

Building resilience: Integrating disaster risk reduction into the school curriculum

Presentation of a Facilitators' Training Kit developed for the Tanzania National Platform for Disaster Risk Reduction, for conducting 3-day workshops to train heads of schools and teachers from primary and secondary schools in Tanzania, in disaster risk reduction.

Presented by: Pat Reid

Introduction

This paper discusses a Facilitator's Training Kit that was developed for the Tanzania National Platform for Disaster Risk Reduction in cooperation with its development partners.

One of the first steps identified by the national platform for mainstreaming disaster risk reduction into development planning was the integration of disaster risk reduction into the educational system in Tanzania. In order to kick start the process it was decided to introduce disaster risk reduction as a cross cutting issue into the existing school curricula for primary and secondary school learners by convening a series of training of trainers workshops. The aim of the workshops was to provide teachers and heads of schools with the necessary knowledge and understanding of the concepts of disaster risk reduction to enable them to integrate disaster risk reduction into their daily teachings. At the same time the training would assist them to make schools in Tanzania safer places to work and learn in.

Design of the Training Kit

An important consideration that had to be taken into account when designing the product was the need to create a balance between achieving uniformity in the facilitation of the training across Tanzania - not only in terms of the standard and content of the training - but also in terms of the approach and methodology applied, yet at the same time to allow enough flexibility to ensure the maximum participation of those attending.

Although the project brief essentially called for a 'training' kit, the term 'tool' kit was also used interchangeably in the terms of reference, and for this reason the consultant decided to produce a 'hybrid' that would include both concepts. As a result the training kit was designed in three main sections as follows:

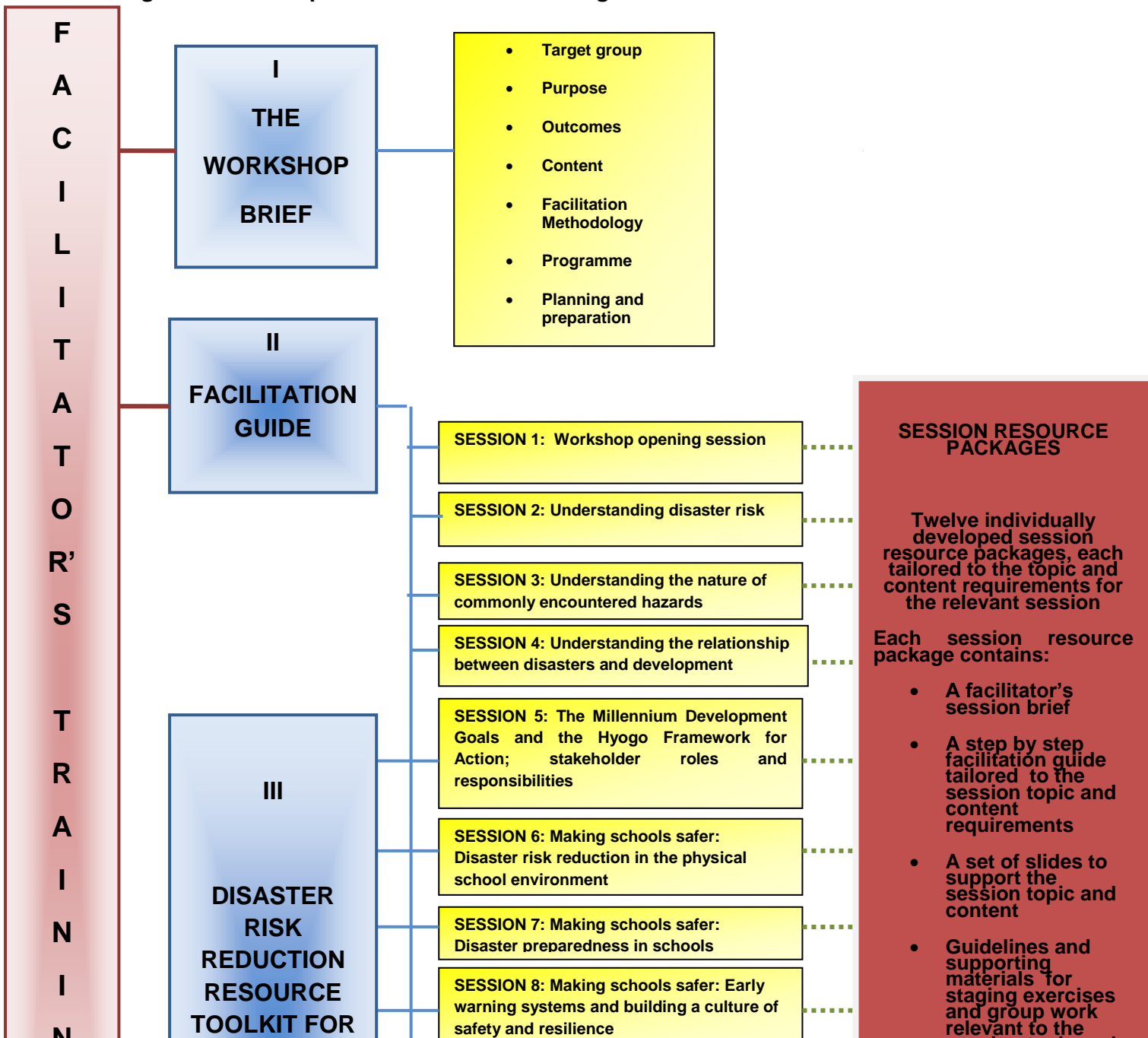
The first section consists of a **workshop brief** in which facilitators are provided with general information, ideas and tips about setting workshops in general.

The second section provides a detailed **facilitation guide** for each of the twelve sessions covered over the three-day programme.

The third section provides the workshop participants (the teachers and heads of schools) with a **disaster risk reduction resource toolkit** which introduces them to a range of resources that will assist them with making their schools safer and with integrating disaster risk reduction into their daily teachings.

The structure and content of the Facilitator's Training Kit is reflected graphically in the roadmap below and will be summarised briefly in this paper.

Figure 1: Roadmap to the Facilitators Training Kit



Section 1: The workshop brief

The workshop brief is designed to provide facilitators with important guidelines on organising and setting up the training of trainers' workshop and on creating an environment that is conducive to adult learning. It provides information on **who should attend the workshop** and **the ideal number of participants** to allow for effective facilitation. It sets out the purpose of the workshop and emphasises **the outcomes** that participants can expect to achieve - namely to have a clear understanding of:

- the core concepts of disaster risk and disaster risk reduction
- what constitutes a safe school and what is required to have a safe school
- how to integrate disaster risk reduction into the existing school curriculum

A description of **the workshop content** which is built around three thematic areas follows.

The first thematic area: 'Understanding Disaster Risk Reduction' focuses on developing the teachers' and heads of schools' own understanding of the core concepts of disaster risk and disaster risk reduction; the relationship between disaster risk reduction and development; and the role and responsibilities of all stakeholders in disaster risk reduction.

The second thematic area: 'Making schools safer' promotes the teachers' and heads of schools' understanding of the 'safer schools concept' by providing orientation on reducing disaster risk in the school environment itself through structural prevention and mitigation measures; disaster preparedness; early warning mechanisms and building a culture of safety and resilience amongst pupils and teachers alike.

The third thematic area: 'Integrating disaster risk reduction into the school curriculum' provides orientation on the concept of integrating disaster risk reduction into the school curriculum by building on the participant's knowledge and experience to identify mechanisms for integrating disaster risk reduction learning into the existing curriculum. It introduces a range of resources that can be used to give effect to integration which include:

- An introduction to the school manuals;
- An introduction to the teacher's guides;

- Innovative ideas on mechanisms to integrate disaster risk reduction concepts into routine teaching in the current curriculum;
- Examples of classroom resources available including games, quizzes, puzzles, exercises, case studies etc. how they can be accessed and how they can be integrated into various school subjects;
- An introduction to resources which are available to assist teachers and heads of schools with ensuring safer schools.

In the workshop brief recommendations are also made regarding the choice of **facilitators** and the **competencies and experience requirements**. It recommends that each workshop be facilitated by two highly experienced facilitators both of whom have a proven track record in presentation skills and in the facilitation of adult learning; have a comprehensive conceptual understanding of disaster risk reduction in the context of sustainable development; and who are experienced in the field of disaster risk reduction. An in-depth knowledge of the Millennium Development Goals, the Hyogo Framework for Action and the Africa Regional Strategy for Disaster Risk Reduction is an additional prerequisite.

Parameters for the methodology to be adopted for facilitating the workshop are set out, based on the fact that the workshop is designed to harness the wealth of existing knowledge and experience amongst the participants and to create synergy by stimulating discussion and the exchange of knowledge, experiences and ideas in the plenary, in groups and through exercises. The focus being on facilitating participative learning by keeping formal 'facilitator presentations' to the minimum and on stimulating ideas on how to integrate what has been learnt into the daily school routine.

The introduction of **a daily forum** at the start of Days 2 and 3 of the workshop is recommended to allow about 30 minutes at the start of the programme during which participants are encouraged to reflect on what they have learned so far, share impressions and ideas that have been generated and raise topical issues and any relevant current disaster events that are happening globally.

It is also suggested that at the end of the daily forum session consideration be given to introducing a brain teaser that has a bearing on the learning process or is topical at the time which provides for a bit of light hearted fun and sets the tone for the day.

The importance of **wrapping up** the programme each day **by reinforcing the key learning points** from each session with a summary and review of the session objectives is emphasised.

For the sake of consistency and to ensure that the workshop objectives are met, a recommended structure for the daily workshop time table is provided.¹ The **workshop programme** over the three (3) day period allows for a total daily time allocation of eight (8) hours which includes comfort/refreshment breaks. Each day provides for four (4) x 90 minute sessions making a total of twelve (12) x 90 minute training sessions over the three days.

In preparation for the workshop the facilitator/s are required to ensure that they develop **a good understanding of the country context** including:

- the country profile in general;
- the disaster risk profile including any risks prevailing in neighbouring countries that could pose a threat to Tanzania;
- historical information on any previous disasters and impact statistics;
- any disaster risk reduction or developmental policies, initiatives, strategies undertaken or planned and any mechanisms established for integrating such undertakings or plans;
- progress with the implementation of the Millennium Development Goals; the Hyogo Framework for Action; and the Africa Regional Strategy for Disaster Risk Reduction;
- any existing contingency plans for disasters; and
- a working knowledge of the educational system in Tanzania.

It is emphasised that it is equally important that they are **familiar with the participant profile**. This applies especially to their level of access to technology and teaching resources and the location/area and risk profile of the schools that they represent. Further guidance on facilitation preparation relating to the specific sessions is given in the session resource packages covered in section 2 of the training kit.

¹ Annexe A: Recommended workshop programmes

Although the facilitators may not be personally responsible for the **planning** and **logistics of the workshop** because this task may have been assigned to someone else, guidance is given on the compilation of a comprehensive list of the logistical requirements for the workshop with a reminder that ultimately any shortcomings will reflect on the facilitator/s.

The importance of **selecting a suitable venue** is the next topic that is discussed in terms of space, seating and layout as well as options for breakaway venues and the size of breakaway groups.

Guidelines are given on **setting up a registration desk** where participants are welcomed by one of the facilitators and handed a registration form to complete and then directed to the venue. A pro forma of a registration form is also provided.

A **logistics checklist** that covers the following key aspects is also provided:

- Venue booking: dates and times confirmed
- Registration desk: table in the foyer or at the entrance
- Availability and location of breakaway rooms – if applicable
- Venue layout requirements
- Catering arrangements and times for refreshment and lunch breaks; any special dietary requirements e.g. Halaal, Kosher, Vegetarian.
- Audio visual requirements and accessories:
 - Projector/s
 - Screen
 - Laptop
 - Extension cords
 - Adaptors
 - Flipchart easel

- Flipchart pads
- Felt tip markers
- Access to photocopy facilities should they be required and the costs involved
- If applicable, a reminder to inform the venue management to expect the delivery of any materials that may have been arranged such as printed matter for the participant hand-out packages.

The logistics of putting together **the hand-out package** to be issued to each participant is discussed next. Advice is given on the procurement and printing arrangements.

The recommended content of the hand-out package is as follows:

- Notepad
- Pen
- Name Badge
- Workshop Programme
- Supporting material relevant to each session
- A copy each of the learner's handbooks and teacher's guides for Grades 1-3 and Grades 4-7 learners which will be used in the implementation of the programme
- A workshop evaluation schedule

The facilitators are also reminded that assembling the participant hand-out package materials is time consuming and therefore should be preferably done on the day before the workshop and undertaken on site.

The next topic under discussion is physically **setting up the training environment** and facilitators are provided with the following tips/check list:

- Check the seating configuration in relation to the location of the screen and placement of the flipchart easel to ensure that both are visible from every seat in the venue.
- Check the condition of the felt tipped markers to make sure that they work (have not run dry) and that the colours are visible!
- Check and familiarise yourself with the electronic equipment, connect up the laptop and LCD projector or the Overhead Projector and test them.
- Bring up slide S1#1 onto the screen and check the picture for focus, visibility, any key-stone effect and correct as necessary.
- Tape any power cords that could be obstacles to the floor using masking tape.
- Plan how you will optimise the use of wall space for exercise feedback, the Issues Log, the House Rules etc.
- Distribute the Participant Hand-out Packages in front of each seat.
- Set up the registration desk.
- Prepare flipchart pages for the 'House Rules' and for the 'Issues' Log.

Section 2: The Facilitation guide

The facilitation guide consists of a series of twelve individually developed session resource packages which are designed to provide the facilitator/s with a step by step guide through the facilitation of each session in the programme. Each session resource package is specifically tailored to the topic and content requirements of the twelve sessions that are featured on the workshop programme.

Each session resource package is presented in a standard format which is structured as follows:

- A Separator Page stating:²
 - the thematic area;
 - the session number;
 - the session title; and,
 - a list of the contents of the resource package for the relevant session.
- A Facilitator’s Session Brief³
- A Step by Step Session Facilitation Guide tailored to the session topic and content requirements; ⁴
- A Set of Session Slides (to support the information being presented in the session and to summarise);⁵
- Guidelines and resources for staging the specific pre planned session exercise/s and/or group work aimed at engaging participation; ⁶
- A selection of recommended hand-out material relevant to the session topic; and. ⁷
- References and a selection of useful additional reading material relevant to the session topic.⁸

² Annexe B: Example of Separator Page

³ Annexe C: Example of a Facilitator’s Session Brief

⁴ Annexe D: Example of a Session Facilitation Guide

⁵ Annexe E: Example of a set of Session Slides

⁶ Annexe F: Example of guidelines and resources for exercise staging

⁷ Annexe G: Example of recommended hand-out material

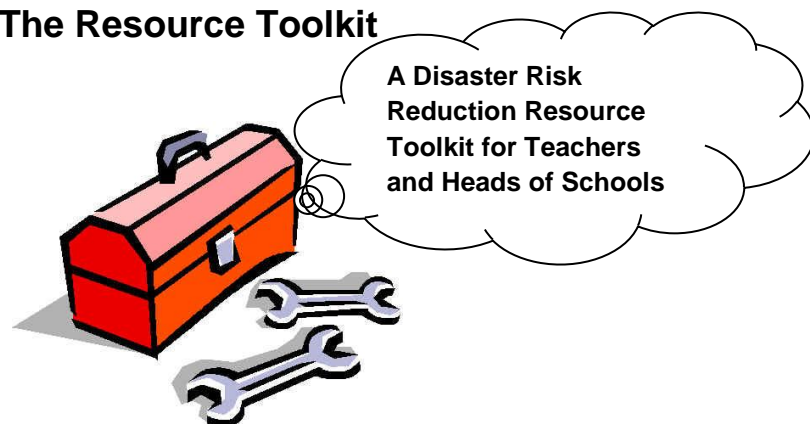
⁸ Annexe H: Example of references and additional reading material

Section 3: The Disaster Risk Reduction Resource Toolkit for Teachers and Heads of Schools

The resource toolkit provides teachers and heads of schools with a range of additional resources that will enable them to add value to the material already available in the learner handbooks and will widen the scope of their application in the integration of disaster risk reduction into existing school subjects. It was recommended that the toolkit be distributed to participants as a hand-out.

In addition it was recommended that non-copyrighted ('copyleft') material that is readily available on the internet be captured on a CD-Rom creating a Virtual Library for distribution to teachers and heads of schools who do not have internet facilities. The material that would be available in the Virtual Library is identified by a red asterisk* in this toolkit.

The Resource Toolkit



Websites at which useful books and publications can be accessed

UNDMTP Modules available at: <http://www.unisdr.org/cadri/dmtp-modules-eng.html>

United Nations Disaster Management Training Programme Modules:

- An Overview of Disaster Management.
- Building Capacities for Disaster Risk Reduction
- Contingency Planning
- Disaster Assessment
- Disaster Mitigation
- Disasters and Development.
- Disasters and the Environment
- Drought and Famine
- Emergency information and Telecommunications
- Introduction to hazards.
- Vulnerability and Risk Assessment

A small selection of a wide range of educational resources available at:
<http://www.preventionweb.net/english/professional/trainings-events/edu-materials/>

- A Guide to School Vulnerability Assessments: Key Principles for Safe schools. By U.S. Department for Education
- APPELL for schools and education buildings: A community-based approach for school safety and education for disaster reduction
- Child-led Disaster Risk Reduction: A Practical Guide (2007) By Save the Children-Lynne Benson and John Bugge
- Disaster Prevention for Schools: Guidance for Education Sector Decision-Makers (2008) UNISDR Thematic Platform for Knowledge and Education
- Guidance notes on Safer School Construction. GFDRR & INEE

- Guidance Notes on Safer School Construction. INEE
- Integrating Disaster Risk Reduction into the School Curriculum: Mainstreaming Disaster Risk Reduction into Education, ASDPC
- Let Our Children Teach Us - A review of the Role of Education and Knowledge in Disaster Risk Reduction. Wisner B.
- Minimum Standards for Education. Preparedness, response, recovery. INEE.
- Minimum Standards Toolkit: Thematic Guide Disaster Risk Reduction and Preparedness. INEE.
- Safety Audit: First Step Towards Making Schools Safer. AIDMI.

A small selection of a wide range of educational resources available at:
<http://www.unisdr.org/publications/> - select 'type' then select 'educational material'
 and at: <http://www.preventionweb.net> – select 'professional resources' then select
 'educational materials'

- 1-2-3 of disaster education. UNISDR Asia and The Pacific; EU; Kyoto Univ. 2010
- Building back better for next time. UNISDR. 2010
- Concept note: learning to live with risk: disaster risk reduction to encourage education for sustainable development. UNISDR. 2009
- Land use, disaster risk and rewards: a school's guide. UNISDR. 2004
- Let's learn to prevent disasters: educational kit and riskland game. UNISDR. 2004
- Living with risk: A global review of disaster risk reduction initiatives. UNISDR. 2004
- Nakhudak and Niso: present day's fairy tale. EC. ECHO. UNISDR. 2006
- Safari's encounter with drought. UNISDR Africa; ICPAC . 2006
- Safari's encounter with floods. UNISDR Africa; ICPAC. 2004
- Safari's encounter with landslide. UNISDR Africa; ICPAC . 2006

- Safe schools in safe territories. UNISDR. 2007
- School emergency and disaster preparedness: Guidance note. UNISDR. 2010
- Terminology on disaster risk reduction .UNISDR. 2009
- The fabulous Nakhudak: present day's fairytale. EC; ECHO: UNISDR-CA.
- Towards a culture of prevention: disaster risk reduction begins at school, good practices and lessons learnt. UNISDR. 2007
- Town watching handbook for disaster education: enhancing experiential learning. UNISDR Asia and The Pacific; EU; Kyoto Univ. 2009
- Water and risk in Africa: a school's guide. UNISDR Africa. 2004

Videos available at [http:// www.unisdr.org/eng/media-room/mr-videos.htm](http://www.unisdr.org/eng/media-room/mr-videos.htm)

- Video: Everybody's Business: Duration: 10 minutes
- Film: Lessons save life: The Story of Tilly Smith: Duration: 4 minutes
- Film: The Power of Knowledge: The story of a boy from Simeulue. Indonesia: Duration: 5 minutes

<http://www.fema.gov/kids/>

You will find a range of resources for parents, teachers and kids on this website

<http://books.google.co.za/books>

Hazard-Wise: Classroom Resources for Teachers on Natural Disasters and Hazards. Emergency Management. Australia. 1995

www.riskred.org

Risk Reduction Educators for Disasters. School Disaster Reduction & Readiness CHECKLIST. 2010.

In conclusion

The training kit has the potential to be applied as a generic resource for training facilitators to present workshops to train trainers in disaster risk reduction in general - not only in the education sector - but in a range of other sectors as well.

Pat Reid

Acknowledgements

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- The Office of the Prime Minister, Tanzania
- The Tanzania National Platform for Disaster Risk Reduction in cooperation with UNISDR Africa
- The Ministry of Education Tanzania
- The UN Resident Coordinator in Tanzania
- UNICEF

Recommended Workshop Programme



Note to Facilitators: The session resource packages presented in the facilitation guide in section 4 of this training kit have been developed according to the structure of the recommended programme below.

Day One: Thematic area 1: Understanding Disaster Risk Reduction		
0900-130	Session 1	Workshop opening session
130-1100	Break	Refreshments
1100-1230	Session 2	Understanding Disaster Risk
1230-1330	Break	Lunch
1330-1500	Session 3	Understanding the nature of commonly encountered hazards and measures to reduce disaster risk
1500-1530	Break	Refreshments
1530-1700	Session 4	Understanding the relationship between disaster risk reduction and development and roles and responsibilities of the education sector and other stakeholders in disaster risk reduction
Day Two: Thematic area: Making schools safer		
0900-130	Session 5	Daily Forum
		The Africa Regional Strategy for Disaster Risk Reduction, the Millennium Development Goals and the Hyogo Framework for Action

130-1100	Break	Refreshments
1100-1230	Session 6	Making schools safer: Disaster risk reduction in the physical school environment; education sector and other stakeholder roles and responsibilities
1230-1330	Break	Lunch
1330-1500	Session 7	Making schools safer: Disaster preparedness in schools
1500-1530	Break	Refreshments
1530-1700	Session 8	Making schools safer: Early warning systems and building a culture of safety and resilience
Day Three: Thematic area 3: Integrating disaster risk reduction into the school curriculum		
0900-130	Session 9	Daily Forum
		Integrating disaster risk reduction into the current school curriculum (1)
130-1100	Break	Refreshments
1100-1230	Session 10	Integrating disaster risk reduction into the current school curriculum (2)
1230-1330	Break	Lunch
1330-1500	Session 11	Introduction to the disaster risk reduction resource toolkit for teachers and heads of schools (1)
1500-1530	Break	Refreshments
1530-1700	Session 12	Introduction to the disaster risk reduction resource toolkit for teachers and heads of schools (2)
		Workshop evaluation and wrap up

Example of Separator Page

Thematic area one
Understanding disaster risk reduction

Facilitator's Session Resource Package
Session 2: Understanding disaster risk

Contents of the Resource Package for this Session (2):

- **Facilitator's Session Brief**
- **Step by Step Facilitation Guide**
- **Set of session slides S2#1-15**
- **A contrived scenario to facilitate understanding of the progression of vulnerability and the concept of disaster risk**

- **Guidelines and supporting material for staging the group exercise GE#1**
- **References and a selection of useful additional reading material relevant to the topic and content of this session**
- **Recommended hand-out material for Session 2**

Example of Facilitator's Session Brief

Facilitator's Session Brief	
Session Title: Understanding disaster risk	
90 minutes	
<ul style="list-style-type: none"> • The participants understand the core concepts of disaster risk. • The participants understand the factors that contribute to vulnerability. • The participants understand the interaction between hazards, risk, vulnerability and coping capacity. • The participants understand the role of risk assessments. 	
<p>This session serves to establish a sound understanding of what constitutes disaster risk by analysing the core concepts of hazards, vulnerability, coping capacity and considering how the interaction of these factors translate into disaster risk. It examines the factors that contribute to vulnerability and emphasises how risk assessment information provides the basis for identifying and prioritising policies and measures for disaster risk reduction, Early warning systems, building resilience, disaster preparedness and response and recovery planning.</p>	
<p>Interactive session conducted in plenary in which the facilitator engages active participation by drawing on the existing knowledge and experience in the group using the 'question and answer' technique to establish a common understanding of the concepts.</p> <p>Group discussions in which participants share their understanding of disaster risk in the context of the communities that their schools serve and their school environment itself.</p>	

- | | |
|---|--|
| <ul style="list-style-type: none">• Before the workshop, each facilitator will have already conducted an in-depth study of:<ul style="list-style-type: none">- The entire contents of the training kit for the workshop including conducting a review of the relevant literature and additional recommended reading.- The country profile.⁹• Prior to the session, facilitators:<ul style="list-style-type: none">- conduct an in-depth study of the Resource Package for Session #2.- jointly discuss the Resource Package for Session #2 and apportion facilitation responsibilities for the session activities.- familiarise themselves with the risk profile of the relevant area and historical information on previous disasters.- prepare handout material for session 2.- prepare the materials for group exercise GE#1. | |
|---|--|

⁹ Refer to section 1.8 of this training kit.

Minimum resources required for this session:

- Flipchart easel
- Flipchart paper
- Felt tipped markers (Various colours)
- LCD projector and laptop with LCD projector port **or** Overhead Projector
- Screen
- Extension cord/s
- Multi plug and adaptors
- Masking tape
- Prestik
- Pointer (optional)
- Contrived scenario
- Handout material for session 2.
- Slides S2#1-15 for use either as a PowerPoint presentation **or** for transferring onto Overhead foils/ transparencies **or** for writing up on a flipchart.
- Materials and Exercise worksheet GE#1

Example of step-by step facilitation guide

STEP BY STEP FACILITATION GUIDE				
Thematic Area One: <i>Understanding Disaster Risk Reduction</i>				
Session 2: Title: <i>Understanding disaster risk</i>				
Audio/ Visual Resource	Time in minutes Total	Facilitator activity	Participant activity	Specific materials required for this activity
Slide S2#1	5	Start this session by discussing the session objectives and providing the participants with a synopsis of the session content. Explain to them that the intention is to build on their existing knowledge using a plenary discussion to establish a common understanding of what constitutes disaster risk.	Passive	
Slides S2#2-14	55	This activity is designed to provoke discussion on the concepts of hazards; natural phenomena; the factors that contribute to vulnerability; capacity; and how these concepts interact to constitute disaster risk. As you work through the set of slides start off by first only revealing the term to be discussed for example in the first instance it is the term 'hazard'. Then once you are satisfied that you have drawn the key points of the definition out, reveal the formal definition of the term in question and reinforce important aspects of the definition. Always remember to	Lively, interactive discussion in plenary.	Recommended handout material for session 2

		<p>compliment them on their inputs.</p> <p>Follow the same process for each of the concepts in this part of the session.</p> <p>We have allowed a total of 55 minutes for the discussion on the concepts that are covered by slides S2#2-14 that dealt with in the steps that follow.</p>		
Slides S2#2		<p>Open this discussion by asking the group to put forward their understanding of the term 'hazard' shown on slide S2#2.</p> <p>To prod them you might ask them how they would differentiate between a hazard and a natural phenomenon. Use examples or scenarios to draw on their input. Write their inputs up on the flipchart.</p> <p>Then once you are satisfied that you have drawn the key points of the definition out, reveal the formal definition of both the terms 'hazard' and 'natural phenomena' on slide S2#2 and reinforce important aspects.</p> <p>Make a comparison between their inputs on the flipchart and those in the definition of 'hazard', reinforce and summarise.</p>		
Slides S2#3-5		<p>Now ask them to name some types of hazards and write those up on the flipchart. Once you have a reasonable list reveal slide S2#3 that shows the classification of hazards according to their origin.</p> <p>Now work through 'their' list of hazards on the flipchart and ask them to assign each hazard according to its origin to the appropriate category.</p> <p>Now, reveal slides S2#4 and S2#5 to make a comparison, reinforce and summarise.</p>	Lively, interactive discussion in plenary	
Slides		Use a similar technique to establish an understanding of the term	Lively, interactive	

<p>S2#6</p>	<p>‘vulnerability’.</p> <p>Open a discussion by asking the group to put forward their understanding of the term ‘vulnerability’ shown on slide S2#6.</p> <p>Write their inputs up on the flipchart.</p> <p>Then once you are satisfied that you have drawn the key points of the definition out, reveal the formal definition of the term on slide S2#6.</p> <p>Make a comparison between their inputs on the flipchart and those in the definition and reinforce important aspects.</p>	<p>discussion in plenary</p>	
<p>Slides S2#7-8</p>	<p>Now open a discussion on the factors that contribute to vulnerability.</p> <p>For example, you can lead the discussion by describing a brief scenario of a given area (such as the one that we have contrived and provided in the resource materials for this session) and by using a simple diagram and then asking the question: ‘If an earthquake were to strike this given area, will it have the same impact across the whole area?’ The group will usually respond by saying ‘no’. Now you can proceed to draw out examples by asking them why the impact would differ. Once again write their inputs up on the flipchart as they emerge.</p> <p>Once you are satisfied that you have drawn out a good cross section of examples, reveal slide S2#7 that lists the factors that contribute to vulnerability: physical, social, economic and environmental factors.</p> <p>Using ‘their’ list of examples ask them to assign the examples to the relevant category or categories. Supplement their examples with additional examples for each category.</p> <p>Reveal slide S2#8 to show a more comprehensive description for each category, make a comparison, reinforce and summarise.</p>	<p>Lively, interactive discussion in plenary</p>	<p>A brief scenario which can include a simple diagram to depict a given area that includes both formal and informal settlements and a central business district in which critical lifeline infrastructure is located.</p>

<p>Slides S2#9</p>	<p>Now open a discussion on the concept of coping capacity by linking it to the previous discussion on vulnerability.</p> <p>Use the same scenario that you used for the previous discussion on vulnerability and ask the group to consider whether there would also be a disparity in the levels of coping capacity across the given area as a whole. Inevitably they will agree and then ask them to elaborate/provide rationale in support of the argument.</p> <p>Again note their inputs on the flipchart, and provide supplementary information as you proceed. If you need to prod them, raise some pertinent issues - for example ask them if access to resources such as:</p> <ul style="list-style-type: none"> • insurance • emergency communication • medical services • transport • information on early warning systems and knowing risk what risk avoidance measures to take, and so on, would make people more resilient and able to cope better. <p>Once you are satisfied that you have drawn out sufficient information reveal the formal definition on slide S2#9 make a comparison with their inputs, reinforce and summarise.</p>	<p>Lively, interactive discussion in plenary</p>	
<p>Slides S2#10-11</p>	<p>The next concept for discussion will be 'disaster' on slide S2#10. Once again open the discussion by asking the participants to put forward their understanding of the term 'disaster'.</p> <p>Note their inputs on the flipchart, and provide supplementary information as you proceed - for example ask them what the unique characteristics</p>		

		<p>of an occurrence are that would justify it being classified as a disaster.</p> <p>Discuss with them the following characteristics:</p> <ul style="list-style-type: none"> • The source- it could be as a result of a hazard of natural origin or as a result of technological or environmental hazards. • Predictability - disasters that occur suddenly without any or little warning (such as an explosion) are referred to as rapid onset disasters whereas those that can be predicted such as drought for example, are referred to as slow onset disasters. • The magnitude – the extent of the area affected will vary depending on its origin for example in the case of a flooding river the extent could be widespread whereas in the case of a transportation accident it could be relatively localised (concentrated over a smaller area). • The effect of the impact on the functioning of a community or society- the effect on people, property, infrastructure, systems and services. • the capacity of the area affected to cope with its effects. <p>Now reveal the rest of the information on slide S2#10 and explain that it is a combination of all of these characteristics that constitute a disaster.</p> <p>Once you are satisfied that you have drawn out sufficient information reveal the formal definition of a ‘disaster’ on slide S2#11 making a comparison with the characteristics listed on slide S2#10, compare this with their inputs, reinforce and summarise.</p>		
Slides		<p>Now introduce the term ‘emergency’ which is also on slide S2#11 and open a discussion on whether they regard an emergency and a disaster</p>	<p>Lively, interactive discussion in plenary</p>	

S2#11		<p>as being synonymous with each other. Draw out the pertinent differences between the two concepts and list them on the flipchart.</p> <p>Once you are satisfied that you have drawn out sufficient information reveal the formal definition of an 'emergency' which is also on slide S2#11 making a comparison with the characteristics of a disaster, compare this with their inputs, reinforce and summarise.</p>		
Slides S2#12-13		<p>At this stage do a quick recap on the three concepts of hazard, vulnerability and coping capacity before asking the group to put forward their understanding of the term 'disaster risk'. To provoke discussion go back to the scenario that you used earlier and ask them if the whole of the given area were to be exposed equally to the same hazardous event, would the impact of the hazardous event also be felt equally across the whole of the given area, and if not, why not? Now list their inputs on the flipchart, reinforcing the fact that the higher the levels of vulnerability and the lesser the capacity to cope, the higher the levels of disaster risk will be. Make use of the example of the informal settlement as compared to the formal settlement and the central business district to discuss how the impacts would differ.</p> <p>Now introduce slide S2#12 showing the Progression of Vulnerability Model to demonstrate how the interaction between hazards, vulnerability, and lack of coping capacity constitute disaster risk.</p> <p>Close this part of the presentation by showing slide S2#13 to summarise the concepts that constitute disaster risk.</p>	Lively, interactive discussion in plenary	
		<p>Finally, wrap up the plenary presentation with a summary of the key learning points and move on to the next activity which is the exercise in groups.</p>		
Slide	25	Introduce GE#1 using the guidelines and supporting materials included	Discussion in groups.	Flipchart paper

S2#14		<p>in this session package. The purpose of this exercise in groups is to engage the participants in identifying 3-5 hazards that are commonly encountered in the areas where the learners live and go to school and the main factors that contribute to vulnerability to those hazards.</p> <p>Allow 15 minutes for the exercise and 10 minutes for the groups to provide feedback to the plenary.</p>	<p>Groups write their findings up on a sheet of flipchart paper and provide feedback to the plenary.</p>	<p>Felt tip pens Prestik Exercise worksheet GE#1</p>
Slide S2#15	5	<p>Wrap the session up by acknowledging their participation and inputs, summarising key points and a review of the session objectives on slide S2#15.</p> <p>Announce the lunch break and the time that the group will reconvene for the start of session three.</p>	Passive	

Session 2: Sample of a brief contrived scenario

Introduction

The following contrived scenario has been developed as a resource for you to use when opening a discussion to facilitate understanding of the progression of vulnerability and what constitutes disaster risk. It describes the prevailing conditions in a given geographical area –say for example a municipal ward -in which there are formal suburbs, a sprawling informal settlement and a central business district in which critical lifeline infrastructure is located. The simple diagram that follows will assist you in building the scenario.

A contrived scenario

Area A:

Area A is a sprawling informal settlement located in a low lying area along the banks of a river. It is similar to those that you will find in most major cities in developing countries in the world.

Settlements such as the one described in this contrived scenario usually develop as a result of a combination of factors and you can use the following scenario to illustrate the progression of vulnerability:

Underlying factors

Generally speaking the most common root cause is poverty which has makes it increasingly difficult for rural households to sustain their livelihoods and as a result they are left with little choice but to migrate to urban areas in search of employment.

Dynamic pressures or changing conditions

Once the migrants have arrived in the urban area, they inevitably find that jobs are hard to come by. Their inability to find jobs is often aggravated by low levels of education and little or no past work experience (political, social and economic factors).

Unsafe conditions

For most migrants, the first priority is to find a place to stay and to get a roof over their heads. There are several consequences that flow from this:

- Poor, unemployed migrants are likely to build dwellings on land that is unsuitable for human habitation – usually close to a water supply such as a river which, in turn, inadvertently places them at risk to flooding (physical or infrastructure factors).
- Due to the lack of available land, dwellings are built too close to each other which results in overcrowding, thus increasing the risk of disease and epidemics and the breakdown in cultural and social values. It also makes access difficult or

impossible for emergency vehicles such as those belonging to fire and ambulance services (physical or infrastructure and social factors).

- Unsuitable building materials are used to build dwellings, making them structurally unable to withstand the prevailing hazards such as domestic fires, flooding and other severe weather events, earthquakes, and tornadoes (physical or infrastructure, social and economic factors).
- There is no access to basic infrastructure and services, and even where they are available they may not be affordable to the majority. The absence of basic infrastructure and services can lead to increased vulnerability which include:
 - the lack of potable water and sanitation – increases health risks including cholera and other waterborne diseases (physical or infrastructure and social factors);
 - the lack of a waste disposal service – leads to health risks, pollution and environmental degradation (physical or infrastructure, social and environmental factors);
 - the lack of energy supply – results in the degradation of natural resources as people chop down trees for fuel, which in turn, leads to environmental degradation and increases the risk of flooding and the risk of domestic fires due to the use of open flames for lighting, heating and cooking (physical or infrastructure, environmental and social factors);
 - the lack of emergency communication – increases risk due to the inability to call on emergency and essential services in a crisis (physical or infrastructure and social factors);
 - limited transport – affects access to schools, clinics and other social services (physical or infrastructure and social factors); and
 - the lack of fire-fighting infrastructure such as fire hydrants, which is further aggravated by the absence of tap water for use in the case of fire (physical or infrastructure factors).

Area B

Area B on the other hand consists of a well built formal suburban area inhabited by middle income group citizens who have access to infrastructure, systems and services and the means socially and economically to sustain an acceptable standard of living.

Area C

Area C is a formal well built and well maintained business district in which the city's critical lifeline/public utilities headquarters are also housed.

Use the three areas described in this scenario to support the discussion on the interaction between hazards, vulnerability and coping capacity.

Start off with a description of each area.

Then pose the question "If an earthquake were to strike this given area as a whole, would the impact (adverse effects) be the same across the whole area?"

As the group responds to the question continue to use the question and answer technique to probe further. For example if the response from the group to the

question is the obvious “No!” Then ask them to motivate their response. In this way you can continue to draw on the existing knowledge until you have built up enough key points to reinforce the fact that disaster risk reduction is a developmental issue.

Example of a set of Session Slides

Session 2: Set of session slides: S2#1-15

Slide 1

Session 2: Understanding disaster risk

Session Objectives

- The participants understand the core concepts of disaster risk.
- The participants understand the factors that contribute to vulnerability.
- The participants understand the interaction between hazards, risk, vulnerability and coping capacity.
- The participants understand the role of risk assessments

July 2010 S2#1

Slide 2

Understanding disaster risk

- **Hazard**
A dangerous phenomenon, substance, human activity or condition that may cause:
 - loss of life
 - injury
 - other health impacts
 - property damage
 - loss of livelihoods
 - loss of services
 - social and economic disruption or
 - environmental change
- **Natural Phenomena**
Extreme
 - climatological
 - hydrological
 - geological processes**that do not pose any threat to persons or property**

Slide 3

Understanding disaster risk

- Classification of hazards:
 - Natural origin
 - Technological
 - Environmental Degradation

Slide 4

Understanding disaster risk	
CLASSIFICATION OF HAZARDS	
Natural hazards	
Origin	Examples
Hydrometeorological hazards Natural processes or phenomena of atmospheric, hydrological or oceanographic nature.	<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
Geological hazards Natural earth processes or phenomena that include processes of endogenous origin or tectonic or exogenous origin, such as mass movements.	<ul style="list-style-type: none"> Earthquakes, tsunamis Volcanic activity and emissions Mass movements, landslides, rockslides, liquefaction, sub-marine slides Surface collapse, geological fault activity
Biological hazards Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances.	Outbreaks of epidemic diseases, plant or animal contagion and extensive infestations

Slide 5

Understanding disaster risk	
CLASSIFICATION OF HAZARDS	
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 (explosions, fires, spills).
Environmental degradation Processes induced by human behaviour 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.

Slide 6

Understanding disaster risk

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard

Slide 7

Understanding disaster risk

The factors contributing to vulnerability

- Physical
- Social
- Economic
- Environmental
- (Political)

July 2010 5147

Slide 8

Understanding disaster risk

The factors contributing to vulnerability

Physical	Social	Economic	Environmental	Political
<ul style="list-style-type: none"> • Poor design of buildings • Poor construction and materials used for housing and infrastructure • Poor land use planning and remote locations • Population density • Lack of basic infrastructure – water, sanitation, health care facilities, communication etc. 	<ul style="list-style-type: none"> • Inadequate protection of assets • Lack of education • Lack of public information • Lack of public awareness • Lack of access to basic human rights • Lack of good governance • Limited official recognition of risks and preparedness measures • Lack of safety and security 	<ul style="list-style-type: none"> • Poverty • Poor national economic levels and lack of economic diversity • Inadequate access to critical socio economic infrastructure • Limited access to credit, insurance and loans • Food insecurity 	<ul style="list-style-type: none"> • Disregard for wise environmental management • Natural resource depletion and degradation • Lack of resilience within ecological systems • Exposure to toxic and hazardous pollutants • Reduced access to clean air, safe water supply and sanitation • Inappropriate waste management • Diminished biodiversity • Soil degradation • Water scarcity 	<ul style="list-style-type: none"> • Political ideologies • Poor governance • War and civil strife

July 2010 5147

Slide 9

Understanding disaster risk

Coping capacity

The ability of people, organisations and systems, using available skills and resources, to face and manage adverse conditions, emergencies and disasters.

Resilience

The ability of a system, community or society exposed to a hazard to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

July 2010 5149

Slide 10

Understanding disaster risk

Disaster Characteristics

- Speed of onset
- Nature of origin
- Magnitude
- Scale of impact and losses
- Capacity to cope

July 2010 51810

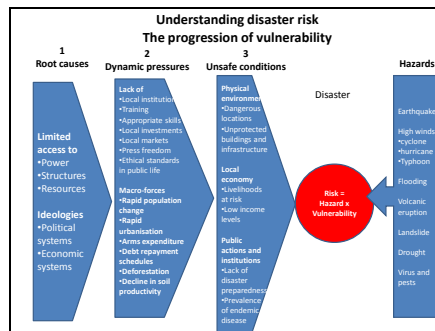
Slide 11

Understanding disaster risk

Disaster	Emergency
<p>A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.</p>	<p>A threatening condition that requires urgent action to avoid the escalation of an event into a disaster</p>

July 2010 51811

Slide 12



Slide 13

Understanding disaster risk

<p>Disaster risk The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or society over some specified future time period.</p>	<p>Disaster risk The probability of harmful consequences, or expected losses resulting from interactions between natural or human induced hazards and vulnerable conditions</p>
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H x V = Disaster risk
C

July 2010 SIR13

Slide 14

Group exercise GE#1

<p>• Stage 1</p> <ul style="list-style-type: none">• Discuss and make a list of the hazards that are commonly encountered in the geographical area where the learners that you teach live and go to school• Make a consolidated list of 3-5 hazards that you consider are priorities and write them up on the exercise worksheet GE#2	<p>• Stage 2</p> <ul style="list-style-type: none">• Identify the main factors that contribute to vulnerability to each of the hazards that you identified as priorities in Stage 1 and write them up on the exercise worksheet GE#2• Now transfer your group outcomes onto the flipchart paper provided in preparation for reporting back to the plenary
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Slide 15

Session 2: Understanding disaster risk

Review of the Objectives for Session Two

- The participants understand the core concepts of disaster risk.
- The participants understand the factors that contribute to vulnerability.
- The participants understand the interaction between hazards, risk, vulnerability and coping capacity.
- The participants understand the role of risk assessments

July 2010 SIR15

Example of guidelines and supporting material for staging a group exercise

Session 2: Group Exercise GE#1

Guidelines and supporting materials for staging group exercise GE#1

Purpose

The purpose of this exercise is to engage the participants in identifying 3-5 hazards that are commonly encountered in the areas where the learners live and go to school and the main factors that contribute to vulnerability to those hazards.

Procedure for staging group exercise: GE#1

1. In the pre session planning the facilitator must attempt to identify participants who work in a common geographical area and cluster them into one of 4 groups. In order to promote active participation, aim to have no more than 6-7 participants in any one group.
2. Before starting the exercise explain to the participants the rationale behind the combination of the groups and the reason for you assigning them to a specific group.
3. Place a copy of exercise worksheet GE#1 in front of each participant.
4. Using the worksheet, explain to them that this exercise will be conducted in two stages. In the first stage they are required to discuss the hazards that are commonly encountered in the geographical area where the learners that they teach live and go to school and then to consolidate the list and identify 3-5 priority hazards and write them up on the exercise worksheet GE#1 in the space allocated on the worksheet. Once they have done this they should indicate the classification of hazard in the column provided.
5. In the second stage they are required to identify the main factors that contribute to vulnerability in their relevant geographical area to each of the hazards identified and to write them up on the exercise worksheet GE#1 in the columns provided and then transfer the information onto the flipchart page provided.
6. Advise them that they have 15 minutes to complete the exercise and that each group must identify a rapporteur who will have 2½ minutes to provide feedback to the plenary.

GE#1: Exercise worksheet: Identify 3-5 priority hazards and the main factors that contribute to vulnerability to each hazard in the area of

Hazard	Classification	Main factors contributing to vulnerability				
		Physical	Social	Economic	Environmental	Political

Example of recommended hand-out material for this session

Recommended Hand-out Material for Session 2

Disaster Risk Reduction Terminology

Source: UNISDR. 2009. Terminology on Disaster Risk Reduction.



User note:

Whilst the terminology used in the Disaster Risk Reduction Handbooks for learners has been simplified, the aim of this workshop is to provide teachers and heads of schools with additional information and deeper insight into the core concepts on which disaster risk reduction is grounded. It is for this reason that the most recent version of the international standard disaster risk reduction terminology which was published by UNISDR in 2009, has been used for this workshop and is included below as a ready reference.

Introduction

The UNISDR Terminology aims to promote common understanding and common usage of disaster risk reduction concepts and to assist the disaster risk reduction efforts of authorities, practitioners and the public. The previous version “Terminology: Basic terms of disaster risk reduction” was published in “Living with risk: a global review of disaster risk reduction initiatives” in 2004. The following year, the Hyogo Framework for Action 2005-2015 requested the UNISDR secretariat to “update and widely disseminate international standard terminology related to disaster risk reduction, at least in all official United Nations languages, for use in programme and institutions development, operations, research, training curricula and public information programmes”.

The 2009 version is the result of a process of ongoing review by the UNISDR and consultations with a broad range of experts and practitioners in various international venues, regional discussions and national settings. The terms are now defined by a single sentence. The comments paragraph associated with each term is not part of the definition, but is provided to give additional context, qualification and explanation. It should be noted that the terms are not necessarily mutually exclusive, and in some cases may have overlapping meanings.

The Terminology has been revised to include words that are central to the contemporary understanding and evolving practice of disaster risk reduction but exclude words that have a common dictionary usage. Also included are a number of emerging new concepts that are not in widespread use but are of growing professional relevance; these terms are marked with a star (*) and their definition may evolve in future. The English version of the 2009 Terminology provides the

basis for the preparation of other language versions. Comments and suggestions for future revisions are welcome and should be directed to the ISDR Secretariat (see www.unisdr.org).

Acceptable risk

The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

Comment: In engineering terms, acceptable risk is also used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people, property, services and systems to a chosen tolerated level, according to codes or “accepted practice” which are based on known probabilities of hazards and other factors.

Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Comment: This definition addresses the concerns of climate change and is sourced from the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The broader concept of adaptation also applies to non-climatic factors such as soil erosion or surface subsidence. Adaptation can occur in autonomous fashion, for example through market changes, or as a result of intentional adaptation policies and plans. Many disaster risk reduction measures can directly contribute to better adaptation.

Biological hazard

Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of biological hazards include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestations.

Building code

A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.

Comment: Building codes can include both technical and functional standards. They should incorporate the lessons of international experience and should be tailored to national and local circumstances. A systematic regime of enforcement is a critical supporting requirement for effective implementation of building codes.

Capacity

The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Comment: Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity also may be described as capability. Capacity assessment is a term for the process by which the capacity of a group is reviewed against desired goals, and the capacity gaps are identified for further action.

CAPACITY DEVELOPMENT

The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Comment: Capacity development is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems, and the wider social and cultural enabling environment.

Climate change

(a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use”.

(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.

Comment: For disaster risk reduction purposes, either of these definitions may be suitable, depending on the particular context. The UNFCCC definition is the more restricted one as it excludes climate changes attributable to natural causes. The IPCC definition can be paraphrased for popular communications as “A change in the climate that persists for decades or longer, arising from either natural causes or human activity.”

Contingency planning

A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Comment: Contingency planning results in organized and coordinated courses of action with clearly-identified institutional roles and resources, information processes, and operational arrangements for specific actors at times of need. Based on scenarios of possible emergency conditions or disaster events, it allows key actors to envision, anticipate and solve problems that can arise during crises. Contingency planning is an important part of overall preparedness. Contingency plans need to be regularly updated and exercised.

Coping capacity

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Comment: The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during crises or adverse conditions. Coping capacities contribute to the reduction of disaster risks.

Corrective disaster risk management *

Management activities that address and seek to correct or reduce disaster risks which are already present.

Comment: This concept aims to distinguish between the risks that are already present, and which need to be managed and reduced now, and the prospective risks that may develop in future if risk reduction policies are not put in place. See also Prospective risk management.

Critical facilities

The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

Comment: Critical facilities are elements of the infrastructure that support essential services in a society. They include such things as transport systems, air and sea ports, electricity, water and communications systems, hospitals and health clinics, and centres for fire, police and public administration services.

Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which

exceeds the ability of the affected community or society to cope using its own resources.

Comment: Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Comment: The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socio-economic development, disaster risks can be assessed and mapped, in broad terms at least.

Disaster risk management

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Comment: This term is an extension of the more general term “risk management” to address the specific issue of disaster risks. Disaster risk management aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Comment: A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed Hyogo Framework for Action, adopted in 2005, whose expected outcome is “The substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries.” The International Strategy for Disaster Reduction (ISDR) system provides a vehicle for cooperation among Governments, organisations and civil society actors to assist in the implementation of the Framework. Note that while the term “disaster reduction” is

sometimes used, the term “disaster risk reduction” provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.

Disaster risk reduction plan *

A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Comment: Disaster risk reduction plans should be guided by the Hyogo Framework and considered and coordinated within relevant development plans, resource allocations and programme activities. National level plans need to be specific to each level of administrative responsibility and adapted to the different social and geographical circumstances that are present. The time frame and responsibilities for implementation and the sources of funding should be specified in the plan. Linkages to climate change adaptation plans should be made where possible.

Early warning system

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred early warning system necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression “end-to-end warning system” is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.

Ecosystem services

The benefits that people and communities obtain from ecosystems.

Comment: This definition is drawn from the Millennium Ecosystem Assessment. The benefits that ecosystems can provide include “regulating services” such as regulation of floods, drought, land degradation and disease, along with “provisioning services” such as food and water, “supporting services” such as soil formation and nutrient cycling, and “cultural services” such as recreational, spiritual, religious and other non-material benefits. Integrated management of land, water and living resources that promotes conservation and sustainable use provide the basis for maintaining ecosystem services, including those that contribute to reduced disaster risks.

El Niño-Southern Oscillation phenomenon

A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts over many months, such as

altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns.

Comment: The El Niño part of the El Niño-Southern Oscillation (ENSO) phenomenon refers to the well-above-average ocean temperatures that occur along the coasts of Ecuador, Peru and northern Chile and across the eastern equatorial Pacific Ocean, while La Niña part refers to the opposite circumstances when well-below-average ocean temperatures occur. The Southern Oscillation refers to the accompanying changes in the global air pressure patterns that are associated with the changed weather patterns experienced in different parts of the world.

Emergency management

The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

Comment: A crisis or emergency is a threatening condition that requires urgent action. Effective emergency action can avoid the escalation of an event into a disaster. Emergency management involves plans and institutional arrangements to engage and guide the efforts of government, non-government, voluntary and private agencies in comprehensive and coordinated ways to respond to the entire spectrum of emergency needs. The expression “disaster management” is sometimes used instead of emergency management.

Emergency services

The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Comment: Emergency services include agencies such as civil protection authorities, police, fire, ambulance, paramedic and emergency medicine services, Red Cross and Red Crescent societies, and specialized emergency units of electricity, transportation, communications and other related services organizations.

Environmental degradation

The reduction of the capacity of the environment to meet social and ecological objectives and needs.

Comment: Degradation of the environment can alter the frequency and intensity of natural hazards and increase the vulnerability of communities. The types of human-induced degradation are varied and include land misuse, soil erosion and loss, desertification, wildland fires, loss of biodiversity, deforestation, mangrove destruction, land, water and air pollution, climate change, sea level rise and ozone depletion.

Environmental impact assessment

Process by which the environmental consequences of a proposed project or programme are evaluated, undertaken as an integral part of planning and decision-making processes with a view to limiting or reducing the adverse impacts of the project or programme.

Comment: Environmental impact assessment is a policy tool that provides evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilized extensively in national programming and project approval processes and for international development assistance projects. Environmental impact assessments should include detailed risk assessments and provide alternatives, solutions or options to deal with identified problems.

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Comment: Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.

Extensive risk *

The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts.

Comment: Extensive risk is mainly a characteristic of rural areas and urban margins where communities are exposed to, and vulnerable to, recurring localised floods, landslides storms or drought. Extensive risk is often associated with poverty, urbanization and environmental degradation. See also "Intensive risk".

Forecast

Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area.

Comment: In meteorology a forecast refers to a future condition, whereas a warning refers to a potentially dangerous future condition.

Geological hazard

Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Geological hazards include internal earth processes, such as earthquakes, volcanic activity and emissions, and related geophysical processes

such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows. Hydrometeorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize; although they are triggered by undersea earthquakes and other geological events, they are essentially an oceanic process that is manifested as a coastal water-related hazard.

Greenhouse gases

Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds.

Comment: This is the definition of the Intergovernmental Panel on Climate Change (IPCC). The main greenhouse gases (GHG) are water vapour, carbon dioxide, nitrous oxide, methane and ozone.

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are "... hazards of natural origin and related environmental and technological hazards and risks." Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

See other hazard-related terms in the Terminology: Biological hazard; Geological hazard; Hydrometeorological hazard; Natural hazard; Socio-natural hazard; Technological hazard.

Hydrometeorological hazard

Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Hydrometeorological hazards include tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, coastal storm surges, floods including flash floods, drought, heatwaves and cold spells. Hydrometeorological conditions also can be a factor in other hazards such as landslides, wildland fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material

Intensive risk *

The risk associated with the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic disaster impacts involving high mortality and asset loss.

Comment: Intensive risk is mainly a characteristic of large cities or densely populated areas that are not only exposed to intense hazards such as strong earthquakes, active volcanoes, heavy floods, tsunamis, or major storms but also have high levels of vulnerability to these hazards. See also “Extensive risk.”

Land-use planning

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

Comment: Land-use planning is an important contributor to sustainable development. It involves studies and mapping; analysis of economic, environmental and hazard data; formulation of alternative land-use decisions; and design of long-range plans for different geographical and administrative scales. Land-use planning can help to mitigate disasters and reduce risks by discouraging settlements and construction of key installations in hazard-prone areas, including consideration of service routes for transport, power, water, sewage and other critical facilities.

Mitigation

The lessening or limitation of the adverse impacts of hazards and related disasters.

Comment: The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, “mitigation” is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.

National platform for disaster risk reduction

A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

Comment: This definition is derived from footnote 10 of the Hyogo Framework. Disaster risk reduction requires the knowledge, capacities and inputs of a wide range of sectors and organisations, including United Nations agencies present at the national level, as appropriate. Most sectors are affected directly or indirectly by disasters and many have specific responsibilities that impinge upon disaster risks. National platforms provide a means to enhance national action to reduce disaster

risks, and they represent the national mechanism for the International Strategy for Disaster Reduction.

Natural hazard

Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Natural hazards are a sub-set of all hazards. The term is used to describe actual hazard events as well as the latent hazard conditions that may give rise to future events. Natural hazard events can be characterized by their magnitude or intensity, speed of onset, duration, and area of extent. For example, earthquakes have short durations and usually affect a relatively small region, whereas droughts are slow to develop and fade away and often affect large regions. In some cases hazards may be coupled, as in the flood caused by a hurricane or the tsunami that is created by an earthquake.

Preparedness

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Comment: Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. The related term “readiness” describes the ability to quickly and appropriately respond when required.

Prevention

The outright avoidance of adverse impacts of hazards and related disasters.

Comment: Prevention (i.e. disaster prevention) expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Prospective disaster risk management *

Management activities that address and seek to avoid the development of new or increased disaster risks.

Comment: This concept focuses on addressing risks that may develop in future if risk reduction policies are not put in place, rather than on the risks that are already present and which can be managed and reduced now. See also Corrective disaster risk management.

Public awareness

The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

Comment: Public awareness is a key factor in effective disaster risk reduction. Its development is pursued, for example, through the development and dissemination of information through media and educational channels, the establishment of information centres, networks, and community or participation actions, and advocacy by senior public officials and community leaders.

Recovery

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Comment: The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the “build back better” principle.

Residual risk

The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

Comment: The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery together with socio-economic policies such as safety nets and risk transfer mechanisms.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Comment: Resilience means the ability to “resile from” or “spring back from” a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need.

Response

The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Comment: Disaster response is predominantly focused on immediate and short-term needs and is sometimes called “disaster relief”. The division between this response stage and the subsequent recovery stage is not clear-cut. Some response actions, such as the supply of temporary housing and water supplies, may extend well into the recovery stage.

Retrofitting

Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Comment: Retrofitting requires consideration of the design and function of the structure, the stresses that the structure may be subject to from particular hazards or hazard scenarios, and the practicality and costs of different retrofitting options. Examples of retrofitting include adding bracing to stiffen walls, reinforcing pillars, adding steel ties between walls and roofs, installing shutters on windows, and improving the protection of important facilities and equipment.

Risk

The combination of the probability of an event and its negative consequences.

Comment: This definition closely follows the definition of the ISO/IEC Guide 73. The word “risk” has two distinctive connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in “the risk of an accident”; whereas in technical settings the emphasis is usually placed on the consequences, in terms of “potential losses” for some particular cause, place and period. It can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks.

See other risk-related terms in the Terminology: Acceptable risk; Corrective disaster risk management; Disaster risk; Disaster risk management; Disaster risk reduction; Disaster risk reduction plans; Extensive risk; Intensive risk; Prospective disaster risk management; Residual risk; Risk assessment; Risk management; Risk transfer.

Risk assessment

A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could

potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Comment: Risk assessments (and associated risk mapping) include: a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. This series of activities is sometimes known as a risk analysis process.

Risk management

The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Comment: Risk management comprises risk assessment and analysis, and the implementation of strategies and specific actions to control, reduce and transfer risks. It is widely practiced by organizations to minimise risk in investment decisions and to address operational risks such as those of business disruption, production failure, environmental damage, social impacts and damage from fire and natural hazards. Risk management is a core issue for sectors such as water supply, energy and agriculture whose production is directly affected by extremes of weather and climate.

Risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Comment: Insurance is a well-known form of risk transfer, where coverage of a risk is obtained from an insurer in exchange for ongoing premiums paid to the insurer. Risk transfer can occur informally within family and community networks where there are reciprocal expectations of mutual aid by means of gifts or credit, as well as formally where governments, insurers, multi-lateral banks and other large risk-bearing entities establish mechanisms to help cope with losses in major events. Such mechanisms include insurance and re-insurance contracts, catastrophe bonds, contingent credit facilities and reserve funds, where the costs are covered by premiums, investor contributions, interest rates and past savings, respectively.

Socio-natural hazard *

The phenomenon of increased occurrence of certain geophysical and hydrometeorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.

Comment: This term is used for the circumstances where human activity is increasing the occurrence of certain hazards beyond their natural probabilities. Evidence points to a growing disaster burden from such hazards. Socio-natural

hazards can be reduced and avoided through wise management of land and environmental resources.

Structural and non-structural measures

Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;

Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Comment: *Common structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters. Common non-structural measures include building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programmes. Note that in civil and structural engineering, the term “structural” is used in a more restricted sense to mean just the load-bearing structure, with other parts such as wall cladding and interior fittings being termed non-structural.*

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Comment: *This definition coined by the 1987 Brundtland Commission is very succinct but it leaves unanswered many questions regarding the meaning of the word development and the social, economic and environmental processes involved. Disaster risk is associated with unsustainable elements of development such as environmental degradation, while conversely disaster risk reduction can contribute to the achievement of sustainable development, through reduced losses and improved development practices.*

Technological hazard

A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: *Examples of technological hazards include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires, and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event.*

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Comment: There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure.

** Emerging new concepts that are not in widespread use but are of growing professional relevance; the definition of these terms remain to be widely consulted upon and may change in future.*

Hazard Classification

Source: UNISDR. 2004. Living with Risk. p.39. Table 2.1

Table 2.1

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
Hydrometeorological hazards Natural processes or phenomena of atmospheric, hydrological or oceanographic nature.	<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
Geological hazards Natural earth processes or phenomena that include processes of endogenous origin or tectonic or exogenous origin, such as mass movements.	<ul style="list-style-type: none"> • Earthquakes, tsunamis • Volcanic activity and emissions • Mass movements, landslides, rockslides, liquefaction, sub-marine slides • Surface collapse, geological fault activity
Biological hazards Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances.	<ul style="list-style-type: none"> • Outbreaks of epidemic diseases, plant or animal contagion and extensive infestations

TECHNOLOGICAL HAZARDS

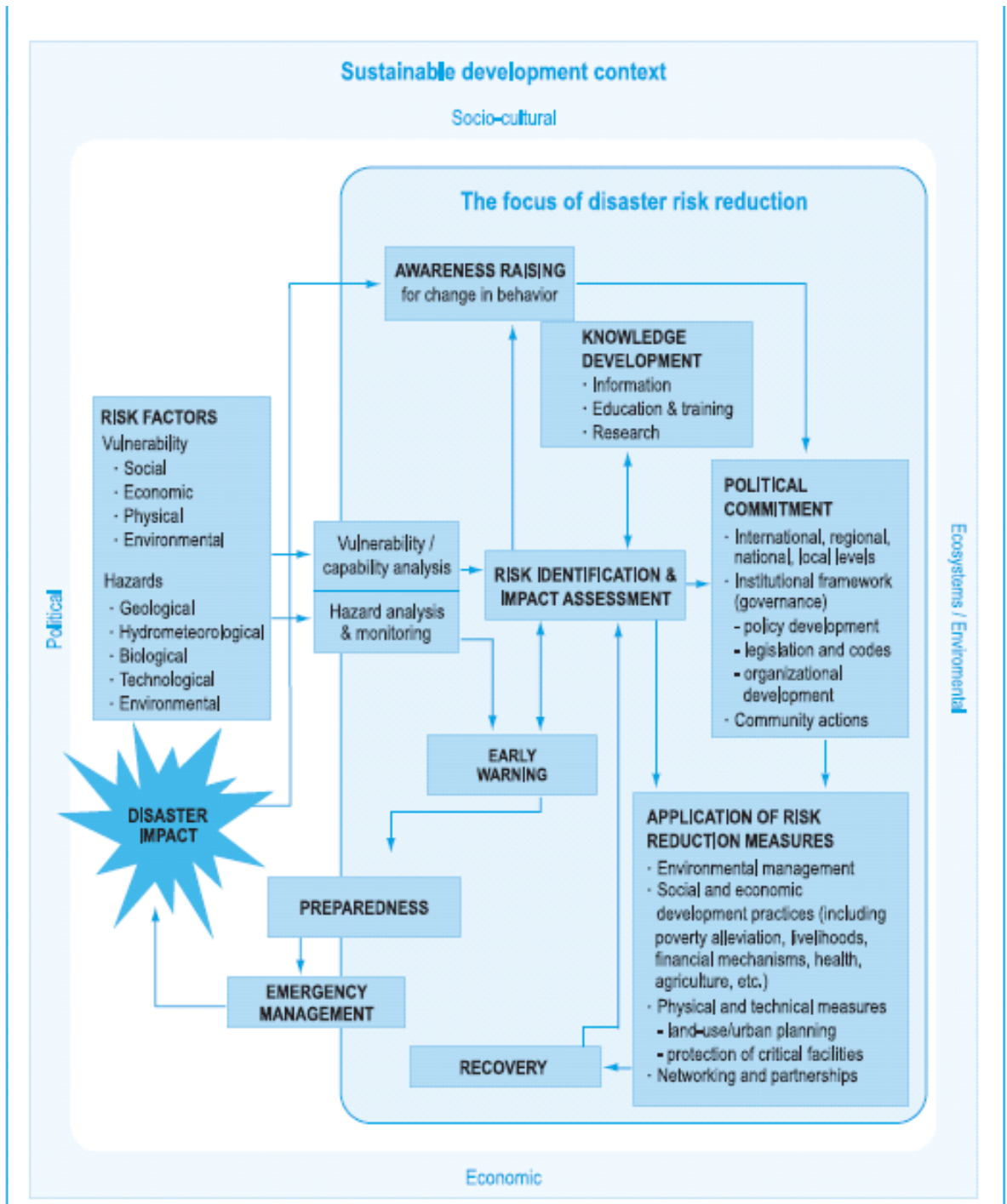
Danger associated with technological or industrial accidents, infrastructure failures or certain human activities which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation, sometimes referred to as anthropogenic hazards. Examples include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

ENVIRONMENTAL DEGRADATION

Processes induced by human behaviour 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.

Framework for Disaster Risk Reduction

Source: UNISDR. 2004. Living with Risk. p.15



Example of references and selected additional reading material

References and a selection of useful additional reading material relevant to the topic and content of session two

Blaikie, P., Cannon, T., Davis, I. & Wisner, B. 1994. At Risk Natural Hazards, people's vulnerability, and disasters. Routledge. London.

Chapter 1: What is vulnerability?

Chapter 2: Disaster Pressure and Release Model.

Twigg, J. 2004. Disaster Risk Reduction. Mitigation and preparedness in development and emergency programming. Good Practice Review No. 9. Overseas Development Institute. London.

Chapter 2: Disasters explained Introduction
2.2 Terms and concepts
2.4 Disaster myths

Chapter 9: Indigenous knowledge and coping strategies

Chapter 15: Slow onset disasters

15.1 Introduction

UNDP. Reducing Disaster Risk: A Challenge for Development. A Global Report. Available at: www.undp.org/bcpr

UNDMTP. 1992. An Overview of Disaster Management. 2nd Edition. UNDP. Geneva.

Chapter 1: Introduction to disasters

Chapter 2: Disaster terminology and phases

Chapter 4: Natural hazards

UNISDR. 2009. Terminology on Disaster Risk Reduction. UNISDR. Geneva. Available at: www.unisdr.org/publications

UNISDR. 2004. Living with Risk: A global review of disaster reduction initiatives. UNISDR. Geneva.

Introduction and preface

Chapter 1: Focus on disaster risk reduction

1.1 Setting the scene: understanding disaster risk reduction

1.2 Context and policy framework of disaster risk reduction: sustainable development

Chapter 2: Risk awareness

2.1 Understanding the nature of risk

2.2 Emerging trends in disaster impact, hazards and vulnerability patterns

