chlorine tablets, dry food, milk powder for children, a first aid kit and other important materials in places that are easy to reach in an emergency
- Floods may contaminate drinking water. During flooding, always drink boiled water or purify the water by adding CaCo₃ or chlorine.
- Do not come in contact with flood water.
- Drink coconut water, rice soup or black tea during diarrhoea and consult a doctor as soon as possible.
- Cooperate with aid workers after floods. Give them information about the local situation.
- Do not touch or use wet electrical appliances.
- A few centimetres of fast flowing water may knock a person down. Flood water can unpredictably change its course. Always be careful.
- Even if you swim well, do not bathe in flood water.



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Drought HOW DOES IT OCCUR? STEPS TO MITIGATE ITS IMPACT

Scientific Awareness on Drought: Steps for Mitigating its Impact

Benefits of Water Harvesting For Agriculture

- By making an embankment or a check dam in the farm, the stored rainwater can be used for irrigation.
- Ground level water lifts up; fresh water comes in wells and land fertility improves.

For Domestic use

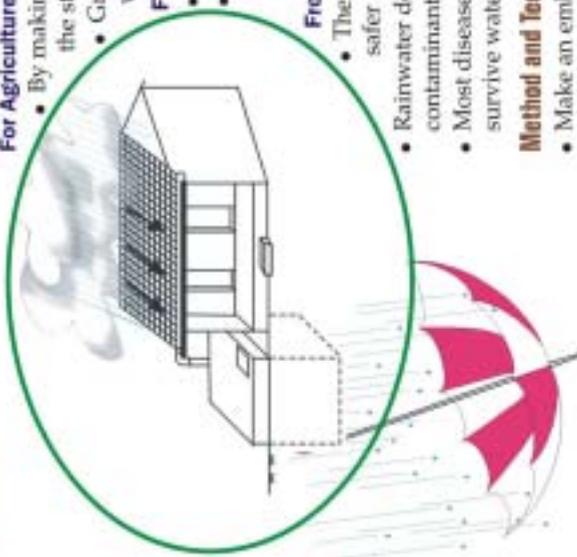
- Rainwater is the best in quality.
- In areas where women have to collect water from distant places, stored rainwater can save their time, energy and money.

From Health Context

- There is almost nil saline in the rainwater, so it is safer for our health.
- Rainwater does not come into direct contact with land, so contaminant in the land not found in rainwater.
- Most diseases are caused by contaminated water. We can survive water bound diseases by using stored rainwater.

Method and Techniques for Water Harvesting

- Make an embankment for irrigation in farms.
- For domestic use by deepening pond of village, if the land is saline, by spreading plastic sheets at the bottom and by recharging the well.
- For drinking water, make a water tank in the home or the street or the village, or make underground water tanks.



Saving Every Drop of Water Helps Surviving Drought!

Drought: Cause and Effect

Drought means lack or insufficiency of rain for an extended period that causes a considerable hydrological imbalance.

Drought does not mean a lack of drinking and domestic water but insufficient water for agriculture, which causes damage to crops and life stock.

Drought creates scarcity of water, failure of crops resulting scarcity of grains in the long run. Due to failure of crops, people in rural areas depend on labour work through relief work. Food is at scarce; children go for labour work by giving away education, causing damage to health of all. These are impacts of a drought.



Science in the Service of School Safety
Glimpses of Joyful Learning Initiatives on
Scientific Awareness by AIDMI

Cyclone

HOW DOES IT OCCUR? STEPS TO MITIGATE ITS IMPACT



Mitigation
through
Joyful
Learning

Disaster

Scientific Information on Cyclone: Steps for Mitigating its Impact

Safety Tips for Surviving a Cyclone

- Learn from your parents about what a cyclone is and what may happen during a cyclone.
- Do not be afraid of cyclones. If you follow your parents' advice you will survive from cyclones.
- When cyclone is predicted, do not leave the house without your parents' permission.
- If you are in school during a cyclone, follow the instructions of your teachers.
- If you are in home during a cyclone, close all windows and doors.
- Do not go in the opposite direction of the wind.
- Quickly go to a safer place if you are outside during a cyclone.
- If you are standing near, trees or electric poles, quickly move to a safer place.

Cyclone: Cause and Effect

A cyclone occurs when a low pressures area starts to turn around a centre, the cyclone's eye. A cyclone's strength is increased when it moves over warm seawater, on which it feeds. Strong winds and heavy rain occur as a result of cyclones.

Can Cyclone Be Stopped?

No - but the storm's direction and intensity can be predicted fairly reliably. This can reduce the loss of life during cyclone by taking safety measures.

Dear children let us learn lessons of safety during a cyclone,

Let us make necessary preparedness against uncertain disasters,

When cyclone strikes, it blows roof of the houses,

Cyclones uproot big trees and electric poles,

Do not panic and go to safer place,

Dear children let us learn lessons of safety during a cyclone...



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Earthquake

HOW DOES IT OCCUR? STEPS TO MITIGATE ITS IMPACT

Scientific Information on Earthquake and Steps for Mitigating its Impact

Earthquake: Cause and Effect

It is important to understand the internal structure of the earth to know how an earthquake occurs.

The earth can be divided into three layers—crust, mantle and core. The crust and the uppermost part of the mantle are rigid and together constitute the lithosphere. The lithosphere is underlain by a partially molten 100-200 km thick part of the mantle, which is known as asthenosphere. The mantle consists of the bulk of the earth. The mantle below the asthenosphere is solid and is called mesosphere. The core can be divided into two parts: a liquid outer core and a solid inner core.



The lithosphere is divided into a number of pieces, known as tectonic plates, which move relative to each other. These plates often collide, exerting stress on rocks. When accumulated strain exceeds the breaking strength of rocks, the stored energy is suddenly released in a series of waves, causing the earth's surface to shake. This shaking is referred to as an earthquake.



The earth experiences a large number of earthquakes everyday. However, most of them pass unnoticed to us, and are recorded only by seismograms.



Safety Tips for Surviving Earthquake

Do not panic and run during earthquakes. Prompt and proper decision may help to avoid death and injury.

When you cannot get outside a building at the time of an earthquake

Do's

- Hide under a heavy table or bed.
- Stand at the corner of a room or in a doorframe.
- Stand beside a pole or room wall.

Don'ts

- Do not stand near gas cylinders and stoves where fire can break out.
- Do not stay at staircase or in a lift.
- Do not stand near electrical lamps, electrical bulbs, framed big pictures or big mirrors.
- Do not stand near heavy cupboards or glass door windows.

If you are outside, go to open place like a ground.

Hazardous places outside home

- Do not stand near multi-storied buildings.
- Do not stand under balconies.
- Do not stand near big signboards and glass windows.
- Do not stand near electricity poles.
- Do not stand under, or on, bridges.
- Do not stand under high-tension and other electrical lines.

Make a list of handicapped or weak children in your area and help them when a disaster occurs.

Facilitator's Note

1. Suggestions for Facilitators Prior to Training

Although the most effective trainers are able to address the emerging needs of trainees in a flexible manner, the following notes offer a basic outline of activities that TLC facilitators may use to lead trainings. To prepare for training, facilitators may find it useful to:

- Review the Module Learning Objectives listed above,
- Review the Suggested Methods and Activities listed below,
- Assess the anticipated knowledge needs, interests, and constraints of trainees,
- Identify additional potentially effective activities suitable for their particular trainees,
- Review related background literature on School Safety in India, this can include but is not limited to the reference material listed at the end of this document and the modules,
 - o Prepare your own notes so that you may convey the relevant information in a way that is comfortable for you.
 - o Do not feel constrained by the information on the slides-this is merely a guide for you.
- Prepare materials for the training, including:
 - o Powerpoint or other presentation materials including revisions if desired
 - o Print-outs or any other necessary handouts
 - o Tools and props needed for activities
 - o Rewards or treats to encourage involvement and participation

2. Facilitator Requirements during Training

Total Time: Approximately 1hour 30minutes

Items and Materials Needed: PowerPoint presentation, whiteboard and marker OR blackboard and chalk, module materials, your own notes based on those materials, a pack of hazard handouts for the teachers

3. Suggested Methods and Activities

Introduce the module using the Title and Objectives pages. This should only take a matter of a few minutes.

Move on to explain the Contents of the presentation, topic by topic, so that the teachers understand what will happen in the next hour and a half.

Activity 1: 5-10mins

Reveal the title of the slide "What is a Disaster?" and ask the teachers to introduce themselves to the person next to them (name, school, specialist subject, favourite ice cream, etc), and then ask them to spend the next few minutes discussing what a disaster is.

After a few minutes, get them to stop. You should then ask around the room and get suggestions from pairs as to what they came up with. Write these on the board for everyone to see, until you have about four or five different ideas. After this, you should reveal the content of the slide, to show the real definition of a disaster, as well as disaster risk.

Continue to go through the next couple of slides, explaining clearly the concepts related to disaster management. Then ask if anyone does not understand or needs something clarified.

Activity 2: 5-10mins

Ask the teachers to get in pairs or threes again, and spend a few minutes coming up with a list of hazards that happen in India, as well as hazards in school. After the few minutes are up, ask around the room and get one suggestion from each group and write it up on the board. Where appropriate, get them to also give an example of a time when that hazard has occurred in India, in school, or both. Correct any suggestions that are not legitimate, and at the end reveal the next slide that shows the full list and their classifications. (NOTE: Chemical, Biological, Radiological and Nuclear hazards are listed under the heading 'CBRN') Use the following slide to better explain the terms 'natural' and 'man-made' then get the teachers to suggest how a disaster may be both of them at once.

With the help of the next few slides, go on to describe the effects of disasters on schools and their role as actors within community based disaster risk reduction.

Move on to explain that you will cover the 5 most prominent dangers to schools in India: Earthquake, Cyclone/Windstorm, Fire and Accidents, Flood, and Tsunami.

The coverage of each of these hazards includes: a scientific explanation of the hazard, which areas of India are at risk, the effects of the hazard (either in general or on schools) and in some cases a related example of the effects.

Give the hazard handouts for the teachers and explain that each page summarises each hazard in a way that children should be able to understand, and that it should help to refresh their own memory in future.

The sets of slides for each hazard will include information as to whether it is a rapid onset, slow onset or rising tide disaster. As the accompanying material partly explains: rapid onset disasters do their damage quickly over a short period of time and have little warning, e.g. earthquake; slow onset disasters cause their initial damage over a longer period of time and give more warning, e.g. cyclones and volcanoes; and 'rising tide' disasters are a type of slow onset disaster in which the situation gradually gets worse over a period of time, e.g. drought and some flood situations.

Earthquake

For up to 10 minutes, go through the material on earthquakes, explaining the scientific cause and characteristics, which areas of India are most at risk, and describing the effects of the 2001 Gujarat Earthquake.

Cyclone

Similarly, for up to 10 minutes, use the next 3 slides to explain about cyclones. The first slide concentrates on the scientific basis and its physical nature. The second slide shows which areas of India are affected. NOTE: please mention that the dark area over Kashmir is a mistake - it is not cyclone prone. Go on to explain the 3 main effects of cyclones with the help of the third slide.

Tsunami

Continue as before, explaining the hazard of tsunami and its effects. The second page contains the most technical information related to the characteristics of the waves. It may be necessary to pay this special attention, as many people believe tsunami to be simply bigger than average waves. Use the graph from the 1960 Chilean Tsunami, to show the measurement of wave height at the effected town of Hilo in Hawaii. Note the unpredictability, the location of the biggest wave amidst the others, and the recession of the water level before the largest waves. The worsening factors are all related to the dissipation and concentration of the energy of the wave.

Fire and Accidents

Spend the same amount of time explaining about fire safety and general health and safety in schools. A key point is that non-disaster effected areas have better knowledge and systems in place for general safety, but do not possess as much disaster knowledge. The theme of accidents and general health ad safety is often overlooked and includes aspects such as child protection from abuse and the provision of adequate toilet facilities. Similarly to the Gujarat Earthquake in 2001, the Kumbhakonam Fire Tragedy in 2004 was a starting point for many school safety initiatives. Also briefly mention the Kerala boat tragedy - a school trip in which 15 children and 3 teachers drowned.

Flood

Use the following 3 slides to explain the risk of flooding in schools. Flooding can occur due to many different factors, and it is important that the teachers understand the differences. The main difference is usually the speed at which it occurs. Flash floods, failure of defences, and some coastal effects occur very quickly, whereas the other types emerge more slowly. The grey shaded areas on the map are those that are at risk from flooding.

4. Presentation Guidelines

"The following presentation guidelines are intended as a resource that may be adapted for training facilitators that are teaching this module. They may be used to create a visual presentation or handouts for participants."

Objectives

By the end of this module you should be able to:

- Define disasters, hazards, vulnerabilities, capacities and disaster risks
- Describe the disaster situation in India
- Describe the vulnerability of schools in India and the possible effects of disasters
- Explain the need for school safety
- Explain the role of schools for communities in non-disaster times and in times of disaster

Contents

- I. What is a Disaster?
- II. Disaster Risk
- III. Hazards, Classification
- IV. Disaster Effects on Schools
- V. Schools Role in the Community
- VI. Hazards effecting schools in India: Earthquake, Cyclone, Tsunami, Fire / Accidents, Flood

I. What is a Disaster?

- An event that causes sudden disruption to the normal life of a society and causes damage to property and lives, to such an extent that the affected society is not able to cope using its own resources

II. Disaster Risk

- The chance of a particular hazard actually occurring, and the exposure of something of human value to that hazard - the combination of probability and loss

Disaster Risk Equation

Disaster Risk = Hazard X Vulnerability / Capacity

Hazard: an event or an occurrence that has the potential for causing injuries to life or damage to property or the environment

Vulnerability: a set of consequential conditions, which adversely affect a community's ability to prevent, mitigate, prepare for and respond to events

Capacity: the degree to which a community can intervene and manage a hazard in order to reduce potential impact

III. Hazards

- Water and Climate: Cyclone, Hurricane, Floods and poor drainage, Hailstorm, Cloud burst, Heat/Cold wave, Snow Avalanche, Drought, Sea Erosion, Windstorm/Lightening and Thunderstorm, Tornado, Hurricane
- Geological related: Earthquake, Tsunami, Landslide and Mudflow, Dam Failure, Volcano, Mine Fire
- Accident-related: Urban/Rural Fires, Mine flooding, Forest/Wild Fire, Oil spill, Major building collapse, Festival/Pilgrimage disasters, Boat capsizing
- Man-made: Terrorism, Refugee situations, Communal Riots, Ethnic Conflict
- CBRN: Chemical and Industrial Disasters, Nuclear Disasters, Epidemics and Biological Disasters, Pest attack, Cattle epidemic
- Other: Fire, Policy-induced disasters, Transport and water related disasters, Drug abuse tragedies, Food Poisoning

Classification of Disasters

- 'Natural' Vs 'Man-made'

Natural disasters occur as a result of a natural force; climatological (e.g. cyclone), hydrological (e.g. flood), geological (e.g. earthquake), biological (e.g. epidemic)

Man-made disasters occur as a result of notable human actions or mistakes; war, civil unrest, technological (e.g. industrial accident, transport)

NOTE: It can be argued that all disasters are man-made to some degree - DISCUSS

IV. Disaster Effects on Schools

- Direct Effects:
 - Damaged school buildings
 - Injured students, teachers and school staff
- Indirect Effects:
 - Increased drop-out rates
 - Loss of trust in institution
 - Decrease in education quality
 - Increased stress
 - Psychosocial impacts
- Children are among the most vulnerable groups in the population, as they have less physical and mental capacity to protect themselves.
- Schools should be a haven of safety, but the need for more schools has resulted in poor structural and organisational safety.

V. Schools Role in the Community

- Normal times: events, fundraisers, clubs, religious organisations, storage for books and technical equipment
- Emergencies: shelter before and after disaster, temporary housing, distributing food, water and supplies

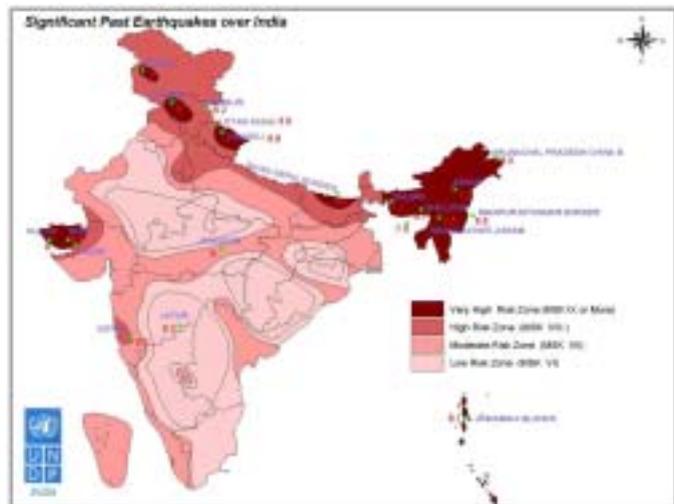
VI. Hazards effecting schools in India: Earthquake, Cyclone, Tsunami, Fire / Accidents, Flood

Earthquake

- Earthquakes are the vibrations of the earth that happen as a result of the release of energy that occurs when the Earth's tectonic plates move toward, away from, or against each other at their boundaries
- High amounts of energy are released when rocks in the Earth's crust bend and break, releasing radial waves of vibrations
- Rapid onset disaster – no effective warning
- 1 main quake with before and after shocks
- The point of origin is called the 'epicenter'
- Estimated that 57% is earthquake prone
- Kashmir and Western Himalayas
- Central Himalayas (including) Nepal
- North East India
- Indio-Ganetic basin and Rajasthan
- Combay and the Rann of Kutch
- Peninsula India and Nicobar Islands



Picture ref: www.dkimages.com



1819	Kutch (Magnitude 8.0)
1833	Bihar 8.7
1897	Assam 8.7
1905	Kangra HP
1934	Bihar - Nepal 8.3
1950	Assam 8.6
1967	Koyna 6.5
1993	Latur-Killari 6.3
1997	Jabalpur 6.0
2001	Bhuj 6.9

2001 Gujarat Earthquake

08:45, 26th January 2001 – Earthquake magnitude 6.9, or 7.7 on the Richter Scale.

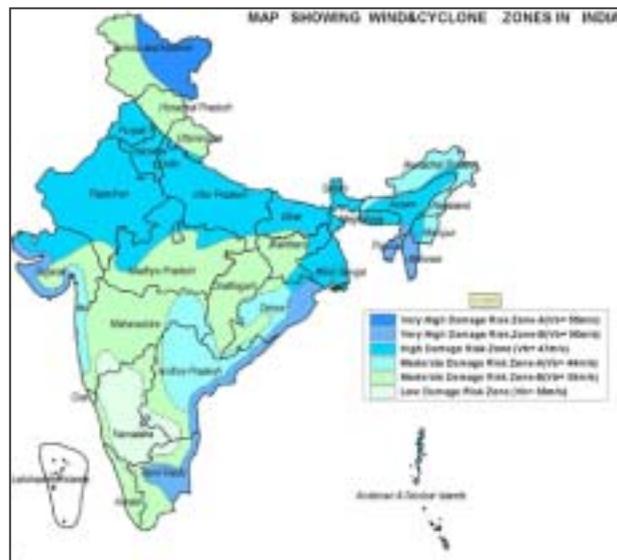
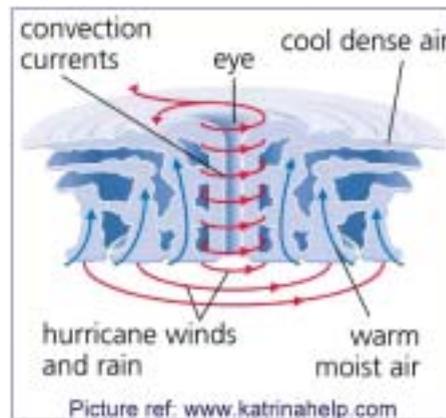
Damage to schools across Gujarat:

- 9,500 schools destroyed, 5,500 damaged – total of 15,000 – half the schools in the state
- 5m children effected, 1.5 - 2.5m under-14's lost family, home or school

- Schools are highly vulnerable:
- Located in crowded areas, near tall buildings that can fall
- Lack of evacuation and emergency plans
- Overcrowding of schools and classrooms
- Corridors and surroundings are too narrow for children and Emergency Services

Cyclone

- Cyclones form when a low-pressure storm increases in size by collecting energy and moisture from warm oceans. The Earth's movement and wind currents spin and move the storm, making it more powerful and increasing the wind speeds
- Can reach beyond 300km in width and 20km in depth
- Strongest winds at the 'eye wall' - can reach beyond 300kmph
- Energy dissipates when the cyclone travels over land, but damage can reach 60km inland
- Slow onset disaster
- 7,516km of coastline is vulnerable
- Orissa, Andhra Pradesh, Tamil Nadu and West Bengal are worst hit areas
- Occurs in 2 seasons: pre-monsoon (April and May) and post-monsoon (October to December)
- Indian sub-continent is worst effected part of the world



Effects

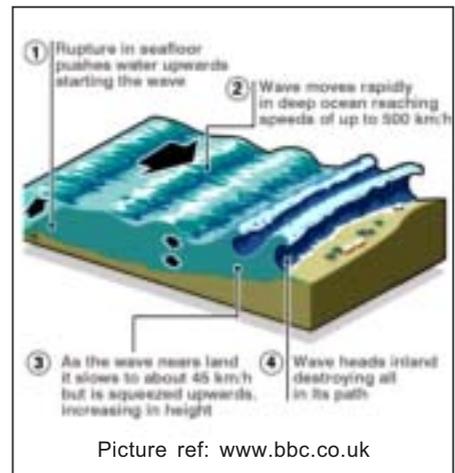
There are 3 main physical characteristics that effect populations:

- High wind speeds
 - Batter and destroy buildings – putting human life at risk
 - Pick up debris – causing significant damage to buildings and risk to human life
- High precipitation intensity
 - Causes widespread flooding, with the related effects of damage to buildings and property, risk of drowning, water contamination, etc

- Storm Surges
 - Wind and low pressure causes a swell in sea water, resulting in large waves that inundate the coast
 - These cause further flooding and damage, having an increased negative effect on coastal communities

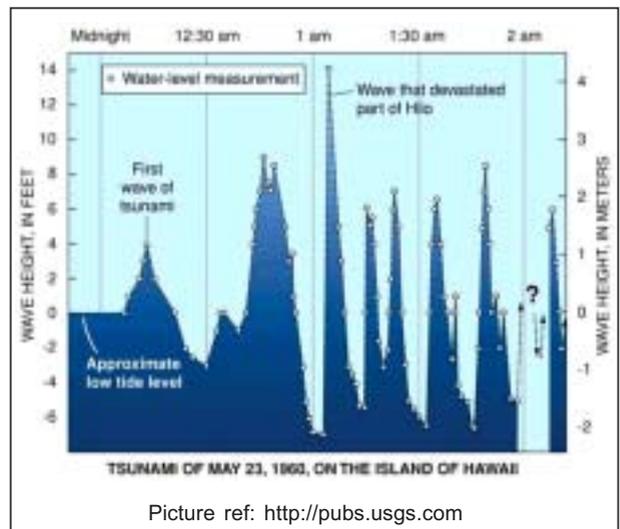
Tsunami

- Tsunami (meaning 'harbour wave' in Japanese) are slow onset disasters caused by submarine earthquakes, landslides, volcanoes or meteoric impacts
- These displace the seabed and thus displace the large body of water directly above
- The energy forces the water out in a series of radial waves. In deep water the waves travel with high speed but low wave height. Once the water reaches land and shallower points, it slows down and thus the wave height increases dramatically as it reaches the shore – as high as 15m or more



Characteristics of Tsunami

- Despite the nickname of 'Tidal Wave', Tsunami waves are unlike regular waves
- Regular waves roll in and out, not reaching higher areas. Tsunami waves move forward as a wall of water, quickly rolling over the land. They then drag back to sea before the next big wave, in a clawing motion
- Many waves, unpredictable in size and frequency
- Sea withdraws to reveal seabed before big waves



- Often the first wave may be the least dangerous. Waves may get progressively worse over time

Tsunami Effects

General Effects

- Injury and death (drowning, force of the wave, debris, etc)
- Destruction of plant life, trees uprooted

- Coastal sand and earth eroded
- Destruction of buildings
- Flood waters and their related risks (contamination, electrocution, etc)

Worsening Factors

- Lack of natural protection (e.g. mangroves, coral reefs)
- Gently sloping beaches
- Land subsidence
- Coves and Bays
- River and creek mouths

Effects of the 2004 Indian Ocean Tsunami

- Tamil Nadu:
 - 252 schools needed complete reconstruction
 - 19 needed major repairs
 - 49 in needed minor repairs
- Andaman and Nicobar Islands:
 - 78 teachers dead or missing
 - 25% of primary, 33% of upper primary and 31% of senior secondary schools seriously damaged

Accidents

- Accidents can occur at any school – large or small scale
- Non-disaster-prone schools have better awareness about accidents – their knowledge must be shared

Key Issues:

- Road accidents and other related hazards on children's way to and from school
- Keeping of dangerous substances used for science class and school maintenance
- Safety of trees and bushes on-site (sharp plants, falling branches, etc)
- Resistance to monsoon rains
- Safety of electrical equipment
- Tripping and falling hazards
- Adequate hygiene and sanitation
- Safety on school trips, e.g. Kerala boat tragedy

Fire

- In schools, losses occur due to:
 - Overcrowding – made worse by poor design of stairs, corridors and exits
 - Poor structural quality and lack of fire-proofing
 - Lack of fire safety and procedure knowledge (do’s and don’ts, drills, alarms)
 - Lack of fire safety equipment (blankets, extinguishers, detectors)
- Localised effects, but frequency is increasing in India
- Most common in slums, squatter settlements and high-rise buildings in urban areas
- Higher frequency in rural areas in the summer
- Rapid onset on small scale – ‘Rising tide’ on larger scale

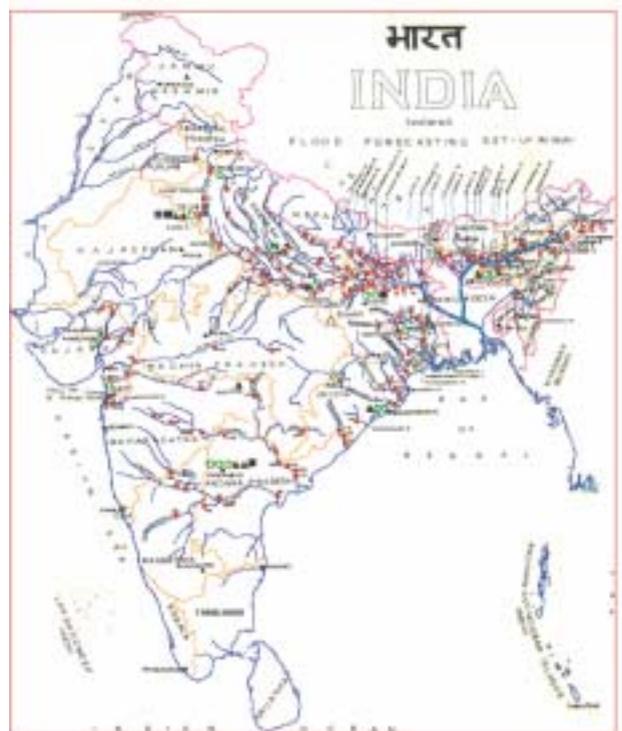
2004 Kumbhakonam School Fire Tragedy

- 16th July, 2004 – 94 children, all under the age of 11, die in a school fire
- Fire started in the kitchen - teacher of 3rd floor class left them to go and investigate – but could not return
- When the burning thatched roof could no longer be supported by the faulty construction of the walls, the children were unable to escape, as they were too young to open the only emergency exit
- Rescue was hampered by narrow streets and a large crowd outside

Floods

Types:

- Flash flood (due to build up of surface runoff water)
- Due to snowmelts
- Failure of flood defenses (e.g. dams, sea walls)
- Raising of natural groundwater / poor drainage in urban areas
- Coastal effects (e.g. tsunami, cyclone, storm surge)
- Most frequent and destructive hazard in South Asia – 93% of flooding deaths occur in Asia
- 75% of annual rain occurs in 4 months (Monsoon season), which overloads rivers



- Can be 'rising tide' (e.g. heavy rains slowly making the situation worse), slow onset as a secondary effect of other hazards (e.g. tsunami, cyclone) and rapid onset (e.g. dam busting)
- Estimated that 11.2% is flood prone – 40m hectares
- Brahmaputra and Gangetic Basin
- NW of west-flowing rivers (e.g. Narmada and Tapi)
- Central and Decan regions with east flowing rivers (e.g. Mahandi, Krishna and Cavery)
- States:Uttar Pradesh, West Bengal, Assam, Orissa, Andhra Pradesh, Gujarat, Karnataka, Kerala, and Tamil Nadu.

Effects on Schools

- Structural damage and water damage to interior property – forced long closures
- Structures may be permanently weakened
- Poor attendance as floodwaters hamper journey to school and children's homes and families may be effected
- Unsafe environment – higher numbers of biting insects and animals, contaminated water leads to spread of disease
- Higher risk of electrocution
- Risk of drowning and injury

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Module 2

Conducting a School Safety Audit



Conducting a School Safety Audit



Learning Objectives

By the end of this module you should be able to:

- Describe the purpose, processes and benefits of a School Safety Audit
- Describe the areas of progress and deficiency in school safety across India
- Effectively design and conduct a School Safety Audit in your own school
- Use the results of your audit to gain Government and agency assistance to make your school safer



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Facilitator's Note

1. Suggestions for Facilitators prior to Training
2. Facilitator Requirements during Training
3. Suggested Methods and Activities
4. Presentation Guidelines

2.1 School Safety Context in India¹

With the spread of education, more and more children go to schools that are vulnerable to fire hazards, earthquake, pollution, cyclone, food poisoning, stampede and so on. The Kumbhakonam school fire tragedy that killed 93 children is not an exception but a harsh example of this reality.

The Saraswati school in Kumbhakonam, Tamil Nadu, had cooking arrangements next to an inflammable roof that covered four makeshift classes that opened to a single narrow exit to the only staircase. Fire engulfed the roof, which fell on the children who were subsequently trapped in their four classrooms. There were 93 fatalities and many more were injured.

As a timely response to the Kumbhakonam tragedy, the President of India, a scientist of the highest order encouraged the nation on July 24, 2004 to apply scientific measures to prepare schools against any disasters by promoting safety. Similarly, the Minister for Human Resources Development of the Government of India directed the Chief Ministers on July 28, 2004 to actively promote school safety emergency preparedness. The focus will be on scientific awareness of school safety; for which they will need IEC material, methods to demonstrate drills in schools, and wider involvement of the Civil Society, especially from the low-income communities where schools are most often at risk.

The National Common Minimum Programme (NCMP) of the Government of India also puts direct and full emphasis on "providing universal access to quality basic education". Unsafe schools adversely affect the quality and reach of education in schools in poor and low-income areas. Education itself should include safety awareness. Small preparedness measures can make a great difference in areas that are at risk.

Today the world is facing disasters on a record scale. Since the 1990s, disasters have killed on average 58,000 people each year, and have affected another 225 million people. When a natural hazard strikes, children are among the most vulnerable groups, especially those attending school in times of disaster.

Disasters such as the October 2005 Kashmir earthquake where over 17,000 children died in schools that collapsed in Pakistan and India, or the recent mudslide on Leyte Island in the Philippines, where more than 200 school children were buried alive, are just a few tragic examples of why more needs to be done to protect our children during catastrophic events. During disaster response at any phase, schools have not served as institutions for building capacities, but rather as vulnerabilities themselves.

Many programmes are implemented after disasters strike, but they often lack proper research and are implemented without appropriate studies of local needs.

School safety is the responsibility of everyone – staff, students, parents, the community and government. An audit is one tool that, if used effectively, can provide a snapshot of the school's safety situation and identify areas that need improvement. This proactive process will help ensure that students can achieve their learning potential within a safe and secure environment.

¹ Information in this module is adapted from AIDMI - "School Safety Audit: Towards Making Schools Safer", September 2008.

There are many case studies to demonstrate vulnerability in Indian schools. A few specific tragic incidents can emphasise the importance of a school-based safety audit. The following incidents represent catastrophes in India made worse not only by lack of safe buildings but also lack of school based DRR practices.

- December 23, 1995. Nearly 425 people, many of them school children, perished as they tried to escape a fire during a school prize giving ceremony in the town of Dabwali, Haryana.
- January 26, 2001, Gujarat earthquake. 971 students and 31 teachers died in Bhuj Earthquake. 1,884 school buildings collapsed, 11,761 school buildings suffered major to minor damages, 5,950 classrooms were lost, 36,584 rooms became unfit for use. 300 children marching in Republic Day Processions in narrow lanes were killed when buildings collapsed into the street from both sides. There were reports of children running towards the school building from the open ground fearing a bomb blast when the ground started shaking.
- July 18, 2004, Kumbhkonam fire tragedy. A deadly fire raged through Lord Krishna School killing 93 children, all below the age of 11 years.
- December 26, 2004 South Indian tsunami. 252 schools in Tamil Nadu were left in need of complete reconstruction, 19 in need of major repairs and 49 in need of minor repairs. In Andoman and Nicobar Islands, 78 teachers were listed as dead or missing, 25 percent of primary schools, 33 percent of upper primary schools and 31 percent of senior secondary schools were seriously damaged.
- February 20, 2007, Kerala boat tragedy. 15 children and 3 teachers died while crossing a river with a tattered boat on their way back from a school picnic.
- April 16, 2008, Baroda bus tragedy. 47 students died travelling to a school in Baroda when the bus fell into the Narmada canal.

Lessons from the above incidents with the school staff and students demonstrate that each school has different capacities and vulnerabilities, and needs are based on school location, type and many other factors. The school safety audit can guide stakeholders to prepare and implement school based safety initiatives according to vulnerability and capacity of the schools.

2.2 The School Safety Audit

2.2.1 Introducing the School Safety Audit

Objectives of the School Safety Audit:

- To assess the level of understanding and knowledge of school safety in teachers and administration staff in schools located in disaster prone and affected areas. (Linked with Hyogo Framework for Action, Priority for Action 2)
- To conduct an audit of school safety in 60 schools in 6 states of India. The audit will not only focus on the school building, but also relate it to policies, data collection system, and staff development activities specific in school, staff and student safety. (Linked with Hyogo Framework for Action, Priority for Action 3)

- To assess types of structural and non-structural mitigation measures taken by agencies in schools after disaster and/or to prepare schools against future emergencies in disaster prone areas. (Linked with Hyogo Framework for Action, Priority for Action 5)

2.2.2 Coverage

The study was conducted in six states of the India. These states are highly disaster affected and/or disaster prone. The majority of covered schools were selected based on their location in disaster prone and disaster affected areas.

Assam: This state is highly prone to flood and is located in earthquake Zone V. However, due to security reasons, this study could only covered schools in the city of Guwahati; rural areas of Assam state are not safe for state outsiders. Guwahati was an appropriate area to conduct the audit as the city faces a recurring flood situation, and as it is a useful city for studying urban risk.

Gujarat: Due to the state's multi-hazard scenario, several districts were covered - Ahmedabad, Anand, Gandhinagar, Anjar, Radhanpur, and Kutch. This is a state not only highly prone to natural disasters such as flood and earthquake, but also with a history of manmade disasters such as riots and bomb-blasts. Schools located in areas affected by recurring floods and the 2001 earthquake were covered from both urban and rural areas

Jammu and Kashmir: Rural schools in this state, recently affected by the 2005 earthquake, have still not recovered from the disaster's impact. Geographical challenges make it difficult for schools and agencies to implement programmes in these areas, as many schools are isolated, difficult to reach by road, and located near the conflict-affected LoC with Pakistan.

Maharashtra: Audit activities in this state only covered Mumbai, India's largest metropolis. Mumbai was badly affected by flood in 2005; other school concerns expressed during the course of the audit conduct included man-made disasters such as bomb blasts, and road accidents.

Rajasthan: This is a state prone to slow onset disasters such as drought, which are often neglected by intervening agencies. Government and private schools were covered in both urban and rural areas.

Tamil Nadu: Due to the 2004 tsunami, this state has had a very high level of interventions in recent years and still as a significant NGO presence. Because coastline villages were especially affected by the tsunami, a majority (9) of the schools identified for audit coverage were from rural areas. Government schools are the main source of education in rural areas; private schools are generally limited to urban areas.

2.2.3 The School Safety Audit Process

To enhance accuracy and participation, the process used for conducting School Safety Audits is very important. From the beginning, the process needs to integrate several key aspects such as stakeholder participation, duration, coverage, and various information regarding the schools.

The sequence below provides an overview of the safety audit process.

1. Communication with State Agencies
2. Study State Scenario
3. Design Research Tools
4. Selection of Schools
5. Field Plan
6. Field Visits
7. Data Entry
8. Analysis
9. Spreading Message
10. Documentation
11. Guideline for Schools

2.2.4 Data Collection and Analysis

Throughout the study various research tools should be used for gathering crucial information at the grassroots level.

- Questionnaires: Questionnaires can be divided into four sections based on the study objectives,
 - o to collect data and measure teachers knowledge on disaster management;
 - o to collect data related to safety measures;
 - o to collect data related to implementation work done by outside agencies and on linking activities to the Hyogo Framework for Action.
- Focus Group Discussions: FGD outline can be designed and conducted with specific issues on school safety with teachers, students and parents.
- Meetings: Individual meetings can be organised with the school management and administrative staff, local and state agencies; individual professionals to collect information regarding existing policy, system, capacities and vulnerabilities as well.
- Interviews: Interviews with the state and local agencies can be conducted to get their view on local situations; work on school safety, and other issues related to the study.
- Study Subject Materials – Literature Review: Over the course of the study different materials can be studied from time to time by the team with different objectives.

School Safety Audit Objective 1: Collect Data to Measure Teacher Knowledge of Disaster Management

An initial step in the audit will be an assessment of teacher perception and understanding of subjects of disaster management and school safety. Information gathered will help inform development of manuals and guidelines for schools.

Questions can be divided into four sections. More information on each of the four aspects is provided below:

- i. Disaster Knowledge Quiz
- ii. Disaster and Experience
- iii. School and Disaster Preparedness
- iv. Government and School Safety

Building the knowledge of teachers is a critical initial step towards making schools safer. This assessment of understanding helps schools, agencies and other concerned groups to design effective activities for school safety and capacity building.

Disaster Knowledge Quiz

Questions can be asked with the intention of assessing teachers' knowledge of disaster management and school safety.

Most questions should be of a basic level, testing teacher knowledge on history of disaster in their area, government disaster structure, causes of disaster, etc. Disaster management courses should be offered to schools, and should be integrated into teacher syllabi.

Disaster and Experience

Questions assessing teacher experience with disasters should be assessed. This can include numbers of people trained in first aid.

School and Disaster Preparedness

Questions can also be asked about teacher views on whether children are at risk in schools. Many schools operate without basic safety facilities, even when located in disaster prone areas.

Government and School Safety

The audit may find out what training or support has been provided to teachers by the government in the area of school safety.

School Safety Audit Objective 2: The Content of an Audit

The school safety audit is based on information gathered about several indicators. There are various factors included in the audit such as safety of school buildings and grounds, disaster risk and preparedness levels in schools, knowledge of school staff and students, water and food security in schools, atmosphere within and outside of schools, community participation, etc.

A School Safety Audit report can be consolidate findings by the following sections:

- i. School Profile
- ii. Safety and Security of Building
- iii. Data Collection Systems

- iv. Staff and Student Capacity Building Activities
- v. Level of Community Involvement
- vi. Role and support from Government
- vii. Disaster Preparedness and Disaster Response Plan
- viii. Comments from Respondents

School Safety Audit Objective 3: Impact of Activities

To identify effective strategies for improving school safety, an audit should assess the success of prior safety programmes. This portion of the assessment can also draw out teacher and administrator views on safety and opportunities to link with the Hyogo Framework for Action.

Example - Impact of Activities by Outside Agencies in Jammu and Kashmir

High vulnerability of schools has been noted, especially since the 2005 earthquake in Kashmir. Private schools in urban areas (Srinager) are implementing their own safety measures, but there is need for more intervention. New schools constructed recently incorporate safe construction measures. Rural schools remain without basic facilities, even without a physical school building. The earthquake affected schools remain neglected due to their location along the LoC. Agencies are also reluctant to work with these schools because of the distance from towns and the high cost of transportation. These schools have low attendance and some agencies may therefore view them as a lower priority. Nonetheless, there are agencies working with schools and implementing school specific programmes – but not as many as are needed.

2.3 Some Key Findings from a School Safety Audit in India

A critical aspect of managing a School Safety Audit is communicating the results to stakeholders with interest in education, safety, and child development. When your Audit is complete, you may want to summarise key findings for specific target audiences such as the local or state media. A selection of key findings are listed below from AIDMI's School Safety Audit that was conducted in six states of India.

1. Findings varied based on school type: private vs. government, rural vs. urban, primary vs. middle and high school. For example, private schools demonstrated higher levels of construction safety than government schools, largely due to their financial capacities. Many rural schools had unsafe buildings or no buildings at all – educational activities took place in a vulnerable or damaged structures – whereas several urban schools were housed in sound structures.
2. There was a clear difference in activities and awareness levels between recent disaster affected and disaster prone areas. Many schools located in affected regions had implemented mitigation measures such as distribution of awareness materials, execution of mock drills, training for staff members, and knowledge building for students. Schools in Gujarat and Tamil Nadu demonstrated higher levels of awareness than schools in the other four covered states.

3. In states not affected by disaster recently, communities demonstrated higher emphasis on accidents and injuries than on disasters. Schools have effectively spread knowledge of traffic safety, but have so far neglected to teach simple tips or "Dos and Don'ts" for disaster situations. This indicates that we do not always learn from past emergencies and do not use lessons from disaster experience of other states of the nation. This reflects a lack of effort toward disaster preparedness and long-term sustainable work.
4. In Tamil Nadu, many agencies have been involved in tsunami recovery, but very few have worked directly with schools. In cases where relief and rehabilitation agencies did work with schools, their focus was largely limited to construction of new school buildings, with little regard to school safety and disaster preparedness. Furthermore, construction was often undertaken without input from school staff regarding needs. Teachers indicated that within a few years of construction, buildings began leaking during the monsoons. New schools had enough classrooms for proper educational activities, but very few schools had adequate toilet facilities.
5. None of the students or teachers from the surveyed schools were covered by school-based insurance, with the exception of Gujarat state primary schools, which receive insurance coverage from the government. Many staff of rural schools lacked awareness and understanding of the concept of insurance.
6. Safer schools have not shared their experiences with schools that need to be rebuilt.
7. Most of the schools surveyed undertook efforts to create hazard-free grounds, including removing weak tree branches and checking electrical wiring before the monsoon season. This shows a proactive interest in school and child safety efforts.
8. The majority of schools surveyed were structurally unsound due to both old construction and lack of structural regulation for new construction. Several newly constructed private schools were structurally sound.
9. School safety is not a high priority for either public or corporate officials.
10. Several schools possessed safety equipment such as fire extinguishers and first aid kits, but in many cases staff lacked the skills to operate or use the equipment. Many of these schools also lacked the resources to replace exhausted or expired equipment. Private schools possessing safety equipment managed it through their own resources, and government schools possessing such equipment generally received it through support from community-based organisations.
11. Where DRR programmes and activities were implemented, follow-up activities were absent, diminishing the impact of their investments.
12. Processes and methods that reduce disaster risks were rarely considered, even after the occurrence of a major disaster.
13. The focus on reconstruction has been on new and big buildings, but not on safer buildings.
14. Teachers and administrators have high levels of interest in making schools safe. Current constraints in time and resources inhibit their capacity for action.

15. The majority of government and community development organisations working among the surveyed schools lacked expertise in DRR subjects; their activities did not integrate DRR education.
16. Agencies are less likely to respond to slow-onset disasters such as drought, and schools in areas affected by such disasters are often neglected. Preparedness steps against those disasters can be taken in schools, such as rainwater harvesting.
17. Outside agency DRR work with schools placed greater emphasis on need-based projects than on demand-based efforts – school input is lacking. As seen in Tamil Nadu reconstruction projects, many schools were built with enough classrooms, but without kitchens or toilets. This reflects an absence of school staff and student participation in the DRR process.
18. The absence of insurance protection and lack of insurance knowledge in schools was observed in all states. Only several tsunami-affected schools were found with student insurance policies. This policy support was given by NGOs initially and after that school operated by their own support. For them insurance protection is highly important and has emerged as a crucial tool for student safety. Several insured schools have coverage against natural hazards and man-made incidents such as road accidents involving students.
19. Most buildings are not sturdy enough to withstand severe cyclones or earthquakes. Many school structures are not designed to face these hazards. Many structures were also poorly maintained, with deteriorating materials causing visible corrosion and cracking.

2.4 Opportunities for Schools to Enhance Safety

1. Schools running school safety activities should invite local authority representatives to increase their involvement and promote expansion of such activities.
2. When outside agencies intervene, school representatives should proactively provide detailed school information regarding its profile, existing risk, vulnerabilities, and current needs.
3. Schools staff should be involved in every activity implemented by outside agencies, including needs assessment, programme design, implementation and evaluation.
4. Teachers have the highest level of local knowledge and understanding of students and their needs; they should proactively provide input to government and NGO programmes.
5. Schools should consider what roles their staff and students can play in DRR, and solicit outside agency support for developing activities. They should also solicit community involvement.
6. Schools should keep comprehensive records of student information, accident history, disaster history, and other emergency incidents to help inform future activities and interventions.
7. School should take the initiative to keep emergency contact numbers on site, and to teach critical numbers to students.

8. Schools should develop strategies for sustaining knowledge and safety measures after intervening agencies have left.

2.5 Sharing Audit Results with Other Local Schools

- Encourages them to conduct their own audit and share their findings
- Produces a culture of competition between local schools concerning safety
- Allows them to share experiences of successful safety initiatives and measures
- Builds strength in numbers – can work together to overcome obstacles and to secure financial and technical support from Government and Non-Government agencies

References

AIDMI - "School Safety Audit: Towards Making Schools Safer", September 2008

Useful Additional Resources

1. Technological hazards: http://www.proventionconsortium.org/?pageid=41&winnerid=45®ionid=0&yearid=0&in_country=india&in_keyword=.
2. Protected School: http://www.proventionconsortium.org/themes/default/pdfs/CRA/VCA4_en.pdf
3. Education, Organisation and Preparation for Risk Reduction: http://www.proventionconsortium.org/themes/default/pdfs/CRA/VCA1_en.pdf
4. Prepared Family: http://www.proventionconsortium.org/themes/default/pdfs/CRA/VCA2_en.pdf
5. Child Oriented Participatory Risk Assessment and Planning (COPRAP) methodology developed by CDP in the Philippines:
http://www.proventionconsortium.org/themes/default/pdfs/CRA/COPRAP_meth.pdf; <http://www.proventionconsortium.org/themes/default/pdfs/CRA/COPRAP.pdf>;
http://www.proventionconsortium.org/themes/default/pdfs/CRA/COPRAP_trainer_manual.pdf
6. Coalition for Global School Safety&Disaster Prevention Education: <http://cogssdpe.ning.com>

Annex 1: Sample School Safety Audit Checklist

Instructions for Using the Checklist

- Fill out the opening section with the details of your school
- Tick 'Yes' or 'No', and fill out the 'Explanation' section with details whenever appropriate, for both 'Yes' and 'No' answers – these details help with solving problems
- Fill out the checklist as a group – as many teachers as possible should be involved
- Have your own situation in mind – if a question does not seem relevant to the hazards you face, be sure to write some additional comments about it
- Adapt the checklist according to your situation – e.g. add questions that may be more relevant for schools in your area; use checklist as an opportunity to present extra safety measures you have in place

1. Basic Information about School Safety

- 1 Total staff (teaching, admin, security, cooking):
- 2 Total number of students:
- 3 Total number of classrooms:
- 4 Number of students per classroom:
- 5 Number of stories (floors) in building:
- 6 Is there a kitchen?
- 7 Is there a laboratory, library and/or computer room?
- 8 Age of school construction:
- 9 Describe location (urban, rural, main city, distance from main city etc.):
- 10 Is school close to a highway or railway?
- 11 Disaster history in school and in village/town/city:
- 12 History of serious accident or other emergency incident in the school:

2. Specific Information about School Safety

No.	Question	Yes	No	Turning a 'No' into a 'Yes'
1.	Does school have sign board out side school to help avoid road accident? Where?			
2.	Has school evaluated and appropriately removed all tree hazards?			
3.	Are dustbins available in school?			

No.	Question	Yes	No	Turning a 'No' into a 'Yes'
4.	Staff regularly follows any precautionary steps for road crossing of students at starting and ending hours of school?			
5.	Is the school structurally prepared to withstand seasonal storms?			
6.	Has an engineer ever checked the building safety?			
7.	Is mechanical and electrical equipment safely enclosed?			
8.	Is there regular checking of electricity and wire by staff?			
9.	Does kitchen have proper safety measures against fire hazard?			
10.	Are kitchen facilities in sanitary condition?			
11.	Is drinking water facility available and clean?			
12.	Is toilet-bathroom facility available and sanitary?			
13.	Is staff present while students play on grounds?			
14.	Is there proper water drainage/flow during monsoon season?			
15.	Are grounds free of hazardous trash and refuse?			
16.	Can emergency vehicles access school area easily?			
17.	Students have identity cards?			
18.	Does school have trained security staff?			
19.	The principal, teachers, and other staff members maintain a highly visible presence throughout the school and school grounds?			
20.	Chemicals and lab equipment in preparation rooms and labs are stored in secure storage spaces?			
21.	Preparedness steps to avoid disaster in lab?			
22.	Are there multiple exits from main building? How many?			
23.	Are exits free of obstacles?			
24.	Do all classrooms have windows?			
25.	Can windows be used as emergency exits?			
26.	Do stairs have railings?			
27.	Does school have accommodations for students with disabilities?			
28.	Does school administration department have all emergency phone numbers to communicate with different stakeholders?			

No.	Question	Yes	No	Turning a 'No' into a 'Yes'
29.	Does school have detailed address and phone numbers of all staff and students?			
30.	Does school teach students about emergency phone numbers such as police, ambulance, and fire brigade?			
31.	Does school receive any newspaper, magazine regularly?			
32.	Has school ever held a student health check-up program?			
33.	Do students and staff know their blood group, and does the school keep that information?			
34.	Are there facilities to keep important documents in safe place, protected from water and fire?			
35.	Does the school keep records of past emergency incidents?			
36.	Are teachers trained in Disaster Management and First Aid?			
37.	Are teachers trained in use of fire extinguishers and fire safety?			
38.	Do teachers have knowledge of do's and don'ts before, during and after disaster, and scientific knowledge of disaster occurrence, early warning, etc.?			
39.	Do students have knowledge of do's and don'ts before, during and after disaster, and scientific knowledge of disaster occurrence, early warning, etc.?			
40.	Any training programme by outside agencies related to disaster management and/or school safety?			
41.	Has school connected to or created any other institutes, agencies, or volunteer teams?			
42.	Is school safety and prevention information provided regularly to staff as part of school activities?			
43.	Are there programs by Sarva Shiksh Abhiyan related to disaster management and school safety? What are they?			
44.	Are students of higher standards involved in school safety teams?			
45.	Does the school provide opportunities for student leadership related to safety issues?			
46.	Does school have NCC, Scout or any type of group for student capacity building?			

No.	Question	Yes	No	Turning a 'No' into a 'Yes'
47.	Has school connected or created any parent and/or student group with school? Exp.: PTA			
48.	Any support from local authorities? Exp.: Panchayat...			
49.	Any program or activity school trust organised at outside of school? What kind?			
50.	Are any community stakeholders visiting school regularly?			
51.	Are any outside agencies operating education centre in or outside of school?			
52.	Does school organise any community event during festival or annual programme? What kind of event?			
53.	Does any outside agency or organisation help fund school activities or expenditures?			
54.	Do any community member serve as volunteers?			
55.	Is school involved in community apart from educational activities?			
56.	Have there been any direct efforts from Government in making schools safer?			
57.	Do school representatives meet with Government departments?			
58.	Does the Government coordinate an early warning system?			
59.	What more do you expect from Government in terms of school safety against disasters?			
60.	Does school have an insurance policy for students and staff?			
61.	Has school identified natural and manmade hazards?			
62.	Has school developed a crisis management plan?			
63.	Are emergency evacuation routes in place and posted?			
64.	Are staff and students familiar with the plan?			
65.	Are emergency drills and evacuations practiced?			
66.	Are parents aware of crisis management and evacuation plans?			
67.	Are authorities aware of these plans?			
68.	Is there a chain of command for disaster situations?			
69.	Is there a communication system for disaster situations?			
70.	Is there a process for accounting for staff and students?			

No.	Question	Yes	No	Turning a 'No' into a 'Yes'
71.	Does school have an emergency response kit (e.g. rope, battery, digging equipment etc.)?			
72.	Does the school stockpile emergency food, water, shelter and medicine?			
73.	Are fire safety equipments available? How many fire extinguishers?			
74.	Are first aid kits available? How many?			
75.	Are expiry dates checked for fire extinguishers and first aid kits?			
76.	Are School taking Are preparedness steps after receiving disaster early warning?			
77.	Have staff delegated responsibilities such as checking class muster, handling crowds, etc. in disaster situations?			
78.	Any educational material in schools on school safety and disaster management?			
79.	Any steps taken for crowd management during programs?			
80.	Is a school map with necessary details displayed at notice board?			
81.	Do early warning tools exist, such as TV, radio, newspaper, etc?			

Facilitator's Note

1. Suggestions for Facilitators Prior to Training

Although the most effective trainers are able to address the emerging needs of trainees in a flexible manner, the following notes offer a basic outline of activities that TLC facilitators may use to lead trainings. To prepare for training, facilitators may find it useful to:

- Review the Module Learning Objectives listed above,
- Review the Suggested Methods and Activities listed below,
- Assess the anticipated knowledge needs, interests, and constraints of trainees,
- Identify additional potentially effective activities suitable for their particular trainees,
- Review related background literature on School Safety in India, this can include but is not limited to the reference material listed at the end of this document and the modules,
 - o Prepare your own notes so that you may convey the relevant information in a way that is comfortable for you.
 - o Do not feel constrained by the information on the slides-this is merely a guide for you.
- Prepare materials for the training, including:
 - o Powerpoint or other presentation materials including revisions if desired
 - o Print-outs or any other necessary handouts
 - o Tools and props needed for activities
 - o Rewards or treats to encourage involvement and participation

2. Facilitator Requirements during Training

Total Time: Approximately 1hour 30minutes

Items and Materials needed: PowerPoint presentation, whiteboard and marker OR blackboard and chalk, module materials, your own notes based on those materials, Audit checklist handout, handouts of examples of filled-out checklists for activity,

3. Suggested Methods and Activities

Spend the first 5 minutes introducing the topic of the session, explaining the objectives of the session and making the contents of the presentation clear.

The purpose of the slide entitled "School Safety Context in India" is to explain the reason why projects such as the School Safety Audit have come into existence - schools are inherently

unsafe. With the help of the materials, talk about the listed examples and how they call for more work to be conducted on school safety. This should take no longer than 10 minutes.

Introduce the findings of AIDMI's School Safety Audit report by explaining the 3 main objectives and activities conducted within the project. Go on to explain the coverage of the project, and how it attempted to cover many different circumstances, such as: type of school, disaster-proneness, multi-hazard and school location (in terms of state and urban/rural). When describing the processes involved in conducting a School Safety Audit, be sure to make it clear that the teachers themselves will not be in the position to use all of the tools and methods, and that their individual audits will be on a smaller scale, as will be explained later on in the presentation. The process steps should be quickly explained but not dwelled upon; the tools of the audit are more important. These 3 slides should take no longer than 10 minutes.

The following 3 slides should be used to present examples from each of the 3 objectives. This will give the teachers a taster of the results and will also inform them of what the national levels are like. If there are any other results of the School Safety Audit that you find interesting and would like to share, feel free to do so verbally. Again, this should take around 10 minutes.

Go on to share the overall findings of the audit in the next couple of slides, paying particular attention to the implications for schools - this concerns the teachers the most. This section can take up to 10 minutes also. If you find in practice that you have spare time, feel free to include relevant recommendations for other bodies.

The second half of the presentation is concerned with familiarising the teachers with the questions used in section B of the Audit. The checklist handout should be given to each of the teachers. For a few minutes, explain how the checklist is to be filled out, and what possible results might indicate. This includes the list of "Do's", in the presentation.

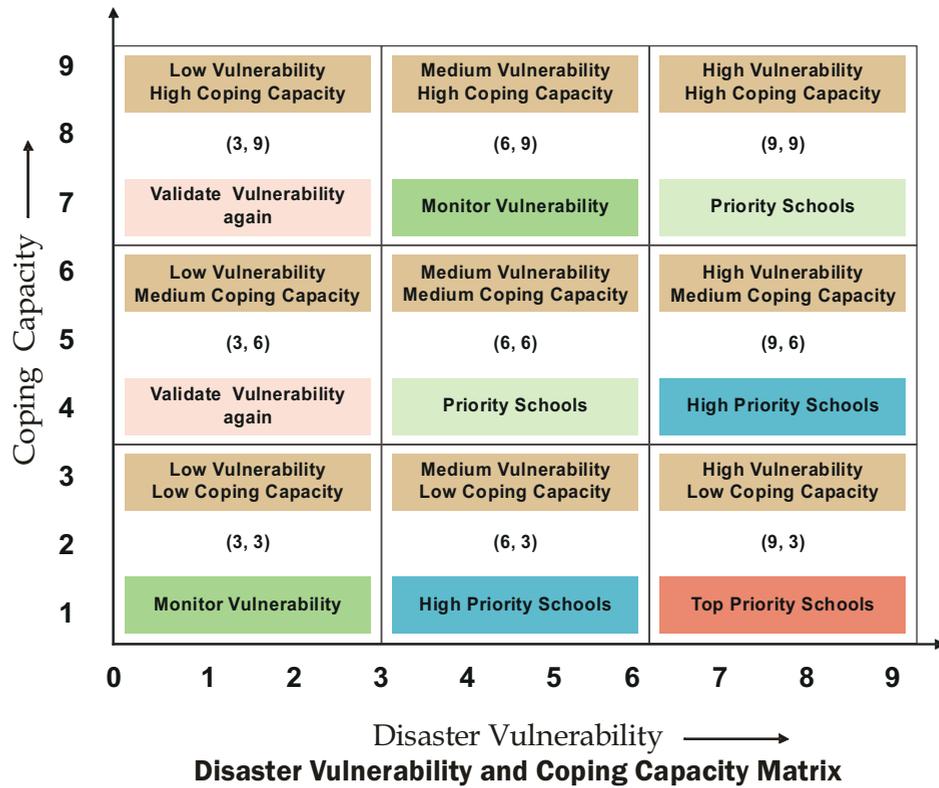
Activity 1: 20-25mins

Once they are familiar with the contents of the checklist, ask them to get into groups of 3 or 4. Hand out a number of checklists that have been filled out by schools for the School Safety Audit. For the next 15 minutes, the groups should discuss their example and come up with ideas for how the school can improve their safety, based on its deficiencies. These ideas should not simply be statements such as 'get an insurance policy'; they should give details about the strategy of achieving these goals. Once the time is up, get each group to share their ideas with the other groups. Make sure that they do not waste time worrying about how they are going to present it - this is not important. Note down the ideas and strategies on the board as they emerge. Invite the groups to comment on each other's ideas, so that some critical evaluation of potential methods can take place. Be sure to also note down the results of this discussion, and any obstacles that are present. During the discussion, you may wish to ask groups for additional ideas about some of the other criteria in the checklist, and how they would go about turning a 'No' into a 'Yes'.

Alternatively, you could also use the Disaster Vulnerability and Coping Capacity Matrix as shown below to design your exercise for this session.

You can design a rating scale to receive feedback on key School Safety Audit issues from the participants as shown below.

Coping Capacity and Ability to Deal With Disasters*



Rating Example for Group Activity : School Safety Audit

1. This is only a sample questionnaire for explaining and practice. You can modify it to suit your school's specific vulnerabilities and coping capacities.
2. Please put a tick mark on your response. The Likert Scale is used for evaluation. The values increase in ascending order i.e. 1 for response on the left and 3 for next response on the right, 5 for next and so on up to 9.
3. In case if a particular question is not applicable to your school / institution, write explanatory notes.

The model can be used not just for schools but also for any set up / organisation housed in a building or premises.

Low Vulnerability/Coping Capacity	Overall up to 30 %
Medium Vulnerability/Coping Capacity	Overall 30 to 60 %
High Vulnerability/Coping Capacity	Overall 60 % and above

* Contributed by Col. Alok Raj, College of Defence Management, Secunderabad

Fire

No.	Key Questions	1	3	5	7	9
Vulnerability						
V1	Is your school building made of wood or combustible material?	No	Some fitments	One roof and fitments	Roof, floors, and fitments	Entire
V2	Are there any cooking arrangements within the school premises?	Nothing at all	Sometimes	Tea making	Yes cooking for mid day meals	Yes major cooking throughout the day
V3	Do you have a laboratory in school and if yes how safe is it from fire hazard point of view?	No laboratory in school	Satisfactory	Doubtful	Unsafe	Hazardous
Capacities						
C1	Checking of electricity wires / load on the meter is checked by a qualified staff member?	Never	Once in a while	Sometimes	Regularly	Daily
C2	Do you have Fire fighting equipment such as fire extinguishers, hooks etc in school?	Nothing at all	Yes, old or not in working condition	Some items	Yes all items	Sophisticated fire fighting equipment
C3	Is there a fire alarm or fire alarm drill in your school?	What is that?/No	Yes, but not practiced	Practiced sometimes	Yes a foolproof	Fire alarm system exist

Sample: School Safety Audit Evaluation

Scale - 1, 3, 5, 7, 9 from left to right				
Vulnerability	Value out of 9	Coping Capacity	Value out of 9	Remarks
V1	1	C1	3	
V2	7	C2	3	
V3	5	C3	1	
Total Score	13	Total score	7	
Max Value	27		27	
Percentage	48.14	Medium Vulnerability	25.92	Low Coping Capacity

Max value = No of vulnerabilities or coping capacities × 100 ÷ Total Score

Once the activity has run its course, move onto the next slide, which explains the benefits of sharing school safety audit results with other schools in the local area. Sharing results with NGOs and other agencies is also beneficial, and the emphasis of such actions will be increased if many schools do so.

Finally, give details of two national bodies: Sarva Shiksh Abhiyan (SSA) and the GoI's National Common Minimum Programme. Encourage teachers to approach these bodies for financial and technical assistance once they have provisional ideas for a strategy to improve their safety, based on their audit results.

4. Presentation Guidelines

"The following presentation guidelines are intended as a resource that may be adapted for training facilitators that are teaching this module. They may be used to create a visual presentation or handouts for participants."

Objectives

By the end of this module you should be able to:

- Describe the purpose, processes and benefits of a School Safety Audit
- Describe the areas of progress and deficiency in school safety across India
- Effectively design and conduct a School Safety Audit in your own school
- Use the results of your audit to gain Government and agency assistance to make your school safer

Contents

- I. School Safety Context in India
- II. School Safety Audit Report: Introduction, Coverage, Process, Analysis – Objectives 1, 2 and 3, Key Findings, Implications for Schools
- III. Audit Checklist
 - Example Checklist Activity
 - Sharing Results and Acquiring Assistance

I. School Safety Context in India

- Unsafe schools are a reality – vulnerable to many hazards, and children are most vulnerable...
 - Fire at a school ceremony in Dabwali, Harjana in 1995, killed 435
 - Gujarat Earthquake 2001, killed 971 children in Bhuj alone
 - South Indian Tsunami 2004, 320 schools in Tamil Nadu needed repair or reconstruction
 - Kumbhakonam School Fire Tragedy 2004, killed 93 children
 - Kashmir Earthquake 2005 killed, 17,000 children
 - Kerala boat tragedy 2007, killed 15 children and 3 teachers
 - Baroda bus tragedy 2008, killed 47 children

- Government reaction to Kumbhakonam – emphasis on including scientific awareness of school safety within universal basic education
- It is the responsibility of schools end their role as victims of disasters, and to become centers for building disaster and safety capacity

II. Introducing the School Safety Audit

- Objectives / Activities:
 1. Assess the level of understanding and knowledge of school safety in teachers and administration staff in schools in disaster prone and affected areas
 2. Conduct an audit of school safety in 60 schools in 6 states of India. The audit will not only focus on the school building, but also relate it to policies, data collection system, and staff development activities specific in school, staff and student safety
 3. Assess types of structural and non-structural mitigation measures taken by agencies in schools after disaster and/or to prepare schools against future emergencies in disaster prone areas

Coverage

- Assam - Kamrup
- Gujarat - Ahmedabad, Anand, Kheda, Kutch and Gandhinagar
- Jammu and Kashmir - Baramulla and Srinagar
- Maharashtra - Mumbai
- Rajasthan - Jodhpur and Sirohi
- Tamil Nadu - Cuddalore, Nagapattinum and Villupuram

Conducted over the course of 1 year, the study covered areas that were prone to: Earthquake, Flood, Cyclone, Drought and Tsunami, as well as hazards that are common to all schools, such as Fire and accidents. The range of schools included both private and Government, as well as urban and rural



The School Safety Audit Process

- Project Process: 1. Communication with the state agencies, 2. Study state scenario, 3. Designed Research Tools, 4. Selection of Schools, 5. Field Plan, 6. Field Visits, 7. Data Entry, 8. Analysis, 9. Spreading Message, 10. Documentation, 11. Guideline for Schools

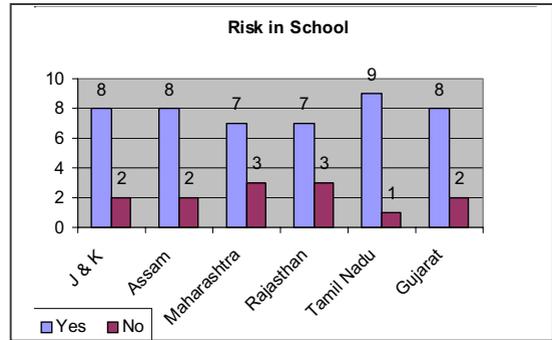
Tools:

- Questionnaires – to measure teachers knowledge of disasters, data about safety measures, data about work by outside agencies, teachers views on questions

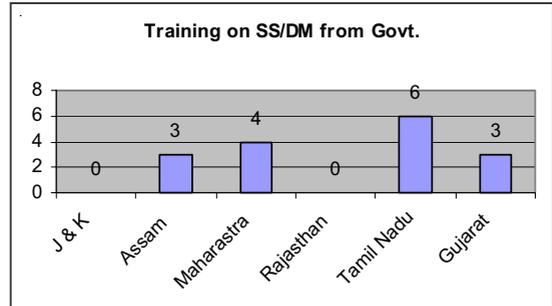
- Focus Group Discussions – on issue of safety with teachers, parents and students
- Meetings – collect data on existing policy, systems, capacities and vulnerabilities
- Interviews – with state and local agencies on local situation of school safety
- Study Subject Materials – literature review of related materials

Teachers Understanding of School Safety Issues (Objective 1)

- Disaster and Experience: e.g. First Aid Skill
 - The majority of teachers don't have first aid trg
 - No evidence of refresher courses or eqpt available (e.g. mock eqpt / dummies)
- School and Disaster Preparedness: e.g. are Children at risk in school?
 - 78% of responders agreed that children are at risk in schools.
 - Yet the facilities are neither in place nor adequate

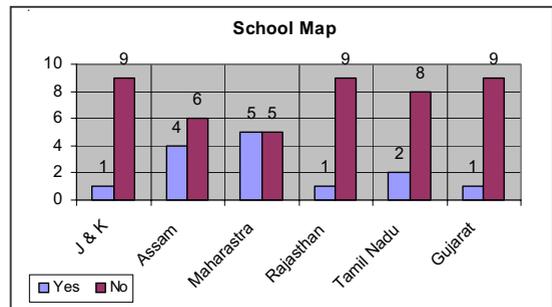


- Government and School Safety: e.g. training
 - Only 16 out of 60 schools (26%) received any safety / disaster trg from the Government.



Audit Content (Objective 2)

- Disaster Preparedness and Response Plan: e.g. school map
 - Only 23% of schools had devp maps with the requisite details – recently affected schools did not have the same



Impact of Activities (Objective 3)

- Assessment of Govt and NGOs work linking with the HFA
 - Example: Jammu and Kashmir
 - High vulnerability, esp since 2005 earthquake
 - Private urban schools are implementing safety measures themselves – but more external intervention is needed

- Rural schools are without basic facilities – in some cases there are no school buildings
- Earthquake affected schools neglected due to remote LoC
- Costly for agencies to reach
- Also have low student numbers – not seen as a priority for agencies
- Some good agency work is on, such as DRR within children's edn - but not enough

Some Key Findings

- There were more mitigation and awareness measures in recently-affected schools
- The majority of Government and community-based agencies did not have adequate focus on integrating DRR education in schools
- Where safety equipment was present, teachers lacked the skills to use it and there were no plans for replacing and maintaining it
- Safer schools have not shared their experiences with those that need to be rebuilt
- Majority of schools were structurally unsound. Several newly-constructed private schools were structurally sound
- School safety is not a high priority for public or corporate officials

Implications for Schools

- Develop strategies for sustaining knowledge and safety measures after intervening agencies have left
- Invite local authority representatives to expand and increase their involvement in school safety activities
- Proactively provide detailed school information regarding its profile, existing risk, vulnerabilities, and current needs when outside agencies come to assist
- Staff should be involved in every activity implemented by outside agencies, at all stages
- Teachers should proactively provide input to government and NGO programmes, as they have the best most local knowledge
- Solicit support from outside agencies, local community, staff and students to develop DRR activities
- Keep comprehensive records of student information, accident history, disaster history, and other emergency incidents to help inform future activities and interventions.
- Keep emergency contact numbers on site and teach critical numbers to students

III. Audit Checklist

- Questions from Section B of the Audit - simplified into an easy-to-use checklist

“Do’s” for use:

- Fill out the opening section with the details of your school

- Tick 'Yes' or 'No', and fill out the 'Explanation' section with details whenever appropriate, for both 'Yes' and 'No' answers – these details help with solving problems
- Fill out the checklist as a group – as many teachers as possible should be involved
- Have your own situation in mind – if a question does not seem relevant to the hazards you face, be sure to write some additional comments about it
- Adapt the checklist according to your situation – e.g. add questions that may be more relevant for schools in your area; use checklist as an opportunity to present extra safety measures you have in place

Checklist Activity - Instructions

- Form groups of 4 or 5
- Study the results of your example checklist
- Devise a strategy / strategies in order to improve their school safety, based on their deficiencies and comments
- Present your ideas to the other groups
- You have 15 minutes - Go!

Sharing Audit Results with Other Local Schools

Mutually beneficial:

- Encourages them to conduct their own audit and share their findings
- Produces a culture of competition between local schools concerning safety
- Allows them to share experiences of successful safety initiatives and measures
- Strength in numbers – can work together to overcome obstacles and to secure financial and technical support from Government and Non-Government agencies

Acquiring Assistance

- Two large National bodies:
 - Sarva Shiksha Abhiyan <http://ssa.nic.in>
 - Government of India's National Common Minimum Programme <http://nac.nic.in/ncmp.htm>

References

AIDMI - "School Safety Audit: Towards Making Schools Safer", September 2008

Government of India - National Common Minimum Programme Homepage, <http://nac.nic.in/ncmp.htm> [Accessed 08/11/08]

Sarva Shiksha Abhiyan - Homepage, <http://ssa.nic.in> [Accessed 08/11/08]

Module 3

Case Examples of School Safety Initiatives in India



Case Examples of School Safety Initiatives in India



Learning Objectives

By the end of this module you should be able to:

- Relate many examples of successful CBDRR for instilling safety in schools
- Understand why those methods are appropriate for local communities
- Build upon those methods with ideas for your own schools



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Facilitator's Note

1. Suggestions for Facilitators prior to Training
2. Facilitator Requirements during Training
3. Suggested Methods and Activities
4. Presentation Guidelines

3.1 Case Study 1: SEEDS – Gujarat School Safety Initiative¹

Schools are often used as emergency shelters, as "safe havens" in times of disaster. As such, they should be resilient to disasters. To promote a culture of disaster safety in schools, Sustainable Environment and Ecological Development Society (SEEDS) India has pioneered a "School Safety Initiative". The idea is it to reach parents and eventually the community at large, through school students.

The Initiative sought to build the capacity of communities and school students and teachers, and help them develop school disaster management plans. Activities included raising awareness among school students and teachers, training students on various skills, developing evacuation plans, and conducting mock drills.

Seismic retrofitting of school buildings was undertaken in some areas. Throughout the western state of Gujarat, teachers were trained, and a school curriculum and a text book on disaster management developed.

3.1.1 The Initiative

The Initiative, called "School Safety Initiative", sought to promote a culture of disaster safety in schools by developing capacity among communities and school students and teachers, and helping them develop school disaster management plans (SDMPs).

Its activities included: raising awareness among school students and teachers; training student task forces on fire safety, emergency search and rescue, first aid, developing emergency evacuation plans, conducting earthquake evacuation mock drills, and preparing school disaster management plans.

The Initiative has been implemented since 2005 in the following areas: Delhi, the capital city of India; the state of Gujarat in western India; and Andaman in the Andaman and Nicobar Islands off the eastern coast.

Current activities include:

- Delhi Earthquake Safety Initiative: Training on search and rescue, evacuation and first aid; non-structural risk mitigation (in one school as a pilot project). The Initiative was completed in 2005.
- Gujarat School Safety Initiative: Disaster awareness to schools; training of teachers; development of curriculum books on risk reduction for schools (text books for classes 7, 8 and 9; school safety initiatives in 175 schools; teachers' training for over 1,500 teachers). The two-year Project was completed in February 2007 but another phase is being planned.
- Andaman School Safety Initiative: Disaster awareness to schools; training in developing school disaster management plans (SDMPs) in 20 schools. The Initiative is under way.
- Global Open Learning Forum on Risk Education (GOLFRE www.golfre.org): Online Certificate Course on Disaster Management for school teachers based on case studies, e-

¹ Case Study from: UNISDR - "Towards a Culture of Prevention: Disaster Risk Reduction Begins at School - Good Practices and Lessons Learned 2007"

mail discussions and a contact workshop at the end of course. The training of a first batch of 45 teachers was completed in March 2007 as a Pilot Project.

All the above-mentioned activities were carried out over the last two years, after SEEDS pioneered school safety initiatives in India in 2005. The main beneficiaries are students and teachers from over 200 schools. The Initiative was supported by various donors including national and state governments and international donors. Funding was provided by the following donors:

- Geo Hazards International and United States Agency for International Development (USAID) - for the Delhi Earthquake Safety Initiative;
- The Government of Gujarat - for the Gujarat School Safety Initiative;
- Christian Aid and Dan Church Aid - for the Andaman School Safety Initiative and;
- Christian Aid - for the Global Open Learning Forum on Risk Education (GOLFRE).

3.1.2 Impacts and Results

A visible impact of the Initiative is strong awareness of disaster safety issues and involvement in the basics of disaster preparedness among the targeted schools and communities.

Over 200 schools have been covered by the Initiative in the last two years of its implementation, and 2,500 teachers and some 100,000 students have benefited.

Overall success was achieved despite the fact that some of the schools were so busy with their academic activities that they could not concentrate on school safety activities. Many schools were found to be repeating the activities from their own initiative after the Initiative activities were completed.

The positive impact and results of the Initiative have led, in Gujarat State, to plans for another phase of the Initiative.

3.1.3 The Good Practice

This Initiative can be considered a good practice because of its pioneer character in seeking to promote a culture of disaster safety in schools, which are the most suitable areas for sowing enduring good habits and practices. To this end, the Initiative, for instance, had a four-pronged approach in earthquake-prone areas:

1. structural retrofitting of school buildings to prevent their collapse in future earthquakes;
2. implementing non-structural mitigation measures to avoid injuries from falling hazards in schools;
3. education on safe infrastructure for school management staff and construction workers; and
4. preparing school disaster management plans and training school communities in immediate response, evacuation and first aid.

SEEDS believes that disaster education focusing on the school community should follow Dr. Daisaku Ikeda's proposal, found in the challenge of *Global Empowerment: Education for a Sustainable Future*, for environmental education. The approach should consist in helping school students, teachers and management *To Learn, To Reflect and To Empower*:

- **To Learn:** Students deepen their awareness about hazards and risks when they understand realities and know facts. Recent natural disasters are well documented and shared. These serve as case studies for teachers as well as students. Wherever needed, disasters are simulated with the help of portable models. The learning process is strengthened by curriculum change.
- **To Reflect:** Students analyse factors leading to human casualties and injuries in disasters, so that they can recognise development practices and human actions that can cause disasters or prevent them. Students are connected to their own local communities and families and share their learning with them.
- **To Empower:** Students take concrete action toward reducing risks in their environment. Classroom and school exercises are introduced to help them take small definitive actions that can become a precursor to bigger investments for disaster risk reduction.

School students, teachers and management developed disaster management plans for their schools. In the process, they came to know existing structural and non-structural weaknesses. Efforts were made to ensure that the school community took ownership of the plan and made the necessary updates in the future. It is to be noted that involving teachers is essential for the success of any activity with students.

Students were trained to identify hazards inside their schools through a "hazard hunt" exercise. They were also provided with a similar checklist for doing "home work" – to identify hazards in and around their homes. The DRR message disseminated as the students shared information and knowledge with their parents, relatives, friends, and neighbours.

3.1.4 Approach

The main objective of the various projects involved is to develop a school disaster management plan (SDMP). A community-based disaster management approach is followed, involving the following steps:

- Raising awareness of disaster issues among the targeted stakeholders (students, teachers, school management and others) through lectures, discussions, posters, drama (street play) and demonstration.
- Identifying and listing hazards and vulnerabilities outside the school as well as structural and non-structural hazards inside the school.
- Identifying and listing ways of reducing vulnerabilities.
- Identifying the roles and responsibilities of various stakeholders.
- Training teachers on how to prepare a school evacuation plan and preparing a school evacuation plan.

- Building emergency response capacity, focusing on skills such as rescue and first aid (training provided to student groups).
- Listing, in the school disaster management plan, the contact information of all facilities and resources for emergency management.
- Conducting a mock drill, at the end of the school safety activities, to demonstrate the evacuation, rescue and first aid skills acquired by the students.
- Keeping targeted schools informed through a newsletter.
- Promoting School Safety Clubs to sustain risk education.

3.1.5 Lessons Learned

A key lesson learned from the Initiative was that school management should be sensitised to the importance of risk education before implementing such an initiative. Another key lesson was that master teachers among teachers need to be trained first so that they can train other teachers. This model was used in the state of Gujarat State and it worked well. First, some 100 master trainers from all districts of Gujarat were given orientation training. Then the trained master trainers trained teachers in each of the districts. All the trained teachers can help provide further training in the future.

3.1.6 Potential for Replication

Replicating this practice would be very easy. The approach used is similar to the one used for communities. Here, a school is considered as a community. The activities carried out to raise awareness, build capacity and develop disaster management plans are all similar to those used in the community approach.

3.2 Case Study 2: AIDMI – Child's Right to Safer Schools Campaign²

3.2.1 Introduction and Background

In the past 20 years we have seen an increase in disasters and the affects they have on children. More and more children go to schools that are at risk to fire hazards, earthquakes, floods, cyclones, pollution, food poisoning, stampedes and so on. At least 17,000 school children died when 6,700 schools were destroyed in North-West Frontier Province and 1,300 in Pakistan-administered Kashmir as children attended morning classes. In 2004, 94 children perished in a fiery blaze in Kumbhakonam, Tamil Nadu and 931 students were crushed to death during the Gujarat earthquake in 2001. India is a country with diverse range of disaster risks: 70 % of the cultivable land is prone to drought, 60 % of the land is prone to Earthquake, 12 % to Floods, and 8 % to Cyclones. Overall, 85 % of the land area is vulnerable to numerous natural hazards and 22 Indian states are categorised as multi hazards regions. In the decade of 1990 – 2000, an

2 Case Study from: AIDMI - "Child's Right to Safer Schools Campaign: A National Campaign - Project Completion Report"

average of about 30 million people were affected and 4,344 people have died every year in India due to disasters.

With a large percentage of the Indian population living in poverty (36% living below the official poverty line) and with a literacy rate of just over 50%, it is imperative for the future development of India that children have access to education. Over 78 million children are currently in need of schooling. To meet this great demand, many schools especially in low-income areas are overburdened. The result is that these school - out of lack of resources or awareness - compromise on the safety of the school. A world without poverty is not possible without the poor having access to education through schools - safe schools. The poor have the right to life, their children have a right to life and that includes a right to life in safe schools. Safety and poverty reduction are not two separate issues. But school safety is not possible without scientific awareness and preparedness. Lack of basic scientific knowledge on safe (seismic) construction and building materials, adequate exits and staircases are often shockingly missing. It is difficult to understand why schools that teach science in their classes fail to notice these hazards. Science has remained a subject in books that has not entered into day-to-day awareness. Unsafe schools are a reality.

It was proposed to cover targeted schools with:

- a. disaster risk insurance,
- b. installation of direct micro mitigation measures (fire extinguishers),
- c. school safety measures displayed in public areas,
- d. school safety included in course work, and
- e. school safety training for teachers/ administrative staff of the targeted schools.

3.2.2 Objective, Duration and Coverage

The key objectives of Campaign has been to provide direct support action to the victims, schools, school boards, and city authorities primarily serving the children of the poor; and to spread awareness about children's right to safer schools across various stakeholders in India.

With inputs and suggestions from various education authorities and education experts, AIDMI has supported five schools in Gujarat with all the activities of the project. The project supported five schools in Gujarat state namely: Danilimda School # 1, Sheth C. N. Vidhyalay of Ahmedabad, Sardar Vallabhbhai Vidhyalay of Baroda, M. U. Patel Technical High School of Vallabh Vidhyanagar and Shantinagar (Shivnagar) Primary School of Bhuj.

3.2.3 Overview of Activities

The Campaign covered targeted schools through the following activities:

Installation of Micro Mitigation Measures (fire extinguishers):

To increase physical safety and security of schools, school staff and children through preparedness measures.

First Aid Kits:

To mitigate impacts of accidents and events from which school staff and children have risk of physical damage and threat to life.

Disaster Risk Insurance:

To provide non-physical measures to make schools safer through financial risk transfer.

School Safety Measures Displayed in Public Areas:

To generate awareness among school administration, teachers, parents and students on school safety.

School Safety included in Course Work:

To promote school safety guidelines through information, education and communication material to inform the child that it has a right to a safe school and that its parents should demand that schools are safer and secure.

School Safety Training for Teachers/Administrative Staff:

To make school safety plans which could be implemented with support from school administration, school board, parents, AIDMI and other agencies.

3.2.4 Outputs and Outcomes**Fire Safety Equipment Demonstration:**

Before the installation of the fire safety equipments in the schools, it was essential that the target group was capable of operating them. Taking this preparedness into action, demonstration on using fire safety equipment (fire extinguisher) was organised in all of the five supported schools. A technical expert led the demonstration and gave guidance on how to use the equipment. After this, school staff members and students were encouraged to demonstrate their knowledge of using fire safety equipment.

Installation of Micro Mitigation Measures (fire extinguishers):

Immediately after the demonstration, fire safety equipment was installed in the schools. Their locations were decided with inputs from the school administrators and the technical expert. All the fire safety equipment was installed where they were easily reachable and accessible and in knowledge of all the staff members and students. 20 fire extinguishers in each of the five schools were installed.

First Aid Kits:

First aid kits were also handed over to the schools. All the five schools were supported with one first aid kit.

Coverage of School Children and Staff with Disaster Risk Insurance:

Four out of the five supported schools received an insurance policy that covers accident of students and staff. The risk coverage is not limited to school hours, but includes before and after the schooling time. In total 6223 students and 180 staff members of a) Shree Shantinagar (Shivnagar) Primary School, Bhuj, b) Sheth C. N. Vidhyalaya, Ahmedabad, c) Sardar Vallabhbhai Vidhyalaya, Vadodara, and d) M. U. Patel High School, V. V. Nagar are covered under this insurance scheme for one year. As the Danilimda School # 1 is municipally controlled and administered school, the Ahmedabad Municipal Corporation Education

Department has taken insurance for all the schools it runs as a part of its policy. Hence AIDMI has not overlapped the insurance coverage for this school.

Handover of Awareness Material:

AIDMI has developed a set of 33 displays on 'School Safety'. The posters cover topics from Emergency Preparedness Plan for Schools, Useful and Hazardous Things, Activities for Students' Preparedness, First Aid for Various Injuries and so on. All the 33 displays are laminated for durability. Along with these posters, a Preparedness Pocketbook Series on Disaster First Aid and Science in the Service of School Safety, issue of Afat Nivaran, Experience Learning Series on Disaster Preparedness for Schools and Experiences of Children after the 2001 Earthquake were also given to the school.

School Safety Training for Teachers/Administrative Staff:

AIDMI conducted a training on Disaster Preparedness for School Safety in September 2006, in Ahmedabad. Two participants from each of the five supported schools attended this training.

3.2.5 Recommendations for the Expanding School Safety

Long-term Plan for School Safety:

Based on the experiences from this project, the Safer School Campaign should be expanded. AIDMI recommends that in order to achieve the desired impact at the project level, a long-term approach should be developed to sustain and advance the achievements. AIDMI has organised a round table to get ideas of participants involved in education sector from different locations of India and abroad.

Expansion/ extension of the School Safety Insurance:

Many of the schools covered in this project are located in multi hazard prone and low income areas. AIDMI recommends renewing their insurance coverage for one more year. Similar low income area schools are also sending their requests to extend the project activities into their schools, hence it is recommended to expand Safer School Campaign to such needful schools.

Outreach to Additional Disaster-Prone Schools:

AIDMI has received numerous demands for preparing similar training programs for other teachers and school children. Many of them have already worked in disaster situation and all of them want to work more actively for school safety in their respective schools and nearby schools.

Refresher Courses:

AIDMI would also recommend a series of tailor-made courses for the participants trained for school safety. By giving feedback, the participants themselves could explain in which area they would like more information or clarification

Hazard Assessment of Schools:

Hazard, vulnerability and capacity assessments should be periodically conducted. This can raise awareness and help maintain targeting of Campaign activities.

Fire Safety Drills:

As suggested by some supported school staff members, AIDMI recommends including fire safety drills for school teachers, administrative staff and senior students.

Publication to Promote the School Safety Campaign:

Experiences, case studies and learning should be disseminated by various means of learning tools, publications and trainings. AIDMI has developed a kit of various publications on school preparedness and safety. During a round table organised by AIDMI participants explained that they found it very useful and suggested to disseminate it to more schools to generate awareness.

Hazard Mapping of Schools through Geographical Information System:

GIS is a useful tool to combine information related to hazard and vulnerability derived through various sources. It is recommended to make GIS map of the schools covered and utilise them for risk reduction of the schools and to make safety plans.

3.3 Case Study 3: Government of India – School Safety Programme³

The School Safety Programme was led by the National Disaster Management Division of the Ministry of Home Affairs of the Government of India.

The goal of the Programme is to - "promote a culture of disaster preparedness in the school community".

Basic Components:

- Promoting Awareness and Education Activities
- Demonstrating Disaster Risk Management
- Training and Capacity Building
- Annual Safety Assessment

This Programme works on two operational fronts: district level and school building level. The district-wide programme targets education departments, administrators, emergency officials, teachers, students and the wider community. The school building-level programme focuses on school specific measures.

The main activities of the Programme are as follows:

- Place school safety on the education agenda
- Create a School Safety Advisory Committee at the district level
- Develop a District-wide School Safety Plan and individual plans for each school
- Appoint a Building-level School Safety Team in each school
- Each school prepares a School Building-Level Emergency Preparedness and Response Plan
- Establish a district-wide incident reporting system
- Develop a literature database on school safety issues
- Develop safety policies and amendments to ensure adherence to safety norms and regulations

³ Government of India - "School Safety - Draft, Series 1.0"

- Establish disaster management clubs in schools
- Support 'Preparedness Month for Schools'

The Hazard Hunt and Evacuation Plans are for use on the school building level. The Hazard Hunt activity is a simple form of risk assessment within schools. It would be worthwhile to educate students on the concepts and practice of risk assessment within class before setting them the Hazard Hunt task. Members of staff, administrators, members of the local community and local emergency and support agencies have produced the Evacuation Plans in this example. However, it is possible to involve the students to a higher degree, by allowing them to design the displays and getting input from them on revisions of the plan.

In the Hazard Hunt exercise, children go around the school looking for hazards. Hazards they might find include open electricity panels and live wires, slippery floors, obstructions to escape routes, badly placed or secured furniture, and structural cracks. Many of these can be mitigated simply within existing capacity and the risk of ill effects of disasters can be reduced.

Evacuation Plans are produced for each floor and are devised by building-level School Safety Teams consisting of teachers, parents, community members, local emergency services and authorities. These plans are then displayed all over the school in corridors, and mock drills are conducted soon after to test their effectiveness.

Key Aspects of the School Safety Programme:

- Aims to mainstream disaster management training within education
- Helps schools to become self-sufficient in terms of disaster preparedness
- Children's knowledge transfers to parents and wider community - recognises schools effectiveness at disseminating information
- Regular activities throughout the year maintain momentum and ensure follow-up activities
- Recognises the important role of schools within the community and their potential impact on the future of the country

3.4 Case Study 4: Urban Earthquake Vulnerability Reduction Project – Disaster Management Activities in Schools⁴

3.4.1 Background

The Indian sub-continent is highly prone to natural disasters. Floods, Wind, Cyclones, Droughts and Earthquakes are recurrent phenomena. As per the latest damage risk zoning map of Bureau of Indian Standards (BIS) over 65% area of India is prone to earthquakes of considerable intensities. Some of the most intense earthquakes have occurred in India and its adjacent areas in the past. India has highly populated mega cities including the capital in New Delhi situated in zones of high seismic risk. Geologically Kolkata falls within Moderate Earthquake Damage Risk Zone (Zone-III) within very close vicinity of High Earthquake Damage Risk Zone (Zone-IV) of North and South 24 Parganas districts. The same area falls under Very

⁴ From: Kolkata Municipal Corporation - KolkataMyCity.com

High Wind and Cyclone Damage Risk Zone also. Beyond this, some human induced factors as unsafe buildings, unplanned urbanisation, dense population and habitats have increased its vulnerability to disasters to considerable extent. Apart from natural disasters, human induced disasters like fire, gas leak, flood due to blockage of drainage system, terrorist attack, accidents etc. are common in urban areas.

Disasters lead to erosion of development gains and restricted options for the affected people. Physical safety - especially that of the vulnerable groups, which include children, old and physically handicapped people, is threatened. The Orissa cyclone of 1999, the Gujarat earthquake of 2001 and the Tsunami of 2004 have very clearly illustrated that we need pre-disaster mitigation, preparedness and response systems at all levels (including schools) so that the threat to human lives and property is minimised.

Schools are critical institutions influencing development of a country and so damage/loss of lives or property of schools badly affects the development of a whole nation. Students are the future citizens of the country and the teachers are makers of a nation. Both are vulnerable to great physical and psychological sufferings caused by a disaster - natural or human induced. Most of the schools operating in urban areas are built in congested places and many of those have structural inadequacies. These factors combined with ignorance and lack of preparedness measures can have disastrous consequences in the event of earthquake in this region.

The Disaster Risk management Programme (DRMP) is a national initiative jointly launched by Govt. of India and United Nations Development Programme to reduce vulnerabilities of communities in some of the most hazard prone areas of India (17 states and 169 districts). The programme aims to contribute to the social and economic development goals of the national and state governments, enable them to minimise losses to development gains and to reduce their vulnerability to disasters. For sustainability, it relies upon a community based approach and seeks to build capacities of all sections of the society and all the other stake holders in disaster management.

The Urban Earthquake Vulnerability Reduction Programme (UEVRP), a sub-component programme of DRMP for urban areas, is being implemented by the city municipal authorities under state government monitoring in 38 populous vulnerable cities in India. States involved include Kolkata and Asansol in West Bengal with the objective of sustainable reduction in disaster risks (with focus on earthquake) across the country.

3.4.2 Activities

UEVRP envisages the following broad activities:

1. Awareness Generation.
2. Development of Preparedness and Response Plans at the Community as well as Administrative levels.
3. Training and Capacity Building at all levels.
4. Development of Techno-Legal Regime (e.g. Amendment of Building Rules, Guidelines etc.).
5. Networking of Knowledge and Best Practices both Nationally and Internationally.

The step-wise programmed activities for School Safety are:

- Centralised Activities: Awareness Training of School Teachers (one/two representing each School depending on the number of students and staff in the school) to be organised by the Kolkata Municipal Corporation.
- Decentralised Activities (for each school): Following activities are to be initiated, organised and coordinated in a school by the teacher/staff who represented that school in the above centralised awareness meeting. In fact, proper implementation of the school safety programme has been materialised in many schools without making hindrance to their normal functioning.

Disaster Preparedness and Mitigation Activities in a School - Step-wise activities for a school:

1. Sensitisation meeting for Teachers, Management, Staff and Students of the School on probable natural and human induced disaster threats in the area and measures required for minimising losses.
2. Formation of Disaster Management Committee in the school.
3. Formation of School Disaster Management Teams comprising of senior students, teachers and non-teaching staff.
4. Hazard Identification and Safety Assessment. Preparation of a checklist (see below) on the basis of which the present safety of the school can be examined and actions can be planned in the future to make the school a safer place.
5. Making Inventory of resources that may help in crisis management (immediate response, emergency relief, emergency shelter etc.).
6. Training and capacity building of School Disaster Management Teams in respective subjects e.g. Warning and Information, Emergency Evacuation, Search and Rescue, Fire Fighting, basic First Aid etc.
7. Preparation of Disaster Management Plan for the School showing coordination with all emergency services (e.g. Municipal Corporation, Fire, Civil Defence, Police, Health, Local NGOs/CBOs etc.) and local people.
8. Display Floor wise evacuation route maps on every floor in the school. Put up signs for exits on walls and roof etc.
9. Dissemination of School DM Plan to everybody in the School (also to the guardians). Call a meeting and discuss the plan with all staff members.
10. Mock drill at regular intervals to acquire skill and keep practice.
11. Adoption of Structural and Non-structural Mitigation measures for the school building(s)

3.4.3 Expected Outcomes

After proper implementation of the School Safety Programme, it is expected that the schools will be equipped to mitigate disasters and efficiently cope up with any disaster situation collectively in a well planned, disciplined, well organised manner.

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Annex 1: Insurance Story

In 1990, Francis decided to migrate to India from Sri Lanka; the conflict situation near his home was growing worse. He came to the state of Tamil Nadu and took refuge along with many other families in Mudaliyarkuppam Village. After some time he married Vijayalakshmi, a girl from his community. Their family grew quickly, with four sons born in a relatively short period. Francis began working as a labourer at a church three kilometres from his new village while Vijayalakshmi took care of the children and household responsibilities.

On December 4, 2006, Francis took his family to visit his mother. The children had grown – the youngest son, Gana, was now studying in 4th standard. The kids were always excited to see their grandmother, who gave them each a little money to spend on their own. Gana was looking forward to buying some chocolate, one of his favourite treats. While returning to their village they saw a shop across the road and Gana asked his father if he could go to purchase chocolate for himself and his brothers. As he ran across the street a speeding car struck him, knocking him off the road. The driver fled the scene. Gana was covered in blood. Francis and his wife, in a state of panic and intense distress, rushed Gana to a local hospital, the Puducherry Institute of Medical Science.

Gana was under observation and treatment for two days as he battled for life. He underwent all kinds of tests, scans and treatments. In his state of grief, Francis also had to struggle for money; medical bills were approaching 20,000 Rupees. Borrowing from relatives, friends and others, he managed to obtain the money at a total yearly interest rate of around 10%. But after two days Gana was dead. With his wife and remaining three sons mourning and crying, Francis was joined by other community members to cremate the body.

After his son's death, Francis spent another 10,000 Rupees on various formalities and preparations. The now 30,000 Rupee total was an enormous debt that he would be unable to pay with his present salary. He found it difficult to focus on his work, as did his wife, and his three sons, all of them excellent students, lost their ability to concentrate on their studies.

Gana had been a student at the Panchayat Union Primary School of Mudaliyarkuppam village. This school is one of the 30 tsunami-affected schools in Tamil Nadu covered under the Student Safety Insurance Policy arranged by AIDMI's Child's Right to Safer Schools Campaign. The policy covers students and teachers alike for harm inflicted by any type of accident or disaster. It covers them in and out of school, 24 hours per day, 7 days per week. After being informed of Gana's death, AIDMI immediately initiated the claim process. As per the insurance plan, Francis was entitled to 27,500 Rupees for life insurance and medical expenses reimbursement.

Nobody can alleviate the immense sorrow brought about by the death of a family member. Yet the insurance plan – which covered Gana for a premium of just 17 Rupees per year – protected Francis and his family from a financial burden that would likely have kept them impoverished for the rest of their lives. It gave them the means to keep Gana's brothers in school, rather than forcing them to drop out and work to support the family. While we cannot put a price on life or health, we can recognise the pertinent financial issues that stem from death and injury, and their potential to have significant impacts on the lives of loved ones. All students in India are vulnerable to accident and disaster. It is important that we mitigate these risks to promote the welfare of vulnerable communities and families throughout the country.

Annex 2: Urban Earthquake Vulnerability Reduction Programme

Government of India and UNDP

Disaster Preparedness and Mitigation Activities in a School

Step-wise activities for a school (These activities are simple and can be done without hampering the normal functioning of the school):

1. Sensitisation meeting for Teachers, Management, Staff and Students of the School on probable natural and human induced disaster threats in the area and measures required for minimising losses.
2. Formation of Disaster Management Committee in the school. It may be resolved to enable the School Development Committee to act as School Disaster Management Committee.
3. Formation of School Disaster Management Teams comprising of senior students, teachers and non-teaching staff. At least 5 teams will be formed for different purposes as below and each team should have around 15 members:
 - a. Awareness Generation, Warning, Information Collection and Information Dissemination Team
 - b. Emergency Evacuation and School Security Team
 - c. Search and Rescue Team
 - d. Fire Prevention and Control Team
 - e. First aid Team
4. Hazard Identification and Safety Assessment. Preparation of a checklist (see below) on the basis of which the present safety of the school can be examined and actions can be planned in the future to make the school a safer place. Minimum Points of the Check List:
 - a. The natural/human induced disasters (earthquake, cyclone, flood etc.) to which the school is vulnerable? (Include Probable Sources of Hazards e.g. weak building/ structure, adjacent tall building, electric transformer, factory / godown / fuel filling station / shop keeping inflammable articles etc.)

Does every floor of the school have minimum two exits? Are the electrical mains fitted away from the exits?

Are all exits from the school clear?
 - b. Are the corridors and staircases clear of any obstruction?
 - c. Do the doors of all rooms open outwards?
 - d. Are the Rooftop Water Reservoir and the Flower Vases properly anchored to the building with rigid frames?
 - e. Does the school have provision for emergency power back-up?
 - f. Is emergency stock of fresh drinking water always kept stored in a separate place?

- g. Are the fans and lights properly fixed to the ceiling/walls?
 - h. Are the wall-hung items (portraits/ / photographs etc.) properly fixed?
 - i. Are the Almirahs/racks/furniture properly fixed with the building?
 - j. Is there adequate arrangement for fire safety?
 - k. Is the school building(s) structurally safe to withstand the shock of probable earthquake / super-cyclone in this region?
 - l. Is the ground floor sufficiently raised to prevent inundation by usual flood water?
 - m. Is the School Disaster Management Teams have acquired enough skill by practice (Mock drill)?
 - n. Is the School Disaster Management Plan prepared and kept updated?
5. Making Inventory of resources that may help in crisis management (immediate response, emergency relief, emergency shelter etc.). A format is given for the purpose. The names, addresses, land/mobile phone numbers must be given for all.
 6. Training and capacity building of School Disaster Management Teams in respective subjects e.g. Warning and Information, Emergency Evacuation, Search and Rescue, Fire Fighting, basic First Aid etc.
 7. Preparation of Disaster Management Plan for the School showing coordination with all emergency services (e.g. Municipal Corporation, Fire, Civil Defence, Police, Health, Local NGOs/CBOs etc.) and local people. The plan must comprise of at least:
 - a. A Location Plan showing
 - i. Nearby buildings, fields, roads/lanes, railway stations, vehicle garage, water bodies etc.
 - ii. Probable sources of hazards e.g. weak building/structure, electric transformer, factory /godown / fuel filling station / shop keeping inflammable articles etc.
 - iii. Probable resources that may help in crisis management (immediate response, emergency relief, emergency shelter etc.).
 - b. An Emergency Evacuation Plan for each floor of each building showing escape / rescue routes.
 - c. Hazard Identification and Safety Assessment.
 - d. Inventory of Resources.
 - e. General Inventory of the school as given in the format (to include the Details of school timings, no. of students/teachers/boarders, type of structure and foundation, no. of floors, no. and uses of rooms in each floor, no. of Laboratories etc. etc.)
 8. Display Floor wise evacuation route maps on every floor in the school. Put up signs for exits on walls and roof etc

9. Dissemination of School Disaster Management Plan to everybody in the School (also to the guardians). Call a meeting and discuss the plan with all staff members.
10. Mock drill at regular intervals to acquire skill and keep practice.
11. Adoption of Structural and Non-structural Mitigation measures (takes comparatively long time) for the school building(s)
 - Lessons from the past disasters
 - Structural Hazards (School Building / Water tank / Windows / Electrical / Gas Installations / Basements etc.)
 - Room Hazards (Heavy loose objects / hanging objects / Chemicals in laboratories / Aquarium etc.)
 - Maintenance Hazards (un-skilled maintenance of equipment / articles etc.)
 - Neighborhood Hazards (Gas stations)/ high-voltage power lines/ major traffic routes (e.g., freeways and railway lines) / major oil and natural gas pipeline or storage / electrical transformers and underground utility vaults / multi-storey buildings vulnerable to collapse / water towers)
 - Retrofit (strengthen) the weak buildings
 - Construct new buildings adopting disaster resistant technologies with strict adherence to the quality standards and advices of a knowledgeable experienced structural engineer

Facilitator's Note

1. Suggestions for Facilitators prior to Training

Although the most effective trainers are able to address the emerging needs of trainees in a flexible manner, the following notes offer a basic outline of activities that TLC facilitators may use to lead trainings. To prepare for training, facilitators may find it useful to:

- Review the Module Learning Objectives listed above,
- Review the Suggested Methods and Activities listed below,
- Assess the anticipated knowledge needs, interests, and constraints of trainees,
- Identify additional potentially effective activities suitable for their particular trainees,
- Review related background literature on School Safety in India, this can include but is not limited to the reference material listed at the end of this document and the modules,
 - o Prepare your own notes so that you may convey the relevant information in a way that is comfortable for you.
 - o Do not feel constrained by the information on the slides-this is merely a guide for you.
- Prepare materials for the training, including:
 - o Powerpoint or other presentation materials including revisions if desired
 - o Print-outs or any other necessary handouts
 - o Tools and props needed for activities
 - o Rewards or treats to encourage involvement and participation

2. Facilitator Requirements during Training

Total Time: Approximately 1hour 30minutes

Items and Materials needed: PowerPoint presentation, whiteboard and marker OR blackboard and chalk, module materials, your own notes based on those materials, SDMPs handouts, disaster risk insurance story, SWOT sheet handouts.

3. Suggested Methods and Activities

Spend the first 5 minutes explaining the purpose of the module and introducing the titles of the four case studies. 20 minutes should be spent on the presentation of each case study (so approximately 5 minutes per slide).

1st Case Study:

The Gujarat School Safety Initiative, run by SEEDS India and supported by the Gujarat State Disaster Management Authority. Use the supporting documents about the initiative to explain the activities and the areas of good practice. This example has a strong focus on methods that are student centred.

Special attention is given to the creation of School Disaster Management Plans (SDMPs). Explain the process and give out the SDMPs handouts (<http://www.preventionweb.net/english/professional/trainings-events/edu-materials/v.php?id=6933>). These will be useful for teachers to take with them, so that they may consider similar plans in their own school. Another useful guideline on preparation of the School Disaster Management Plan can be downloaded from http://www.preventionweb.net/files/5449_SchoolDisasterManagementPlanIndia.pdf

2nd Case Study:

All India Disaster Mitigation Institute's Child's Right to Safer Schools Campaign is supported by the American Jewish World Service. The first slide will describe the overview of their campaign, in the same way as in the first case study. The activities of the campaign should be described with the help of the second slide. Be sure to note that since 2007, AIDMI has extended its coverage and range of activities extensively, from 5 schools to over 300. In this case study, special focus has been placed on Disaster Risk Insurance. After explaining how the insurance works, read out the true story that has been provided, as an example of success.

3rd Case Study:

The School Safety Programme is run by the National Disaster Management Division of the Ministry of Home Affairs of the Government of India. This Programme works on two operational fronts: District level and School Building level. The Activities detailed on slide 2 are those conducted within the district level programme. These resemble many of the methods that are used in the presentation's other examples, but they are organised within one programme on a larger scale.

The detailed example of the Hazard Hunt and Evacuation Plans are for use on the School Building scale. The Hazard Hunt activity is a simple form of risk assessment within schools. It would be worthwhile to educate students on the concepts and practice of risk assessment within class before setting them the Hazard Hunt task. Members of staff, administrators, members of the local community and local emergency and support agencies have produced the Evacuation Plans in this example. However, it is possible to involve the students to a higher degree, by allowing them to design the displays and getting input from them on revisions of the plan.

4th Case Study:

Disaster Management Activities in the Kolkata Municipal Corporation, under the Urban Earthquake Vulnerability Reduction Project (UEVRP) of the Government of India / UN Development Programme.

The project focuses on the disaster risk to schools in 'mega-cities'. Building the capacity of urban schools will make the local community more prepared against disasters such as earthquakes, which can cause the most damages in overcrowded cities.

Activities were divided into those that were Centralised and Decentralised. The initial Centralised activities consisted of awareness raising, capacity building and training of teachers. This then allowed teachers to conduct the Decentralised activities in their own schools themselves, with little further outside help required. This gives each school a sense of ownership of the project in their area. The activities listed on the 2nd slide of this case study are the Decentralised activities.

The case studies should consume all of the allotted time for this module. If, however, you find that you were able to cover the examples in good time and you find yourself with a spare 10 minutes, there is a short activity you can lead.

End Activity – Strength Weakness Opportunities Threats (SWOT) analysis:

Form the teachers into 4 groups and allocate one of the case studies to each of them. Hand out a blank SWOT sheet to each group and explain the purpose of a 'Strengths, Weaknesses, Opportunities and Threats' analysis. In the remaining time they should fill out their forms with suggestions in the four categories for their particular case study.

<p>STRENGTHS</p> <div style="border: 1px solid black; height: 150px; width: 100%;"></div>	<p>WEAKNESSES</p> <div style="border: 1px solid black; height: 150px; width: 100%;"></div>
<p>OPPORTUNITIES</p> <div style="border: 1px solid black; height: 150px; width: 100%;"></div>	<p>THREATS</p> <div style="border: 1px solid black; height: 150px; width: 100%;"></div>

4. Presentation Guidelines

"The following presentation guidelines are intended as a resource that may be adapted for training facilitators that are teaching this module. They may be used to create a visual presentation or handouts for participants."

Objectives

By the end of this module you should be able to:

- Relate many examples of successful CBDRR for instilling safety in schools
- Understand why those methods are appropriate for local communities
- Build upon those methods with ideas for your own schools

Contents

- I. Gujarat School Safety Initiative (GSSI) – by SEEDS India and the Gujarat State Disaster Management Authority (GSDMA)
- II. Child’s Right to Safer Schools Campaign – by All India Disaster Mitigation Institute (AIDMI)
- III. School Safety Programme – by GoI National Disaster Management Division
- IV. Disaster Management Activities in Schools - by Kolkata Municipal Corporation

I. Gujarat School Safety Initiative (GSSI)

- Implemented by SEEDS India, supported by the Gujarat State Disaster Management Authority (GSDMA)
- Covering 150 schools in Ahmedabad, Vadodra and Jamnagar + 1 in each of Gujarat’s 25 regions
- Following Gujarat 2001 Earthquake, in which many school children and teachers died and school buildings collapsed
- The project addresses two issues:
 1. Understanding and preparedness amongst school children, teachers and parents to reduce disaster risk in schools and to be prepared to act appropriately in an emergency
 2. Disaster management appreciation amongst teachers so that they are able to impart disaster education to children more effectively

Activities

Under 4 Categories:

- Structural retrofitting of school buildings to prevent collapse in future earthquakes
- Non-structural mitigation methods – avoiding injuries
- Education on safe infrastructure for staff and construction workers

- Preparing school disaster management plans and training communities in disaster response

Activities include:

- School safety clubs and task forces – linked to state-wide initiatives to maintain momentum
- Manuals, training sessions, tools and activities for teachers
- Activities are participatory and fun!

School Disaster Management Plans

- **Raising awareness** of disaster issues among stakeholders
- **Identifying** and listing structural and non-structural **hazards and vulnerabilities** in and around school
- Identifying and listing ways of **reducing vulnerabilities**
- **Identifying the roles and responsibilities** of stakeholders
- **Training** teachers on preparing a school **evacuation plan**
- **Building** emergency response **capacity**, e.g. first aid
- Listing the **contact information** of all facilities and resources for **emergency management**
- Conducting a mock drill to **demonstrate skills** acquired by students
- **Keeping** targeted schools **informed** through a newsletter
- Promoting School Safety Clubs to **sustain risk education**

Lessons and Good Practice

- Piloted a methodology and proved it can be scaled-up
- Directly benefited 105,000 children and 9,000 teachers in 175 schools
- Much more effective than textbook-based learning
- Schools continued with activities after SEEDS had completed their work – sense of ownership
- Children identify hazards themselves - expertise for home and community
- Sensitisation of teachers is vital - master teachers should train others

“We have an Emergency Evacuation Plan, and have identified and trained task forces for search and rescue, first aid, fire safety, evacuation, and awareness. The activities are done in such a way that children enjoy them and also learn very useful lessons in the process.”

– Ms. Nita Joshi, Principal, Kumkum Vidhyalaya, Ahmedabad, one of the project schools

II. Child’s Right to Safer Schools Campaign

- Implemented by the All India Disaster Mitigation Institute (AIDMI) with support from the American Jewish World Service

- Initially covered 5 schools in Gujarat but has now expanded to over 300
- Campaign started following the Kumbhakonam Fire Tragedy in 2004 in which 94 children died
- Key objectives:
 - to provide direct support action to the victims, schools, school boards, and city authorities primarily serving the children of the poor
 - to spread awareness about children’s right to safer schools across various stakeholders in India.

Activities

- Fire Safety Equipment Demonstration and Installation – experts led demonstrations and students also demonstrated their knowledge
- First Aid Kits – provided to schools
- Awareness Materials – displays, pocketbooks and publications, available in local languages
- Training on School Safety – preparedness training for staff and students, includes mock drills and scientific knowledge
- Demand-Based Support – targets disaster-affected schools and responds to needs, e.g. safe drinking water, structural repairs
- Economic Support to Needy Students – to keep them in school. Specific to need, e.g. financial, livelihood
- Education Centres – run by community members in disaster-affected slum areas
- Research Activities – this guides future activities, and findings are shared with stakeholders

Disaster Risk Insurance

- Non-physical measure to make schools safer
- Covers accident risks occurring to students and staff
- Covers before and after school hours also
- 4 of AIDMI’s first 5 supported schools received policies – 6,223 students and 180 staff
- Municipal controlled schools already have insurance policies provided
- Initially, policies last 1 year – AIDMI is extending them and providing more schools in multi-hazard areas with policies

Lessons and Good Practice

- Focused on local capacity and community-based methods
- Disaster and safety education in schools reaches further in to the community via parents and teachers

- Encouraging local and national frameworks – should work with government bodies and local panchayats whenever possible
- Schools are the best place for developing preparedness – they should be a hub of knowledge

III. School Safety Programme

- Designed by the Government of India's National Disaster Management Division, within the Ministry of Home Affairs (MHA)
- District-wide Programme targets education departments, administrators, emergency officials, teachers, students and the wider community.
- School building-level Programme focuses on school specific measures
- Recent disasters such as the Gujarat Earthquake and Kumbhakonam Fire Tragedy emphasised the vulnerability of children at school
- Goal – “promote a culture of disaster preparedness in the school community”
- Basic Components:
 - Promoting Awareness and Education Activities
 - Demonstrating Disaster Risk Management
 - Training and Capacity Building
 - Annual Safety Assessment

Activities

- Place school safety on the education agenda
- Create a School Safety Advisory Committee at the district level
- Develop a District-wide School Safety Plan and individual plans for each school
- Appoint a Building-level School Safety Team in each school
- Each school prepares a School Building-Level Emergency Preparedness and Response Plan
- Establish a district-wide incident reporting system
- Develop a literature database on school safety issues
- Develop safety policies and amendments to ensure adherence to safety norms and regulations
- Establish disaster management clubs in schools
- Support 'Preparedness Month for Schools'

Hazard Hunt and Evacuation Plans

Hazard Hunt

- Simple exercise to mitigate risks

- Children go around the school looking for hazards
- Many of these can be mitigated simply within existing capacity and reduce risk of ill effects of disasters

Evacuation Plans

- Floor-wise evacuation plans are devised by building-level School Safety Teams
- Plans are displayed all over school in corridors and mock drills are conducted soon after to test effectiveness

Lessons and Good Practice

- Aims to mainstream disaster management training within education
- Helps schools to become self-sufficient in terms of disaster preparedness
- Children's knowledge transfers to parents and wider community – recognises schools effectiveness at disseminating information
- Regular activities throughout the year maintain momentum and ensure follow-up activities
- Recognises the important role of schools within the community and their potential impact on the future of the country

IV. Disaster Management Activities in Schools

- UNDP and Government of India – Disaster Risk Management Programme - Urban Earthquake Vulnerability Reduction Project
- Kolkata is one of 38 cities covered by the project
- City schools targeted - proneness of urban areas to hazards due to overcrowding
- Main Actions:
 - Awareness Generation
 - Development of Preparedness and Response Plans at Community and Administrative levels
 - Training and Capacity Building at all levels
 - Development of Techno-Legal Regime (e.g. building regulations)
 - Networking of Knowledge and Best Practices, Nationally and Internationally

Activities

- Sensitisation meeting for Teachers, Management, Staff and Students – disaster threats and mitigation measures
- Formation of Disaster Management Committee
- Formation of School Disaster Management Teams
- Hazard Identification and Safety Assessment

- Inventory of resources for use in emergency management
- Training and capacity building of School Disaster Management Teams
- Preparing Disaster Management Plan - coordination with local people and emergency services
- Display of evacuation route maps and exit signs on every floor
- Dissemination of School Disaster Management Plan to stakeholders
- Mock drills at regular intervals
- Structural and Non-structural Mitigation measures for buildings

School Disaster Management Teams

Consist of Senior Students, Teachers and Non-Teaching staff

At least 5 teams of 15 members:

- Awareness Generation, Warning, Information Collection and Information Dissemination Team
- Emergency Evacuation and School Security Team
- Search and Rescue Team
- Fire Prevention and Control Team
- First aid Team

Undergo trainings, e.g:

- Warning and Information
- Emergency Evacuation
- Search and Rescue
- Fire Fighting
- First Aid

Lessons and Good Practice

- Measures are uncomplicated and do not hinder the normal functioning of the school
- Students receive disaster and mitigation education and training – empowered in risk reduction teams
- Organisational methods used well – checklists, inventories, preparedness plans, etc
- Spreads awareness in local community. Guardians and local services are involved in creation of plans
- Ensures sustainability via capacity building and community-based approach

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Useful Additional Resources (Solution Exchange India <http://www.solutionexchange-un.net.in>)

Consolidated Replies on Micro insurance for disaster risk reduction:

1. Consolidated Replies on Safer School for disaster risk reduction:
Structural Mitigation for Schools Buildings - Advice, Experience. From A.S. Arya, Ministry of Home Affairs, New Delhi.
Available at: <http://www.solutionexchange-un.net.in/drm/cr/cr-se-drm-ed-21090701.pdf>
Seeks advice on various issues that need to be factored in for reducing risks arising out of unsafe school buildings and experiences of effective structural mitigation in Schools .
2. Incorporating Disaster Management Education in School Curriculum -Experiences; Examples. From Siddhartha Choudhury Gujarat State Disaster Management Authority, Gandhinagar.
Available at: <http://www.solutionexchange-un.net.in/drm/cr/cr-se-drm-ed-08080701.pdf>
Seeks experiences on introduction of textbooks and views on how dealing disaster management as a separate subject can lead to more preparedness at school level
3. Integrating Disaster Risk Reduction in Sarva Shiksha Abhiyan - Advice; Experiences- From Amit Tuteja, SEEDS (for National Alliance for Disaster Risk Reduction), New Delhi
Available at: <http://www.solutionexchange-un.net.in/drm/cr/cr-se-drm-ed-13100801.pdf>
Provide experiences and suggestions on how best to integrate DRR components into SSA.
4. Restoring Schooling in Flood Affected Areas- Experiences. From Cecilia Barbieri, United Nations Educational, Scientific and Cultural Organization (UNESCO), New Delhi.
Available at: <http://www.solutionexchange-un.net.in/education/cr/cr-se-ed-drm29100801.pdf>
Discussed various models of educational intervention to ensure educational continuity for children displaced due to floods in Bihar and proposed collaboration with organisations working in the field.

Module 4

Guidelines for Integrating Disaster Education



Guidelines for Integrating Disaster Education



Learning Objectives

By the end of this module you should be able to:

- Include scientific disaster education and DRR into your lessons
- Use a number of different methods to make DRR fun for children
- Use a number of different methods to empower children as agents of DRR within the community



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Facilitator's Note

1. Suggestions for Facilitators prior to Training
2. Facilitator Requirements during Training
3. Suggested Methods and Activities
4. Presentation Guidelines

4.1 Why Teach DRR in Schools?¹

The Hyogo Framework for Action 2005-15 identifies core activities that can lead to resilient communities. It broadly identifies five priority actions that nations and organisations can pursue to support this resilience. While all five areas are important for school safety, the 3rd Priority for Action may be the most relevant and encourages users to make "use of knowledge, innovation and education to build a culture of safety and resilience at all levels". Further, the Hyogo Framework encourages promotion and implementation "of programmes and activities in schools for learning how to minimise the effects of hazards".

Schools can be effective venues for promoting disaster risk reduction for communities at large. As noted by the UN/ISDR, "Schools are the best venues for forging durable collective values; therefore they are suitable for building a culture of prevention and disaster resilience."

In many communities, schools also serve as centres for community events and social functions, and serve as gathering places or shelters during emergencies. They have great potential for being core institutions for community disaster risk reduction activities.

A school safety campaign is important in promoting the second UN Millennium Development Goal of achieving universal primary education by the year 2015. Families simply will not risk sending their children to school if they do not see schools as safe places; without sufficient school safety measures, the goal of universal education cannot be achieved.

When disaster strikes, children who are in school buildings - which are too often built without regard to structural codes or regulations in developing countries such as India - are particularly vulnerable.

In disasters, children are among the most vulnerable groups. Children under the age of 15 account for nearly half of all victims of natural disasters. They are ill equipped to endure physical hardship and stress, they have immature immune systems, and they are in the critical stages of development.

Schools are important institutions in any community, during emergencies and at normal times. At times of emergencies, they can be used as shelter before, during and after disaster, a good place to store emergency equipment, and a distribution centre for food, medical treatment, non-food items and other forms of aid and assistance. In normal times, they are a centre for education and awareness-raising and many social and organisational community activities take place there.

4.2 Scientific Knowledge²

Hands-on, experiential learning is the most effective way to educate. A disaster relevant curriculum would not only impart knowledge of the natural hazards themselves, but also would involve students in inspecting the school buildings, going outside to map the surroundings, and even interviewing elders about extreme natural events in the past. Such learning could be done in ways that reinforce basic skills in listening, writing, reporting and

1 From: UNISDR - Let Our Children Teach Us and From: AIDMI - southasiadiasters.net, Issue 49

2 From: UNISDR - Let Our Children Teach Us

mapping. It could be integrated into the study of history, geography and natural science. Age-appropriate math, from simple arithmetic to statistics, geometry and trigonometry, could be used.

The real-life teaching and curricula varies greatly, and few approximate the ideal stated above. Some examples provide excellent training in earth and climate science, but do not focus on locally experienced hazards. In other cases, like generals who tend to re-fight the last war, education planners have focused exclusively on one recent disaster. Turkey, for example, within its all hazards school curriculum, has an impressive programme of earthquake-risk awareness that has reached perhaps five million students. On the tsunami-affected coast of Thailand, there are new curricula that focus exclusively on tsunami - even though the most common hazards in the region are coastal storms, floods and forest fire.

Teaching about hazards is not enough to promote risk awareness or action on the part of children and youth. Academic earth and climate science is good, but should be taught as part of a comprehensive package with disaster prevention and preparedness. Where possible, some of the teaching should focus on locally-relevant hazards.

4.3 Strategies for Integration³

Begin with broad scientific disaster education – then continuously focus down in scale, increasing the detail of information. This should result in a journey from the worldwide context to practical ways of improving school and community building safety on the local level.

Forge links with other local educational institutions on this subject. Higher education can offer many opportunities for knowledge sharing and useful research activities. Sharing successful practices internationally is also beneficial.

Educational reforms that would add or blend in disaster-relevant teaching are difficult in systems with standardised examinations and a curriculum that "teaches to the exam". However, this example of India shows that it can be overcome:

At the national level, the Central Board of Secondary Education (CBSE) of India has introduced disaster management into classes 8 and 9, and proposes to add it to the curriculum for class 10 in 2005/06. More than 1,000 teachers have already been trained in the use of this new curriculum throughout India. New texts supporting this initiative include:

- Together, Towards a Safer India... An Introduction to Disaster Management for Class 8, CBSE, Delhi.
- Together, Towards a Safer India Part II: Making a Difference, a text-book on disaster Management for Class 9, CBSE, Delhi.
- Together, Towards a Safer India Part III: A Stride Ahead, a text-book on disaster Management for class 10, CBSE, Delhi.

One of the most important issues when considering curriculum material is the appropriate language. Language, thought and action are very tightly coupled in very complex ways for human beings. Therefore, it is far better to use an indigenous language in many parts of the world, even though official language policy in schools may favour the lingua franca. If schools

³ From: UNISDR - Let Out Children Teach Us

are really going to be a focal point for diffusing risk reduction into the community, then material used in schools should also be accessible to parents and even grandparents. Also, to have vocabulary in an indigenous language for concepts of risk reduction is a very important step in increasing the community's ability to debate, study and plan.

4.4 Girls in School⁴

Historically, the education system in India has often treated girls as inferior to boys. This has created a significant gender gap in many areas of society. The gap is clearly visible in educational matters: more than two thirds of the world's 800 million illiterates are women. In India, according to the 2001 Census, nearly half of adult women are illiterate. In response to such needs the United Nations set achieving universal primary education as its second Millennium Development Goal (MDG), and promoting gender equality and empowering women as MDG number three. This process has to start when girls are young. Often marginalised in the education system and confined to limited gender roles, rural women are one of the more vulnerable demographics in disaster situations.

4.4.1 Creating Effective Learning Environments for Girls

The attendance of girls at school is poor, so ensuring a safe learning environment is essential for meeting the MDG and getting girls to school. One aspect is making schools safer against disasters. This can be in the form of structural measures, e.g. strength against earthquakes, cyclones, etc; layout sympathetic to evacuations and emergency situations; school area free from hazards. It can also be in the form of non-structural measures, e.g. preparedness plans, capacity building, awareness raising, disaster education, institutional frameworks to promote safety; crowd management (essential as overcrowded schools are a reality).

Girls should be provided with a secure and attractive environment. This means that they should be able to trust their teachers and there should be systems in place to prevent and deal with abuse and bullying. Importantly, safe and adequate water and sanitation facilities for both sexes should be present. This has a substantial effect on the attractiveness of any school, and children will be unlikely to come to school if they are not comfortable and safe in this manner. Where appropriate, adequate boarding and meal services should be provided to ensure an attractive environment.

4.4.2 Empowering Girls and Women

School-based DRR work should have a focus on girls, as it will empower them as disaster managers for the future, also allowing them to act in important roles. Many examples of ideas for good practice can be found, so some example methods are shown below:

- Create girl-only disaster management clubs or teams. These teams will be responsible for hazard-spotting and developing solutions and safety measures. Making them girl-only could give them a special sense of responsibility.

⁴ From: AIDMI - southasiadisasters.net, Issue 49

- Similarly, the formation of Mothers' disaster planning groups could be encouraged. These women are likely to have strong connections with each other anyway, so their relationship could be used to good effect.
- Schools are centres of learning and progress, but not just for children - literacy sessions for local women could be held out of school hours, and this would help to empower them. The involvement of the head girl and boy in development of plans disaster and evacuation plans (as well as other DRR methods) will give them legitimacy and the students will feel more in charge of their own safety.
- In the appropriate classes, teachers should promote female self-worth, e.g. female role models, rights education. They should also strive for equality in essential skills development, e.g. swimming lessons and safety and science education. These skills can prove the difference between life and death in disaster situations. Equality in all aspects of curricula is just as important.
- Provide DRR education that will also be relevant for the home and work environment. This means that local small-scale measures should be included, so that students can pass the messages onto their families, preparing them for hazards in day-to-day life.
- Conduct a survey on male/female disaster knowledge - address differences in DRR education.
- Girls can be at risk from attack and traffic on their journey to and from school. So, schools can arrange escorts for the girls' journeys. Mothers and community volunteers can be key to implementing this.
- Set up mechanisms for reporting of abuse and help with psycho-social effects such as abuse, as well as long-lasting psychological effects of disasters.

4.5 Targets for Curricula⁵

In centralised state education systems, curricula are developed that explicitly deal with locally relevant natural hazards and disaster risk reduction, complementing any existing academic treatment of environmental studies or earth science.

In decentralised state education systems, curricula are developed "from the bottom up" by students, teachers and community members through the use of participatory community vulnerability and capacity assessment tools now widely available.

In both kinds of systems, networks and training resources are made available through partnerships with NGOs and the private sector so that:

- a. teachers can be trained to use Community Risk Assessment (CRA) methods;
- b. schools and school jurisdictions can exchange and pool skills, experiences and resources; and
- c. some element of the "bottom up" generation of curriculum and pedagogy may also be incorporated into the "top-down" process in centralised systems.

⁵ From: UNISDR - Let Our Children Teach Us

4.6 Experimental Learning – The Child-to-Child Approach⁶

One of the most exciting pedagogical innovations is the "child-to-child" approach, which is a variation on the basic idea of experiential learning. The Child-to-Child Foundation, explains the method this way (in the context of health education):

"Child-to-Child ideas and activities represent an approach to health education. They do not constitute an alternative programme. It is more accurate and beneficial to view Child-to-Child activities as components that may be integrated with broader health education programmes that are either at the planning stage or already in operation. The distinguishing characteristics of Child-to-Child are the direct involvement of children in the process of health education and promotion and the nature of their involvement. The most effective programmes are those that involve children in decision-making rather than merely using them as communicators of adult messages. However, whenever children are involved as partners in this way, change is demanded in current structures and methodologies in health and education.

"Child-to-Child ideas and activities spread and take root in many different countries and contexts, for example, in national education programmes; in local programmes and individual schools; in training programmes for teachers and health workers; in youth movements and youth groups linked with schools and school children; in youth groups operating outside of the school system; when schools are linked with medical schools, health centres and health campaigns; when older children help pre-school children; and in programmes and activities designed to help children in especially difficult circumstances. Wherever Child-to-Child activities take place, they stress the potential of children to promote better health:

- To younger children.
- To children of the same age.
- In their families and communities."

The same concepts are being applied to help children who have been affected by natural disasters.

The child-to-child framework centres around a six-step approach to learning, used to elicit children's active participation in promoting health:

1. Identifying a local health issue and understanding it well.
2. Finding out more about the health issue.
3. Discussing what's been found out and planning action.
4. Taking action.
5. Evaluation: discussing results.
6. Discussing how we can be more effective next time and sustain action.

The Child-to-Child Foundation explains the philosophy of the six steps as follows:

"We see children as agents of change, not megaphones to transmit adult messages... The six-step approach has an important effect on the way we teach and learn because:

- It links what children do in class with what they do in the home.
- It links what children learn with what they do.

⁶ From: UNISDR - Let Our Children Teach Us

- The activities are not taught in one lesson and then forgotten; they are learnt and developed over a longer period of time."

4.7 Connecting at Play⁷

Children respond to fun activities. These activities are more likely to be remembered and repeated by students within their homes and community. Children's clubs for DRR, environmental management, water monitoring, animal care, etc, are a great way of using children's potential and energy in an effective way for the benefit of the community. Creating such clubs in school and providing them with the means to make their community safer is an important step towards empowerment, especially if girls can be given key roles. Some countries have Disaster Museums that act as a fun and interesting learning resource for children. A similar idea is to encourage children to research a particular recent local or national disaster and get them to produce display boards to educate their fellow community members about it and the lessons to be learned. Internet resources are too a powerful tool.

4.8 Examples for Replication

4.8.1 "Go" Bags

The "Go Bag" Scavenger Hunt activity developed by Risk RED is a short and fun activity that involves children and their families. By selecting which items they would pack in a bag to be prepared for a disaster, children and parents are encouraged to think critically about their needs in such a situation. Additional preparedness information is also provided to the families, so that they can take it home and act upon it. The materials required for the activity can be collected quite easily - the only additional material required is the Family Disaster Plan.

4.8.2 Riskland⁸

Riskland is a board game developed by UNISDR and UNICEF. One of the biggest factors in the success of this game is the element of fun involved. Many forms of entertainment that intend to educate children are often passive - something they listen to or watch. A board game such as this is an active learning experience, concerning decision-making, so they have fun while thinking about the disaster situations. The game is available in many languages already and UNISDR has set itself the task of spreading the game into as many languages as possible. Therefore, they are happy to respond to requests and suggestions to translate the materials into more languages, whether local or national. The game is also adaptable to local hazard conditions.

⁷ From: UNISDR - Let Our Children Teach Us

⁸ The website statement for both Riskland and Let's Learn to Prevent Disasters: "UN/ISDR and the United Nations Children's Fund (UNICEF) have together produced an educational kit for children called "Let's learn to prevent disasters!". It includes the board game "Riskland" whereby players learn about what they can do to reduce disaster impacts by answering questions and advancing along the board's winding path. The kit and game may be adapted according to the different hazards communities face, and translated into multiple languages. To date, the kit is available in English, Haitian Creole, Maya Kackchiquel, Nepali, Portuguese and Spanish, with translations into over 15 others currently underway."

4.8.3 Let's Learn to Prevent Disasters⁹

To be found at the same web location as Riskland, is a document named "Let's Learn to Prevent Disasters! Fun ways for kids to join in risk reduction", which is a good accompaniment to the game. This is a booklet of materials on ways of getting children involved in DRR in the school and community. Suitable for children aged 8 to 12; the content of the booklet can be used to supplement other courses within the existing curriculum. The booklet includes: some scientific disaster education, environmental and natural resource management, disaster and risk concepts, and fun and practical ways for children to learn about and reduce the risk of disasters. The booklet is also suitable due to its use of appropriate language, pictures and colours. Many different hazards are also covered.

Opening message of booklet:

"This booklet aims to provide the educational community and children with an innovative and interactive tool for risk management. Earthquakes, floods, hurricanes, volcanic eruptions and landslides all these are natural phenomena that have occurred throughout the history of humankind. However, rapid population growth, environmental pollution and degradation, and increased poverty, have all contributed to turning these natural phenomena into disasters that cause enormous losses in human lives, infrastructure, and material belongings.

"Every decade, disasters cause the death of a million people and leave several millions more homeless. Economic losses caused by natural disasters have tripled in the past 30 years.

"Working together continually as a community can help reduce the impact of disasters. Children play a very important role in doing this. How?

"By:

- Carrying out school activities about this issue with the participation of the community.
- Teaching their families and community about natural hazards and encouraging them to take preventive measures.
- Helping to establish a real and long-lasting "culture of prevention", both through action and new attitudes. This means that when they become adults they will have a greater understanding of natural phenomena, the effects of human actions and the consequences of poor environmental management, as well as the need to promote a new kind of development in greater harmony with nature.

"This booklet is aimed at children between the ages of 8 and 12, as a supplement to materials already available in schools. Its contents can be used in the teaching of social studies, science and environmental studies, as well as in any other studies that relate to other human groups or countries.

"In order to make learning about disasters fun, we have included several activities, as well as an educational board game Riskland to help children learn as they play.

9 Ibid.

We hope this joint effort of the United Nations International Strategy for Disaster Reduction (UNISDR) and the United Nations Children's Fund (UNICEF) will prove a useful and enjoyable contribution to the learning process."

4.8.4 Masters of Disaster

The American Red Cross has developed an online series of learning materials, entitled "Masters of Disaster". Suitable for children of school entry age until the end of secondary school, the series aims to empower young people by providing with the ability to be prepared for disasters, thus reducing the risk. They aim to eliminate students' fear of natural disasters, directly addressing psycho-social issues. The materials are also available for download and come in the form of ready-made lesson plans. However, there are also materials for parents and families to use. This is key for spreading the knowledge into the home and wider community. There are different sets of resources for 3 different age groups - the difference manifests itself as though varying emphasis on games, activities, scientific knowledge, preparedness measures, etc.

Website statement:

"The award-winning Masters of Disaster® disaster preparedness curriculum teaches children how to prevent, prepare for and respond to disasters and other emergencies. We are pleased to announce its availability now in customised formats for both families and educators. ... The Masters of Disaster® series is an educational tool that will teach youth the importance of preparedness while reducing fear of the unexpected. The goal is to empower youth with the confidence and knowledge to prepare for disasters and help create a culture of preparedness. The lessons are non-threatening, age appropriate and adhere to national education standards."

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Schools Practice What to Do When the Earth Moves Under Your Feet Case Study - A Community-wide Earthquake Drill in California

No matter how well we reduce the risks associated with natural hazards, we also need skills to take care of ourselves and help each other out when disaster strikes. Immediately after a major earthquake damages buildings or a cyclone causes flooding, it can be days until food, water, and shelter from outside the area reaches those affected. People are often on their own for several days. The speed of later recovery depends on the ability that survivors have to organise themselves and to help each other.



Drills and simulations are essential for training and practice. Handbooks, web-sites, manuals and specially-trained teams exist around the world. But just reading about these things and leaving them to others isn't enough. Drills often reach only a small population, perhaps one school or one building at a time. Until now. A new method is gaining popularity for mass public education for disaster preparation, while keeping it local. Just as Iran has pioneered national school earthquake drills, so too have cities and Japan and a whole region in California pioneered in *community-wide earthquake drills*.

At 10am on 13 November 2008, Southern California rocked – to a pretend earthquake designed to get people to act for real. The Great Southern California ShakeOut was the largest earthquake drill in U.S. history.

5.5 million people participated, including almost 4 million students in kindergarten through grade 12. To make it seem as real as possible, a scientifically-developed practice scenario suggested that a magnitude 7.8 earthquake would rock the area for two minutes. Participants in the ShakeOut rang bells, shouted "Earthquake" and began by taking the 'earthquake position' Drop, Cover and Hold-on. Most participating schools followed with a full building evacuation and student accounting. Many enacted a full simulation, using the common incident command system to organise themselves. Schools' disaster management plans were put into practice to see where the weak spots lay. Meanwhile, international researchers from four continents looked on, seeking lessons to share with colleagues around the world.

The ShakeOut was organised by Earthquake Country Alliance (ECA). The international school safety observation team was assembled by Risk RED (Risk Reduction Education for Disasters) in cooperation with Western Washington University's Institute for Global and Community Resilience and the international Coalition for Global School Safety and Disaster Prevention Education. Support came from ECA and ProVention Consortium.

The team provided a *School Disaster Resilience and Readiness Checklist* along with *School Drill Model and Templates* including *Self-evaluation forms* based on good practices by Los Angeles Unified School Districts and other school districts around California. A *School Disaster Preparedness Survey* and *School Post-Drill Evaluation Survey* were implemented to aggregate self-evaluation observations by participating schools. These resources and the full report on *School Disaster Readiness: Lessons from the first Great Southern California ShakeOut* can be found at: <http://www.shakeout.org/schools> .

With 75 years of public policy leadership to support school safety, new school construction standards in California are higher than those for regular buildings. Non-structural mitigation measures, such as fastening heavy furniture and appliances to the walls and floors, began twenty years ago and are now mandatory. While this progress is reassuring and laudable, four areas of concern remain:

- Private schools are not required to meet these construction standards.
- 7,537 school buildings in California constructed before 1978 are of questionable safety.
- Portable classrooms, which may account for 1/3 of all classrooms in California, may be hazardous if not properly supported and fastened.
- Non-structural mitigation measures require consistent application to be effective.

The surveys, observations, and post-drill debriefings showed the ShakeOut to be a major success. The international research team reported on the impressive seriousness and conscientiousness with which school leadership, staff, and students approached the drill. They also highlighted the tremendous learning that comes from long-term engagement in drills and the discoveries and innovative solutions that emerge from reflection and action after each drill.

It was encouraging to see the wide extent of knowledge and skills for safety – yet everyone recognised that there's still a long way to go. Almost all school staff members were aware that they are mandated disaster service workers and almost all have disaster committees and disaster plans. Yet less than one-third involve parents and less than one-fifth involve students and other community members. Schools notify parents about disaster drills, but most don't encourage staff or students to prepare at home, forfeiting this powerful learning opportunity and failing to transfer knowledge from children to their parents.

Similarly, schools have fire extinguishers, smoke detectors, clearly marked evacuation routes, and first aid supplies, but many lack emergency water and food supplies, emergency lighting and shelter and supplies for children with special needs. Many school staff have first aid training, know how to turn off utilities, can use a fire extinguisher, and are familiar with student release procedures. Weaker areas are training in use of incident command systems, off-site evacuation plans, backing-up educational records, education continuity plans, transportation planning for students on school buses, and plans to safely reunite children with their parents.

The ShakeOut turned theory into practice, showing how local solutions to disasters can be scaled up to teach and learn from the mass public. The event was so successful that it is now to become an annual event in California. The next one is scheduled for October 15, 2009.

Get involved! Let us know if you are planning a community-wide disaster response drill in your area! riskred@riskred.org. Let's make this the *Great Worldwide Shakeout* for 2015.

Marla Petal and Ilan Kelman

Risk RED

<http://www.riskred.org>

Annex 1: Article on Women, Education, and Disaster

Educating Girl Child: A Step Towards MDG

Nirupa is one of five female teachers at the Kasturba Gandhi Balika Vidyalaya (KGBV) girls' boarding school in Kanhauli, Bihar, one of the Child's Right to Safer Schools Campaign's supported schools. Inspired by Mother Teresa, 24-year-old Nirupa felt a duty to do something positive for her mother country. Two years ago she joined this government-funded school, which educates and cares for girls 10 to 14 years of age from rural, low-caste and low-income families in Bihar. If not for this school and passionate teachers like Nirupa, these girls would never have received the opportunity to get an education.

Historically, the education system has often treated girls as inferior to boys. This has created a significant gender gap in many areas of society. The gap is clearly visible in educational matters: more than two thirds of the world's 800 million illiterates are women. In India, according to the 2001 Census, nearly half of adult women are illiterate.* In response to such needs the United Nations set achieving universal primary education as its second Millennium Development Goal (MDG), and promoting gender equality and empowering women as MDG number three. This process has to start when girls are young.

Women in Disasters

Often marginalised in the education system and confined to limited gender roles, rural women are one of the more vulnerable demographics in disaster situations. The Child's Right to Safer Schools Campaign supports KGBV to promote the second MDG by ensuring that young girls have a safe place to learn, and to promote the third MDG by empowering girls to be agents of disaster management and risk reduction. It is important that any school-based DRR campaign give attention to this vulnerable demographic.

Getting the Girls to School

The teachers' work at the school is demanding and difficult. They have visited numerous villages searching for parents willing to let their girls get an education, and convincing parents of the importance of their daughters' education has at times proven challenging. In communities where it is customary for females to be married early – sometimes when they are as young as 14 years old – and to then stay home and serve as housewives, promoting education for girls can be a difficult break from traditional values. Furthermore, sending a girl to school means losing a valuable member of the household who would normally contribute to tasks such as work in the fields, care of younger siblings and preparation of meals. But teachers have also experienced the opposite scenario, in which parents have been grateful for the chance to see their daughters get educated – an opportunity they may not have had for themselves.

With Limited Resources

The school's 50 girls are lodged in a hostel and provided with teaching material and food. Space is limited – at night the two classrooms become dormitories, with two girls to a bed. Two cooks prepare their meals, striving to provide a balanced diet with vegetarian options. Each year during the monsoon, their courtyard, where they take their meals, becomes a pool of water.

Empowering Young Women

In addition to a traditional curriculum of Hindi, English, Maths and Science, the teachers emphasise awareness of female gender issues, including their rights and duties. This is expressed through instruction as well as various art forms such as songs. Rooms at the school are named for famous Indian women leaders, giving the girls female role models.

The school also teaches vocational skills such as stitching and knitting that the girls would have learned had they stayed home rather than attending school.

Aiming for a Brighter Future

This girls' school is one of over 2000 KGBV schools sanctioned and funded by the Government of India. Its prime objective is to provide under-privileged and vulnerable girls with an education. The teachers' vitality and enthusiasm in spreading knowledge and hope to these girls is inspiring and should be an example to others. Any community campaign or relevant NGO – whether DRR focused, education focused, or otherwise – should consider how they can support schools such as these and promote the same goals.

* Human Development Report, 2007/2008. United Nations Development Programme. p.231.

Annex 2: "Go Bag" Preparedness Activity

**"GO BAG"
SCAVENGER HUNT**



**DISASTER PREPAREDNESS
ACTIVITY: CHILDREN AGES 6-12**

Objectives:

To provide children and families with the opportunity to think about their own disaster preparedness and to practice selecting and assembling emergency supplies in a "go-bag".

Participants: 10-12 children ages 6-12, in teams of 2-3

Facilitators: 2 **Duration:** 15 minutes per group

Capacity: Approximately 50 children per hour

Materials Needed:

- 4 empty backpacks
- 4 battery-operated radios
- 4 t-shirts/shirts (various sizes) o 1 set women's daily clothing o 1 set baby clothing
- 1 set men's daily clothing o 1 pair of shoes
- 2 blankets
- 4 small games, deck of cards or small child's toy
- 4 flashlights with batteries
- 4 first aid kits
- 2 pairs of trousers (various sizes) o 4 trash bags
- 2 plastic sheets
- 2 pairs working gloves
- 8 bottles of water (1 liter size)
- 4 plastic bags with soap, hand towel, toothbrush/toothpaste in each
- Some sealed plastic bags of long-crackers, dried fruit, jerky, energy bars)
- 4 sealed plastic bags with paper, marking pens, and card with headings: "Name," "Address," "Telephone," and "Out of Area Contacts."
- Several other times that are attractive to children, but do not belong in a "go-bag" (e.g. fresh fruit or vegetables, a large stuffed animal, a large toy or game, slippers, an egg carton, battery-operated toys)
- Family Disaster Plan handout for each participant
- Small treat for participants

(Note: Clothing should appear gently used)

Steps:

1. Cordon off an area, or set aside a small room of approximately 100-150 square feet or 10-13 square meters for this activity.
2. Spread ALL of the above materials out (except for the backpacks, handouts and sweets) randomly all over the contained activity area.
3. Gather 10-12 children together for this 15 minute activity. Parents are encouraged to stand around and enjoy watching the activity.
4. Ask the children to form 4 groups of 2 or 3. Ask them what kinds of hazards they face in their community and, in case of emergency, to think about what would they need with have with them? Explain that each group will have an empty backpack. They are to work in their team and they have 5 minutes to select 10 items to put in their "Emergency Go-Bag". This is not a competition. They just have to work as a team, think carefully, and put their selections in the bag. Hand them their bags and give them the signal to begin.
5. After 4 minutes announce to the children that they have 1 minute left.
6. After one more minute ask the children to come forward, outside of the activity area. Gather the children around, sitting down on the ground if possible. Ask each group to pass you their bag in turn. Remove each item one by one, asking the children why they included each particular item. Repeat and recognise all of their good choices and reasons. If there are items that don't belong (eg. baby clothes, but no little baby sister or brother, fresh food, too large toys) discuss these too.
7. After you have looked through each of the bags and used the opportunity to discuss with them, congratulate and thank each participant and offer them a treat. Also give them a copy of the Family Disaster Plan handout, and tell them that you hope that they will go home with their family and prepare - and share what they have learned with their friends and neighbors.
8. A complementary activity is to provide a single page with outline drawing of an empty backpack, and give children crayons to draw the things they think they'll need in the backpack. Display the children's drawings or make it a competition with a flashlight or similar useful item for top prizes.

With thanks to our partners in this activity:

USA: Lamont-Doherty Earth Observatory, Columbia University

Turkey: BU KOERI Disaster Preparedness Education Program

For more information, please contact us at: riskred@riskreg.org April 2007

Annex 3: Household Disaster Plan Example

Family Disaster Plan*

AWARENESS MESSAGES

Why talk about a Family Disaster Plan?

Disaster can strike quickly and without warning. It can force you to evacuate your neighborhood or confine you to your home. What would you do if basic services, such as water, gas, electricity, or telephones, were cut off? Local officials and relief workers will be on the scene after a disaster, but they cannot reach everyone right away.

You and the other members of your household could be separated during a disaster. Having a plan will help you find each other.

Families can and do cope with disaster by preparing in advance and working together as a team. Knowing what to do is your best protection and your responsibility. Learn more about Family Disaster Plans by contacting your local emergency management office or local American Red Cross chapter.

What is a Family Disaster Plan?

A Family Disaster Plan is a personalised action plan that lets each member of a household know what to do in particular disaster situations and how to be prepared in advance. A functional Family Disaster Plan helps alleviate fears about potential disasters, makes actual disaster situations less stressful, and saves precious time in the face of disasters.

Watch, Warning

- A National Weather Service (NWS) WATCH is a message indicating that conditions favor the occurrence of a certain type of hazardous weather. For example, a severe thunderstorm watch means that a severe thunderstorm is expected in the next six hours or so within an area approximately 120 to 150 miles (193 to 241 kilometers) wide and 300 to 400 miles (483 to 644 kilometers) long. The NWS Storm Prediction Center issues such watches. Local NWS forecast offices issue other watches (flash flood, winter weather, etc.) 12 to 36 hours in advance of a possible hazardous-weather or flooding event. Each local forecast office usually covers a state or a portion of a state.
- An NWS WARNING indicates that a hazardous event is occurring or is imminent in about 30 minutes to an hour. Local NWS forecast offices issue warnings on a county-by-county basis.

What to Tell Children

Parents and caregivers should:

- Tell children that a disaster is something that happens that could hurt people, cause damage, or cut off utilities, such as water, telephones, or electricity. Explain to them that nature sometimes provides "too much of a good thing" - fire, rain, wind, snow. Talk about typical effects that children can relate to, such as loss of electricity, water, and telephone service.

* Source: American Red Cross, 2007, March. Excerpt: Talking about Disaster: Guide for Standing Messages.

- Give examples of several disasters that could happen in your community. Help children recognise the warning signs for each. Discussing disaster ahead of time reduces fear and anxiety and lets everyone know how to respond.
- Be prepared to answer children's questions about scary things that they have heard about or seen on television, such as terrorist attacks. Give constructive information about how to be prepared to protect themselves and how to respond.
- Teach children how and when to call for help. Teach them to call 9-1-1 or your local emergency telephone number. At home, post emergency numbers by all telephones and explain when to call each number. Include the work numbers and cell phone numbers of household members. Even very young children can be taught how and when to call for emergency assistance. If a child cannot read, make an emergency telephone number chart with pictures or icons for 911, "daddy," and "mommy" that may help the child identify the correct number to call.
- Tell children that in a disaster there are many people who can help them. Talk about ways that an emergency manager, American Red Cross worker, police officer, firefighter, teacher, neighbor, doctor, or utility worker might help after a disaster.
- Teach children to call your out-of-town contact in case they are separated from the family and cannot reach family members in an emergency. Tell them, "If no one answers, leave a voice message if possible and then call the alternative contact." Help them memorise the telephone numbers, and write them down on a card that they can keep with them.
- Quiz children every six months so they will remember where to meet, what telephone numbers to call, and safety rules.
- Explain that when people know what to do and practice in advance, everyone is able to take care of themselves better in emergencies. Tell them that is why you need to create a Family Disaster Plan.
- Allay children's fears by emphasising that, in an emergency, a parent or caregiver will be there to help.

ACTION MESSAGES

Be Prepared for Disasters

Make a Plan

Core Action Messages:

- Find out what could happen.
- Create a Family Disaster Plan.
- Make and complete a checklist.
- Practice and maintain your plan.

For general preparedness, every household should create and practice a Family Disaster Plan and assemble and maintain a Disaster Supplies Kit. In addition, every household should take

precautions specific to the types of disasters that could affect the local community and plan for and practice what to do if these disasters occur.

Find out what could happen to you. By learning what disasters could occur in your community and what your risks may be (for example, living in a floodplain), you can prepare for the disasters most likely to occur in your area. Learn more by contacting your local emergency management office or American Red Cross chapter. Be prepared to take notes. Ask the following:

- What types of natural disasters are most likely to happen in your community? What types of human-caused or technological disasters could affect your region? Ask about chemical emergencies, which can occur anywhere chemical substances are stored, manufactured, or transported.
- Find out if your home is in a floodplain. Check with your local emergency management agency.
- How should you prepare for natural and human-caused disasters?
- What can you do to protect your home and avoid or reduce the impact of the disasters that could occur where you live?
- Does your community have a public warning system? How will your local radio and television stations alert the community if there is an emergency? What do your community's warning signals sound like and what should you do when you are notified?
- If you care for young or elderly people or people with disabilities, how can you help them in a disaster situation? What might be some special needs to consider?
- What about animal care after a disaster? Pets (other than service animals) usually are not permitted in public shelters or other places where food is served. Where could you take your pets if you had to go to a public shelter? Contact your local emergency management agency to find out about emergency animal shelters in your community, in the event that you have nowhere else to go and need to go to public shelter with your animals.

Then, find out about the disaster plans at your workplace, your children's school or day care center, and other places where members of your family spend time. You should be prepared wherever you may be in case disaster strikes and learn steps you can take to prevent or avoid disasters.

Create a Family Disaster Plan

Note: You can adapt the Family Disaster Plan to any household—couples, related or unrelated individuals, adults without children, adults with children. Even people who live alone should create a Family (Household) Disaster Plan.

Once you know what disasters are possible in your area, have a household meeting to talk about how to prepare and how to respond if a disaster should occur. Plan to share responsibilities and to work together as a team.

Know what to do in case household members are separated in a disaster. Disaster situations are stressful and can create confusion. Keep it simple.

- Pick two places to meet:
 1. Right outside your home in case of a sudden emergency, like a fire.
 2. Outside your neighborhood in case you cannot return home or are asked to leave your neighborhood.

Pick two out-of-town contacts:

1. A friend or relative who will be your household's primary contact.
2. A friend or relative who will be your household's alternative contact.

Both adults and children should know the primary and alternative contacts' names, addresses, and home and cell telephone numbers, or carry the information with them. In addition, include these contact numbers on your pet's identification tags, or use a national pet locator service that someone could call to report finding your pet.

Separation is particularly likely during the day when adults are at work and children are at school. If household members are separated from one another in a disaster, they should call the primary contact. If the primary contact cannot be reached, they should call the alternative contact. Remember, after a disaster, it is often easier to complete a long-distance connection than a local call.

Make sure that adults and children know how to tell the contact where they are, how to reach them, and what happened or to leave this essential information in a brief voice mail.

- Discuss what to do if a family member is injured or ill.
- Discuss what to do in the rare circumstance that authorities advise you to shelter-in-place. (See "How to Shelter-in-Place")

Discuss what to do if authorities advise you to evacuate. Learn about public shelter locations in your community. Make "in-case-of-evacuation" arrangements for a place to stay with a friend or relative who lives out of town or with a hotel, motel, or campground you are familiar with that can be reached by an evacuation route you would expect to take.

- Be familiar with evacuation routes. Plan several evacuation routes in case certain roads are blocked or closed. Remember to follow the advice of local officials during evacuation situations. They will direct you to the safest route; some roads may be blocked or put you in further danger.
- Plan how to take care of your pets. Pets (other than service animals) usually are not permitted in public shelters or other places where food is served. Plan where you would take your pets if you had to go to a public shelter where they are not permitted. Many communities are developing emergency animal shelters similar to shelters for people. Contact your local emergency management agency to find out about emergency animal shelters in your community, in the event that you have nowhere else to go and need to go to public shelter with your animals.
- Make and complete a checklist. Include the following:
 - Post emergency numbers (fire, police, ambulance, etc.) by telephones. You may not have time in an emergency to look up critical numbers.

- Teach all responsible members of the household how and when to turn off the water, gas, and electricity at the main switches or valves. Turn off utilities only if you suspect a leak or damaged lines, or if you are instructed to do so by authorities. If you turn the gas off, you will need a professional to turn it back on. Become familiar with the location and operation of shut-off valves. Do not actually turn any valve unless it is a real emergency. Place a tag on shut-off valves to make them easier to identify.
- Attach a shut-off valve wrench or other special tool in a conspicuous place close to the gas and water shut-off valves.
- Check if you have adequate insurance coverage. Homeowners' insurance does not cover flood losses. Ask your insurance agent to review your current policies to ensure that they will cover your home and belongings adequately. If you are a renter, your landlord's insurance does not protect your personal property; it protects only the building. Renters' insurance pays if a renter's property is damaged or stolen. Renters' flood insurance costs less than \$15 a month in most areas of the country. Contact your insurance agent for more information.
- If you are especially vulnerable to floods, consider relocating.
- Be sure to have working smoke alarms and carbon monoxide (CO) alarms in your home.
 - According to the National Fire Protection Association (NFPA), in 1999-2001, an average of 70% of home fire deaths resulted from fires in homes with either no smoke alarms or in which none of the smoke alarms sounded.
 - If every home had working smoke alarms, U.S. home fire deaths would decrease by an estimated 36%, resulting in an estimated 1,120 lives saved per year, based on 1999-2001 averages, NFPA says.
 - For new homes, interconnected smoke alarms are required on every level of the home, outside each sleeping area, and inside each bedroom. Although this approach is ideal for all homes, as a minimum, existing homes should have smoke alarms on every level and outside each sleeping area. Install CO alarms following the manufacturer's instructions. It is especially important to have a CO alarm near sleeping areas. Use only
- CO alarms with labels showing they meet the requirements of the latest safety standards for CO alarms (UL 2034, IAS 6-96, or CSA 6.19.01). Test and maintain the smoke and CO alarms according to the manufacturer's instructions. (See *Smoke Alarms and Carbon Monoxide Alarms*.)
- Consider equipping your home with alternative heating sources, such as fireplaces, wood- or coal-burning stoves, or space heaters. Be sure all heating sources are installed according to local codes and permit requirements and are clean and in working order. (See *"Smoke Alarms"* and *"Carbon Monoxide Alarms"*)
- Get training from the fire department in how to use your fire extinguisher (A-B-C type), and show household members where extinguishers are kept. Different extinguishers operate in different ways. Make sure that responsible members of the household know how to use your particular model. There is no time to read directions during an emergency. Only adults should handle and use extinguishers. (See *"Fire Extinguishers"*)

- Conduct a home hazard hunt. During a disaster, ordinary objects in your home can cause injury or damage. Anything that can move, fall, break, or cause a fire is a home hazard. For example, during an earthquake or a tornado, a hot water heater or a bookshelf could turn over or pictures hanging over a couch could fall and hurt someone. Look for electrical, chemical, and fire hazards. Contact your local fire department to learn about home fire hazards. Inspect your home at least once a year and fix potential hazards. In your hazard hunt, include your barns, outbuildings, or any other structures that house animals. Be aware of hazards at nose and paw or hoof level, particularly debris, spilled chemicals, fertilisers, and other substances that may not seem to be dangerous to humans. Make sure your fences are sound and positioned to allow grazing animals to move to high ground in the event of flooding.
- Consider your need to add physical protection measures to your home. Add a "wind safe" room (see "Wind Safe Room") and tie your roof to the main frame of your house securely with metal straps for protection in case of hurricanes or tornadoes; bolt your house to the foundation to reduce earthquake damage; or take other measures you may find on www.fema.gov (click on Preparation and Prevention). Ensure that access and evacuation are manageable for elderly members of your household or those with disabilities.
- Assemble a Disaster Supplies Kit and stock emergency supplies. Keep readily accessible in a portable container supplies that would meet your needs for at least three days. You can use these if you shelter at home or if you evacuate. Also, stock enough food and water for up to two weeks in your home. Keep an emergency kit in your vehicle. (See "Disaster Supplies Kit", "Stocking and Storing Food and Water", and "Emergency Supplies for Your Vehicle")
- Keep a portable, battery-operated radio or television and extra batteries in your Disaster Supplies Kit. Maintaining a communication link with the outside is a step that can mean the difference between life and death. Make sure that everyone knows where the portable, battery-operated radio or television is located, and always keep a supply of extra, fresh batteries.
- Consider buying a NOAA Weather Radio with a tone-alert feature. NOAA Weather Radio is the best way to receive warnings from the National Weather Service. The National Weather Service recommends a NOAA Weather Radio that has both a battery backup and a Specific Area Message Encoder (SAME) feature, which automatically alerts you when a watch or warning is issued for your county.
- Take an American Red Cross first aid and Cardiopulmonary Resuscitation (CPR) class and have other household members take one too. You will learn basic safety measures and skills that can be indispensable in an emergency. These classes can be fun for older children.
- Plan home escape routes. Determine the best escape routes from inside your home in case a fire or other emergency requires you to leave the house quickly. Find two ways out of each room.
 - Find the safe places in your home for shelter during different types of disaster. Certain disasters require specific types of safe places. While basements are appropriate

for tornadoes, they could be deadly in a hazardous materials emergency. In this guide, safe places recommended for a particular type of disaster are discussed in the chapter covering that disaster.

- Make a complete inventory of your home, garage, and surrounding property. The inventory can be written or videotaped. Include information such as serial numbers, make and model numbers, physical descriptions, and what you paid (receipts, if possible). This inventory could help you prove the value of what you owned if your possessions are damaged or destroyed and can help you claim deductions on taxes. Do this for all items in your home, on all levels.
- Keep the originals of important documents in a safe deposit box, if possible, and make two copies of each document. Keep one set of copies in a waterproof, fire-resistant, portable container in your home and give the other set of copies to an out-of-town relative or friend. Important documents include:
 - Wills, insurance policies, contracts, deeds, vehicle titles, stocks and bonds -Passports, driver's licenses, work identification badges, social security cards, immunisation records
 - List of bank account names and numbers and credit card names and numbers - Inventory of valuable household goods
 - Important telephone and cell phone numbers
 - Family records (birth, marriage, adoption, and death certificates)
 - For your pets, vaccination and veterinary records, photographs showing your pet clearly (best with you in the photos), and any other special records
- Practice and maintain your plan. Practicing your plan will help you respond appropriately and quickly during an actual emergency. To make sure your household is ready for disaster:
 - Review your Family Disaster Plan and your Disaster Supplies Kit at least every six months. You may need to update them.
 - Observe the expiration or "use by" date on stored food and water. If you have prepared you own containers of water, replace them every six months to ensure freshness.
 - Conduct fire and emergency evacuation drills at least twice a year.
 - At home, practice escaping from various rooms, particularly bedrooms, and meeting at the place you have selected right outside your home.
 - Have each driver actually drive evacuation routes so each will know the way. Select alternative routes and familiarise drivers with them in case the main evacuation route is blocked during an actual disaster.
 - Mark your evacuation routes on a map and keep the map in your Disaster Supplies Kit. Remember to follow the advice of disaster officials during an evacuation. They will direct you to the safest route, away from roads that may be blocked or put you in further danger.
- Include your pets in your evacuation and sheltering drills. Practice evacuating your pets so they will get used to entering and traveling calmly in their carriers. If you have horses or other large animals, be sure that they are accustomed to entering a trailer. Practice bringing

your pets indoors, into your safe room, so that if you are required to shelter-in-place, they will be comfortable.

- Use the test button to test your smoke alarms once a month. The test feature tests all electronic functions and is safer than testing with a controlled fire (match, lighter, or cigarette). If necessary, replace batteries immediately. Vacuum cobwebs and dust from the mechanisms once a month. Make sure your children know what your smoke alarm sounds like.
- Replace batteries at least once a year in battery-powered smoke alarms. (Replace the batteries in your CO alarms at the same time you replace your smoke alarm batteries.) You may have heard it recommended that you replace batteries when the time changes from standard to daylight savings time each spring and then back again in the fall: "Change your clock, change your batteries." Replacing batteries this often certainly will not hurt; however National Fire Protection Association and U. S. Consumer Product Safety Commission data show that fresh batteries will last at least a year, so more frequent replacement is not necessary unless the smoke alarm begins to chirp. Also, Arizona, Hawaii, the eastern portion of Indiana, Puerto Rico, American Samoa, and Guam do not use daylight savings time. Pick an easy-to-remember anniversary, such as your birthday or a national holiday, as the day to change the batteries each year.
- Replace your smoke alarms every 10 years. That is the recommendation of the National Fire Protection Association and the U. S. Consumer Product Safety Commission. Smoke alarms become less sensitive over time.
- Look at your fire extinguisher to ensure that it is properly charged. Fire extinguishers will not work properly if they are not properly charged. Use the gauge or test button to check that there is proper pressure. Follow the manufacturer's instructions for replacing or recharging fire extinguishers. If the unit is low on pressure, damaged, or corroded, replace it or have it professionally serviced.

For People With Disabilities

Core Action Message:

- If you or anyone in your household has a disability or a mobility problem, make special plans.

Note: If a member of your household has a disability or a mobility problem, such as some elderly persons do, or if you are planning to assist someone else who does, you should review the following steps.

If you have a disability or a mobility problem, you should consider adding the following steps to the usual preparations:

- Create a network of relatives, friends, or co-workers to assist in an emergency. If you think you may need assistance in a disaster, discuss your disability with relatives, friends, or co-workers and ask for their help. For example, if you need help moving or help getting necessary prescriptions, food, or other essentials, or if you require special arrangements to receive emergency messages, make a plan with friends or helpers. Make sure they know where you keep your Disaster Supplies Kit. Give a key to a neighbor or friend who may be able to assist you in a disaster.

- Maintain a list of important items and store the list with your Disaster Supplies Kit. Give a copy to another member of your household and a friend or neighbor. Important items might include:
 - Special equipment and supplies, for example, hearing aid batteries. -Current prescription names, sources, and dosages.
 - Names, addresses, and telephone numbers of doctors and pharmacists. If you get prescriptions by mail, confirm where you will be able to get them locally in an emergency.
 - Detailed information about the specifications of your medication or medical regimen, including a list of things incompatible with medication you use, for example, aspirin.
- Contact your local emergency management office now. Many local emergency management offices maintain registers of people with disabilities and their needs so they can be located and assisted quickly in a disaster.
- Wear medical alert tags or bracelets to identify your disability in case of an emergency. These may save your life if you are in need of medical attention and unable to communicate.
- Know the location and availability of more than one facility if you are dependent on a dialysis machine or other life-sustaining equipment or treatment. There may be other people requiring equipment, or facilities may have been affected by the disaster.
- If you have a severe speech, language, or hearing disability:
 - When you dial 9-1-1 (or your local emergency number), tap the space bar to indicate a TDD call.
 - Store a writing pad and pencils to communicate with others.
 - Keep a flashlight handy to signal your whereabouts to other people and for illumination to aid in communication.
 - Remind friends that you cannot completely hear warnings or emergency instructions. Ask them to be your source of emergency information as it comes over the radio. Another option is to use a NOAA Weather Radio with an alert feature connected to a light. If a watch or warning is issued for your area, the light would alert you to potential danger.
 - If you have a hearing ear dog, be aware that the dog may become confused or disoriented in an emergency. Store extra food, water, and supplies for your dog. Trained hearing ear dogs will be allowed to stay in emergency shelters with their owners. Check with local emergency management or American Red Cross officials for more information.
- If you have a service animal:
 - Be aware that the animal may become confused or disoriented in an emergency. Disasters may often mask or confuse scent markers that are part of your service animal's normal means of navigation.

- If you are blind or visually impaired, keep extra canes placed around your home and office, even if you use a guide dog.
 - If you have a guide dog, train the dog to know one or two alternate routes out of your home or office. A guide dog familiar with the building may help you and others find a way out when no one else can see.
 - Be sure your service animal has identification and your phone numbers attached to its collar, including emergency contact information through a national pet locator service.
 - Have a complete pet disaster kit with food and water, medical records and identification, bowls, extra leash, a favorite toy, and a pet first aid kit. See "Disaster Supplies Kit."
 - Trained service animals will be allowed to stay in emergency shelters with their owners. Check with your local emergency management agency or American Red Cross officials for more information.
- If you use a wheelchair:
 - Show friends how to operate your wheelchair or help you transfer out of your chair so they can move you quickly if necessary.
 - If you use a power wheelchair, make sure friends know the size of your wheelchair, in case it has to be transported, and know where to get a battery if needed.
 - Inquire about emergency equipment that would make it easier for others to help you get out if you live or work in a high-rise building and might have to evacuate via a stairwell. Make arrangements with others to be carried out, if necessary, and practice doing that.
 - Listen to the advice of local officials. People with disabilities have the same choices as other community residents about whether to evacuate their homes and where to go when an emergency threatens. Decide whether it is better to leave the area, stay with a friend, or go to a public shelter. Each of these decisions requires planning and preparation.

Plan for Your Pets

Core Action Message:

- Know in advance how to care for your pets in a disaster situation.

If you have pets, you should:

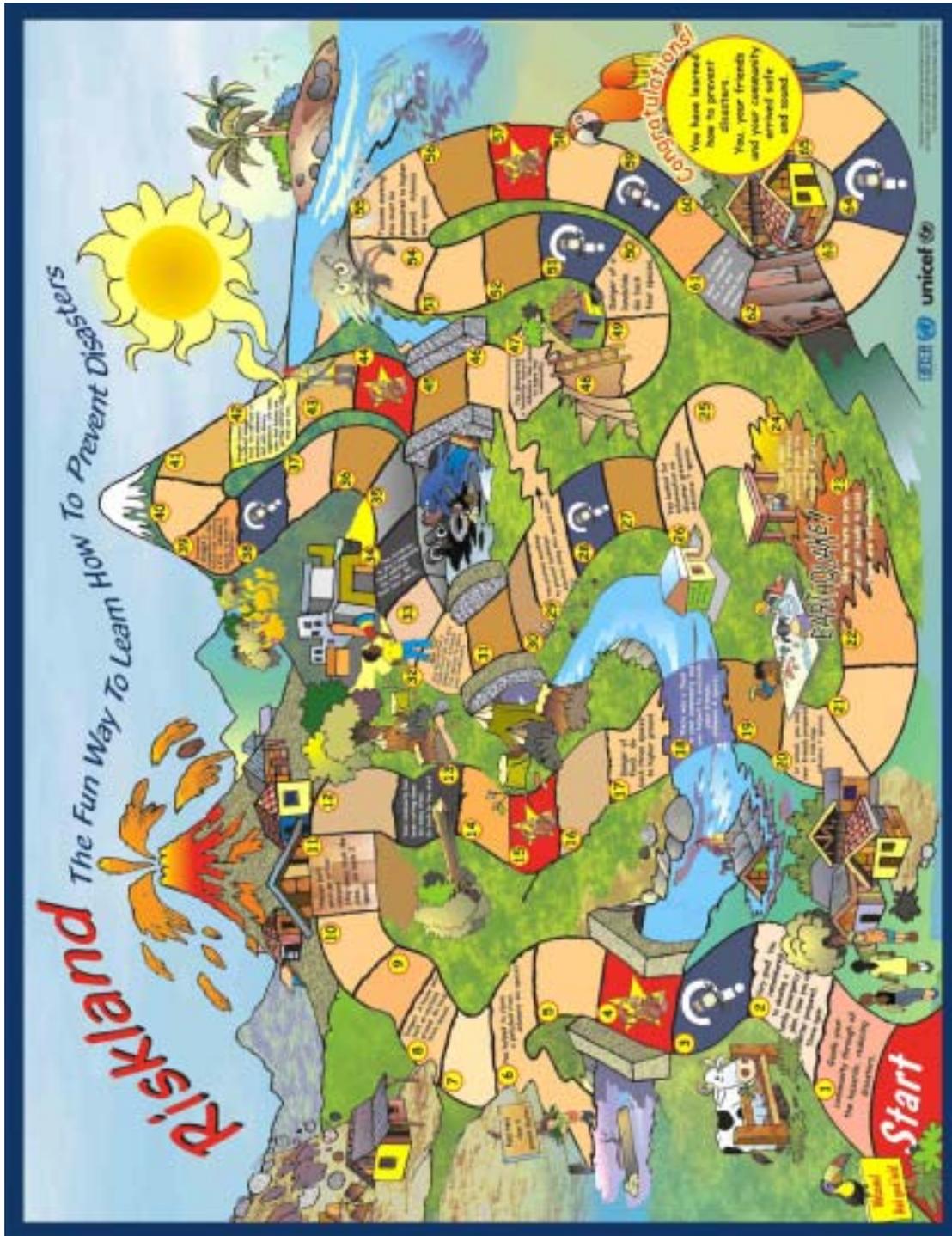
- Take your pets with you if you evacuate. If it is not safe for you, it is not safe for them. Leaving them may endanger you, your pets, and emergency responders.
- Plan in advance where you will go if you evacuate, as pets (other than service animals) are usually not allowed in public shelters. Some communities have established sheltering options for pets. Contact your local emergency management agency to see if there are any emergency animal shelters in your community or along your evacuation route.
- Contact hotels and motels outside your immediate area to check their policies on accepting pets and restrictions on the number, size, and species. Ask if "no pet" policies could be waived in an emergency.

- Ask friends, relatives, or others outside your area if they could shelter your animals. If you have two or more pets, they may be more comfortable if kept together, but be prepared to house them separately.
- Prepare a list of boarding facilities and veterinarians who could shelter animals in an emergency; include 24-hour telephone numbers. Ask local animal shelters if they provide emergency shelter or foster care for pets in a disaster situation. Animal shelters may be overburdened, so this should be your last resort unless you make such arrangements well in advance.
- Keep a list of "pet friendly" places, including their telephone numbers, with other disaster information and supplies. If you have notice of an impending disaster, call ahead for reservations. Hotels and motels with "no-pet" policies may waive these policies during a disaster, particularly if the pet is housed in a carrier. Contact establishments along your evacuation route to see if they will waive "no-pet" rules, and make sure you have adequate facilities and supplies for your pets.
- Carry pets in a sturdy carrier. Animals may feel threatened by some disasters, become frightened, and try to run. Being in its own carrier helps reassure a pet.
- Have identification, collar, leash, and proof of vaccinations for all pets. At some locations, you may need to provide veterinary records before boarding your pets. If your pet is lost, identification will help officials return it to you.
- Assemble a portable pet disaster supplies kit. Keep food, water, and any special pet needs in an easy-to-carry container.
- Have a current photo of your pets in case they get lost.
- Create a plan in case you are not at home during an emergency to ensure that someone takes care of your pets, even evacuating them if necessary. The plan should include these elements:
 - Give a trusted neighbor the key to your home and instructions, as well as your daytime (work or school) contact information.
 - Make sure the neighbor is familiar with your pets and knows the location of your pet emergency kit.
 - Make sure the neighbor listens to a local radio or television station for emergency information and puts your shelter-in-place or pet evacuation plan into action.
 - Have a plan to communicate with your neighbor after the event. You will want to arrange a meeting place in a safe area so you can be reunited with your pets.
- Contact your local emergency management agency, humane society, and animal control agency to see if your community has sheltering options for animals and for families with pets. If not, learn more about emergency animal shelters and volunteer to include this option in local disaster preparedness efforts.
- Learn pet first aid and keep your pet first aid kit up to date.

Media and Community Preparedness Ideas

- Work with local print, radio, and television reporters to:
 - Get the word out about how to make a Family Disaster Plan and how important it is for each household to have one and to keep it up to date.
 - Publicise information from local emergency services and American Red Cross officials on how people with mobility impairments or disabilities should plan for a disaster.
- Help the reporters to localise the information by providing them with the local emergency telephone number for the fire, police, and emergency medical services departments (usually 9-1-1) and emergency numbers for the local utilities and hospitals. Also provide the business telephone numbers for the local emergency management office and local American Red Cross chapter.
- Work with officials of the local fire, police, and emergency medical services departments; utilities; hospitals; emergency management office; and American Red Cross chapter to prepare and disseminate guidelines for people with mobility impairments about what to do if they have to evacuate.
- Within neighborhood organisations, such as homeowners associations or crime watch groups, introduce disaster preparedness activities that help people think about how they can prepare for a disaster, stay safe during a disaster, and help each other should a disaster occur. For example:
 - Encourage neighborhood residents to prepare Family Disaster Plans and keep them up to date.
 - Encourage neighborhood residents to create Disaster Supplies Kits and keep them up to date.
 - Encourage neighborhood residents to plan how they could work together after a disaster until help arrives. Have them also consider ways they can cooperate with each other during recovery. Working with neighbors can save lives and property.
 - Check with your local fire department or emergency management training is offered for interested residents.
 - Create a neighborhood map with names and home and cell phone numbers next to each address so neighbors can contact each other in an emergency. -Encourage people to find out their neighbors' special skills (for example, medical, technical) and consider how they could help in a disaster situation. -Identify elderly and disabled people in the neighborhood, single parents with young children, or others who might need help. Determine how neighbors can help them if a disaster threatens (transportation, securing the home, getting medications, etc.).
 - Encourage parents to make plans with neighbors for child care in case parents cannot get home in an emergency situation.

Annex 4: Riskland Board Game



Riskland



A fun way to learn how to prevent disasters

"Riskland" is an educational board game that deals with disaster prevention. The game conveys messages that help you understand how some actions can reduce the impact of disasters, while others can increase our vulnerability. Following the board's path, you will advance, and at times be made to go back. Some squares require question cards, the answers to which are intended to help you in learning about disaster prevention.

Rules of the game:

Number of Players: Two or more. (It can also be played in teams so that the entire class can participate).

What You Need: the game board, a single die, one token of a different colour for each player. (You can also use beans, pebbles, grains of corn, etc. as long as they can be distinguished from each other), 24 question cards (which should be shuffled before each new game), 24 surprise cards, also to be shuffled.

How to Play:

Begin the game by placing all tokens on the starting line. Taking turns, the players advance by throwing the die and moving ahead by that amount of squares indicated by the die.

The first player to reach the finish line is the winner. If the number on the die is higher than the number of spaces between the player's position and the finish line, the player must advance to the final space and then move his or her token back as many spaces as are left over from the number on the die. For instance, if you are three spaces away from the finish line and the throw of the die gives you seven, you must advance to the finish line and then go back four spaces.



Question Spaces:

When players land on one of these spaces another player is to ask them the question on the top card of the question card pile. If the person who landed on the square answers correctly, they get to go again.



Surprise Spaces:

When a player lands on a red square, they are to follow the instructions indicated on the top surprise card.

In addition, several squares contain instructions written directly on the board. The player who lands on one of these is to follow the instructions. For instance, the player who lands on space 13 has been chopping down too many trees, and must return to the start line for having increased the vulnerability of his or her community.

Suggestions:

1. The game may be adapted to the reality of each country or community and the hazards being faced, as well as per sector (environment, health, etc.) by changing or adapting the contents of the Surprise and Question cards.
2. So as not to get ruined, we recommend that the game be protected by cardboard, wood or plastic.

We would like to thank the following individuals and institutions for their assistance: National Risk Prevention and Emergency Management Commission of Costa Rica and the following Schools in Costa Rica: Central de Golpes, José Ana Marín, Coronado, Centro Educativo Dalias Dulcis, Guanacaste; Leonor del Carmen F. Fernández Guanacaste; Pijje, Guanacaste; El Guayabo, Guanacaste; Tarrés Guardia, Guáimac, Guanacaste; Consuelo de Jesús, Guanacaste; Fausto Guzmán, Guanacaste; Pueblo Nuevo, Guanacaste; Jesús de Nazareth, Guanacaste y El Capulín, Guanacaste; Nayda Medrano (El Salvador); Claudia María Hincapié (Colombia); Pedro Fernández (Save the Children)



For more information, please contact: eriff@unicef.org



Annex 5: School Disaster Reduction and Readiness Checklist*

ACTION STEPS

1. Convene local school safety committee representing administration, faculty, staff, students and parents, and local community.
2. Study the school safety planning and action steps below together.
3. As needed assign sub groups or individuals to be responsible for investigating and making recommendations for each task.
4. Create plan based on task group recommendations.
5. Implement the plan, involving the whole school community, setting milestones and taking action steps to achieve risk reduction and response preparedness.
6. Communicate and coordinate as needed with education authorities using the resources and support available, and advising them of resource and support needs.
7. Review and revise the plan as necessary, at least annually.
8. Be sure to keep all staff, parents/ guardians, and students advised about the plan.

Assessment and Planning

- An ongoing school safety committee has been established to lead disaster risk reduction and disaster response planning in our school. We hold regular meetings (including staff, parents/guardians, students and local community leaders)
- We have learned about local resources and assets (egs. fire extinguishers, first aid kits, people with response skills, generator, ladder, search and rescue equipment) public sources, and discussed shared use of resources post disaster.
- We have researched historical events and current scientific studies and considered all of the different hazards that could affect us. We are aware of the needs of vulnerable groups or individuals such as young children, students with disabilities, and language minorities, as well as the concerns of staff, students, parents and community.
- We have site and neighborhood maps and have identified alternate staging and evacuation locations.
- We have assessed and are addressing physical risks posed by buildings, building non structural elements and building contents, and hazards in our neighborhood.
- We have evacuation plans, including safe assembly areas, evacuation routes, safe havens and alternatives, buddy system. Student transportation systems have plans to take students to nearest safe school in case of disaster during student commute. Parents/guardians are informed of location of all possible safe havens for reunification. The evacuation plan has been shared with the nearest police, fire and hospital officials and established communication and understanding in advance of emergency situations.

* Source: Risk RED: Risk Reduction Education for Disasters (July 15, 2008) www.riskred.org

- We have established a communication system for emergencies, including a warning system wherever appropriate. All necessary contact information is available for emergency response and family reunification.
- We have established student release procedures to ensure that children are released only to adults approved by parents/guardians.
- If needed we have planned to provide emergency shelter for our local community.
- We have a plan for educational continuity for our students including alternate locations to continue classes, alternate schedules and methods of instruction as needed and secure back up of educational records.
- We have plans and regular contact with local news media (radio, newspapers, television) planning and emergency messages to families, and to use our school based activities to promote risk reduction community wide.
- We provide significant practical local disaster risk awareness and reduction activity at all age levels, through school based activities and projects and/or through the formal curriculum.
- We encourage staff and students to prepare for disasters at home and provide support material for doing so.
- We have insurance coverage to pool economic risks.

Physical Protection

- Our building has been located appropriately, designed and built according to current building codes/safety standards for disaster safety, and inspected by a qualified structural engineer.
- The building has been checked by local fire department for fire safety.
- If our school required repair or retrofit, this has been completed with minimal disruption of education.
- We practice preventative maintenance on our buildings, protecting them from damp and other damage, and repairing damage when it occurs.
- Earthquake, windstorm: We have fastened tall and heavy furniture, secured computers, televisions and other electronic equipment, hazardous materials, supplies, propane gas tanks, water tanks, lighting fixtures, roof elements, railings and parapets, heating and cooling devices, storage tanks and other items that could kill, injure, or impair educational continuity. We have put latches on cabinets, and hung pictures securely on closed hooks to protect ourselves from injury and financial losses.
- Flood, storm, volcanic eruption, landslide, avalanche, tornado: We know about early warning systems in use in our community and have plans to respond to these in order to move people and assets to safety.
- We have smoke detectors, fire alarms, automatic sprinkler systems, fire hoses, fire extinguishers, and automatic emergency lighting, and maintain these. Our building exit routes are marked.

- We have limited, isolated, and secured any hazardous materials to prevent spill or release.
- We have off site back up of critical information, including student emergency contacts and release permissions.
- School transportation is inspected for safety and drivers and students are trained in respective safety skills. Seat belts, helmets and other transportation safety measures are advocated and promoted.

Response Capacity: Supplies and Skills

- We have guidelines for and we hold post disaster drills to practice safety skills with all staff and students at least twice a year. We have a buddy system for those needing help. We follow basic building evacuation rules: "Don't talk. Don't run. Don't push. Don't go back". We hold simulation exercises at least once a year where operational teams practice response organisation as well as procedures and skills in damage assessment, information sharing, light search and rescue, first aid, fire suppression and family reunification. We discuss and improve on our practice.
- We have skills and practice building evacuation drills twice yearly as well as applicable drills for the threats faced (eg. first aid skills for life safety, drop, cover, and hold for earthquakes, water safety and swimming skills for floods, shelter in place for violent threats).
- We have access to reliable external information sources on disasters and to an internal communication system. We have practiced receiving updates on emergency situations, warning our community and informing the relevant authorities.
- We have emergency supplies for students and staff to last for at least the first 72 hours (including at least 12 liters of water per person, food, first aid supplies, emergency power, emergency lighting, alternate communications, alternate transportation, shelter and sanitation supplies) emergency supplies bag at the beginning of each year, and take it home again at the end of the school year).
- School staff and older students have and learn response skills including: first aid, mass casualty triage, light search and rescue, fire suppression, wireless communication, psychological first aid, emergency power operation, student release procedures, shelter, nutrition, and sanitation skills.
- School staff know how to turn off our electricity, water and gas.
- We have a standard organisational system and know the principles for organising post disaster self help.
- We have identified resources for psychosocial support if needed.
- We have plans to use our resources for mutual aid and to support local community response.

Facilitator's Note

1. Suggestions for Facilitators prior to Training

Although the most effective trainers are able to address the emerging needs of trainees in a flexible manner, the following notes offer a basic outline of activities that TLC facilitators may use to lead trainings. To prepare for training, facilitators may find it useful to:

- Review the Module Learning Objectives listed above,
- Review the Suggested Methods and Activities listed below,
- Assess the anticipated knowledge needs, interests, and constraints of trainees,
- Identify additional potentially effective activities suitable for their particular trainees,
- Review related background literature on School Safety in India, this can include but is not limited to the reference material listed at the end of this document and the modules,
 - o Prepare your own notes so that you may convey the relevant information in a way that is comfortable for you.
 - o Do not feel constrained by the information on the slides-this is merely a guide for you.
- Prepare materials for the training, including:
 - o Powerpoint or other presentation materials including revisions if desired
 - o Print-outs or any other necessary handouts
 - o Tools and props needed for activities
 - o Rewards or treats to encourage involvement and participation

2. Facilitator Requirements during Training

Total Time: Approximately 1hour 30minutes

Items and Materials needed: PowerPoint presentation, whiteboard and marker OR blackboard and chalk, module materials, your own notes based on those materials, handout on KGBV girls school, handout on Risk RED's "Go Bag" activity, Risk RED's Family Disaster Plan handout, "Riskland" handouts.

3. Suggested Methods and Activities

This module covers 2 areas: disaster education in the curriculum, and empowering children as disaster managers in their community. Both of these areas will explain fun and interactive ways of achieving those aims.

Spend the first 5 minutes introducing the presentation, via the objectives and contents pages.

Why DRR education in schools? 2 slides, 10 minutes

The main reason that the integration of DRR into the school curricula is being advocated is due to the targets set by the 3rd Priority for Action for the UN's International Strategy for Disaster Reduction (ISDR) Hyogo Framework for Action 2005-15. The quotes on this first explanatory slide are the areas directly related to teaching and action in schools.

Further reasons are numerous, so just a few have been provided on the following slide. Some explanation for the UN's Millennium Development Goals may be required. The goal related to universal primary school education will be furthered if schools are safer, because parents will be more likely to send their children to school if they believe them to be safe. Schools are very important within communities as places for protection during disasters, and centres for social action and interaction during normal times. They can also serve as a centre of learning and action for DRR.

Educating children and teachers about disaster safety can help to achieve "bottom-up" safety in schools, implementing measures to make them safer. "Bottom-up" means ideas and actions that have originated at the small, community level, and have then been used on a larger wider scale in the region. The opposite is "top-down". These are policies and actions that have originated on the international, national or state level and attempt to filter down to smaller areas. A balance between these two strategies is favourable, turning "bottom-up" action into "top-down" policy. "Bottom-up" strategies are usually more sustainable at the local level because they are owned and run by the people there, and DRR education and action should spread through the community, having longer-lasting effect. Lastly, children are the most vulnerable group in disaster situations, so it is our duty to ensure their protection.

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Scientific Education and Strategies for Integration - 2 slides 15 minutes:

A key element of DRR education within the school curriculum is scientific knowledge of disasters. This already exists in many forms in the curricula in different areas, such as geography, math, earth and natural sciences, etc, but a more explicit programme is required in most cases.

Research has shown that in schools across the world there is not often a good balance between scientific disaster knowledge and practical DRR measures related to that knowledge. So, it is important to stress that one side without the other has much less impact. Scientific knowledge is needed, but if it does not follow up with practical preparedness and mitigation education, it will not have lasting effect. Similarly, education on preparedness will not be as effective if children do not understand the reasons behind the advice.

Another necessary balance required in terms of the scale of hazard education. In some schools, the international and national context is very well explained, with a wide variety of hazards covered. However, this then rarely focuses in on DRR measures for hazards in the local areas. Conversely, schools that have a strong focus on the main local hazard and methods of preparedness and mitigation fail to cover other local hazards and disaster examples on the larger scale. The need for this balance is further stressed in the following slide, as one of the suggested strategies.

The strategies in the second slide should be explained to the teachers. There is a strong focus on forging links with local and national institutions, whether they are NGOs, Government,

universities or other schools. The support of such institutions is valuable, as they can assist with expertise and materials. One good example is the Central Board for Secondary Education (CBSE), which is providing courses on Disaster Management at the National level. These courses are covered in the three textbooks: "Together, Towards a Safer India", I - An Introduction to Disaster Management for Class 8; II - Making a Difference for Class 9; and III - A Stride Ahead for Class 10. These courses can help to solve the problems teachers face concerning teaching for exams. The curriculum is focused heavily in this manner, meaning that schools are often reluctant to include DRR as it serves an unwanted distraction from examinable material. It is worth considering acquiring materials on DRR in your local language also. This may be more appropriate in some areas and will also have a further reach into the community, especially to older members.

Gender – 3 slides, 20 minutes:

The focus on gender in DRR in schools is very important for the future. The opening slide on this topic details a number of reasons why girls are more at risk in disaster situations and why their protection and empowerment is vital.

The second slide on gender details the importance of a safe learning environment for girls. Female attendance is generally poor, for a few reasons. One of the most common is that conventional gender roles in India mean that it is the girls' responsibility to take care of matters at home; cooking, cleaning, raising siblings, learning useful household skills such as sewing, etc. So parents are often reluctant to allow their girls to go to school as help is needed at home, and they worry that they will be missing out on important skills education for life. It has been shown that by improving the safety of schools and increasing the range of education available to them (both academic and vocational), parents will be more willing to allow their girls to receive education.

The Kasturba Gandhi Balika Vidyalaya (KGBV) girls' boarding school in Kanahuli, Bihar is a good example of innovative practice in a difficult situation. Please give the teachers a handout of the case study for this school.

Empowering girls as disaster managers in their community through DRR activities and education is an effective way of reducing future vulnerability. Their knowledge will transfer to others in their community and will stay with them for their life in the future.

Creating teams or clubs for girls to become responsible for safety in their school and to pass on the message at home is a positive method, as it gives them a role that is different to the typical gender roles. This kind of education and empowerment could also be used to encourage the formation of mothers groups for the same purpose in their neighbourhoods.

Providing DRR education that is easily transferred from the school environment to the home and work environments will be particularly useful, as it will help to reduce vulnerability for their families in the future.

Increasing girls' self-worth is an important step towards empowering to make their school and community safer. The example in the KGBV Girls School of introducing worldwide female role models to aspire to is a good one. Sensitising girls in terms of their rights under various UN activities, such as the Hyogo Framework for Action and the Millennium Development Goals, as

well as international and national law on human rights, will be very beneficial because it will reveal to them what standards of safety and they are entitled to.

In many areas, the journey to and from school can be hazardous. Dangerous roads, difficult terrains and the threat of assault or molestation (as well as the worsening factor of the dark) can be a serious factor in limiting girls' attendance to schools. Arranging for escorts for them, such as teachers, parents or community members, could help to reduce this problem. Providing road safety education and reflective visibility bands for night times are important towards this goal.

Regrettably, abuse is present in some schools. It is therefore essential that each school set up a mechanism for the reporting of such cases, that will allow children to stand up to such abuse. In a similar sense, it is also important to address psychosocial issues that children face within school, and because of disasters. Attendance is more likely to increase if children feel safer and happier at school.

'Targets for Curricula' is a summary slide on targets for integrating DRR into school curricula and is based on the recommendations in Ben Wisner's UNISDR report "Let Our Children Teach Us!". This should take no longer than 5 minutes. For primary and secondary schools within the centralised state education system, targets have been given to focus down on the local area and to spread DRR into the general curricula. For schools outside of that system, the emphasis has been placed on community-based methods. In addition, both types of schools will benefit from a greater exchange of knowledge and greater access to materials on DRR. Finally, as mentioned before, linking the "top-down" and "bottom-up" aspects will help to turn community-based action into national policy.

The following 2 slides reference section 3.2 of Ben Wisner's UNISDR report entitled "Let Our Children Teach Us", and should take no longer than 10 minutes to explain with help from the source material.

Methods that involve children in the process of both learning and teaching about disasters and risk reduction are proven to have a better effect in terms of their reach into the community. The following slide on the methods of the Child-to-Child Foundation in their approach to health education is a good example of community involvement.

The next slide should be used to illustrate why children respond to fun activities. These activities are more likely to be remembered and repeated by students within their homes and community. Children's clubs for DRR, environmental management, water monitoring, animal care, etc, are a great way of using children's potential and energy in an effective way for the benefit of the community. Creating such clubs in school and providing them with the means to make their community safer is an important step towards empowerment, especially if girls can be given key roles. Some countries have Disaster Museums that act as a fun and interesting learning resource for children. A similar idea is to encourage children to research a particular recent local or national disaster and get them to produce display boards to educate their fellow community members about it and the lessons to be learned. Internet resources are too a powerful tool.

The presentation now moves on to more practical examples of methods. Each should take around five minutes to explain - remember to allow time for handing out sheets

The first is Risk RED's "Go Bag" hunt activity. Please give each of the teachers the 2-page handout on this activity provided by Risk RED. Spend a few minutes explaining the process of

the activity. The points on the accompanying slide are there to indicate the benefits and effective aspects of the activities. The materials required for the activity can be collected by most schools - the only extra material required is the Family Disaster Plan. You should hand out these 13-page plans to the teachers in the group that express a real interest in conducting that activity at their school.

The next example is the board game developed by UNISDR and UNICEF, named "Riskland". For this example, two handouts should be given to the teachers - a small paper version of the board of play, and the instructions of the game. This will give them a good idea of how the game works. Again, the slide points out the benefits of using this game. One of the biggest factors is the element of fun involved. Many forms of entertainment that intend to educate children are often passive - something they listen to or watch. A board game such as this is an active learning experience, concerning decision-making, so they have fun while thinking about the disaster situations. The game is available in many languages already and UNISDR has set itself the task of spreading the game into as many languages as possible. Therefore, they are happy to respond to requests and suggestions to translate the materials into more languages, whether local or national. The game is also adaptable to local conditions. Be sure to make the teachers aware of the web address where they can download the full materials for the game.

The same web address presents a document named "Let's Learn to Prevent Disasters! Fun ways for kids to join in risk reduction" which is presented on the next slide. This is a booklet of materials on ways of getting children involved in DRR in the school and community. Suitable for children aged 8 to 12, the content of the booklet can be used to supplement other courses within the existing curriculum. The booklet includes: some scientific disaster education, environmental and natural resource management, disaster and risk concepts, and fun and practical ways for children to learn about and reduce the risk of disasters. The booklet is also suitable due to its use of appropriate language, pictures and colours.

The American Red Cross has developed an online series of learning materials, entitled "Masters of Disaster". Suitable for children of school entry age until the end of secondary school, the series aims to empower young people by providing with the ability to be prepared for disasters, thus reducing the risk. They aim to eliminate students' fear of natural disasters. The materials are also available for download and come in the form of ready-made lesson plans. However, there are also materials for parents and families to use. This is key for spreading the knowledge into the home and wider community. There are different sets of resources for 3 different age groups - the difference manifests itself as though varying emphasis on games, activities, scientific knowledge, preparedness measures, etc.

4. Presentation Guidelines

"The following presentation guidelines are intended as a resource that may be adapted for training facilitators that are teaching this module. They may be used to create a visual presentation or handouts for participants."

Objectives

By the end of this module you should be able to:

- Include scientific disaster education and DRR into your lessons

- Use a number of different methods to make DRR fun for children
- Use a number of different methods to empower children as agents of DRR within the community

Contents

- I. Why teach DRR in Schools?
- II. Scientific Knowledge
- III. Strategies for Integration
- IV. Girls in School
- V. Targets for Curricula
- VI. Experimental and Active Learning
- VII. Examples

I. Why teach DRR in Schools?

- UN's International Strategy for Disaster Reduction – Hyogo Framework for Action 2005-15, 3rd Priority for Action states that education must:
- “Promote the inclusion of disaster risk reduction knowledge in relevant sections of school curricula at all levels and the use of other formal and informal channels to reach youth and children with information...”
- “Promote the implementation of programmes and activities in schools for learning how to minimise the effects of hazards.”

Further Reasons

- UNISDR –

“Schools are the best venues for forging durable collective values; therefore they are suitable for building a culture of prevention and disaster resilience”
- UN Millennium Development Goal - universal primary education
- Schools as community centre – protection and DRR
- School buildings are often unsafe – disaster risk reduction education will help to make them safer
- Children under 15 are most vulnerable

II. Scientific Knowledge

- Many schools teach disaster preparedness – the same is true for earth sciences
- Rarely are the two combined – better understanding of disasters will result in better preparedness measures
- DRR education can be easily included in existing classes – should be combined with risk awareness and action

- Local hazards and disasters should be discussed to provide relevance for the students in the area

III. Strategies for Integrating DRR into Curriculum

- Begin with broad scientific disaster education – then focus down. A journey from worldwide context to school and community level
- Forge links with local educational institutions. Assistance from higher education and sharing knowledge and practices is beneficial
- Regional government programmes provide a good starting point – develop those ideas for your context and feed back into regional schemes
- Difficult to integrate in “teach for exams” culture – National Disaster Management courses for standards 8, 9 and 10 run by CBSE can help
- Consider using materials in local languages

Gender Issues

- Worldwide, 2 out of 3 of the worlds 800million illiterate are women
- Almost half of Indian women are illiterate
- Large gap in education between girls and boys – historically girls have been inferior
- Rural women are more vulnerable in disasters – marginalised in education and confined to gender roles
- UN’s Millennium Development Goal on universal primary education has a clear gender focus – women’s education must start early, at school

IV. Creating Effective Learning Environments for Girls

- Girls attendance is poor – ensuring a safe learning environment is essential
- Safer against disasters – structural and non-structural measures
- Secure and attractive environment
 - Systems in place to prevent and deal with abuse
 - Safe and adequate water and sanitation facilities for both sexes
 - Adequate boarding and meal services

Empowering Girls and Women

- School-based DRR work should have a focus on girls
- Empower them as disaster managers for the future
- Example methods:
 - Girl-only disaster management teams
 - Mothers’ disaster planning groups

- Literacy sessions for local women
- Involve head girl and boy in development of plans
- Promote female self-worth
- Equality in essential skills development, e.g. swimming lessons
- DRR education relevant for home and work environments
- Assess male/female disaster knowledge - address differences
- Escorts for girls school journeys
- Systems for reporting abuse
- Help with psycho-social effects of disasters

V. Targets for Curricula

Centralised systems:

- Explicitly deal with locally relevant hazards and DRR
- Complements existing materials within other courses

Decentralised systems:

- Developed from the “bottom-up”
- Participation from students, teachers and community members

Networks and Training Materials made available:

- Community Risk Assessment for teachers
- Exchange and pooling of skills, resources and experiences in DRR between schools
- Incorporating “bottom-up” into “top-down”

VI. Experimental Learning – “The Child-to-Child Foundation

- “Child-to-Child” learning directly involves children in the process of education
- Involves them in decision-making in terms of what to learn
- Effective in national and local education programmes, youth groups, pre-school, etc
- Children spread the knowledge to other children of younger or same age, as well as their family and community
- Children as “agents of change”
 - Links actions in the classroom to actions at home
 - Links learning with action
 - Developed over a long period – not one-off lessons

Connecting at Play

- Games, activities, music, video, comics, plays, etc, are a key part of young life – opportunity to teach DRR
- Active learning is more effective than Passive, i.e. hands-on, creative ‘doing’
- Children’s clubs for environmental stewardship – untapped resource of innovation and change for good
- Disaster Museums and fun Internet resources

VII. Example – “Go Bags”

- Short fun activity provided by Risk RED, involving children and their families
- Encourages children to think about what materials they would need if disaster struck
- Provides preparedness information for the family to take home and act upon

Example – “Riskland”

- UNISDR/UNICEF game that encourages children to think about disaster situations and learn while having fun
- Games are effective as an active learning experience
- Adaptable to different hazard conditions
- Available in multiple languages – UNISDR will respond to requests for more translations



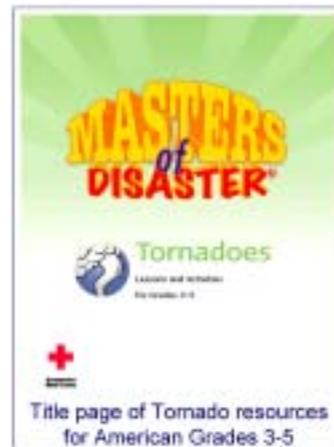
Example – “Let’s Learn to Prevent Disasters”

- Accompaniment to ‘Riskland’ – series of games and activities suitable for children aged 8-12
- Covers earthquake, flood, cyclone, landslide, volcanoes and other hazards
- Designed for easy inclusion within existing school curricula
- Includes scientific education, disaster risk concepts and environmental management



Example – Masters of Disaster

- American Red Cross “Masters of Disaster” educational series
- Aims to empower children and reduce fear of disasters via preparedness education
- Materials for both teachers and families
- Ready-made lesson plans for 3 different age groups
- Directly addresses psycho-social issues



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