Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

YUNGA LEARNING AND ACTION SERIES
Challenge badge (11)

2707-0123

Disaster Risk Reduction Challenge Badge

YOUTH & UNITED NATIONS GLOBAL ALLIANCE
YUNGA

FAO :: UNDRR :: WAGGGS :: WOSM

This booklet is intended as a guide for teachers and youth leaders. These individuals are responsible for the development of programmes and activities that are suitable for their group and for ensuring the required supervision and safety provisions so that all participants are safe and sound.

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The YUNGA Challenge Badges are developed to support the achievement of the Sustainable Development Goals (SDGs).

This challenge badge is in support of the 13 of October International Day for Disaster Reduction. See the themes of previous years at: www.unisdr.org/we/campaign/iddr

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YUNGA LEARNING AND ACTION SERIES – CHALLENGE BADGES 11 ISSUE 2707-0123

Disaster Risk Reduction Challenge Badge

Developed in collaboration with

Food and Agriculture Organization of the United Nations

UNDRR UN Office for Disaster Risk Reduction

WORLD ASSOCIATION OF GIRL GUIDES AND GIRL SCOUTS

SCOUTS Creating a Better World

The World Organization of the Scout Movement (WOSM) and the World Association of Girl Guides and Girl Scouts (WAGGGS) endorse this educational badge framework for use by Guides and Scouts around the world, if necessary by adapting it to their local needs and requirements.

This publication has been developed through the collaboration of FAO Strategic Programmes 2, Make agriculture, fisheries and forestry more productive and sustainable and 5, Increase the resilience of livelihoods and threats to crises.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS | ROME, 2020

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WELCOME

“Millions of lives have been shattered every year by drought, storms, earthquakes, landslides and heatwaves. The poor and most vulnerable, including women and girls, suffer disproportionately in disasters. Let’s put more effort into tackling disaster risk to create a safer, more sustainable world for all.”

United Nations Secretary general, António Guterres, message for the International Day for Disaster Reduction, 13 October 2017

Natural hazards can strike suddenly, like tsunamis or earthquakes, or gradually over time, like a drought. However, whether they occur rapidly or slowly, they can cause extensive damage to houses, schools, hospitals, food storage facilities, office buildings as well as causing significant damage and losses to the economy, society, agriculture and the environment.

Climate change is among the main drivers of weather-related disasters, such as floods, storms and droughts, which are expected to occur more frequently and severely in the future. Other factors such as, the decline of ecosystems, rapid urbanization, limited institutional capacity and poverty contribute to increasing the risks of occurrence of these disasters. Tackling these issues could help reduce the impact of these floods, storms and droughts.

There are many action that can be taken to reduce damage and losses from these natural hazards and every one of us, entire families and communities, have the power to make a difference, including you! Disaster risk reduction (DRR) focuses on this.

You may think what could you do, as an individual, to make a change against a powerful earthquake or a tsunami? Actually, there are many actions that each of us can take to be better prepared. Already many people and organizations around the world are working hard to promote DRR so as to help people to be prepared and ready before a disaster happens. In this Challenge Badge, you will learn about what hazards and disasters are, and learn how disasters can cause widespread damage and can hurt a country's development for years to come. You will learn how to prevent, reduce and prepare for the impacts of hazards, how recovery works after a disaster strikes and how to take action to contribute to disaster risk reduction (DRR).

Take this booklet and EXPLORE, LEARN and DISCOVER. We hope that this Challenge Badge will help you better understand disaster risks and the ways they can be reduced and motivate you to take action and become positive drivers of change in your communities and within international arenas.

Be prepared, be aware, be ready and take action!!!

Dominique Burgeon

Director, Emergency and Resilience Division and
Strategic Programme Leader – Resilience,
Food and Agriculture Organization of the United Nations (FAO)

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BE SAFE AND SOUND!

DEAR LEADER OR TEACHER,

The Challenge Badges are designed to support you in undertaking educational activities. However, as you will be implementing these activities in different contexts and environments, it is up to you to ensure that the activities you choose are appropriate and safe.

Exploring the great outdoors is a fantastic way to learn about the natural world; nevertheless, it is important to take some precautions to ensure nobody gets hurt. Please plan carefully and make sure you have enough adult support to keep participants safe, especially when near water or fire. On the next page are some general precautions to consider.

LOOK AFTER YOURSELF

- Know the national emergency number(s) of your country.
- Keep a list of emergency telephone numbers.
- Prepare an emergency kit or (waterproof) backpack with, for example, water, non-perishable food, a flashlight, first-aid kit, clothing, essential medication, valuables.
- Keep important documents, and personal papers in a safe place and readily available.
- Make a family emergency/evacuation plan.
- Identify escape routes out of your home (in case of a fire, an earthquake, etc.) and agree on a place to meet up if you get separated.

LOOK AFTER THE NATURAL WORLD

- Treat nature with respect and become familiar with your surroundings so that you may observe any changes, for instance when it takes more time for people to fetch water from the river to their homes due to a reduced water level that could indicate a dry spell or drought.
- Make sure that camp fires are completely out when you leave the site or going to sleep to reduce the risk of wild fire.
- Know the signs of an approaching tsunami: severe ground shaking from an earthquake; water may recede from the coast, exposing the ocean floor and a loud roar from the ocean that sounds similar to that of a train or an airplane.
- Be aware of warning signs of high avalanche risk: recent avalanche activity such as cracking, whooping sounds of the snow pack, significant snowfall in the last 24 hours, strong winds and recent increases in temperature.

SUSTAINABLE DEVELOPMENT GOALS

Since 2015, the Sustainable Development Goals (SDGs) have succeeded the Millennium Development Goals. They are a set of targets that governments, civil society organizations, United Nations agencies and other entities are working towards achieving by 2030 to ensure a more sustainable future for all.

The Youth and United Nations Global Alliance (YUNGA) actively supports the achievement of the SDGs through the development of initiatives, activities and resources such as the United Nations Challenge Badges and by promoting and encouraging young people to be active citizens in their communities. Additional Challenge Badges are being developed to further support the SDGs.

thegoals.org is an online platform connecting youth groups all over the world to tackle the SDGs in a fun, interactive way. Available on any internet-enabled device and aimed at young people who want to learn about the SDGs and take action.
Visit: **http://wagggs.thegoals.org**

THERE ARE 17 SDGs:

1 – NO POVERTY
End poverty in all its forms everywhere

2 – ZERO HUNGER
End hunger, achieve food security and improved nutrition

3 – GOOD HEALTH AND WELL-BEING
Ensure healthy lives and promote well-being for all at all ages

4 – QUALITY EDUCATION
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

5 – GENDER EQUALITY
Achieve gender equality and empower all women and girls

6 – CLEAN WATER AND SANITATION
Ensure availability and sustainable management of water and sanitation for all

7 – AFFORDABLE AND CLEAN ENERGY
Ensure access to affordable, reliable, sustainable and modern energy for all

8 – DECENT WORK AND ECONOMIC GROWTH
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

9 – INDUSTRY, INNOVATION AND INFRASTRUCTURE
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

10 – REDUCED INEQUALITIES
Reduce inequality within and among countries

11 – SUSTAINABLE CITIES AND COMMUNITIES
Make cities and human settlements inclusive, safe, resilient and sustainable

12 – RESPONSIBLE CONSUMPTION AND PRODUCTION
Ensure sustainable consumption and production patterns

13 – CLIMATE ACTION
Take urgent action to combat climate change and its impacts

14 – LIFE BELOW WATER
Conserve and sustainably use the oceans, seas and marine resources for sustainable development

15 – LIFE ON LAND
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

16 – PEACE, JUSTICE AND STRONG INSTITUTIONS
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

17 – PARTNERSHIPS FOR GOALS
Strengthen the means of implementation and revitalize global partnership for sustainable development

Disaster risk reduction (DRR) is a topic that relates to every SDG.

Ending poverty (Goal 1) **and inequality** (Goal 10) is relevant because poor people are more likely to live in areas exposed to hazards, and they also have less access to the resources needed to reduce risk and to cope with and recover from disasters. See the graphic on pp.14-15 to see how the poorest tend to suffer the effects of hazards the most.

Poverty

Around **90 percent** of people killed by disasters between 1996 and 2015 were from low or lower-middle income groups.

Agriculture and food security

In Jamaica, hurricane Sandy hit in 2012 with disastrous impacts. It was estimated that **11 000 farmers** across the island where affected, with some 1 500 hectares of crops totally destroyed. High value crops like bananas, coffee and sugarcane, which are important for the food security and livelihoods of local people were those most damaged.

Education (Goal 4) is important, too, because knowledge and awareness can empower people to cope with hazards and find solutions to avoid disaster. Also, disasters often damage or destroy schools, disrupting education. **Gender equality** (Goal 5) is another SDG that has links to DRR, as women and girls tend to be disproportionately affected by disasters.

Gender

Women and girls are **14 times** more likely to die or be injured in the wake of a natural disaster. During the monsoon season in Bangladesh, flooding disproportionately affects women and girls, as many cannot swim or are unable to leave their homes due to cultural barriers.

Clean water and sanitation (Goal 6) and **affordable and clean energy** (Goal 7) are also closely tied to DRR.

Disasters can disrupt supplies of water and energy, and destroy sanitation infrastructure. Also, intensive use of unclean energy is contributing to climate change, which, in turn, is increasing the risk of disasters. **Industry, innovation and infrastructure** (Goal 9) also has clear links to DRR, as improvements in technology and infrastructure can help us prepare better for natural hazards. **Building sustainable cities and communities** (Goal 11) and **taking action on climate change** (Goal 13) are crucial for DRR, and we will take a closer look at these goals below. **Preserving life on land** (Goal 15) also has huge implications for DRR, for example deforestation causes soil erosion and flooding. **Building strong partnerships** (Goal 17) can also be a powerful way to address DRR, for example by providing financial and technical assistance to developing countries.

Water and sanitation

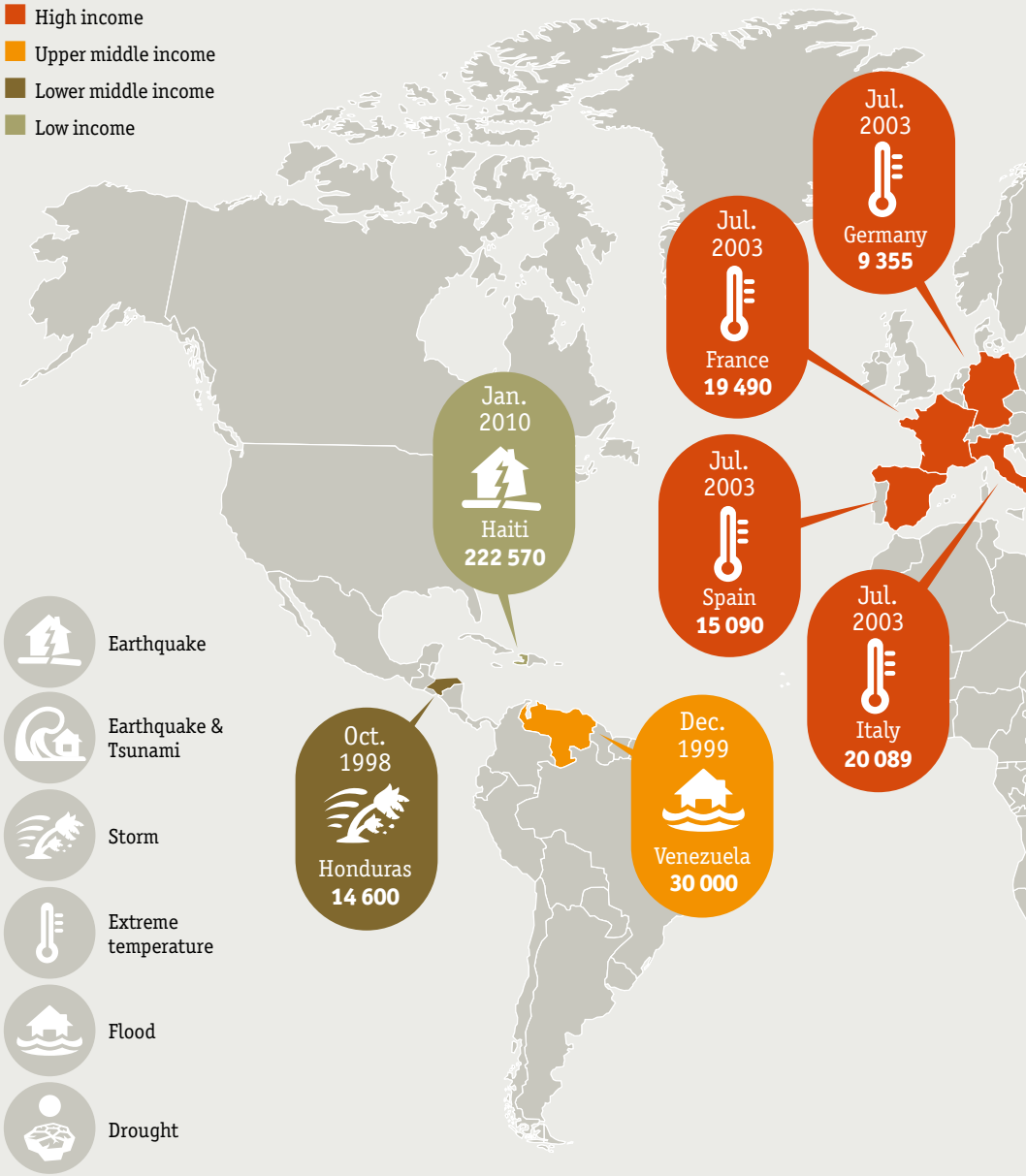
In Pakistan, in 2005, a 7.9 magnitude earthquake destroyed the water and sanitation infrastructure, making it necessary to provide emergency supplies to **1.7 million** people.

Partnerships

Mexican fisher folk whose livelihoods were devastated by Hurricane Isidore invested in risk management that saved each on average **USD 35 000** when Hurricane Wilma hit three years later.

Learn more about how DRR links to the 17 SDGs:
www.unisdr.org/we/inform/publications/50438

The 20 most deadly disasters of the last 20 years (1996-2015)



Source: Adapted from CRED and UNISDR (2016) *Poverty and death: Disaster mortality 1996-2015*
Map conforms to United Nations World map, February 2019

LET'S LOOK IN MORE DETAIL AT

GOALS 11 AND 13

which include specific elements of DRR

GOAL 11
Sustainable cities and communities

What's the goal here?

To make cities inclusive, safe, resilient and sustainable.

Why?

Half of humanity, 3.5 billion people, lives in cities today, and this number will continue to grow. So, the solutions to some of our biggest challenges such as poverty, climate change, healthcare, education must be found in city life. Also, the large numbers of people living close together in cities means that natural hazards could have a potentially huge impact on cities, hurting, damaging and destroying people, property and infrastructure. Making cities resilient is crucial to avoid human, social and economic losses.

> By 2030, almost 60 percent of the world's population will live in urban areas.

Some of the targets of Goal 11

- By 2030, reduce the number of deaths and the number of people affected by disasters. Decrease economic losses caused by disasters, with a focus on protecting the poor and people in vulnerable situations.
- By 2020, increase the number of cities and human settlements with policies and plans for inclusion, resource efficiency, climate change mitigation and adaptation, and resilience to disasters. Develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.
- Help least developed countries, including through financial and technical assistance, to build sustainable and resilient buildings, using local materials.

GOAL 13

Climate action

What's the goal here?

To take urgent action to tackle climate change and its impacts.

Why?

Climate change is caused by human activities and is threatening the way we live and the future of our planet. Severe weather and rising sea levels are likely to increase the number and scale of disasters. So by addressing climate change, we can build a safer and more sustainable world for everyone.

Some of the targets of Goal 13

- Strengthen all countries' resilience and ability to adapt to climate-related hazards and natural disasters.
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
- Help least developed countries and small island developing states plan effectively for climate change, including a focus on women, youth and marginalized communities.

Sustainable Development GOALS

Why don't you explore with your group which 'targets' you could contribute towards achieving in your local community? Find out more about the Sustainable Development Goals at: **www.fao.org/yunga/global-citizens/sdgs/en** and **http://sustainabledevelopment.un.org/topics**

If you have access to a smartphone, you could then create and record your actions using the SDGs in action app: **https://sdgsinaction.com**

THE CHALLENGE BADGE SERIES

Developed in collaboration with United Nations agencies, civil society and other organizations, the YUNGA Challenge Badges are intended to raise awareness, educate and motivate young people to change their behaviour and be active agents of change in their local communities. The Challenge Badge series can be used by teachers in school classes as well as by youth leaders, especially Guide or Scout groups.

To see existing badges, go to www.fao.org/yunga/resources/en.

To receive updates on new releases and other YUNGA news, register for the free YUNGA newsletter by emailing yunga@fao.org

YUNGA has or is currently developing badges on the following topics:

AGRICULTURE: How can we grow food in a sustainable way?

BIODIVERSITY: Let's make sure no more of the world's glorious animals and plants disappear!

CLIMATE CHANGE: Join the fight against climate change and for a food secure future!

DISASTER RISK REDUCTION: Know the dangers in your natural environment and reduce them.

ENERGY: The world needs a healthy environment as well as electricity and heat – how can we have both?

FORESTS: Forests provide homes for millions of plant and animal species, help regulate the atmosphere and provide us with essential resources. How can we ensure they have a sustainable future?

GENDER: What actions can be taken to ensure a more equal and fair world for girls and boys, women and men?

GOVERNANCE: Discover how decision-making can affect your rights and equality among people around the world.

HUNGER: Having enough to eat is a basic human right. What can we do to help the 1 billion people who still go hungry every day?

NUTRITION: What is a healthy diet and how can we make food choices that are environmentally friendly?

THE OCEAN: The ocean is mesmerizing and amazing. It helps regulate temperatures on Earth, provides us with resources and much, much more.

SOILS: Without good soil, nothing grows. How can we take care of the ground under our feet?

WATER: Water is life. What can we do to safeguard this precious resource?

CREATING BEHAVIOUR CHANGE

We work with young people because we want to support them in leading fulfilling lives, help them prepare for their futures, and for them to believe that they can make a difference in the world. The best way to make this difference is by encouraging young people to embrace long-term behaviour change. Many current social and environmental problems are caused by unhealthy or unsustainable human behaviour. Most people need to adapt their behaviour, and not just for the duration of a project such as working on this badge, but for life. Young people know more about these issues than ever before, but still behave in detrimental ways. It is clear that simply raising awareness is not enough to change behaviour.

So what can you do?

There are some proven ways of promoting behaviour change, so to increase the long-term impact of this Challenge Badge, try to do the following:

FOCUS ON SPECIFIC, ACHIEVABLE BEHAVIOURAL CHANGE
Prioritize activities that target very clear and specific behaviour change (e.g. "arrange for emergency drills and plans in your home and school").

ENCOURAGE ACTION PLANNING AND EMPOWERMENT
Put young people in charge: let them choose their own activities and plan how to carry them out.

CHALLENGE CURRENT BEHAVIOUR AND TACKLE BARRIERS TO ACTION Encourage participants to scrutinize their current behaviour and think about how it could be changed. Everyone has excuses for why they don't behave in a particular way; lack of time, lack of money, not knowing what to do… the list goes on. Encourage young people to voice these excuses and then find ways around them.

PRACTISE ACTION SKILLS You'd like to take public transport more often? Collect and practise reading timetables, plot out routes on a map, take a walk to the bus stop, find out what the fare is, do a trial journey. You'd like to eat more healthily? Try lots of healthy foods to see which you like, experiment with recipes, learn how to read food labels, create meal planners, visit the shops to find healthy foods on their shelves. Keep practising until it becomes a habit.

SPEND TIME OUTDOORS No one is going to look after something they don't care about. Time spent in natural environments – whether that is the local park or a pristine wilderness – encourages an emotional connection with the natural world that is proven to lead to more pro-environmental behaviour.

GET FAMILIES AND COMMUNITIES INVOLVED Why change the behaviour of just one young person when you could change the behaviour of their entire family, or even the whole community? Spread your message more widely: showcase what you have been doing for the local community and encourage young people to pester their family or friends to join in. For an even bigger impact, get political and lobby your local or national government.

MAKE A PUBLIC COMMITMENT People are far more likely to do something if they agree to do it in front of witnesses or in a written statement – why not take advantage of this?

MONITOR CHANGE AND CELEBRATE SUCCESS Behaviour change is hard work! Revisit tasks regularly to monitor achievement and reward continued success in an appropriate way.

LEAD BY EXAMPLE The young people you work with look up to you. They respect you, care about what you think and want to make you proud. If you want them to embrace the behaviour you are advocating, then you must lead by example and make those changes yourself.

TIPS ON UNDERTAKING THE BADGE WITH YOUR GROUP

In addition to the suggestions above encouraging behavioural change, the following ideas are intended to help you develop a programme to undertake the Challenge Badge with your group.

STEP 1

Encourage your group to learn about DRR and how it is crucial for achieving the SDGs. You may find the background information is useful for this. Start by raising participants' awareness about the difference between hazards and disasters. Make sure they understand that there is no such thing as a "natural disaster"; rather, it is factors such as poverty and environmental degradation that make us vulnerable to hazards. Explain how, apart from causing death and destruction, disasters can worsen poverty, cause food and water shortages, and hurt health, infrastructure and well-being. Then discuss with the group how disaster risk reduction (DRR) is a powerful approach for making us resilient to hazards. Explain how even our individual choices and actions can help make a positive difference.

STEP 2

Apart from the compulsory activities, which ensure that participants understand basic concepts and issues related to DRR, participants are encouraged to select the activities that best match their needs, interests and culture. As far as possible, let the participants choose which activities they want to do. Some activities can be done individually, others in small groups. If you have another activity that is especially appropriate for your group or area, you may also include it as an additional option.

STEP 3

Allow enough time for the group to carry out the activities. Support and guide them through the process but make sure they carry out their tasks as independently as possible. Many activities can be conducted in several different ways. Encourage participants to think and act creatively when undertaking their activities.

STEP 4

Have participants present the results of their Challenge Badge activities to the rest of the group. Do you notice any changes in their attitudes and behaviour? Encourage participants to think about how their daily activities can promote DRR. Discuss the experience and reflect on how they can continue to apply it in their lives.

STEP 5

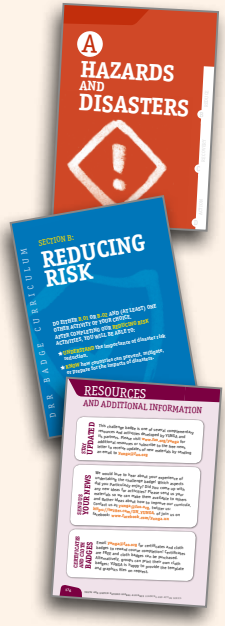
Organize a celebration for those who successfully complete the badge curriculum. Invite families, friends, teachers, journalists and community leaders to participate in the celebration. Encourage your group to present the results of their project to the community in a creative way. Award them with certificates and challenge badges (see page 176 for details).

STEP 6 SHARE WITH YUNGA!

Send us your stories, photos, drawings, ideas and suggestions. We are always delighted to hear how you have been using these Challenge Badges and we always want to improve our resources, so contact us at: **yunga@fao.org**.

INTRODUCTION TO THE DISASTER RISK REDUCTION (DRR) CHALLENGE BADGE

The DRR Challenge Badge is designed to help educate children and young people about the crucial role disaster risk reduction plays for life on our planet.



This booklet includes **basic background information** on disaster risk reduction (DRR). It explains what hazards are and what makes some hazards turn into disasters. It explains the factors that put people at risk, and which groups are more vulnerable. It then provides information on preventing, reducing, and preparing for specific hazards. It explains what is involved in recovery work, and finally, provides concrete actions for making a difference on an individual level.

Naturally, some of this material will be more appropriate for certain ages than others. Leaders should select the topics and level of detail most appropriate for their group. For example, you may wish to skip the more complicated issues with younger groups, but you will probably wish to conduct further research beyond the badge with older groups.

The second part of the booklet (**badge curriculum**) contains a range of activities and ideas to stimulate learning and motivate children and young people to engage in disaster risk reduction (DRR).

Additional resources, useful Web sites and a glossary explaining key terms (that are highlighted in the text like **this**) are provided at the end of the booklet.

Badge learning and behaviour change objectives

With this DRR Challenge Badge you will:

- **learn** about the different types of natural hazards and disasters as well as those that have occurred in the past;
- **find out** what is disaster risk reduction (DRR) and what can be done to reduce disaster risks;
- **discover** what types of recovery, rehabilitation and reconstruction work can be undertaken after a disaster has happened;
- **take action** on helping yourself, your family and community to be better prepared before, during and after a disaster has occurred.

BADGE CONTENT AND CURRICULUM

This booklet is designed to help you develop an educational programme for your class or group on DRR. However, teachers and youth leaders should use their own judgement to develop an appropriate curriculum for their group. This could incorporate additional activities not listed in this booklet, but which allow you to achieve all the educational requirements. Remember the key objective of the challenge badge is to educate, inspire and, most of all, motivate action and behaviour change.

Badge Structure

The background information (pp. 34–153) and the activities (pp. 154–174) are divided into four main sections:

A. **HAZARDS AND DISASTERS**: an introduction to what hazards and disasters are

B. **REDUCING RISK**: how to prevent, reduce and prepare for the impact of hazards

C. **RECOVERY**: what happens after disaster strikes

D. **TAKE ACTION**: how all of us can help in disaster risk reduction

Requirements: To earn the badge, participants must complete one of the two compulsory activities presented at the beginning of each section, plus (at least) one additional activity from each section, chosen individually or as a group (see graphic below). Participants can also complete additional activities considered appropriate by the teacher or leader.

Section A: HAZARDS AND DISASTERS

1 compulsory activity (A.1 or A.2) & at least 1 optional activity (A.3 - A.10)

+

Section B: REDUCING RISK

1 compulsory activity (B.1 or B.2) & at least 1 optional activity (B.3 - B.10)

+

Section C: RECOVERY

1 compulsory activity (C.1 or C.2) & at least 1 optional activity (C.3 - C.10)

+

Section D: TAKE ACTION

1 compulsory activity (D.1 or D.2) & at least 1 optional activity (D.3 - D.10)

=

DRR Challenge Badge
COMPLETED!

Age ranges of activities

To help you and your group select the most appropriate activities, a coding system is provided to indicate the age group(s) for which each activity is most suitable. Next to each activity, a code (for example "Levels 1 and 2") indicates that the activity should be suitable for five to ten-year-olds and 11 to 15-year-olds. Please note that this coding is only indicative. You may find that an activity listed at one level is suitable for another age group in your particular location.

LEVEL

1 **Five to ten-years-old**

2 **11 to 15-years-old**

3 **16 to 20-years-old**

REMEMBER!

In addition to learning and skills-building, the badge activities should be **FUN**. Encourage participants to enjoy the process of earning the badge and have fun while learning about DRR and its importance. The ultimate objectives of the badge are to stimulate interest in DRR, motivate individuals to change their behaviour and create local and international action.

SAMPLE BADGE CURRICULA

The sample curricula for the different age groups below provide examples of how the badge could be earned and are intended to help you in developing your own programme.

LEVEL

1 **Five to ten-years-old**

2 11 to 15-years-old

3 16 to 20-years-old

Each activity has a specific learning aim, but, in addition to this, children will have the opportunity to learn additional, more general skills including:

* TEAMWORK
* IMAGINATION AND CREATIVITY
* OBSERVATION SKILLS
* AN INTEREST IN SCIENCE, THE EARTH AND PHYSICAL PROCESSES
* CULTURAL AND ENVIRONMENTAL AWARENESS
* NUMERICAL AND LITERACY SKILLS

SECTION	ACTIVITY	LEARNING OBJECTIVE
A Hazards and disasters	**A.1: Study a hazard** (p.155)	To build teamwork and an interest in the Earth
	A.5: Make a model volcano (p. 156)	To encourage a scientific style of thinking through creativity
B Reducing risk	**B.2: Building better** (p. 161)	To encourage creativity and imagination
	B.7: Quake ready (p.163)	To motivate curiosity and asking questions
C Recovery	**C.2: Empathy for ecosystems** (p.165)	To raise awareness and nurturing of the natural environment
	C.4: You tell 'em (p.166)	To encourage confidence to speak out and share opinions
D Take action	**D.1: Community awareness day** (p.171)	To motivate activism for disaster risk reduction among family, friends and the community
	D.2: Home inspection (p.171)	To build observation skills

LEVEL

1 Five to ten-years-old

2 **11 to 15-years-old**

3 16 to 20-years-old

As in Level 1, each activity in Level 2 has a specific learning aim, but also fosters additional, more general skills including:

* **TEAMWORK AND INDEPENDENT STUDY SKILLS**
* **IMAGINATION AND CREATIVITY**
* **OBSERVATION SKILLS**
* **CULTURAL AND ENVIRONMENTAL AWARENESS**
* **RESEARCH SKILLS**
* **PRESENTATION AND PUBLIC SPEAKING SKILLS**
* **THE ABILITY TO PRESENT AN ARGUMENT AND DEBATE**

SECTION	ACTIVITY	LEARNING OBJECTIVE
A Hazards and disasters	**A.2: Hazards and disasters near home** (p.155)	To build research skills
	A.7: On the move (p.157)	To encourage observation and empathy
B Reducing risk	**B.1: Scoping out the landscape** (p.161)	To build empathy for nature
	B.6: Quiz time (p.162)	To encourage team work and build knowledge
C Recovery	**C.1: Meet the experts** (p.165)	To build curiosity and introspection
	C.6: Female perspective (p.167)	To increase gender-sensitivity and awareness
D Take action	**D.2: Home inspection** (p.171)	To motivate positive behaviour change
	D.6: Connect with the community (p.173)	To share information on disaster prevention, mitigation and preparedness

LEVEL

1 Five to ten-years-old

2 11 to 15-years-old

3 16 to 20-years-old

The general skills a Level 3 curriculum seeks to develop include:

* **TEAMWORK AND INDEPENDENT STUDY**
* **IMAGINATION AND CREATIVITY**
* **OBSERVATION SKILLS**
* **CULTURAL AND ENVIRONMENTAL AWARENESS**
* **TECHNICAL SKILLS AND THE ABILITY TO RESEARCH COMPLEX ISSUES**
* **PRESENTATION AND PUBLIC SPEAKING SKILLS**
* **THE ABILITY TO PRESENT AN ARGUMENT AND DEBATE**

SECTION	ACTIVITY	LEARNING OBJECTIVE
A Hazards and disasters	**A.2: Hazards and disasters near home** (p.155)	To build research skills
	A.8: In a hurry (p.157)	To build scientific thinking
B Reducing risk	**B.2: Building better** (p.161)	To encourage innovation and thinking out of the box
	B.9: Changing for climate change (p.163)	To improve observation and understanding of climate change impacts
C Recovery	**C.1: Meet the experts** (p.165)	To build curiosity and introspection
	C.7: Disaster digging (p.167)	To research complex issues and place them in context
D Take action	**D.1: Community awareness day** (p.171)	To motivate activism for disaster risk reduction among family, friends and the community
	D.8: Persuade and prepare (p.173)	To build research, analytical and presentation skills

BACKGROUND INFORMATION

The following section provides an overview of the key issues related to disaster risk reduction (DRR). It is intended to help teachers and youth leaders prepare their sessions and group activities without having to search for the information. Naturally, not all the materials will be required for all age groups and activities. Leaders and teachers should therefore select topics and levels of detail more appropriate for their group.

Equally, you may find you need additional information or resources for the older participants. You may want to allow older children to read the material themselves, so longer sections are subdivided into "factsheets" that can be photocopied easily.

A HAZARDS AND DISASTERS

A1: What is a hazard?

A2: What is a disaster?

A3: What makes people vulnerable?

A4: Climate change and disasters

B REDUCING RISK

B1: Disaster risk reduction

B2: Prevention & mitigation

B3: Preparedness

B4: Climate change adaptation

C RECOVERY

C1: Search and rescue

C2: Relief work

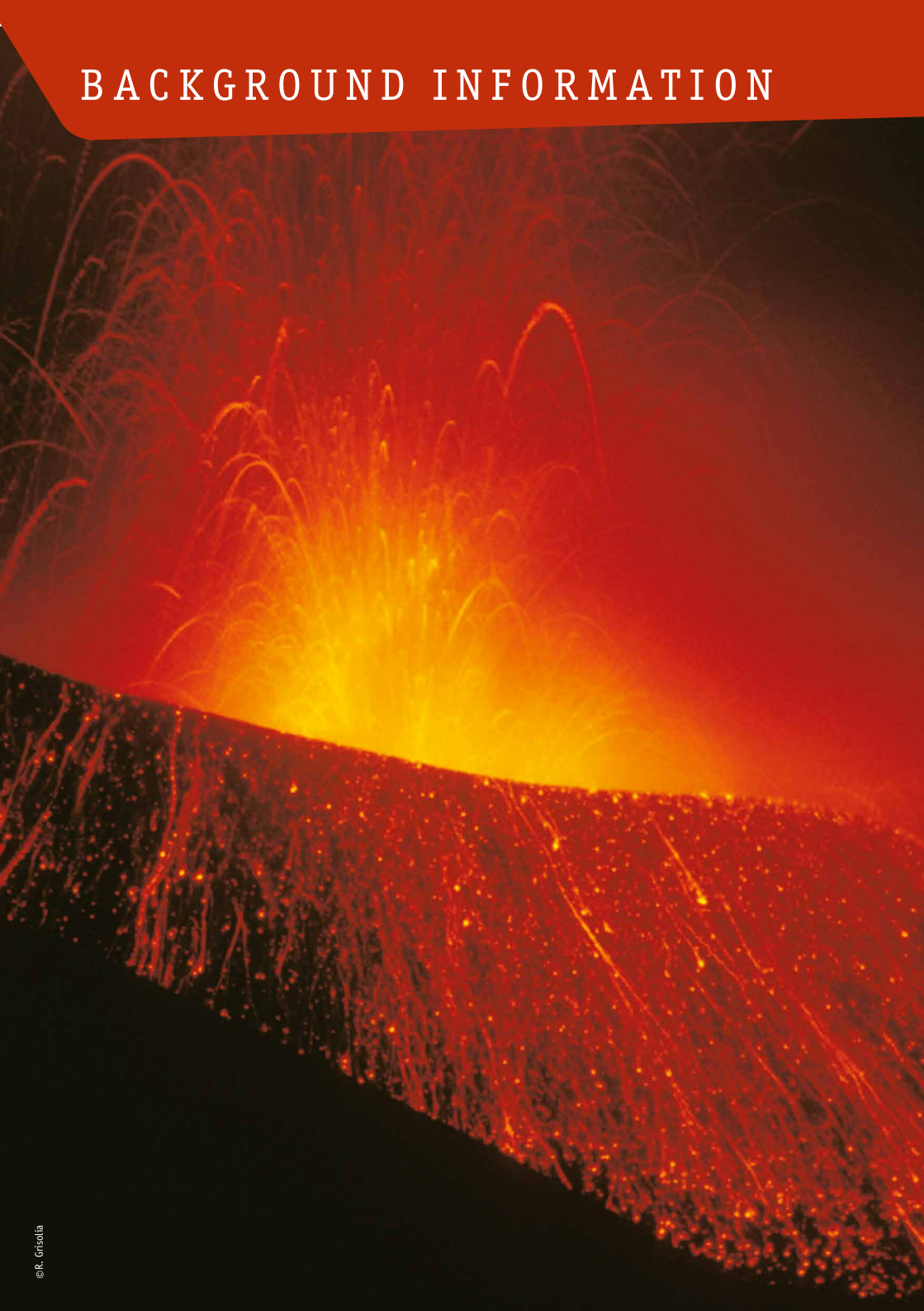
C3: Recovery and "Build Back Better"

D TAKE ACTION

D1: You can make the difference

D2: A world of effort

BACKGROUND INFORMATION



A HAZARDS AND DISASTERS

B REDUCE

C RECOVERY

D ACTION

These are not scenes from an action movie.

They are descriptions of volcanoes, earthquakes, and tsunamis – examples of real-life events known as natural hazards.

The Challenge Badges are all about how **you** can take action and make a difference. At this point, you might be wondering: what on Earth can I do to prevent an earthquake or a volcano? Put on a cape and turn into Superman or Wonder Woman?

Nothing quite so farfetched. But you might be surprised to learn there **are** things you can do to reduce damage from hazards like the ones described above. In this badge, we're going to explore what those things are. We're going to learn more about hazards, and the difference between hazards and **disasters**. And, most importantly, how we can prevent or reduce the damage they cause, and be prepared for them when they do occur.

A1 WHAT IS A HAZARD?

A **hazard** is a process, phenomenon, or human activity that may cause death and injury. It can also hurt health, damage property and cause social, economic, and environmental damage.

Did you notice that the above definition mentions human activity as a possible cause of a hazard? Hazards can broadly be classified as either **natural** or **anthropogenic** (caused by humans).

INTRO TO ANTHROP

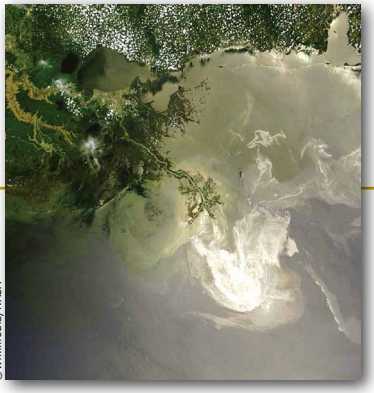
Does *anthrop* keep popping up in your reading and learning? It is a Greek word that means human. A few examples: anthropology means the study of humans, anthropomorphic (try saying it fast) means human-like, and anthropogenic means caused by humans. It sometimes gets hidden within words too, like philanthropist, which literally means someone who loves humans, but generally describes someone who donates money to good causes.

©R. Grisolia

Types of hazards

Anthropogenic hazards

These human-induced hazards are also called **technological hazards** because they stem from accidents and problems related to using technology. Examples include environmental **degradation**, **nuclear energy radiation**, chemical spills, industrial accidents and power outages.



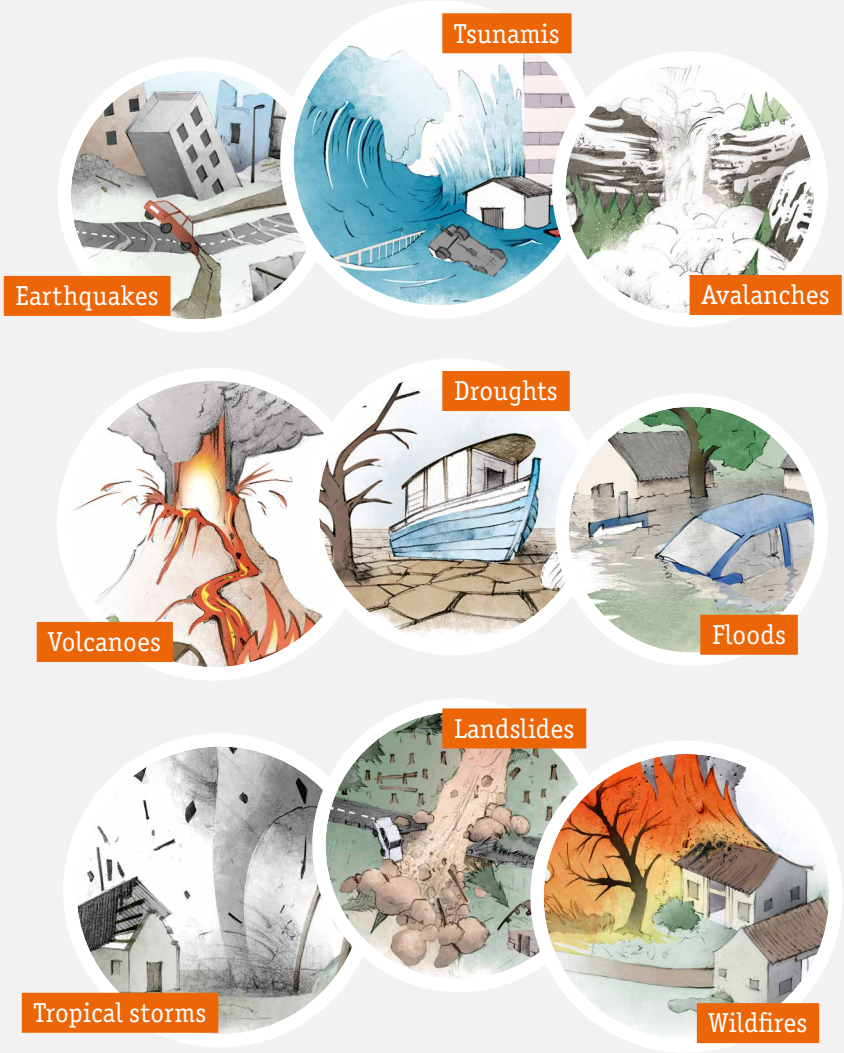
©Wikimedia/NASA

Natural hazards

Natural hazards refer to processes and phenomena that occur in nature. They can be **geophysical** (**earthquakes, tsunamis**, **volcanic** activity, landslides), **hydrological** (**avalanches**, **floods**), **meteorological** (**cyclones** and storms, extreme temperatures), climatological (**drought**, wildfires) and **biological** (disease **epidemics**: animal and plant pests and diseases).

For the purposes of this badge, we will mainly focus on natural hazards and how these can often turn into disasters. (However, in Sections B2 and B3 we will explore ways to prevent and prepare for **wildfires**, which are most often caused by humans).

Natural hazards



Earthquakes

You wouldn't know by looking at the ground, but the Earth's surface is a mover and shaker. Large pieces of the surface, known as "plates," are constantly moving. Luckily for us, they move at a pace that make sloths look like racing cars. (The fastest plate moves about 15 centimetres in one year). Earthquakes happen when one plate bumps into another. This happens all the time, but the more powerful collisions can cause buildings to collapse, set off fires, and cause widespread death and injury. They can also set off landslides, tsunamis, and flooding.

DID YOU KNOW?

Scientists measure how powerful an earthquake is using a method called the Richter scale. The Richter magnitude number range from one to ten. The earthquakes with a magnitude of less than two are very small and cannot even be felt, whereas a six is considered "strong" and a ten on the Richter scale has never been recorded.

Learn more:
https://wiki.kidzsearch.com/wiki/Richter_scale

SHAKY GROUND...

About half a million earthquakes happen every day! We don't feel most of them because the quake is too small, too far below the surface, or deep in the sea.

Source: National Geographic Kids

Find more fun facts about earthquakes:
www.kids.nationalgeographic.com/explore/science/earthquake/#earthquake-houses.jpg

Tsunamis

A tsunami is one or more large ocean waves, usually caused by an underwater earthquake, volcanic explosion, landslide or rapid changes in atmospheric pressure, which can displace the sea level and cause a huge wave to form. Tsunami waves can travel at speeds of up to 1 000 kilometres per hour in the deep ocean. But they slow down to a few tens of kilometres per hour when they reach the shore. Tsunamis can happen very suddenly, and can have devastating impacts on populations that live along the coast.

OCEAN-WIDE DISASTER

Tsunami waves can travel thousands of kilometres away from the place where it started and can result in massive destruction when they reach the coastline. For example, in 1960 an earthquake on the coast of Chile with 20-meter high tsunami waves devastated the country's coastal towns and killed 2000 people. While the same tsunami also killed 61 persons in Hawaii, 20 in the Philippines, and 139 in Japan as the waves travelled such long distances.

DID YOU KNOW?

Tsunami waves can be as huge as **30 m** – which is the same height as a **9 story building**.

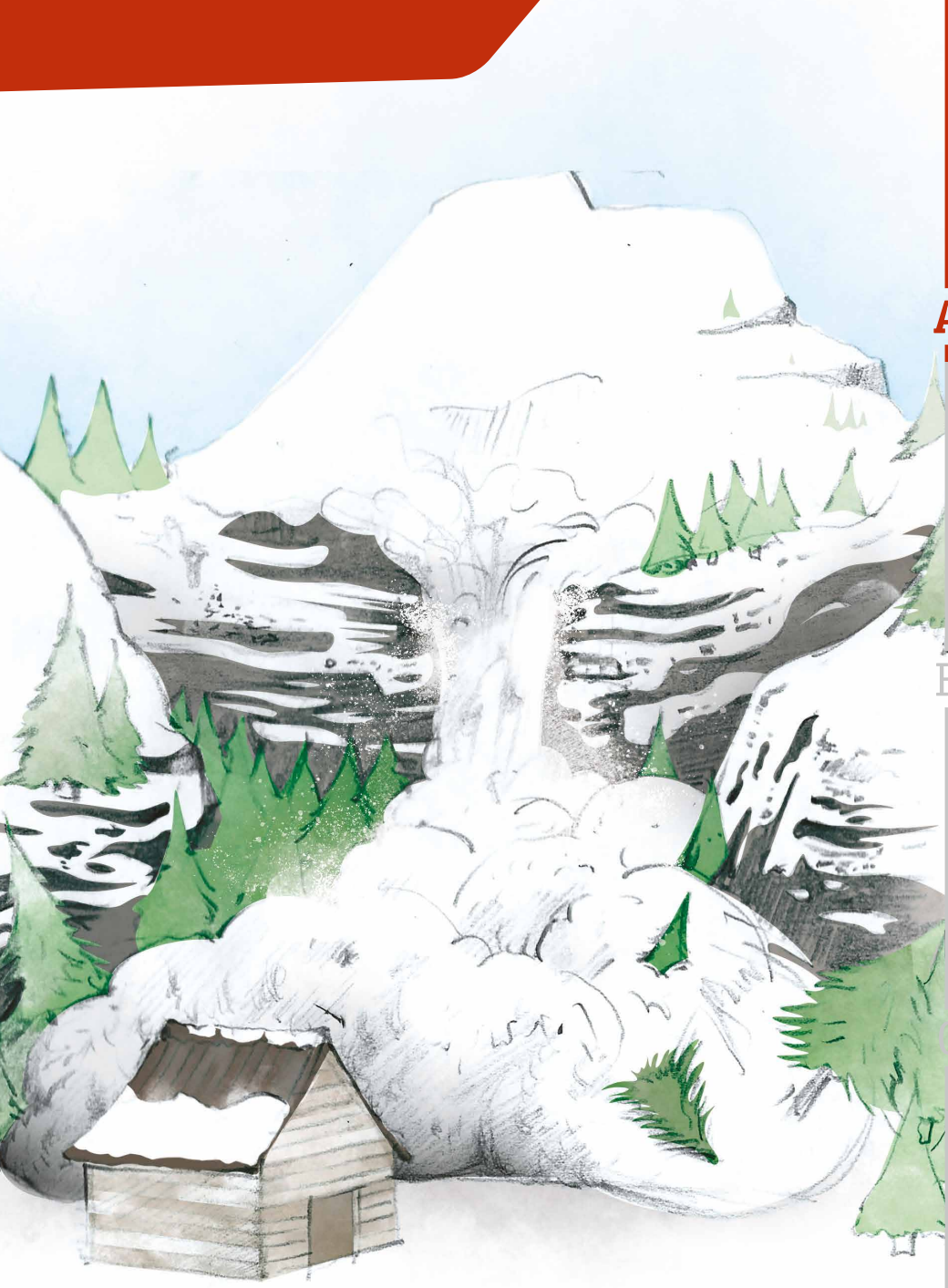
Avalanches

Avalanches occur naturally and can be triggered by, for instance, rain or warm temperatures that results in the melting of the top layer of snow, but also due to earthquakes. However, some of the avalanches are triggered by humans, for instance, when somebody walks or rides over the snow where there is an underlying weak layer and this layer collapses, which results in the overlaying mass of snow to fracture and start to slide. Avalanches are most common during the winter, when there is a thick layer of snow on a mountain slope. It can occur after a snow storm when a lot of snow falls on the underlying snowpack and results in a weak layer that "slips" on the lower surface and starts to rapidly move down the mountain. Small avalanaches are usually made of ice, snow and air, but lager avalanches also include rocks, trees, debris, and even mid. Avalanches kill more than 150 people around the world each year. [*Source*: **www.kidskonnect.com/science/avalanche**]

THE DANGERS OF AN AVALANCHE!

Avalanches usually happen suddently and can be deadly. In 1970, a large avalanche was caused by a huge magnitude-8 earthquake, which led to the loss of around 100 000 peoples' lives as it completely buried the Peruvian towns of Yungay and Ranrahirca.

Learn more about avalanches here:
www.nationalgeographic.org/encyclopedia/avalanche



Volcanoes

A volcano is an opening, usually in a mountain, in the Earth's surface, from which gas, hot **magma** (fluid or semifluid material below the Earth's crust), and gas can escape. Volcanoes usually form along the edges of where the plates in the Earth's crust meet.

Volcanoes erupt in different ways: Explosive volcanoes are the most dangerous: They can shoot particles up to 32 kilometers and even 8-ton boulders over 0.8 kilometers. They can cause landslides and avalanches of hot volcanic debris, ash and gas that destroys everything in its path. In effusive volcanoes, the lava slowly flows out. They are less dangerous, because people can usually run faster than the lava. However, they create massive damage to, for example, houses, farms and roads, as they burn and melt everything that comes into contact with it. [*Source*: **https://kids.nationalgeographic.com/explore/science/volcano**]

The god of peace might have been a better choice...

The word volcano comes from Vulcan, the name of the Roman god of fire.

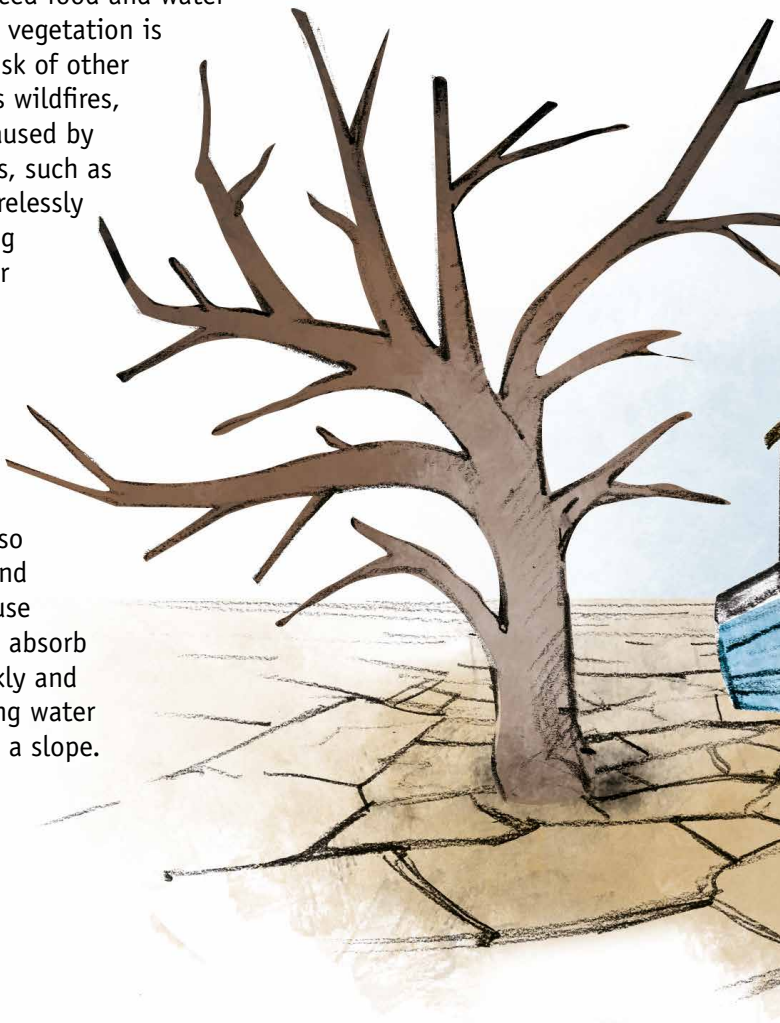
DID YOU KNOW?

Scientists estimate the Earth has more than a million underwater volcanoes! In fact, 80% of the volcanic eruptions take place in the ocean.

Source: NOAA

Droughts

A drought happens when it doesn't rain enough for a long time, resulting in a shortage of water. Droughts not only impact humans when less drinking water is available, but also plants and animals as they also depend on water. When a drought occurs, crops may be partially or completely lost and animals may get more easily sick, because of reduced food and water supplies. As the vegetation is dry, there is a risk of other hazards, such as wildfires, which can be caused by human activities, such as when people carelessly toss still-burning cigarette buts or leave campfires unattended.



Droughts can also lead to floods and landslides,because dry soils cannot absorb heavy rain quickly and result in standing water or runs-off from a slope.

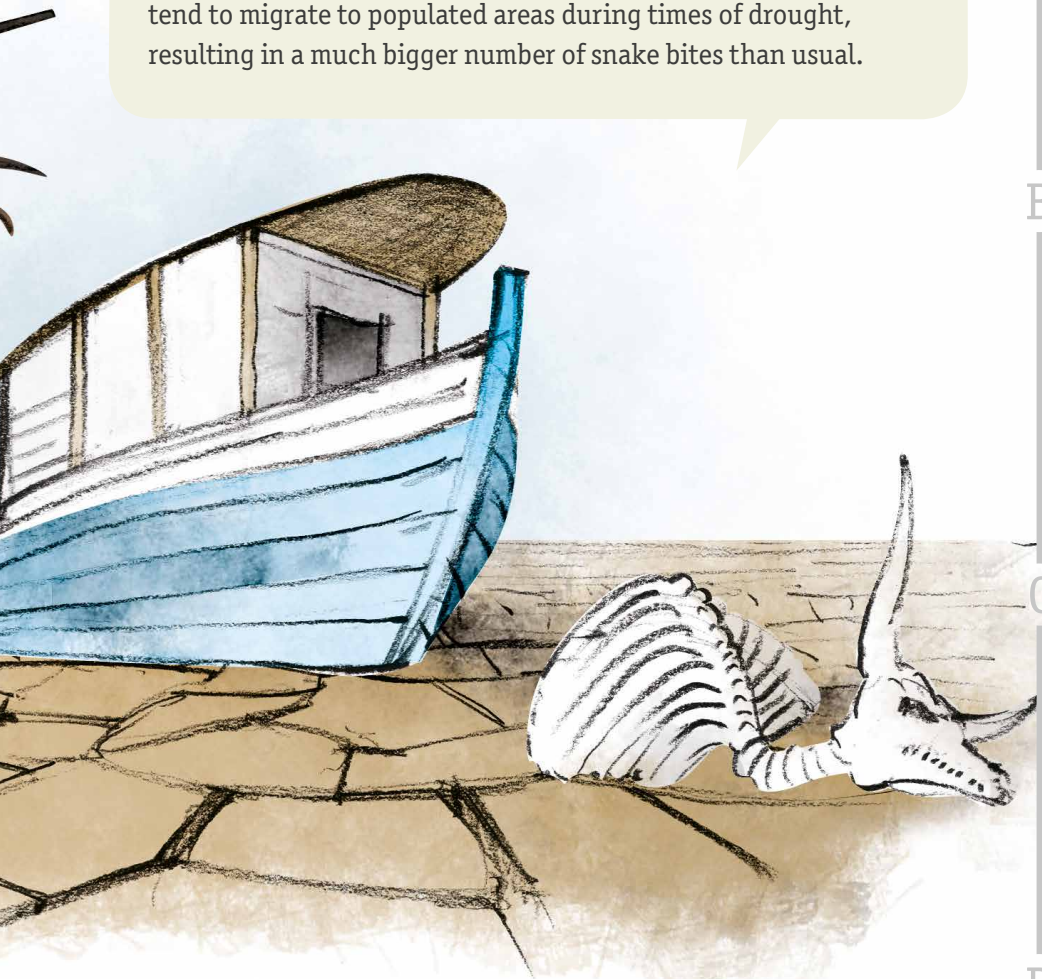
DID YOU KNOW?

Nearly **160 million** children live in areas, where there is a high or extremely high risk of drought.

Source: UNICEF

Watch out for dry and slithery weather...

As if droughts weren't bad enough with the food and water shortage, they also bring snakes into town. Seeking water, snakes tend to migrate to populated areas during times of drought, resulting in a much bigger number of snake bites than usual.

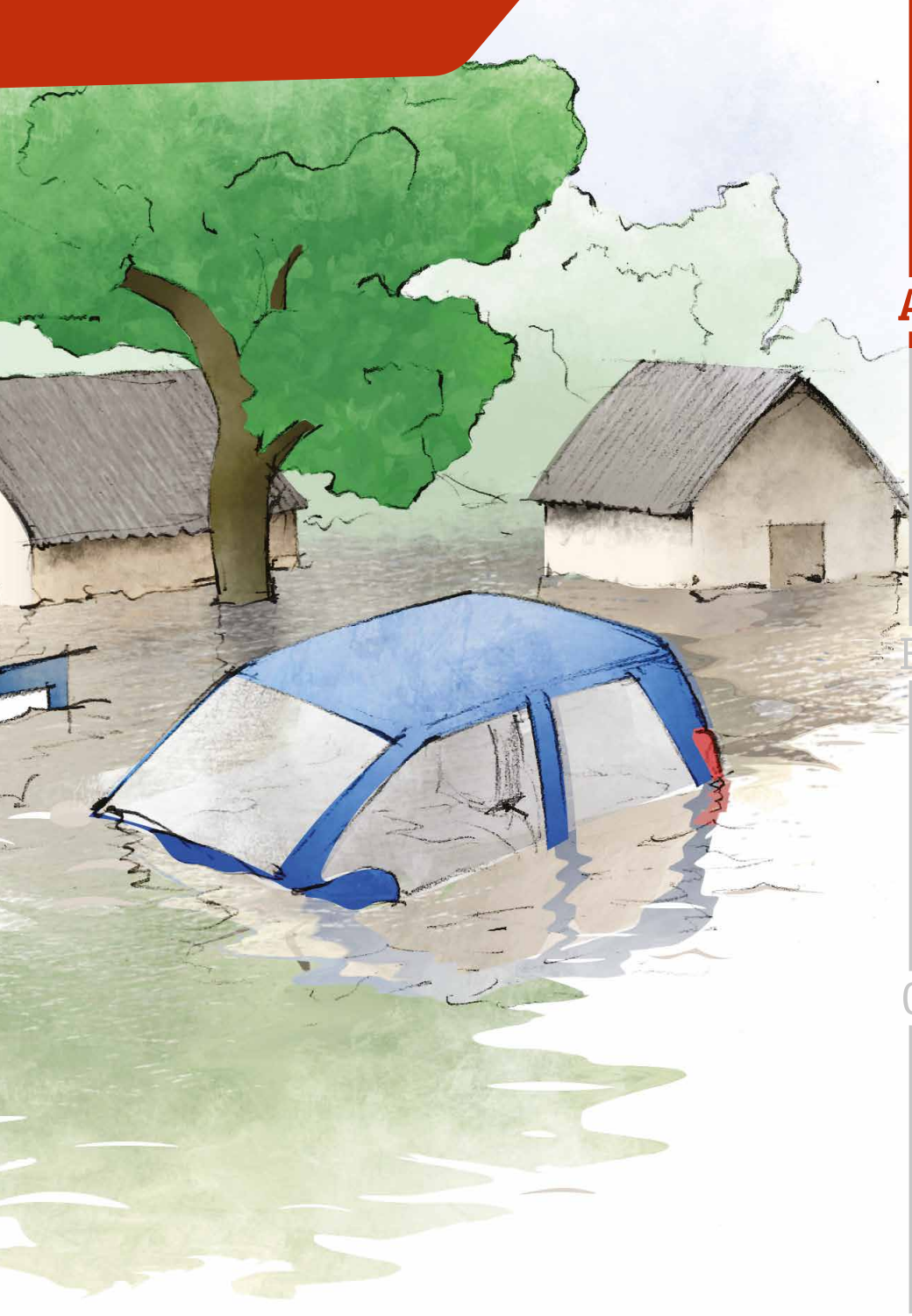


Floods

Floods happen when water rises. It can happen over minutes, hours, days, or weeks and depends on the soil's absorption capacity of water and run-off. Flooding occurs during heavy rains, when rivers overflow, ocean waves come onshore, snow melts too fast, or when dams or levees break. It is extremely dangerous and can cover for a certain period of time and/or wipe away an entire city, coastline or area, and damage life and property. Floods kill more people and cause more damage than any other severe weather-related event.

Scarcity amidst abundance

Floods often make safe drinking water more scarce, due to the damage to buildings and other structures, including sewerage systems and power generation facilities, which may lead to sources of freshwater becoming contaminated leading to waterborne illnesses and diseases, such as cholera, typhoid and dysentery. Floods maybe also indirectly lead to an increase in vector-borne diseases, such as malaria and dengue. Standing water as a result of heavy rainfall or overflow of rivers can also act as breeding sites for mosquitos.



Tropical storms

Tropical storms are called hurricanes, typhoons or cyclones depending on where the storm originates in the world. In the North Atlantic Ocean and Northeast Pacific, they are known as “hurricanes”, while in the Northwest Pacific Ocean they are called “typhoons”. Finally, if a tropical storm forms itself in the South Pacific and Indian Ocean it’s a “cyclone”. These enormous storms generate over tropical or subtropical waters and can be recognised through their rotating and organized system of clouds. They can be up to 950 kilometres across, with winds of 120 to 300 kilometres per hour. Tropical storms usually last for a little over a week, traveling across the ocean and gathering energy from warm ocean waters. Talk about traveling with baggage!

Tropical storms can wreak huge amounts of damage when they reach land, through flooding and **storm surge**, which happens when a powerful storm causes ocean levels at the coastline to rise. Their super high winds can also cause a lot of damage, knocking down trees and destroying homes.

DID YOU KNOW?

Winds need to be at least 74 mph to be classified as a hurricane. In 2017, Hurricane Maria directly hit Puerto Rico with a wind speed of **155 mph**.

The better to see us with?

The centre of a tropical storm is called the "eye," and believe it or not, the weather is usually calm in the eye. The eye can be anywhere from 3.2 km in diameter to more than 320 km.

Landslides

Landslides happen when soil, pebbles, rocks, or rivers of mud and debris tumble down a slope. These materials can fall, topple, slide, spread, or flow. Earthquakes, rainfall, or human activity can trigger landslides by weakening a slope, and once the slope becomes unstable, **gravity** (the force that pulls everything downwards toward the centre of the Earth) causes the landslide to move downwards. Some landslides are so big the entire side of a mountain crumbles. They can move slowly or rapidly, and the rapid ones are very dangerous as people living nearby have little or no warning. Large, rapid landslides can kill and injure people, and destroy property and **infrastructure**. It is important for people to check in advance if the area where they want to build their house is not located on an unstable slpe.

Landslides are often connected to other disasters. For instance, wildfires make slopes especially prone to landslides as they destroy vegetation and change the soil structure. Cooled volcanic lava is a weak structure and may later collapse and result in landslides. Flooding can erode river banks and slopes which can also cause landslides. Earthquakes may trigger landslides in areas where there are steep slopes as soil slips.

Wildfires

Wildfires are uncontrolled fires that take place in forests and areas of open vegetation, such as woodlands and grasslands. The vast majority of destructive fires are caused by people, for reasons including land clearing for agriculture, industrial development, and carelessness. Sometimes, natural factors such as lightning can also trigger wildfires. Every year, wildfires burn millions of hectares of forest woodlands and other vegetation, causing the loss of many human and animal lives and immense economic damage. Wildfires also harm society and the environment – for example, by damaging human health from smoke, hurting biological diversity, and releasing **greenhouse gases** (GHGs). [*Source*: FAO.]

DID YOU KNOW?

Young children breathe much faster than adults, often **twice as fast**, because their long volumes are smaller. As they breathe in more smoke, their risk of respiratory infections, such as pneumonia, or conditions, such as asthma, is higher than for adults.

Analysing hazards

To learn more about hazards and find ways to predict them more accurately, scientists perform hazard analysis. This includes studying how often a hazard occurs in a given area (its frequency), how strong it is on average (its magnitude/intensity), duration, speed, etc. Let's learn more about how scientists are getting a better understanding about hazards.

Probability of occurrence (frequency)

To understand the frequency of a hazard, scientists look into how often different types of hazards occur on average. For instance, to analyse the frequency of floods, scientists investigate the history of flooding in a certain area, to identify patterns that could help predict future flooding in that area.

Magnitude/intensity

Magnitude or intensity describes the strength or force of an event. For an occurrence to count as hazardous, it must go above a certain magnitude level. In the case of floods, for example, magnitude usually refers to the maximum height that floodwaters reach either during the flood, or above sea level, or simply above the ground. For earthquakes, magnitude describes the total energy the earthquake releases. For hurricanes, the intensity depends on the speed of the winds.

Mapping

Hazard maps show geographic areas that could be affected by a hazard, and the expected danger or maximum level of danger that it could have. To map hazards, scientists establish geographically where and to what extent a particular hazard is likely to threaten people, property, infrastructure and economic activities. Different types of hazards require different types of mapping. For recurring events such as floods and hurricanes, the past can be a good indicator to predict the future. In the case of landslides, it is geologists who analyse the soil to predict the likelihood and magnitude of a potential landslide.

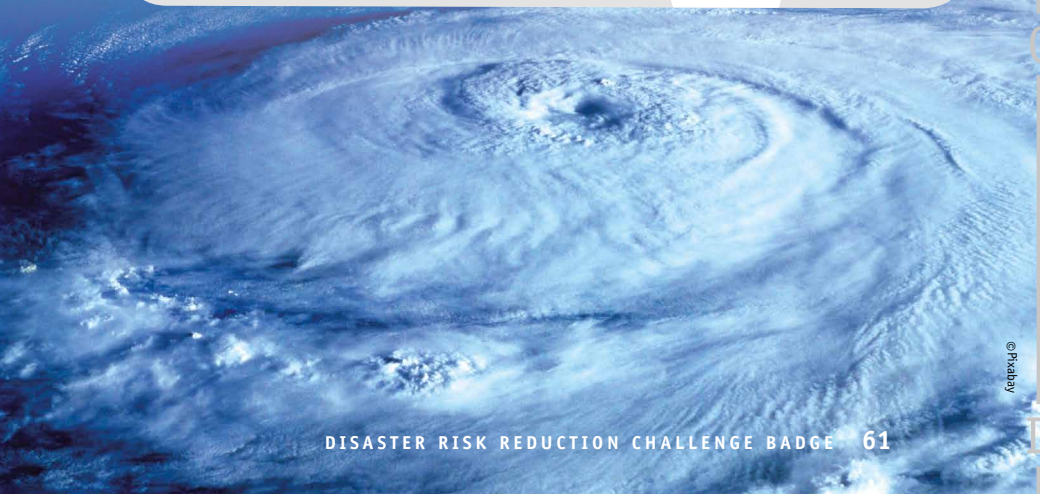
A2 WHAT IS A DISASTER?

We often hear the term "natural disaster," but did you know there is no such thing? There are natural **hazards** that may **lead to** disasters, if they happen in an area where there are people, properties, buildings, environment, etc. could be affected, resulting in widespread death, injury, and destruction. To reduce the likelihood of a hazard turning into a disaster, we need to increase our knowledge and ability to make safe choices and reduce risk. Our decisions and actions, as well as our resources make us either more **vulnerable** (or open to damage) from hazards, or more **resilient**, meaning better able to cope and recover, for instance, when friends and family can lend money or provide food [*Source*: Preventionweb.net].

DID YOU KNOW?

On average, disasters affect more than **200 million** people every year, and kill more than **70 000**. Over the last 40 years, disasters have caused annual economic losses of more than **USD300 billion** – that's about more than twice the amount that developing countries receive in foreign aid.

Source: UN Environment



©Pixabay

Slow, rapid onset, and protracted hazards

A **slow-onset hazard** emerges gradually over time. Slow-onset disasters could refer to **drought**, **desertification**, sea-level rise, and epidemic **disease**.

A **rapid-onset hazard** is triggered by a **hazardous** event and emerges quickly or unexpectedly. Sudden-onset hazards could refer to **earthquakes**, **volcanic** eruptions, chemical explosions or **flash floods** (a sudden local **flood**, typically due to heavy rain). Protracted crises is driven by a combination of recurring events, such as extreme storms, floods or other weather events.

Impact of disasters

The impact of a disaster refers to the total effect of a hazardous event or disaster. This could include death, injuries, disease as well as economic and environmental repercussions. It can even include positive effects, for example, in the long-term, flooding might make the soil more fertile. In this badge we focus on the negative impacts of disasters, so that we can learn more about reducing risk and preparing better for the impact of hazards.

As you can imagine, disasters have a devastating impact on a country's development. Families lose homes, livelihoods and loved ones, communities lose businesses, jobs and services, children miss school—these are just a few examples. Disasters can completely stall progress on reducing poverty. For example, when both a tropical storm and a typhoon hit the Philippines in 2009, poverty almost doubled in the province of Rizal. Even six years later, almost 8 percent of families were still below the poverty line. [*Source*: Oxfam.]

DID YOU KNOW?

Between 2003 and 2013, disasters triggered by natural hazards caused **USD 1.5 trillion** in economic damage worldwide. In developing countries, these disasters cost about **USD 550 billion** in damage and affected **2 billion** people.

Source: FAO, 2015 **www.fao.org/3/a-i5128e.pdf**

Let us now look in more detail about how disasters can damage various aspects of our lives and livelihoods:

Agriculture

Disasters can physically damage agriculture (including livestock, fisheries and forestry), by destroying crops, irrigation systems, farm tools and equipment, fishing boats, livestock shelters, and systems for storage, processing and transport, which translates into farmers not only losing their access to food, but often also their source of income. Disasters can also cause unemployment and reduce incomes of farmers and farm labourers. They lower the availability of food in local markets, leading to inflation in the price of food. This makes it harder for people to buy food, restricts their access to food and uses up their savings. Ultimately, disasters can hurt the quantity and quality of the food people eat, increasing **food insecurity** and **malnutrition**, particularly among the most vulnerable households.

DID YOU KNOW?

More than **83 percent** of the damage and loss from drought hits agriculture, especially livestock and crop production.

Source: FAO, 2017, **www.fao.org/3/I8656EN/i8656en.pdf**

© FAO/Giulio Napolitano

Housing

Major disasters often destroy houses and buildings, leaving families with no shelter or access to basic services such as water and **sanitation**. With millions homeless and unable to go to work, entire economies suffer. Also, in such situations, governments need to build emergency housing, which means they have to take money away from other long-term development goals.

DID YOU KNOW?

In 2015, disasters resulting from floods, storms and earthquakes displaced **19.3 million** people.

Source: NRC/IDMC, 2015, **https://www.acnur.org/fileadmin/Documentos/Publicaciones/2015/10092.pdf**

©Pixabay/Angelo Giordano

Health and nutrition

As you know, major disasters, including plant and animal pests and diseases, cause widespread death and injury, but different disasters pose a wide range of other health risks, too, including to animal health and food safety. For example, drought leads to water and food shortages, causing malnutrition and deficiencies in affected populations. Floods can result in contaminated drinking water, triggering the spread of diseases such as diarrhoea and cholera. And the large amount of stagnant water following a flood or heavy rainfall acts as a breeding site for mosquitoes, raising the risk of malaria or dengue.

Education

You might groan about homework and exams, but the fact that you go to school makes you pretty lucky. Did you know that 75 million children are out of school because of emergencies such as conflict and disasters? Disasters can damage or destroy school buildings, or make it impossible to get to school because of roads being destroyed. Moreover, **recovery** efforts after a disaster often disrupt education. For example, many schools are turned into evacuation centres. Being out of school hurts children and youth and ultimately their countries in a lot of ways. Young people need education to gain the skills to build their lives and their countries. Schools also offer a safe place to learn and play. Out of school, many children face a greater risk of exploitation and poverty. Additionally, coming back to school helps children to feel that life (the way they know it) is coming back to "normal", which helps them to feel better after going through a very difficult and shocking experience.

Transport and communication

Transport is a huge part of our daily lives. People use different ways (cars, buses, trains, motorbikes or just walking) to get to work and school, do the grocery shopping, visit family and friends, or go to the doctor. Companies use trucks, ships, trains and airplanes to transport goods. To do all of this, we not only need the vehicles to get us where we need to go, but we also need safe roads and bridges. When disasters destroy roads, and make areas inaccessible, it makes it impossible for people go to work or to school, for companies to transport essentials such as food, or for emergency workers to get to people who need help. Disasters can also affect communications systems, by damaging communications **infrastructure**, causing power failures, and making areas inaccessible to repair teams. Additionally, for rural people, damage to roads may affect the possibility of reaching markets, both for selling the food they produce and buying the food and goods, they need.

Electricity

Oh electricity…let us count the ways we love thee (apologies to Elizabeth Barret Browning).

It's impossible to list all the things we depend on electricity for. Countries rely on electricity to be productive and grow economically. Electricity powers computers, TVs, air-conditioning, phones, and lights, which are a part of daily life for many. It is also central to many services such as water, gas and the Internet. Trains, planes and transportation infrastructure rely on a steady supply of electricity, as do hospitals, schools, offices and farms. Disasters often destroy energy supply infrastructure, disrupting the electricity supply for extended periods of time, and causing great losses to the economy and people's quality of life.

Water and sanitation

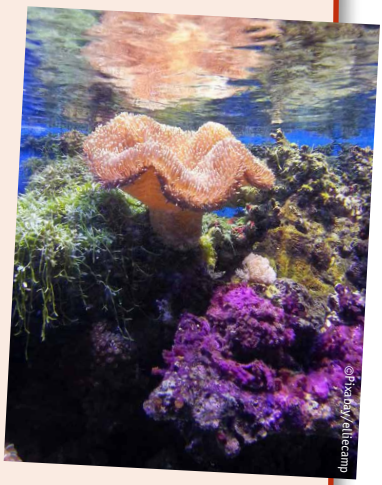
Without access to clean water and **sanitation** (a safe and clean way to remove waste), people face a higher risk of diseases including diarrhoea, cholera and typhoid. A lack of clean water and sanitation also makes it harder for health facilities to function safely and efficiently. And it greatly reduces people's quality of life. Severe disasters often damage drinking water and sewage systems, leaving people without access for long periods.

Environment

Strange as it may sound, environmental **degradation** (damage) is both a cause and consequence of disasters. Let's take the example of **deforestation**. Trees help prevent flooding, so clearing forests away increases the risk of flooding. [Learn more: **whyfiles.org/107flood/3.html**]. That's an example of how an environmental problem such as deforestation can increase the risk of disaster. On the other hand, natural hazards can further degrade the environment, too. Events like **avalanches**, earthquakes, **tsunamis**, storms and **wildfires** can kill animals and plants and destroy entire **ecosystems**.

THE CONNECTION BETWEEN COASTAL ECOSYSTEMS AND DISASTER IN JAMAICA

Coral reefs (beautiful, diverse underwater ecosystems) protect shorelines, supply beach material, increase incomes from tourism and support local fishing. Mangrove forests (highly productive coastal ecosystems) protect beaches and shorelines by acting as a barrier between the land and the sea, especially during large storms, hurricanes and tsunamis. In Negril, Jamaica, both coral reefs and mangroves have been degraded by major storms, pollution, and harvesting. This degradation of coastal ecosystems has increased the risk of storm surge and is expected to put a large part of the population at risk.



Source: UN Environment

How disasters affect different people around the world

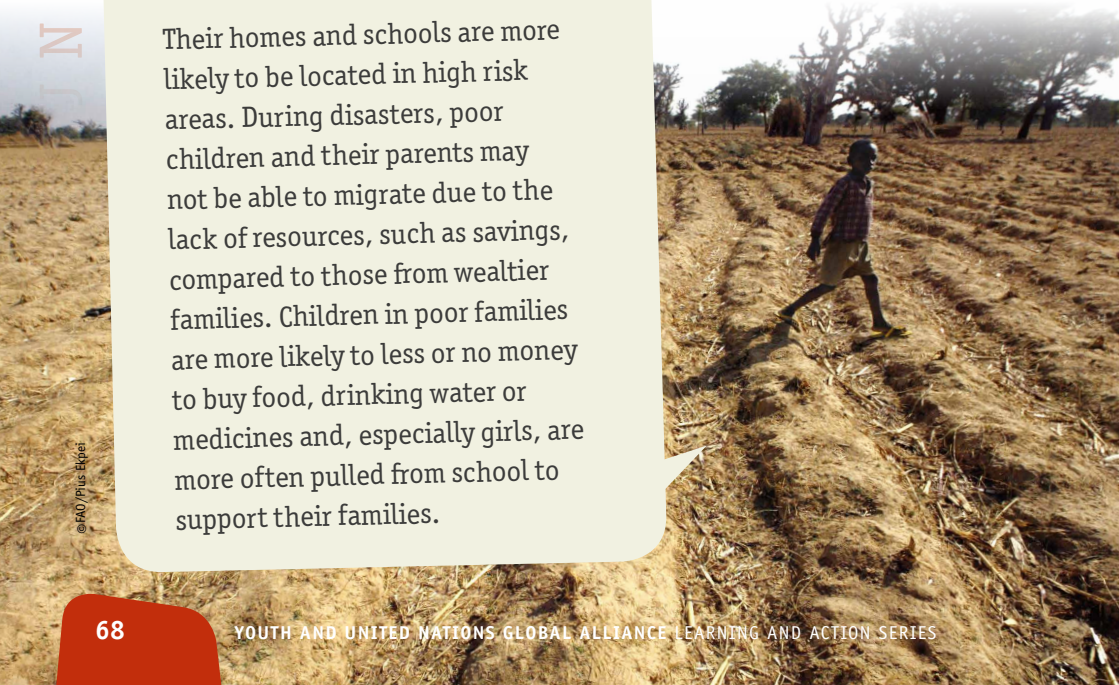
While terrible for the entire population, disasters tend to hurt some groups of people more than others.

Children and youth

Did you know that each year disasters affect 175 million children? [Source: Sendai Framework for Disaster Risk Reduction: for children, **preventionweb.net/educational/view/46959**] Among lives lost in disasters, at least one out of three is a child below 18. [Source: CARE India.] During disasters, children are less likely to know how and to be able to escape or take care of themselves if they become separated from their familieis, which makes them highly vulnerable. They are also physically vulnerable: to diseases due to lack of clean drinking water and get weaker more easily when there is lack of

Poor children are even more vulnerable!

Their homes and schools are more likely to be located in high risk areas. During disasters, poor children and their parents may not be able to migrate due to the lack of resources, such as savings, compared to those from wealtier families. Children in poor families are more likely to less or no money to buy food, drinking water or medicines and, especially girls, are more often pulled from school to support their families.



©FAO/Pius Ekpei

food, especially during the first two years of their life. Children are also more vulnerable socially: the chaos and difficulty following a disaster also make young people more vulnerable to harmful practices, such as child-trafficking, child labour, and dropping out of school. And children are vulnerable emotionally: after disasters children often experience a wide range of emotions. They feel fear, anger or guilt and want to avoid thinking about the disaster, but may be haunted by flashbacks and nightmares.

The elderly

Hurricane Katrina, an extremely powerful hurricane, caused enormous destruction and loss of life in New Orleans, United States of America in 2005. Although people over 60 comprised just 15% of New Orleans's population, they made up 75% of those killed in the event. [*Source*: UNISDR.] Hurricane Katrina is not the only example. Most disasters tend to affect the elderly more than others. There are several reasons for this. For one thing, older people might find it harder to move quickly, which makes it harder for them to flee danger. Older people also tend to have health issues that make them more vulnerable to disasters, such as respiratory illness or heart

disease. They may also be more dependent on services that disasters disrupt, such as health and social protection services. Also, they are often left out of DRR planning and training.

Women and girls

In December 2004, an Indian Ocean **tsunami** killed more than 230 000 people in Southeast Asia. Up to four times as many women as men died. Why? Well, many men were no longer living in coastal villages—they had moved to the cities in search of work. Women, however, were at home and in some places they are not allowed to leave the house without their husbands' permission and may be trapped in the house if their husbands are not around when the hazard happens. Many of the women tried to save their children, which slowed them down from escaping the water. Also, women in many places could not swim or climb trees. And in some countries, women wait on the beaches to unload fish from the boats, so they were right there when the tsunami struck.

WEIRD CONNECTION: DISASTERS AND CHILD MARRIAGE

Here is a disturbing fact about disasters that you may not have realized: disasters often result in more child marriages. Struggling families tend to marry off their daughters to escape the burden of supporting them, and in the hope that marriage will spare their daughters from a life of poverty. Government and support agencies often focus on providing food, water, and shelter after a disaster, but social support, such as empowering girls, is really important, too.

Learn more:
www.girlsnotbrides.org/why-does-it-happen

©FAO/Vidhu Prakash Kayastha

But the Indian Ocean tsunami is not the only time women faced more danger and suffered from disasters. During droughts, girls are more likely to miss school as they are tasked with collecting water and caring for family members. Droughts and prolonged dry spells also lead to an increase in harmful practices against women. For example, women and girls must travel longer distances to collect water, increasing their risk of sexual assault [*Source*: UN Women.]. Women also suffer more from disasters because they are more likely to make sacrifices, such as eating less food, for the well-being of their families.

Disabled people

When disaster strikes, people with disabilities are more likely to be left behind or abandoned during evacuation. Often, there is not enough preparation and planning to accommodate them, or facilities, services and transportation systems are inaccessible. Most shelters and refugee camps are not accessible and people with disabilities are even turned away from shelters and refugee camps due to a perception that they need special medical help. Disruption of physical, social, economic, and environmental networks and support systems affects those with disabilities much more than the general population. [*Source*: United Nations.] According to preventionweb.net, "the death rate of persons with disabilities in the 2011 Great East Japan Earthquake and Tsunami was more than double that of the death rate for the entire population. The earthquake in Haiti in 2010 also disproportionally affected many persons with disabilities".

Indigenous people

Disasters affect people in different ways and indigenous people are often among the most vulnerable and disadvantaged in the world. Indigenous people are members of communities that have inherited a unique cultures and way of life, they have they own way of relating

to people and have a very special link with the environment. In the world, there are an estimated 370 million indigenous people, living across 90 countries, and yet, while they make up less than 5 percent of the world's population, they account for 15 percent of the poorest. Indigenous people are more vulnerable to disasters not only due to the fact that they often live in more remote places where humanitarian support takes more time to arrive, but also because on many occasions they face limitations due to their own language or their lack of access to differentiated rights. They are thus often more likely to suffer from malnutrition and inadequate access to social protection systems and economic resources to recover from disasters. Nevertheless, through their closeness to nature and their high reliance on it for their livelihoods (forests, farming, hunting, pastoralism, etc.), indigenous communities are also leaders in environmental protection and fighting climate change through the sustainable management of forests and biodiversity. [*Source*: United Nations Development Programme, *10 things we all should know about indigenous peoples*, 2017: **https://stories.undp.org/10-things-we-all-should-know-about-indigenous-people**]

While the groups described above are vulnerable to disasters, they are also **powerful agents of change**. They have their own perspective on how to reduce the effects of disasters, and that perspective is a valuable resource, which should be included in all efforts to reduce the risk of disaster. We'll learn more about this later in the badge.

A3 WHAT MAKES PEOPLE VULNERABLE?

As explained earlier, being **vulnerable** in the context of disasters means having a low ability to anticipate, prevent, cope with, or recover from the impact of a **hazard**.

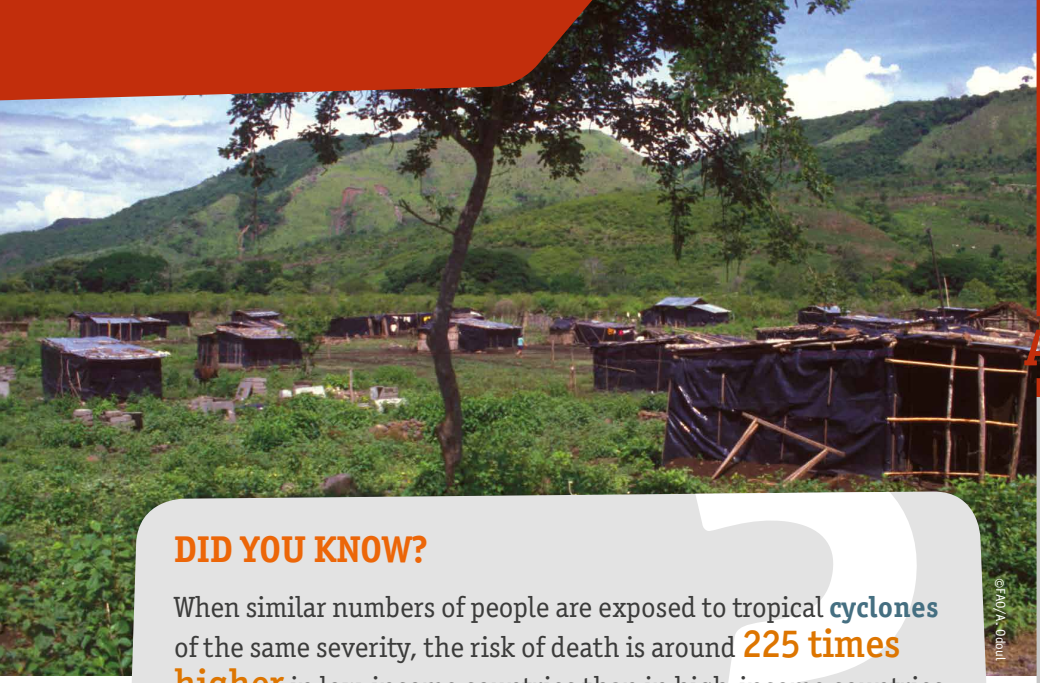
A range of factors makes people vulnerable to disasters. Let's explore some of them.

Economic factors

Poverty puts people in vulnerable situations and exposes them to disasters, and can increase poverty after disasters. How can poverty expose people to disasters? One reason is that the search for a livelihood often forces poor people to live in areas with a high risk of hazards, such as in **flood** zones or **earthquake**-prone areas, or on unstable hillsides with a risk of **landslides**. A lot of poor people are moving to cities in search of work, and end up building temporary, unsafe housing in overcrowded areas. The

More than 90 percent of disaster-related deaths occur in poor countries.
Source: UNDP


©FAO



©FAO/A. Odgui

DID YOU KNOW?

When similar numbers of people are exposed to tropical **cyclones** of the same severity, the risk of death is around **225 times higher** in low-income countries than in high-income countries.

Source: UNISDR. 2011. *Global assessment report on disaster risk reduction. Revealing risk, redefining develpment*. Geneva, Switzerland, UNISDR Secretariat

poor cannot afford measures to reduce risk, such as building safer housing. All of this means that when a hazard occurs, it is more likely to turn into a disaster given how unprepared the people are.

As for why disasters make poverty worse, there are many reasons for this. The rural poor often lose their entire livelihood when a disaster destroys their livestock or crops. In urban areas, housing tends to be the main economic asset of poor households, providing not only shelter and personal security, but also often their livelihood. [*Source*: UNISDR.] Moreover, they cannot afford protection such as insurance. Following a disaster, the damage or loss of housing and possessions places an enormous economic strain on urban families as it is very expensive for them to replace everything. Overall, the range of problems that result from a disaster, such as loss of livelihoods, disease, food and water insecurity, and **infrastructure** damage, affect poor people much more, as they have fewer resources with which to meet these challenges.

Environmental factors

Earlier in the badge, we learned that the environment plays a role in disasters. A healthy environment provides us with essential **ecosystem services**, including food, **freshwater**, wood and medicine, as well as protection against hazards such as hurricanes, floods and landslides. However, when we over-exploit natural resources such as trees and land, we cause environmental **degradation** (i.e. we damage the environment). A degraded environment cannot effectively protect against hazards, which increases the risk of disasters. For example, land degradation makes **drought** more likely to happen, and **deforestation** on slopes raises the risk of **landslides**.

Physical factors

These include access to suitable land, land-use planning, housing design, building standards, materials used for building houses, engineering, and access to emergency services, among other things. [*Source*: USAID.] People living in flimsy houses with poor structures are far more vulnerable than those living in structures that meet safety standards. Farmers, herders and fishers may not have safe places to secure their seeds, animals, equipment and tools, in case of emergency.

©FAO/Truls Bekke

While developing countries and poor people are disproportionately at risk, the 2011 Japan earthquake and tsunami showed that developed countries also face high risks and major economic losses.

Social factors

Levels of education, awareness, literacy, and training, as well as **governance** make up some of the social factors that affect how vulnerable people are to disasters. Even culture can be important. Yes, you did read that right, culture and tradition can have an important influence. For example, when people believe disasters are a form of divine punishment, they may accept them, rather than attempting to reduce the risk. On the other hand, some cultures have ancient knowledge that can help them anticipate a hazard. For example, the Moken people of Thailand had knowledge of the wind, tides, and animals (passed down over generations) that helped them anticipate the dangers of the 2004 Indian Ocean **tsunami**. Leadership can make a huge difference, too. Governments, local leaders, and international agencies need strong plans to prevent disasters and to respond when a hazard occurs.

A4 CLIMATE CHANGE AND DISASTERS

Climate refers to what the weather is generally like in a particular region throughout the year, averaged over a series of years. **Climate change** refers to a change in the overall state of the Earth's climate (such as changes in temperature and rainfall). We cannot easily observe climate change, because it happens over long periods of time. However, scientists have studied the Earth's past and have discovered that the planet is warming up fast, faster than at any time they know of in history. Do you know why? You guessed it: human activity. Many of the things we do on a large scale, from burning **fossil fuels** such as coal and petroleum, to farming and **deforestation**, are important factors behind climate change.

Learn more on climate change, do the **CLIMATE CHANGE CHALLENGE BADGE**

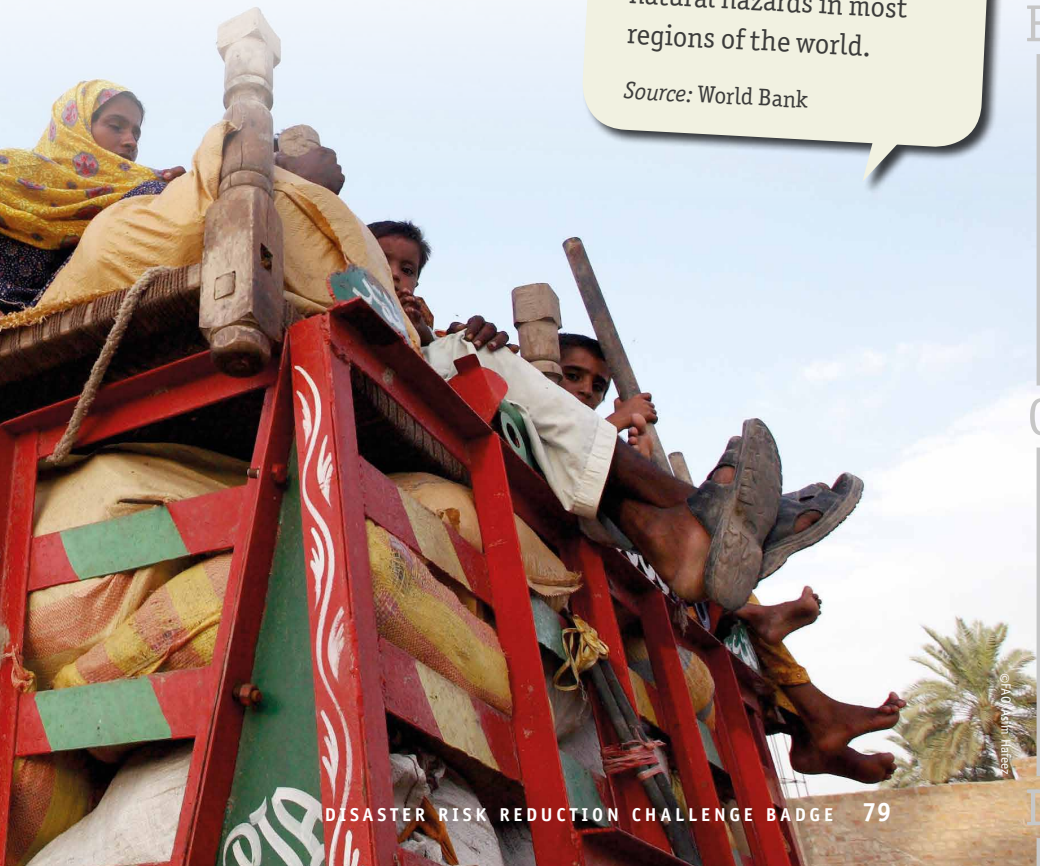
Climate change increases the risk of disaster in several ways, such as:

* **Causing more severe and frequent weather-related events.** Scientists agree that climate change increases the frequency and severity of weather-related events such as **floods**, **droughts**, storms, and heatwaves. We can already see this happening: over the last 20 years, 90 percent of major disasters have been caused by 6 457 recorded weather-related events. [*Source*: UNISDR.]
* **Causing sea levels to rise:** increasing hazards such as floods in low-lying coastal areas.

It's a fact!

Climate change will worsen natural hazards in most regions of the world.

Source: World Bank

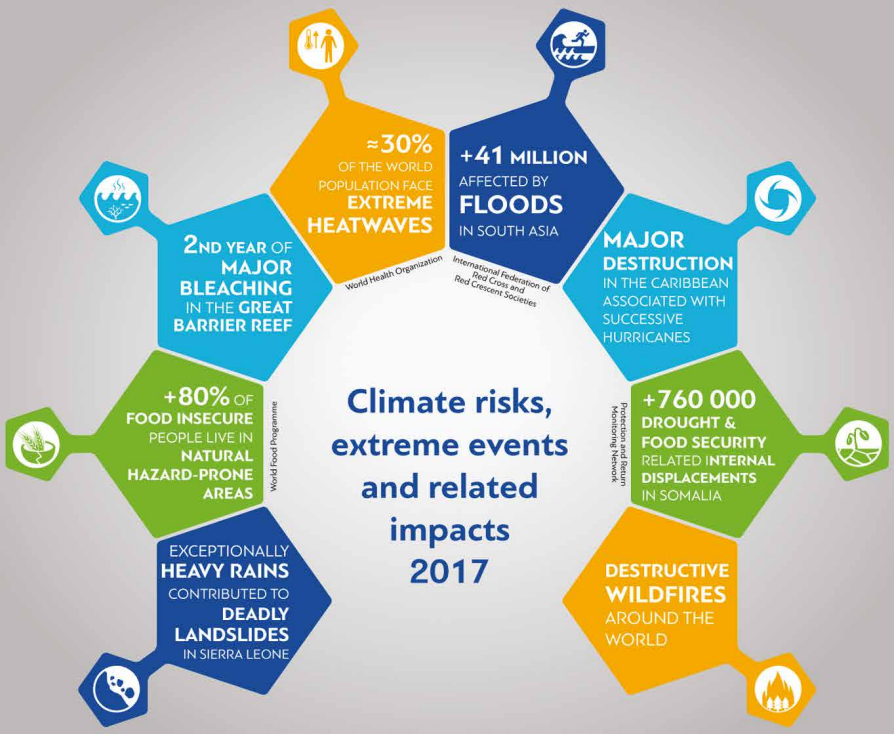


- **Changing weather patterns around the world:** is creating new patterns of risk that we will need to identify and prepare for.
- **Making people more vulnerable to natural hazards:** especially through **ecosystem degradation**, reduce water and food availability and impact livelihoods. Thus, it will add still more challenges for poor communities to deal with, making it harder for them to cope with hazards.
- **Displacing people:** by damaging crops or making places unsuitable or unsafe for living, has been causing large numbers of people to migrate. The tendency is for people to migrate to cities in search of jobs, where they often live in flimsy housing with poor **infrastructure**. The more people that migrate, the larger the population living in such unsafe conditions, exposed to natural hazards. This, of course, raises the risk of disaster. [*Sources*: UNISDR and preventionweb.net.]

Climmigration

Since 2008 an average of **21.5 million people** per year has been forcibly displaced by weather-related **sudden onset hazards** – such as floods, storms, **wildfires**, and extreme temperature. Thousands of others flee their homes because of **slow-onset hazards**, such as droughts or coastal **erosion** linked to sea level rise.

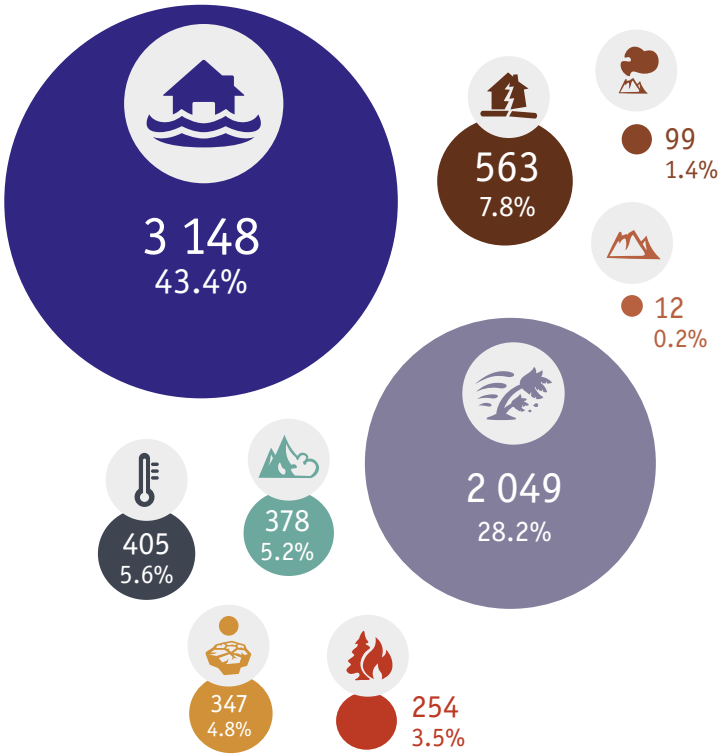
Source: UNHCR



Source: World Meteorological Organisation, WMO Statement on the State of the Global Climate in 2017

During the 1998 to 2017 period, various climate related and geophysical disasters have happened. Among those, floods were the most frequent type of disasters accounting for 43 percent of all recorded events, followed by storms, then earthquakes, extreme temperatures, landslides, droughts, wildfires, volcanic activities and finally dry mass movements.

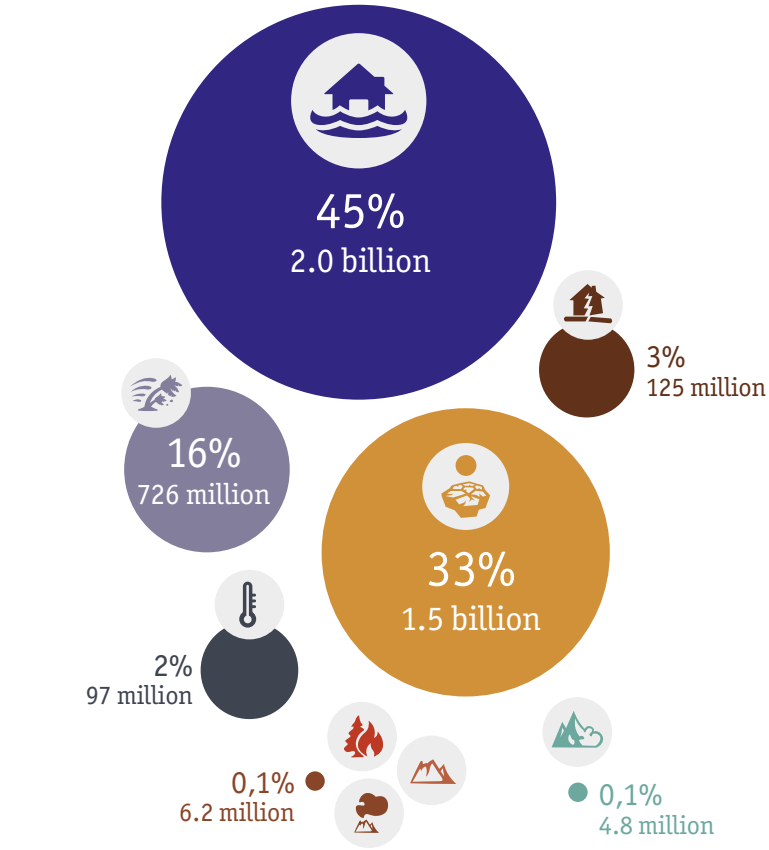
Numbers of disasters per type - 1998-2017



Source: Adapted from CRED and UNISDR (2018) *Economic losses, poverty and disasters 1998-2017*

Besides being the most frequent disaster type recorded within the period of 1998-2017, floods also affected the largest number of people across the world, at more than two billion, followed by drought, which affected 1.5 billion people during this period.

Number of people affected per disaster type - 1998-2017



Source: Adapted from CRED and UNISDR (2018) *Economic losses, poverty and disasters 1998-2017*

BACKGROUND INFORMATION

B

REDUCING RISK

B1 DISASTER RISK REDUCTION

Disaster risk, disaster risk management (DRM) and disaster risk reduction (DRR)

There are 3 main terms for you to understand: Disaster risk, disaster risk management (DRM) and disaster risk reduction (DRR). Do not worry too much if you cannot remember them, let us see what they actually mean.

DISASTER RISK is the likelihood of death or injury, or destruction and damage resulting from a disaster happening in a specific period of time. [*Source*: UNISDR]. The level of risk of a disaster depends on a combination of factors, such as the severity and frequency of a **hazard**, the number of people, buildings, infrastructure, or agriculture exposed to the the hazard, such as crops and livestock, and their **vulnerability** towards this hazard. People can be exposed to floods when heavy rainfall occurs and they reside in a flood prone area as well as people can be vulnerable to an earthquake, due to the poor design and construction of their buildings. They may be unable to receive alerts that warn against e.g. tsunamis and storms or they do not know what to do before, during and after a disaster has happened. So as you can see, there are many areas where governments, communities and individuals can take action to reduce the overall disaster risk.

©FAO/Ami Vitale

DISASTER RISK MANAGEMENT (DRM) deals with both prevention and response after a disaster happens. It includes disaster risk reduction (DRR, see below), the developing management plans and emergency responses. DRM therefore also aims to provide immediate support to people that have been impacted by a disaster as well as rebuilding e.g. the damaged infrastructure, food storage facilities and people's livelihoods after a disaster occurs.

DISASTER RISK REDUCTION (DRR) is part of DRM above that focuses on the pre-disaster situation. DRR aims to prevent and reduce the infrastructure damage caused by natural hazards such as **earthquakes**, **floods**, **droughts** and cyclones, as well as to improve people's preparedness capacity to respond when a disaster happens. In the past, the only way to deal with disasters was by focusing on taking action (emergency response and relief) only after the disaster struck, such as providing food, housing, seeds, livestock, so that people were able to restart their lives. However, the focus was on 'reacting' when a disaster happens, instead of taking a more 'proactive' role before the disaster happens and implement actions that help to prevent or reduce the damage as well as be better prepared in advance for when a disaster occurs, for instance building storm-resistant houses, knowing what to do in case of an earthquake and knowing the evacuation route if a fire breaks out. Only towards the end of the 20th century people increasingly recognised that hazards do not have to necessarily turn into disasters. Since we cannot stop natural hazards from happening, the main way to reduce disaster risk is by reducing its two main components: vulnerability and **exposure**. In this situation, the combination of these two components means, the number of people and their belongings being at risk in a hazard zone. Reducing vulnerability and exposure involves figuring out and dealing with risk factors, such as environmental **degradation**, poverty, and **climate change**, which create and worsen risk levels. Addressing these underlying risk factors will reduce disaster risk and will also help achieve **sustainable development**. [*Source*: UNISDR]

We'll first take a look at some general approaches to DRR. Then we'll take a look at DRR for three specific hazards: Earthquakes, floods, and wildfires.

B2 PREVENTION & MITIGATION

In this section, we will learn about two main concepts within DRR: prevention and mitigation.

Prevention refers to making sure a **hazard** does not turn into a disaster, by taking actions in advance so that losses and damage that could result from a hazard can be avoided, before the hazard occurs.

Mitigation refers to reducing the severity of the damage caused by a disaster, by taking actions to reduce the losses and damage that a hazard could have on people's lives and their livelihoods.

It is not always easy to understand the difference between prevention and mitigation, because they are both aim to reduce disaster risk. However, a big difference is that **prevention** tries to, in the first place, **stop a disaster from happening**, whereas **mitigation** tries to **limit the damage and losses of the disaster**. Obtaining proper driver training by knowing all the traffic rules and following them can help prevent and avoid an accident from happening. While airbags in cars or wearing a motor cycle helmet are mitigation measures, which can help reduce injury when you lose control of the car or motorcycle or if someone else is causing an accident in which you are involved.

When it comes to dealing with hazards and trying to avoid a disaster, prevention and mitigation involve more or less the same activities. Let's learn about how we can apply them to a few different hazards.

KIDS MAKING A DIFFERENCE

The international community knows that involving children in DRR is the only way to create lasting change. (There's a whole concept on this; it's called child-centred DRR). Here are a few examples of young people as agents of change.

> *Children should be involved from the start in assessing and identifying risks, planning, implementing, and evaluation of the DRR*
>
> Save the Children

* Children in flood-affected communities in Mozambique took part in a range of activities to raise awareness among both children and adults about what to do in the face of floods, drought, **cyclones** and forest fires. Activities included creating a school magazine, community brochures, radio programmes, theatre workshops, and a "River Game."

  ⊕→ **Learn more at:** https://www.preventionweb.net/files/12085_ChildLedDRRTakingStock1.pdf.

* It pays to pay attention in school! In December 2004, an 11-year old girl on holiday in Thailand saved dozens of lives from the **tsunami** when she recognized the signs of the receding sea from a geography lesson in school, and warned her parents that a tsunami would hit.

  ⊕→ **Watch a video about this story:** http://youtu.be/E0yr0NL1Q3g.

* Ple, a 15-year-old girl from rural Phayao province in Thailand took part in DRR training and, along with others, created a community map, identifying where the risks and safe areas are. "Our community map also identifies which families have children and elders, and how we can help them when a disaster strikes."

  ⊕→ **Read more first-hand stories from children and youth at:** www.preventionweb.net/files/submissions/15087_Livingwithdisastersweb.pdf and www.unisdr.org/files/29304_bookunisdrfinishweb.pdf

Earthquakes

According to a 2015 study, **earthquakes** (including **tsunamis**, which are triggered by earthquakes), killed more people than all other types of disaster put together, claiming nearly 750 000 lives, between 1994 and 2013. [*Source*: CRED and UNISDR, The Human Cost of Weather Related Disasters, **www.unisdr.org/files/46796_cop21weatherdisastersreport2015.pdf**]

Since we can't stop earthquakes from happening, we need to focus on ways to prevent and reduce their damage to lives and property. The main way of doing so is by creating safer buildings and infrastructure. After all, it's not actually earthquakes that kill people but the collapsed buildings. [*Source*: UNOPS, **www.unops.org/news-and-stories?type%5B%5D=newsArticle&year=all**]

Location, location, location. Through mapping and historical analysis, it's possible to identify earthquake-prone areas. New infrastructure should be built away from such areas. Authorities can create guidelines on where to allow new buildings, roads, etc., and can set limits on the heights of new buildings.

In some places, for example in the United States of America, authorities use earthquake risk maps to control how people use land in order to minimize damage that may be caused by earthquakes. Unfortunately, in developing countries governments often lack the resources to manage land use. Poverty causes people to construct houses without permission in earthquake-prone zones, where they may suffer the devastating effects of earthquakes.

Earthquake-proof buildings: Better knowledge and technology have made it possible to design infrastructure that can withstand strong tremors. For example, some large buildings have shock absorbers that make the building sway during an earthquake. This prevents damage and saves lives. Existing infrastructure can be improved with new technologies and ideas, too, for example by placing steel rods in within structures or installing fireproof

Torre Mayor in Mexico, an earthquake-resistant building

materials into gas pipes to reduce the risk of fire if an earthquake happens. Making existing buildings safer and less prone to damage caused by an earthquake is known as retrofitting.

Earthquake-proof infrastructure: Large-scale and highly connected structures that are used by many people can be susceptible to disasters. For example, if people rely on a national grid for their electricity supply, an earthquake can affect a much larger population than in case of decentralized facilities, where smaller groups of people use local and regional grids. The same applies to food supply and basic health services.

Wildfires

Fires depend on the way we manage our land and natural resources. This varies from place to place. For instance, in some areas, **vegetation** is more prone to catching fire. Large forests or housing should not be established in such areas. Also, burning land to clear it for agriculture should be done before the dry season when fire spreads much more quickly. Burning should also be avoided during high winds and the hottest time of day. It's important for local populations to get involved because they are the main ones who manage the landscape, they suffer directly from the fires that threaten their livelihoods, and they might also be involved in causing some of the fires.

Building houses, offices and schools with fire-resistant material is another important step to take. And it's for the general public to know what precautions to take to prevent **wildfires**.

©Pexels

Floods

Below are some of the main ways to prevent or reduce damage from floods.

- Avoid building in low-lying areas next to rivers that are prone to flooding (known as **floodplains**).
- Construct buildings above flood levels.
- Modify homes and buildings to help them withstand floods, for example by fitting them with waterproofing material and moving electric sockets higher up on the walls.
- Protect **wetlands**: land consisting of marshes and swamps. Wetlands prevent flooding by acting as sponges and soaking up water.
- Plant trees: land covered with trees can act as a barrier to floodwater. Also, trees prevent soil **erosion**, which allows the ground to absorb more water.
- Improve soil conditions: a healthier soil can absorb more water.
- Put up flood barriers: these are special types of gates, specifically designed to prevent flooding.

Many of the steps we can take to prevent flooding also contribute to achieving the **SDGs**. Planting trees, and protecting wetlands and soil tie in directly with **Goal 13** (climate action) and **15** (life on land), among others.

©FAO/Asim Hafeez

B3 PREPAREDNESS

There are several actions that can help people be ready for **hazards**.

Contingency plans

Governments, communities, and organizations often form **contingency plans** to know what to do when disaster strikes. A contingency plan anticipates what kinds of hazards might occur, by elaborating different scenarios, and how to prepare for them, by describing step by step the actions that need to be taken. It means deciding on procedures to take and rehearsing them so that everyone knows what to do. Those involved should regularly update and practise the plans. Contingency plans have three main parts:

1. **WHAT IS GOING TO HAPPEN?** Planners identify what types of hazards are likely to hit. They also study the population likely to be affected, identifying both its **vulnerabilities** and its strengths or capacities.

2. **WHAT SHOULD THE RESPONSE BE?** Planners assess arrangements such as emergency supplies and transportation. They also decide who will be responsible for which task.

3. **WHAT CAN WE DO TO PREPARE AHEAD OF TIME?** This step involves practising the plan to see if it's working well or if there are any gaps. It involves providing emergency medical supplies and stockpiles of food items where necessary, and raising awareness among the general public. Planners also figure out how to warn the population in case of a dangerous hazard, these are known as **early warning systems**, and we're going to discuss them next.

Early warning systems

Strong early warning systems are a basic part of being prepared for a hazard. An early warning system provides timely and effective information so that people can avoid or reduce the risk of disaster. Early warning systems contain a web of complex activities, including understanding and mapping hazards, monitoring and forecasting hazardous events, and sending out timely warnings.

THE USE OF PHONES IN EARLY WARNING MESSAGES IN BANGLADESH

In countries that are prone to disasters or violent conflict, ensuring that people have rapid access to information that helps to quickly respond when a catastrophe happens can save lives and property, as well as protect development investment and livelihoods. In the last few years, there has been a rise in the access to mobile technology, such as phones and tablets, as well as social media applications that connect people and spread ideas and information. This new technology offers exciting potential to help people prevent, mitigate and/or recover more rapidly after a disaster. In **Bangladesh**, early warning messages have been disseminated via SMS since 2010 and these on-time alerts have helped farmers, fisherfolk, and communities to take appropriate action.

Source: UNDP, *Issue brief: Mobile technology for crisis prevention and recovery* (2013), **www.undp.org/content/dam/undp/library/crisis%20prevention/20132703IssueBriefMobileTechCPR.pdf**

To work well, early warning systems need to be "people-centred." This means they empower people and communities who are **exposed** to hazards to take fast action in a way that reduces the possibility of personal injury, loss of life and damage to property and the environment.

A complete and effective early warning system combines:

Knowledge of hazards and vulnerabilities.
This involves educating and training people at risk.

Monitoring tools and warning systems.
This involves developing tools to predict hazards and broadcast warnings.

Dissemination strategies.
This involves making sure warnings reach everyone who is at risk and that the information is easy to understand. Examples include warning sirens or radio and mobile alerts.

Capacity to respond.
This involves making sure response plans are up to date, and that people are prepared and ready to react to warnings.

WEATHER FORESTS AND CROP CALENDAR MOBILE PHONE APPLICATIONS IN SENEGAL AND RWANDA

FAO and its partners are involved in the development, implementation and scaling up of innovative digital services. They focus their work on the development of four mobile phone applications in Senegal and Rwanda that will help improve agricultural services as well as availability of local content. Through these applications, a particular emphasis is placed **on the needs of young, self-employed entrepreneurs and female-headed households**, by breaking down the barriers to the **access** and **use of information**. One of these applications is called "Weather and Crop Calendar" and combines information on weather forecasts and crop calendars, thereby providing early warning services to highlight potential risks and increase farmers' resilience through helping them make informed decisions and take advantage of favourable climate conditions, as well as better manage risks and adapt to climate change. It is expected that this mobile application may be accessible to **2.4 million** households in Rwanda and **1.5 million** households in Senegal. Voice services in the different local languages will be integrated into the application in order to make sure that those people that are illiterate (not able to read and write) and only speak their local language can use the application.

Source: FAO, *Digital Services in Africa* (2018): **www.fao.org/in-action/africa-digital-services-portfolio/en**

THE IMPORTANCE OF EARLY WARNING SYSTEMS: AN EXAMPLE FROM BANGLADESH

In Bangladesh, in most years, one-fifth to one-third of the country **floods** as the rivers overflow. Not only are lives and homes destroyed but agricultural materials and livestock are also lost, resulting in huge economic losses. Poorer farmers often purchase stocks on credit; loss of their crop or livestock in a flood can put the household into debt for many years.

From 2000 to 2009, a partnership of international and Bangladeshi organizations worked on developing better ways to forecast monsoon floods in the country. They then trained community leaders to receive forecasts by cell phone and to use local landmarks to explain possible flooding in ways that were clear and useful for villagers. Community leaders advise farmers to take actions such as harvesting their crops or taking cattle to safety. They also tell households to store water, food and personal belongings ahead of a flood.

Bangladesh experienced three major floods in 2007 and 2008. Each was forecast successfully ten days in advance and communities moved to evacuation points in advance, fisheries were protected by nets, crops were harvested early ahead of impending floods, households were warned to store food and drink in advance, and mechanized boats were readied in case evacuation of farmers on river islands became necessary.

Source: Preventionweb.net

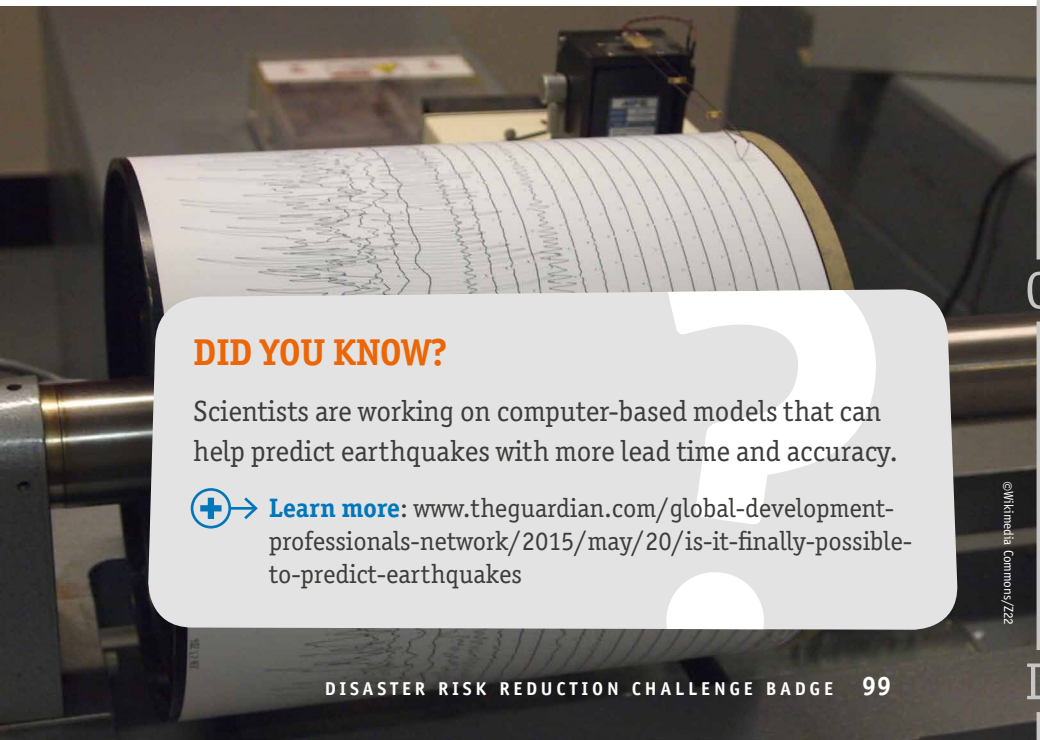
Let's now look into preparedness for **earthquakes**, **wildfires** and floods.

Earthquakes

Predicting earthquakes is hard, but technology can help us roughly predict right before one is about to happen. Instruments such as **seismometers** can detect motion in the ground and authorities can then alert residents through sirens or broadcasts and begin mass evacuations. Even having seconds to minutes of advance warning can allow for actions to protect life and property.

Being well prepared also means that emergency vehicles and supplies should be ready, as well as medical equipment, in case of a sudden evacuation.

Local governments should have regional plans in place and should conduct regular training and exercises. They should also raise awareness among the public about how to be prepared for an earthquake.



DID YOU KNOW?

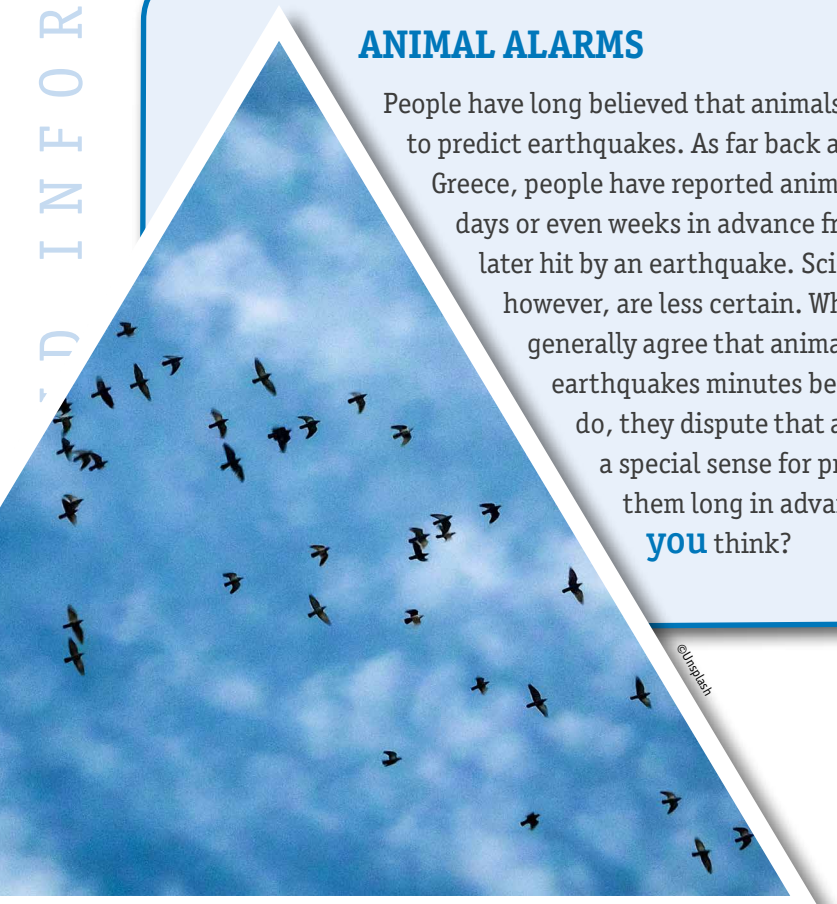
Scientists are working on computer-based models that can help predict earthquakes with more lead time and accuracy.

Learn more: www.theguardian.com/global-development-professionals-network/2015/may/20/is-it-finally-possible-to-predict-earthquakes

Good preparedness is everyone's responsibility, down to communities and individuals. In earthquake-prone areas, it's important to have regular drills about how to react in case of an earthquake. We will learn more about what each and every one of us can do in the **Take Action** section of this badge.

ANIMAL ALARMS

People have long believed that animals are able to predict earthquakes. As far back as ancient Greece, people have reported animals fleeing days or even weeks in advance from an area later hit by an earthquake. Scientists, however, are less certain. While they generally agree that animals can sense earthquakes minutes before humans do, they dispute that animals have a special sense for predicting them long in advance. What do **you** think?



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Wildfires

Early warning systems for wildfires include computer-based systems that can detect smoke and flames via cameras or satellites in space. When authorities detect a risk to human populations, they can, as in the case of earthquakes, broadcast warnings via sirens, SMS messages, television, radio and social media.

Wildfires can occur at any time, but the risk is always higher during periods with little or no rainfall, which make brush, grass and trees dry and burn more easily. High winds can also contribute to spreading the fire. So, being extra vigilant during dry periods is important. Other ways that governments and local leaders can help everyone prepare for wildfires include:

* fitting houses and buildings with smoke detectors and fire extinguishers;
* removing dead **vegetation**, which catches fire easily;
* planting trees and plants that are less flammable and watering them regularly;
* broadcasting fire warnings or evacuation notices efficiently;
* raising awareness and providing training on preventing and putting out fires.

Floods

Flood warning systems monitor rainfall and water levels through radar, automated barricades, computers and cameras. For example, the European Flood Awareness System (EFAS) (**www.efas.eu**), monitors and forecasts floods across Europe, providing flood early warning information up to ten days in advance. Once authorities are aware of an impending flood, they can take fast action to alert the public. Not only can timely flood warnings help people stay safe, they can also get communities to protect crops, livestock and housing.

One challenge that remains is that it can be hard to reach the most vulnerable and exposed populations with timely and easy-to-understand information. Many developing countries, including least developed countries (LDCs), small island developing states (SIDS) and landlocked developing countries (LLDCs), do not have the technology required for effective early warning systems. [*Source*: WMO.]

Generally speaking, flood preparedness involves having emergency plans in place, being extra vigilant during periods of heavy rainfall, and providing training in first aid, CPR, and swimming.

B4 CLIMATE CHANGE ADAPTATION

> "Action that addresses the interlinked challenges of **disaster risk**, **sustainable development** and **climate change** is a core priority given that 90 percent of recorded major disasters caused by natural **hazards** from 1995 to 2015 were linked to climate and weather including **floods**, storms, heatwaves and **droughts**."

Earlier, we learned about the links between climate change and disasters. We're now going to learn about how climate change **adaptation** can help us tackle disasters. Climate change is already happening, and many negative effects and changes will continue to occur. Therefore, we have to be prepared for the changes and take action to minimize the damage and disruption they may cause. This is known as adaptation to climate change. Adaptation seeks to moderate or avoid harm from climate change and find new solutions for people to live and prosper under their new climatic conditions.

Examples of adaptation include preparing for and understanding climate-related risks, protecting **ecosystems**, such as forests and wetlands, improving agricultural methods, managing water resources, building settlements in safe zones, developing strong **early warning systems**, designing safer buildings, improving insurance coverage and developing social safety nets, such as universal healthcare and shelters. As you can see, these measures are very similar to the DRR measures that you have learned about earlier. This means that climate change adaptation and DRR go hand in hand! Climate change adaptation measures not only help people and communities prepare better for the impacts of climate change, they also help them become more **resilient** to all hazards.

Taking steps for climate change adaptation means taking on almost all the SDGs, including **Goals 2** (zero hunger), **6** (clean water and sanitation), **13** (climate action), **14** (life below water) and **15** (life on land).

BACKGROUND INFORMATION

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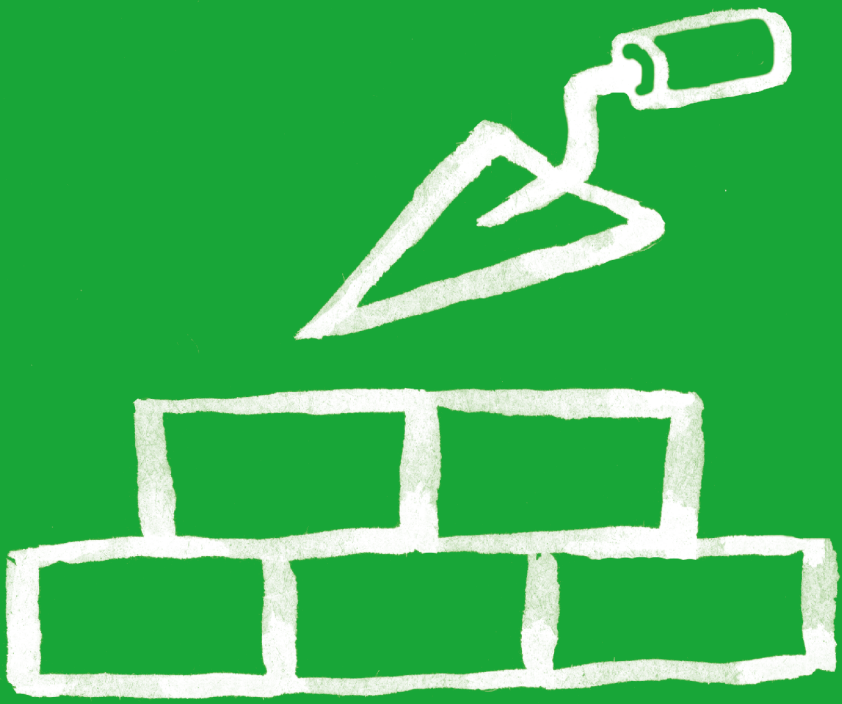
C RECOVERY



So far, we've learned about ways to prevent and prepare for disasters before they happen.

In this section, we'll learn about what happens after a disaster strikes.

C1 SEARCH AND RESCUE

The very first step following a disaster is to look for survivors who are trapped and/or injured and bring them to safety. This phase can last for hours or even days after a disaster. Specialized teams exist for search and rescue, depending on the area of the disaster. For example, there are rescue teams for mountains, ground (e.g. forests or villages), urban areas (e.g. for people trapped in collapsed buildings), air and water.

DOGGY DETECTIVES

Did you know that dogs are big helpers in search and rescue? With training, they learn to search for and find victims of disasters who are trapped, injured or lost. With their amazing sense of smell, they locate people that human search and rescue teams cannot. Some **avalanche** dogs can smell people who are under 5 meters of snow!

©Pixabay

C2 RELIEF WORK

Often after a major disaster, large numbers of people find themselves without access to food, drinking water, shelter or medical supplies. Those with severe injuries need urgent medical help. Along with search and rescue efforts, governments and agencies need to provide emergency relief to help people stay alive. In countries that are better prepared, this phase may not last as long as in countries where populations are more **vulnerable** and are not well prepared for disaster situations. For example, after an **earthquake** struck Haiti in 2010, the relief phase for most people continued all the way into the second year after the earthquake. In contrast, the emergency relief phase lasted only a few months after a February 2011 earthquake in Chile, because the country, being accustomed to earthquakes, was better prepared to respond.

©FAO/Giulio Napolitano

ANIMALS AND DISASTERS

It's not just humans who suffer in disasters. Animals face death and injury just like we do. Fortunately, there are dedicated groups for rescuing animals following disasters, such as the International Fund for Animal Welfare (**www.ifaw.org/united-states/our-work/animal-rescue/disaster-response**), World Animal Protection International (**www.worldanimalprotection.org/our-work/animals-disasters**) and the World Organisation for Animal Health (**www.oie.int**). However, animals typically get forgotten in the tragedy and chaos following disasters. For example:

* During **Hurricane** Katrina, around **600 000** pets died, either by drowning or by starving.
* An earthquake in Lima, Peru, resulted in the deaths of **thousands** of animals, who were not taken into account in the government's contingency plans.
* After the 2011 **nuclear** disaster in Fukushima, Japan, in addition to the many animals that died in the earthquake and **tsunami**, many others were abandoned and died of starvation because they were not evacuated. However, one man, Naoto Matsumura, decided to stay in the area to look after the abandoned animals.
  Source: Disaster Archipelago: Japan **https://commons.trincoll.edu/disasterarchipelago/?page_id=992**
* **Millions** of farm animals (cows, sheep, buffalo, goats, donkeys and poultry) died in the 2010 **floods** in Pakistan. Many died because people could not bring them along in rescue boats. While the death of so many animals is a terrible tragedy in itself, it also had severe implications for livelihoods in a country where millions of people depend on livestock and poultry for their income.
* After disasters, animal pests and diseases may spread rapidly. Just like humans, animals can get pneumonia from inhaling ash and irritant gases, or diarrhea from drinking contaminated water. Weakened by, for instance, floods or droughts, they are also more susceptible to illnesses and infections, such as parasites, viruses, bacteria and fungi.

C3 RECOVERY AND "BUILD BACK BETTER"

After the initial phases of saving lives and meeting survival needs, **recovery** efforts can turn towards rebuilding and getting life back to normal.

This might be hard to believe, but disasters can turn into opportunities for **sustainable development**. This is because when we start the long process of fixing and rebuilding, we can make things better than before, and pave the way for improvements on a lot of different levels. Let's find out how.

From the very beginning, recovery work should take a long-term, holistic approach that promotes equity, inclusion and environmental protection. This involves doing a post-disaster needs assessment (PDNA). Before you close the book right here, don't worry, a PDNA is easier to explain than to say. Governments conduct these assessments to get the full picture of a disaster's damages and losses, and to create strong recovery plans. Planners should make sure that recovery plans incorporate the principles of DRR, including:

* Make sure local communities play a central role in recovery efforts. They understand their own needs, they often have local knowledge that can be a valuable resource, and training them will build their capacity to be more **resilient** to future **hazards**.
* Integrate the principles of DRR into new **infrastructure** to make schools, housing, and offices safer. In other words, **build back better**, which we learned about in Section B1 of this badge.
* Protect livelihoods from future hazards. This includes identifying what makes people's livelihoods vulnerable (e.g. a poor rural farmer who lives in a flood-prone area is likely to lose his entire income in a flood), and how to make them more resilient. This is called creating **sustainable** livelihoods.
* Address climate risks when planning infrastructure, agriculture, water management, or other areas that **climate change** might affect.

- Consider the needs of and consulting with different vulnerable groups— including children, women, the disabled, and the elderly—when preparing for future hazards.
- Ensure financial protection such as insurance coverage in the face of future disasters. Check out this video to learn more: **www.ow.ly/LwpS30fG8tB**.
- Create social protection programmes to help prevent poor and vulnerable households from sinking deeper into poverty after disaster. Examples include cash transfers (where the government provides cash to poor people), pensions, and public work programmes where people in need of money can help with reconstruction work.

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Working with women

As you learned earlier, disasters tend to disproportionately affect women and girls. We can only address this by involving women and girls in recovery plans and efforts. Unfortunately, women and girls tend to have less access than men to information and resources. They own fewer assets and property. They have less decision-making power within their families and communities. They earn less than men all over the world for doing the same work. Women also tend to be less skilled and have fewer opportunities to develop skills. They face greater risk of sexual abuse, domestic and other forms of violence, and are often dominated by male members in the family.

All of this plays into the fact that women tend to be excluded from disaster recovery work. The international community is working to change this, by:

* creating rules and regulations that factor in the needs and ideas of both women and men (i.e. making them "gender-responsive");
* conducting gender-responsive programming, monitoring and evaluation;
* including women's needs and ideas when assessing a community's or country's vulnerability, risk and capacity;
* using data that is collected and analysed separately for men and women and for different age groups;
* making it easier for women to contribute and lead in resilience building;
* promoting women's participation, leadership and voice in disaster management activity.

Source: UN Women

Empowering women and girls is so important that one of the 17 SDGs is just about that: **Goal 5: Gender equality**.

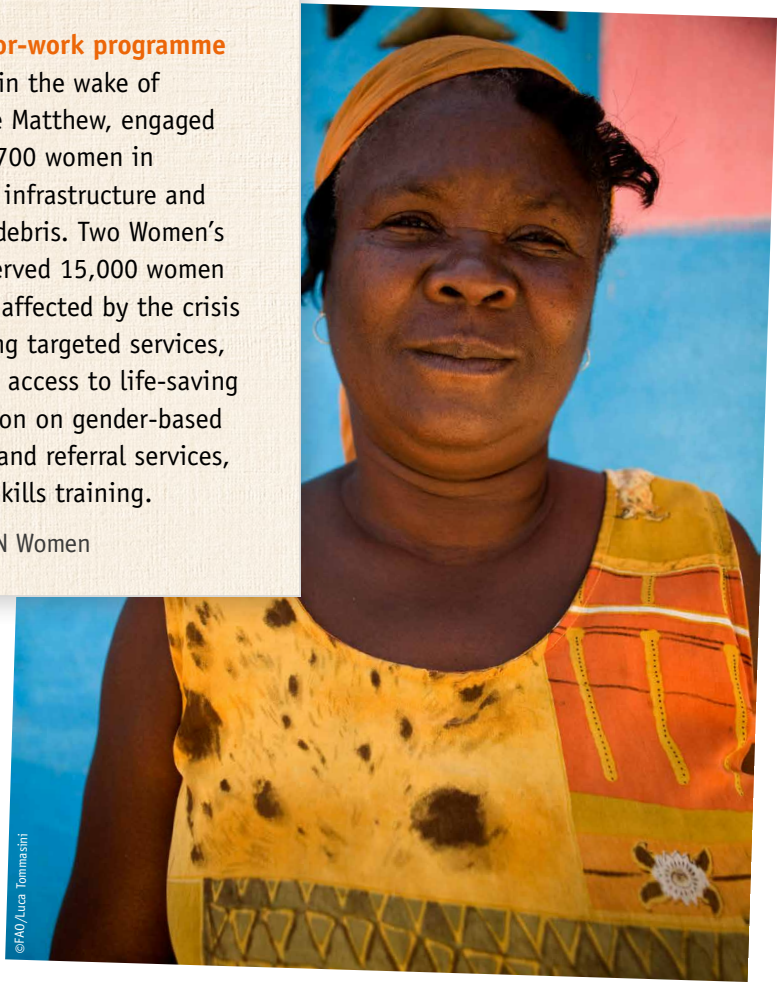
Women making a difference:
case studies from UN Women

These two examples show how important it is to empower and involve women in disaster recovery work.

Haiti

A cash-for-work programme in Haiti, in the wake of Hurricane Matthew, engaged nearly 1,700 women in restoring infrastructure and clearing debris. Two Women's Spaces served 15,000 women and girls affected by the crisis by offering targeted services, including access to life-saving information on gender-based violence and referral services, and job-skills training.

Source: UN Women



©FAO/Luca Tommasini

Ecuador

Disasters can open space to challenge traditional gender norms. Women often emerge as community leaders, rallying their neighbours. They may take on traditionally male roles to clear debris or rebuild, as was the case after the powerful earthquake that shattered homes and buildings in Ecuador in 2016. Through a cash-for-work programme, UN Women trained women in masonry and construction work; soon they were rebuilding a social **rehabilitation** facility and a series of community centres. Thirty-five-year old Lucas Melo, for example, has grown comfortable in her hard-hat and boots. She had never worked outside her home before the crisis. Today, her family depends on her income.

Source: UN Women

BACKGROUND INFORMATION

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TAKE ACTION

We've learned about how disasters can cause widespread damage and can hurt a country's development for years to come. Now it's time for some good news: A lot of people and organizations around the world are working hard to promote DRR, and a lot of great work is being done. Even better news? Everyone can do something to help, from communities to families to individuals. Yes, that means you! Let's learn how.

D1 YOU CAN MAKE THE DIFFERENCE

Below are some practical steps that everyone can take to be safer from **hazards**.

Be ready

No matter what type of hazard might occur, here are some safety precautions that every family should take.

* Make a thorough family emergency plan. Have you subscribed to local emergency alerts and warnings? Do you have an evacuation and shelter plan? How will you communicate with each other? Where will you meet up with your family if you are separated? Find more tips at: **www.ready.gov/make-a-plan**. Prepare an emergency kit that includes water, non-perishable food, a flashlight and a first-aid kit. A recommended list from the Red Cross can be found at **www.redcross.org/get-help/how-to-prepare-for-emergencies/survival-kit-supplies.html**.
* Pack warm clothing, essential medication and valuables in waterproof bags along with your emergency kit.

- Keep important documents and personal papers (e.g. passports and birth certificates) in a safe place that you can quickly grab along with your emergency kit if you need to leave in a rush.
- Identify an escape route from home that everyone practices. Agree on a place to meet up if you get separated or are arriving from different locations. Whether it's a flash **flood** or a fire, everyone should know the fastest way to get out of the house safely.
- Keep a list of emergency telephone numbers on clear display in your house.
- If you need to leave, take any pets and livestock with you only if you can and if it is safe to do so. If not, provide adequate food and water and move them to a safer place.
- Subscribe to alerts and advice from local authorities, via SMS, e-mail and social media.
- If leaving, turn off power, water and gas and don't forget your mobile phone!
- Get familiar with the types of hazards most likely to occur in your area and learn how to prepare for them specifically.
- Arrange for yourself and your family to receive training in first-aid and CPR. Make sure everyone learns how to swim.

"By failing to prepare, you are preparing to fail."
Benjamin Franklin

Safety in your world

Safety at home

There are several ways to make your home and lifestyle more resilient to hazards. Work with your parents to make any necessary changes for different types of hazards, depending on which ones are likely to occur where you live.

FLOODS

PREPARE FOR A FLOOD

- ✓ Check for local flood plans or details of high-risk areas.
- ✓ Ask authorities about relocation routes and centres.
- ✓ Take steps to make your house watertight.
- ✓ Place important personal documents, valuables and vital medical supplies into a waterproof case.

Find more ideas at: https://www.rgs.org/schools/teaching-resources/are-you-flood-ready/

IF A FLOOD IS COMING

- ✓ Put up flood barriers on doors and windows.
- ✓ Roll up rugs, move furniture, electrical items and valuables to a higher level.
- ✓ Turn off your main power supply. Unplug all electrical appliances.
- ✓ Make sure to put chemicals in a high place.
- ✓ Secure objects that could float away.
- ✓ Whether you leave or stay, put sand bags in the toilet bowl and over any drain holes.
- ✓ If you stay, move to higher ground or stay on high ground.
- ✓ Make sure to always have an escape route if water keeps rising.

Keep in mind that some families lost their lives because they were trapped in their house by rising water without any escape route.

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- ✓ If you leave, lock your home and take recommended relocation routes for your area.
- ✓ Avoid walking or driving through flood waters. If you must, test the depth with a stick first and walk in the middle of the road so you are not pulled or sucked into the drains.
- ✓ Stay away from power lines and electrical wires.
- ✓ Flood water is polluted and may affect your health, **DO NOT** drink it and:
  - make sure to have enough water and supplies. Fill all containers with fresh water, even your bathtub;
  - boil tap water until supplies have been declared safe;
  - do not eat any food that has been in contact with flood water;
  - wash your hands thoroughly after touching floodwater.

This innovative "disaster **resilient** village" in Bangladesh was built after a **cyclone** wiped out a coastal village.

Source: **https://news.un.org/en/story/2012/04/408992#.WdfRoWhSxPY**

EARTHQUAKES

PREPARE FOR AN EARTHQUAKE

- ✓ Talk to your parents about getting your home inspected by an expert, to check its ability to withstand an **earthquake**.
- ✓ Make sure that all rooms are safe from falling objects: are fixtures and decorations placed safely, are mirrors or pictures hung away from beds and chairs, are bookshelves fastened securely to the wall, are beds or chairs at safe distance from big windows, are there no heavy objects on shelves above beds, etc.?
- ✓ Make sure exits are clear of objects and can be opened.
- ✓ Store dangerous materials (chemicals, inflammables, etc.) in a safe place.
- ✓ Try to fasten appliances, such as TVs and microwave ovens to shelves, or mount them on walls, if possible.
- ✓ Know where your emergency cut-off switches are for gas, power, and water.
- ✓ Practice **DROP, COVER and HOLD** with all members of your household.

- ✓ Pick safe places in each room of your home, workplace and/or school (under a piece of furniture/against an interior wall away from windows).

Find more tips at: https://www.eqc.govt.nz/sites/public_files/images/fixfasten/EQC0053_QuakeSafeGuide_Singlepage_FA.pdf

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IF AN EARTHQUAKE HAPPENS

If inside:

- ✓ Drop to the ground onto your hands and knees.
- ✓ Cover your head and neck with your arms to protect yourself from falling debris and crawl for additional cover under a sturdy desk or table, **away from windows**, as soon as you can. Hold on until the shaking stops.
- ✓ If no sturdy shelter is nearby, crawl next to an interior wall, away from glass, windows, outside doors and walls, and anything that could fall, such as light fixtures or furniture.
- ✓ If you are in bed, hold on and stay there, protecting your head with a pillow.
- ✓ If you smell gas, get out of the house and move as far away as possible.

If outside:

- ✓ Find a clear spot away from **walls**, buildings, trees, **all overhead structures, bridges**, power lines, **etc**.. Then, drop to the ground. **Do not run through or near buildings**.
- ✓ If you are in a car, slow down, drive to a safe **wide-open place and stop there**. Stay inside with your seatbelt fastened until the shaking stops. **Listen to your radio for advice before continuing. Beware of landslides, fallen power lines, damaged roads, overpasses and bridges**.

AFTER AN EARTHQUAKE

If trapped under debris:

- ✓ Cover your mouth with your shirt.
- ✓ Do not scream, as you could breathe in dust.
- ✓ Tap on a pipe or wall so rescuers can locate you and shout when you hear the rescue teams as a last resort.

When a powerful magnitude 7.4 earthquake struck off the Pacific coast of Guatemala on 7 November 2012, appropriate actions were undertaken by the municipality. Staff were sent to evaluate damaged buildings, resulting in only minor damage after the earthquake. Besides, with the training, the technical assistance and the emergency response equipment provided by the USAID-funded programme, the communities responded to the earthquake in an organized and capable manner.

Learn more: https://reliefweb.int/report/guatemala/pounds-prevention-disaster-risk-reduction-story

© Pixabay/Angelo Giordano

FIRES

PREPARE FOR A FIRE

- ✓ Arrange for you and your family to obtain fire safety training.
- ✓ Keep fire blankets and fire extinguishers, water and sand handy.
- ✓ Learn about the different types of fire extinguishers for the different types of fires: some contain water, others foam, power, CO_2 or wet chemicals.
- ✓ Know when sand and water can be used to extinguish small fires: small fires can be extinguished when sand is put on the fire to starve it of oxygen. Water extinguishes a fire by cooling. However, water cannot be used for oil fires. In fact, putting water on an oil fire is quite dangerous, as evaporating water takes some oil with it and spreads the fire even further.
- ✓ Install and regularly check smoke alarms in your home, especially in kitchens, bedrooms and corridors.
- ✓ Keep doorways, corridors and paths clear and unobstructed.
- ✓ Make sure that all electrical appliances and cords are in good condition. Do not overload electrical outlets as faulty electrical equipment can cause a fire.
- ✓ Be aware that heat sources can start a fire, including heating and cooking appliances as well as cigarettes, lighters and matches.
- ✓ Identify and know the pre-planned escape route.
- ✓ Identify and know the pre-planned safe meeting place.

PREVENT A WILDFIRE

- ✓ Make sure you have the national emergency number/your local fire department or the park service and contact them if you notice an unattended or out-of-control fire.

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- ✓ Never leave a fire unattended and before you go to sleep or leave the campsite make sure that you fully extinguish the fire by adding water and stirring the ashes until cold.
- ✓ Do not throw away cigarettes, matches and other smoking materials outdoors, especially when they are still burning.
- ✓ Avoid burning forest areas for agricultural purposes or the burning of agricultural land.
- ✓ Avoid burning any waste.

IF A WILDFIRE HAPPENS

If you're right near the wildfire:

- ✓ Try to evacuate immediately, but if you are not able to, do not try to outrun the blaze, but look for a pond or river to wait in.
- ✓ If there is no water nearby, look for a low-lying area with little **vegetation** or among a bed of rocks, lie low to the ground and cover your body with wet clothing, a wet blanket or soil. Stay low and covered until the fire passes.
- ✓ Try not to inhale smoke by breathing air closest to the ground, through a moist cloth, if possible.
- ✓ If driving, roll up the windows and close air vents. Drive slowly with headlights on, because smoke can reduce visibility.

If a fire starts in your home:

- ✓ Try not to panic and tell everyone in the house.
- ✓ Use your pre-planned escape route, get everyone out of the building as quickly as possible. Smoke rises so stay low or crawl on the floor in the cleaner air where it's easier to breathe.
- ✓ Call the national emergency number and ask for the fire and rescue service.

- ✓ If possible, close the door to the room where the fire is located and close all doors behind you as you leave (to delay the spread of the fire and smoke).
- ✓ Before opening a closed door, touch it with the back of your hand; don't open it if it feels warm – the fire will be on the other side.

Don't go back into the building:

- ✓ Find the pre-planned meeting area that is safe away from the building and wait until the fire service arrives.
- ✓ If someone is still inside, tell the fire service and give details.
- ✓ Don't go back into the building as you prevent the fire service from doing what they need to do and you put your own life at risk too!

If your clothing catches fire:

- ✓ **STOP** where you are, moving or running adds air to the flames and worsens the fire.
- ✓ **DROP** to the floor, because if you stand up, the fire can burn your face.
- ✓ **ROLL** slowly on the floor or ground, in a rug or blanket if you can, and roll over and over until the flames have been extinguished.
- ✓ If possible use a fire extinguisher and combine stop, drop and roll to help stop the fire.
- ✓ **COOL** off as soon as possible with water for first- and second-degree burns.

CASE STUDY

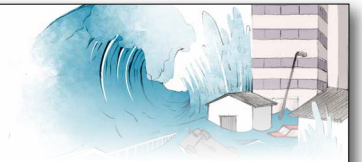
Rana and Amir reduced the outbreak and spread of fires by serving as fire service volunteers in their slum community in Bangladesh

Rana (studying in Class 11), from Jatrabari Slum Area, Dhaka, Bangladesh, is a boy who lives in an area prone to fire. Most of the houses are tin shaded and people generally use timber wood to cook their food, increasing the risk of house fires. When a fire starts, the furniture and sometimes the entire house burns down rapidly. A woman already lost her life in Rana's community due to a fire. He decided to join the DRR activities in 2009 and since then as an active member, who is involved in awareness activities, participated in various meetings and decorated walls with awareness messages.

Amir (14 years) from Jatrabari Slum Area, Dhaka, Bangladesh, is a member of Children's Organization & Slum Volunteer. Amir is living in a very congested area with narrow winding streets of wood, metal and low grade material. Because of the narrow road system, it is even hard for the fire brigade to reach a specific location. His area was completely destroyed by a fire in 1997 and then again partially in 2010. Since 2009, Amir has been working on DRR and followed training as a fire service volunteer. Thanks to this training he already saved the life of one disabled person, with the help of 39 other slum volunteers who participated in the first aid and fire safety training. Their awareness raising activities have also resulted in some changes in the houses (e.g. people now keep water and sand in their kitchens to control a fire in case one break out. In addition, all people, from children to elders, know by heart the emergency fire number, etc.). In 2012, the community of Amir faced another fire. However, this one did not spread, because the community knew how to respond to it.

Source: Children's Action for Disaster Risk Reduction, UNISDR & Plan, 2012: **www.unisdr.org/files/29304_bookunisdrfinishweb.pdf**

TSUNAMIS



PREPARE FOR A TSUNAMI

- ✓ Avoid building or living within several hundred meters of the coastline.
- ✓ If you live near a coastal area, learn about the risks of a tsunami in the area and try to elevate your home.
- ✓ Have an engineer check your home and advise about ways to make it more resistant.
- ✓ Be aware of warning signs: an earthquake, a loud roar from the ocean, unusual ocean behavior (sudden rise or wall of water or sudden draining of oceans waters showing the ocean floor).
- ✓ **If you fear that a tsunami may be coming, DO NOT HESITATE, head for higher ground, as far away as possible immediately.**

IF A TSUNAMI OCCURS

- ✓ Protect yourself from an earthquake: drop to the floor, cover your head and neck with your arms, hold on to any sturdy furniture until the shaking stops.
- ✓ When the shaking stops, gather members of your household and evacuate according to your prepared plan. A tsunami may be coming within minutes.
- ✓ Stay away from the beach. Never go down to the water to watch a tsunami come in.
- ✓ Avoid downed power lines and stay away from buildings and bridges.
- ✓ Go as high and as far inland as you can. Ideally to a spot 100 feet (30 meters) or more above sea level or 2 miles (3.2km) away from the ocean.

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- ✓ If you are in the water, grab onto something that floats, such as a raft, tree trunk, or door.
- ✓ If you are in a boat, face the direction of the waves and head out to sea.

AFTER THE TSUNAMI

- ✓ Listen to local alerts from the authorities on areas to avoid and locations for shelter.
- ✓ Do not return home unless officials tell you it is safe to do so. Tsunami waves can continue for hours and the next wave may be more dangerous than the first.
- ✓ Stay away from debris in the water.
- ✓ Be aware of the risk of electrocution, do not touch electrical equipment if it is wet or if you are standing in water.
- ✓ Stay away from damaged buildings, roads and bridges.
- ✓ Text, do not make phonecalls, unless there is a life-threatening situation, so you do not tie up phone lines needed by emergency workers.

Source: FEMA, *Be prepared for a tsunami* (2018)

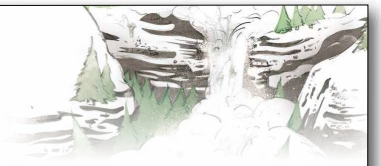
CASE STUDY

Tilly (10) saved 100 tourists from a Thai beach during the 2004 tsunami due to knowing the tsunami signs

Tilly Smith, a 10-year-old British girl had studied tsunamis with her geography teacher, shortly before flying to Thailand for a holiday with her parents and younger sister. Because of this she immediately recognized the signs of an approaching tsunami and managed to save 100 tourists from a Thai beach when tsunami happened on 26 December 2004.

When the water began to bubble, the boats on the horizon started to violently bob up and down and the waves suddenly began to recede, Tilly quickly realized they were in danger. She warned her mother, that they had to get off the beach immediately and that it could be a tsunami. She explained she had just completed a school project on the huge waves and said that from seeing the warning signs a tsunami was minutes away. They alerted other holidaymakers and hotel staff, who were quickly evacuated. The wave crashed a few minutes later, but no one on the beach was killed or seriously injured.

"It's really good, just to know about tsunamis or any natural hazard in case you are in one. I'm very glad that I was able to say on the beach that a tsunami was coming. And I'm glad that they listened to me. "The state of the sea, which was "sizzling and bubbling" was "exactly the same as in my geography lesson, she said".



AVALANCHES

PREPARE FOR AN AVALANCHE

- ✓ Be aware of warning signs of high avalanche risk:
  - recent avalanche activity;
  - cracking, blocking or whooping sounds of the snow pack;
  - significant snowfall in the last 24 hours;
  - strong winds;
  - temperature rise.
- ✓ In an at risk area, wear an avalanche rescue beacon (small device that emit pulsed radio signals informing about the location of the owner).
- ✓ Learn how to use safety equipment properly.
- ✓ Avoid steep slopes (between 30 and 45 degrees) particularly in shaded areas.
- ✓ Sign up for alerts on current avalanche dangers.
- ✓ Always travel with someone.

IF AN AVALANCHE STRIKES

- ✓ When you see an avalanche heading your way, try to run outside of its path (perpendicular to it).
- ✓ If the avalanche begins beneath your feet, try to jump upslope/ above the fracture line to stable ground.
- ✓ Grab something sturdy like a tree branch or a rock to keep you steady and rooted to one spot
- ✓ "Swim" to the top of the avalanche to avoid being trapped under debris.

INFORMATION

- ✓ Try to keep one arm above your head to help rescuers to spot you and to help you know which direction is up to start to dig out.
- ✓ Once you have come to a stop, create a small pocket of air near your mouth with your free hand to avoid asphyxiation.
- ✓ Expand your chest by filling your lungs with air to have more room to breathe.
- ✓ Spit to note where gravity carries your spit and dig in the opposite direction.
- ✓ Stay calm to avoid quickening your breath and filling the small breathing space you have with too much carbon dioxide, which is toxic.

Source: National Geographic, *Avalanche Safety Tips*/ Travel leisure, *What to do if you are caught in the path of an avalanche* (2018)/ National weather service, *Avalanche Safety* (2018)

©flickr/An Bakker

CASE STUDY

AbduRahman's participation in training that helped his family and community to be better prepared for avalanches in Tajikistan

AbduRahman lives with his family in a small village located high up in the mountains in Tajikistan. His house is located at the bottom of a long slope, which makes it particularly vulnerable to avalanches during the winter. Knowing the risks, AbduRahman always keeps an eye on the snow level above his house and for the first-time last year took actions to be prepared in case another avalanche happened; he prepared a grab-bag with essential belongings, such as IDs, cash and an evacuation plan to a neighbour's house who lives away from the dangerous area. He was more aware of the risks and was able to be more prepared due to a preparedness training that he participated in. Last time he moved his entire family, an avalanche crashed right next to his house and missed it by only a few metres. AbduRahman now also organizes meetings in his village to pass on what he learned to the people who were not able to attend the preparedness sessions organized.

Source: Prakash P., Meet the villagers in Tajikistan who are putting disaster risk knowledge into practice, European Civil Protection and Humanitarian Aid Operations (2018): **www.ec.europa.eu/echo/blog/meet-villagers-tajikistan-who-are-putting-disaster-risk-knowledge-practice_en**

CASE STUDY

Elyse, a professional skier, found and saved by rescuers as she followed the avalanche survival tips

Elyse Saugstad, a professional skier, was once stuck in an avalanche in Tunnel Creek, America. She and a group of friends went skiing on fresh snow ignoring the conditions that were indicating the high avalanche risk.

After being overtaken by the snow, she had no control of her body and could not differentiate up from down. While moving, snow was more like something liquid, thick like lava, but when it stopped, it instantly froze solid, locking everything it carried.

"After about a minute, the creek bed vomited the debris into a gently sloped meadow. Elyse felt the snow slow down and tried to keep her hands in front of her. She knew from avalanche safety courses that outstretched hands might puncture the ice surface and alert rescuers. She also knew that if victims ended up buried under the snow, cupped hands in front of the face could provide a small pocket of air for the mouth and nose. She was on her back, her head pointed downhill. Her goggles were off. She felt the crushing weight of snow on her chest. She could not move her legs. One boot still had a ski attached to it. She could not lift her head, because it was locked into the ice, but she could see the sky. Her face was covered only with loose snow. Her hands, too, stuck out of the snow. Using her hands like windshield wipers, she tried to flick snow away from her mouth. When she clawed at her chest and neck, the crumbs maddeningly slid back onto her face. She grew claustrophobic.

Breathe easy, she told herself. Do not panic. Help will come. She stared at the low, gray clouds. She had not noticed the noise as she hurtled down the mountain. Now, she was suddenly struck by the silence." Because Elyse followed the tips she had learned on how to survive in an avalanche, rescuers found her and saved her.

To know more about this disaster story: **www.nytimes.com/projects/2012/snow-fall/index.html#/?part=tunnel-creek**

DROUGHT

PREPARE FOR A DROUGHT

- ✓ Make water conservation practices part of your daily life.
- ✓ Repair and retrofit plumbing to reduce leakage.
- ✓ Repair any dripping faucets.
- ✓ Rethink your landscaping and if you are growing your own food:
  - Plant native, drought-tolerant grasses, plants/crops and trees.
  - Plant in the spring or autumn, when watering requirements may be lower due to more rainfall, but adjust to your location conditions.
  - Think about rain water collection methods.
  - Practise mulching to help the soil retain moisture and to reduce the growth of weeds.
  - Practise drip irrigation to water plants and trees.

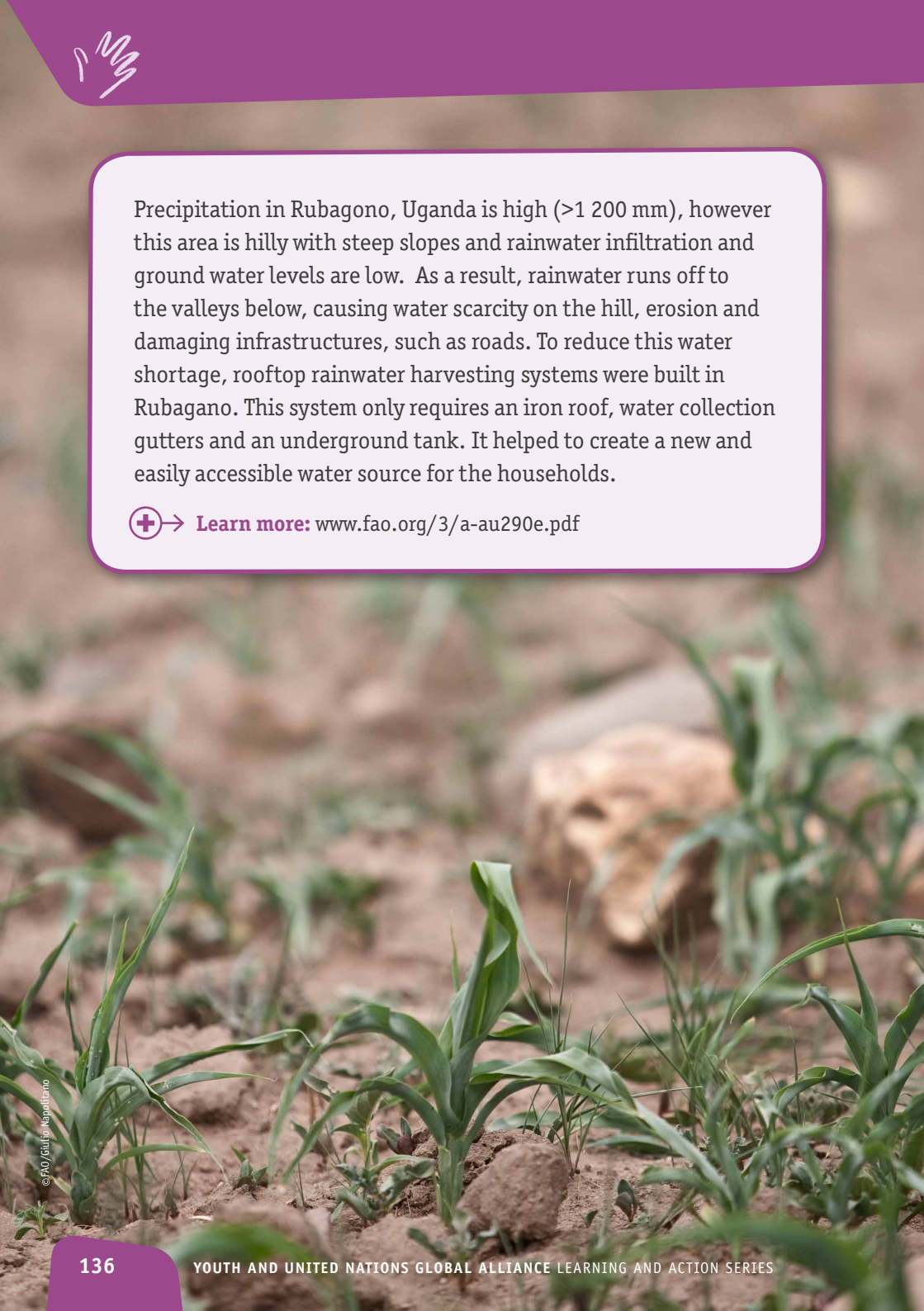
DURING A DROUGHT

- ✓ Save used water (e.g. collect the water used to wash your face or do the dishes for reuse around your house, such as to flush the toilet).
- ✓ Take shorter showers and reduce taking baths.
- ✓ Collect as much rainwater as you can when it rains.
- ✓ Be aware of water restrictions that may be in place in your region.
- ✓ Be aware of the risks of wildfire.

Source: Mannino N., *How to protect yourself during a drought*, The Hartford extra mile (2017): **https://extramile.thehartford.com/home/safety/drought-preparation**

Precipitation in Rubagono, Uganda is high (>1 200 mm), however this area is hilly with steep slopes and rainwater infiltration and ground water levels are low. As a result, rainwater runs off to the valleys below, causing water scarcity on the hill, erosion and damaging infrastructures, such as roads. To reduce this water shortage, rooftop rainwater harvesting systems were built in Rubagano. This system only requires an iron roof, water collection gutters and an underground tank. It helped to create a new and easily accessible water source for the households.

Learn more: www.fao.org/3/a-au290e.pdf



LANDSLIDES

PREPARE FOR LANDSLIDES

- ✓ Become familiar with the land around you to understand the risks and learn whether landslides have previously occurred in your area.
- ✓ Follow proper land-use procedures to avoid doing work that could increase soil instability, such as digging a hole on a slope or draining a pool by emptying the water on a steep slope.
- ✓ Avoid building near steep slopes, close to mountain edges, near drainage ways or along natural erosion valleys.
- ✓ Watch the patterns of storm water drainage on slopes near your home.
- ✓ Report any abnormalities to the municipal authorities, such as cracks on your lot, a bulge or depression on a slope, a rockslide, or unusual seepage of water.
- ✓ Protect your property by planting ground cover on slopes and building retaining walls if possible.
- ✓ During a severe storm, stay alert and awake.
- ✓ Listen to local news stations for warnings of heavy rainfall.
- ✓ Listen for unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together.

IF A LANDSLIDE OCCURS

- ✓ If you suspect imminent danger, evacuate immediately and try to inform affected neighbours and your public works, fire or police department.
- ✓ Move away from the path of a landslide as fast as you can. The danger from a mudflow increases near stream channels and with prolonged heavy rains.
- ✓ Avoid river valleys and low-lying areas.

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- ✓ Look upstream before crossing a bridge and do not cross it if a mudflow is approaching.
- ✓ If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and notice whether the water changes from clear to muddy.
- ✓ If you cannot escape, curl into a tight ball and protect your head with your hands and arms.
- ✓ If you are indoors, move to the part of the building opposite to the landslide, take shelter under a solid piece of furniture and hold firmly onto an object solidly anchored until all movement has stopped.

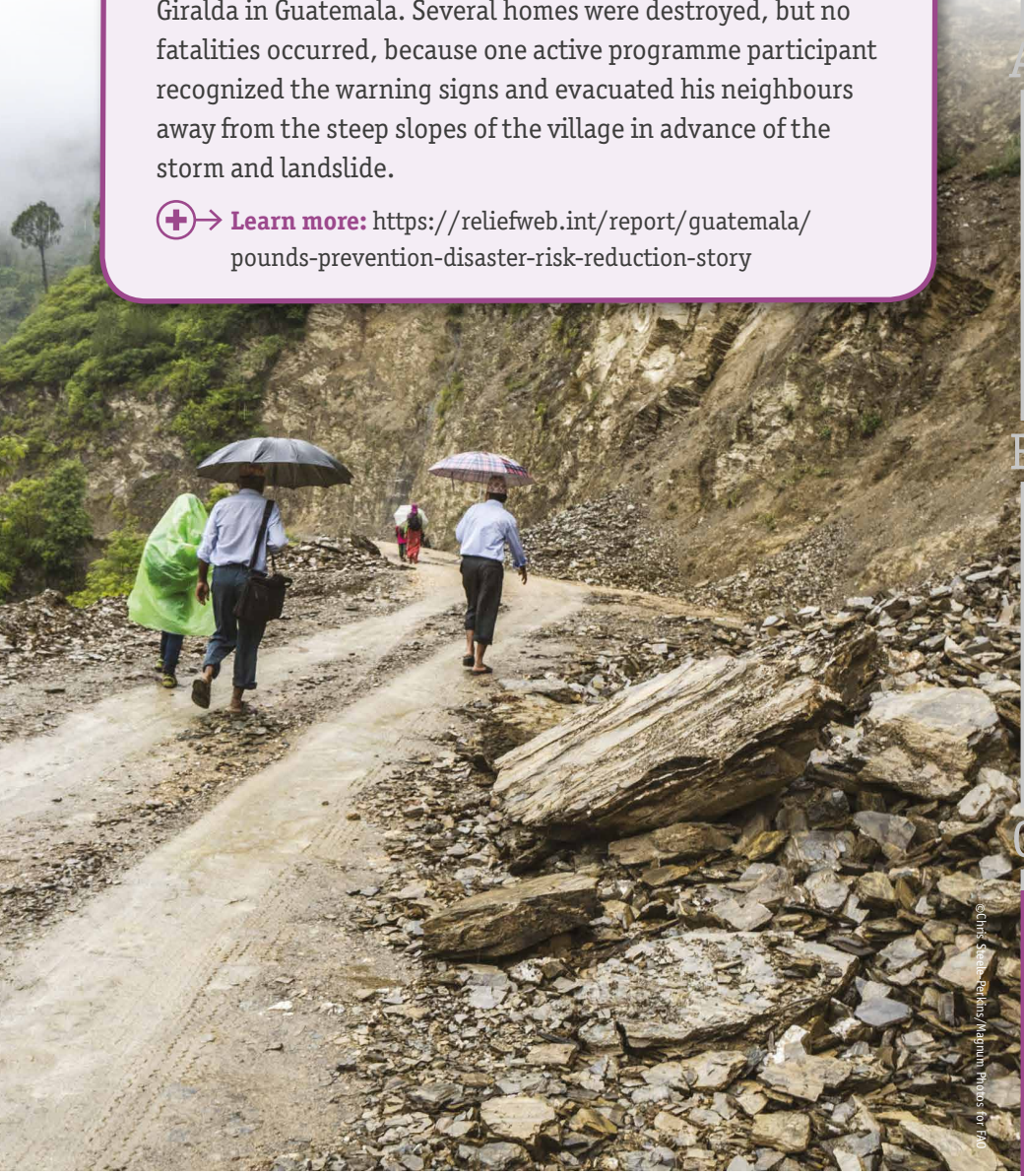
AFTER A LANDSLIDE

- ✓ Stay away from the landslide area. There may be a danger of additional landslides.
- ✓ Listen to local radio or television stations for the latest emergency information.
- ✓ Watch for flooding, which may occur after a landslide.
- ✓ Check for injured and trapped persons near the slide, without entering the direct landslide area, and direct rescuers to their locations.
- ✓ Look for and report broken utility lines and damaged roadways and railways to appropriate authorities.
- ✓ Check the building foundation, chimney, and surrounding land for damage. This may help you assess the safety of the area.
- ✓ Replant damaged ground as soon as possible since erosion caused by loss of ground cover can lead to flash flooding and additional landslides in the near future.

Source: Achieve Solutions, *Landslides or debris flow: Before, During and After* (2018): **https://www.achievesolutions.net/achievesolutions/en/Content.do?contentId=17630** American Red Cross, Landslide Safety (2019): **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/landslide.html**

In May 2010, due to the knowledge and training provided by the USAID, lives were saved when the Tropical Storm Agatha's heavy rains caused a landslide in the village of Giralda in Guatemala. Several homes were destroyed, but no fatalities occurred, because one active programme participant recognized the warning signs and evacuated his neighbours away from the steep slopes of the village in advance of the storm and landslide.

Learn more: https://reliefweb.int/report/guatemala/pounds-prevention-disaster-risk-reduction-story



©Chris Stein-Perkins/Magnum Photos for FAO

VOLCANOES

PREPARE FOR A VOLCANIC ERUPTION

- ✓ Try to stay away from active volcanoes as much as possible.
- ✓ If you live near an active volcano, learn about eruption risks in your area and keep goggles and masks handy.
- ✓ Know your evacuation route.

IF A VOLCANO ERUPTS

- ✓ Listen to a local station for updated emergency information and instructions.
- ✓ Evacuate only as recommended by authorities to stay clear of lava, mud flows, flying rocks and debris.
- ✓ If you stay, close windows and doors and block chimneys and other vents to prevent ash from entering into the house and if possible sweep away the ash that may put excess weight on your roof.
- ✓ Change into long-sleeved shirts and long pants.
- ✓ If you leave your home, use goggles or eyeglasses, not contact lens and wear an emergency mask or hold a damp cloth over your face.
- ✓ Avoid river areas downstream of the volcano, low-lying regions and areas downwind of the volcano. Debris and ash will be carried by wind and gravity.
- ✓ Stay in areas where you will not be at risk of further volcanic eruptions.
- ✓ Avoid driving as ash can damage engines and metal parts, but if you must drive, stay below 35 miles (56 kilometers) an hour.

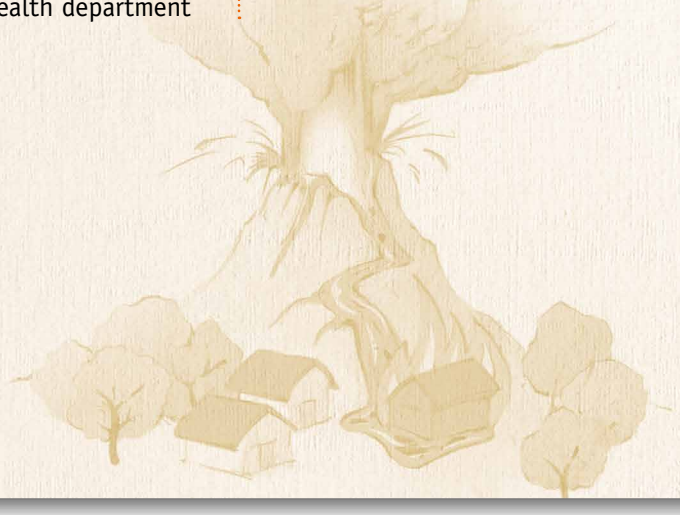
Source: National Geographic, Volcano safety tips: **www.nationalgeographic.com/environment/natural-disasters/volcano-safety-tips/** and American Red Cross, Volcano safety tips: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/volcano.html**

CASE STUDY

Public Health Emergency Preparedness (PHEP) training helped to minimize the health impacts on the community of the 2018 eruption of the Kilauea volcano in Haiti

The 3 May 2018, Kilauea volcano, Haiti, erupted, however the community was prepared. The preparedness office deployed public health teams to evaluate health and safety risks in shelters where affected residents were staying. They also monitored the air quality around the island and updated the population on the air quality and other vital health information, through social media and a health department advisory webpage. The health department also established distribution sites in order to be able to rapidly disseminate medicines and other materials as needed during the disaster, including the distribution of 52 000 particulate-filtering masks to protect residents of affected areas from volcanic ash. While it is impossible to stop a volcano eruption, being well prepared for any type of emergency minimizes the health impacts on the community.

Source: Centers for Disease Control and Prevention, PHEP Helps Keep Residents Safe during a Volcanic Eruption in Hawaii (2019): **https://www.cdc.gov/cpr/readiness/stories/HIVolcano.htm**



TROPICAL STORMS: HURRICANES/ TYPHOONS/ CYCLONES

PREPARE FOR A TROPICAL STORM

- ✓ If you live in a coastal area at risk of tropical storms, identify a safe shelter and a route to get there.
- ✓ Pay attention to weather conditions.
- ✓ Stay informed and aware of alerts, warnings, and public safety information.
- ✓ If you are in an area at risk of tropical storms, further protect your home by:
  - protecting windows and other openings with temporary plywood or other type of material that can be used for coverages;
  - securing or bring outdoor objects into the house; stow vehicles, tools, furniture and other equipment in your basement;
  - fastening your roof more firmly with straps or clips.
- ✓ Ensure that your house is clear from potential debris or falling obstacles such as power lines or old, large trees.
- ✓ Store as much water as you can in case regular water supplies are cut off.

IF A TROPICAL STORM STRIKES

- ✓ Seek shelter in a sturdy building or a room in the house, without any window if possible.
- ✓ Avoid driving or going outdoors, strong winds will blow things around.
- ✓ Be prepared to evacuate immediately if it is advised to do so.

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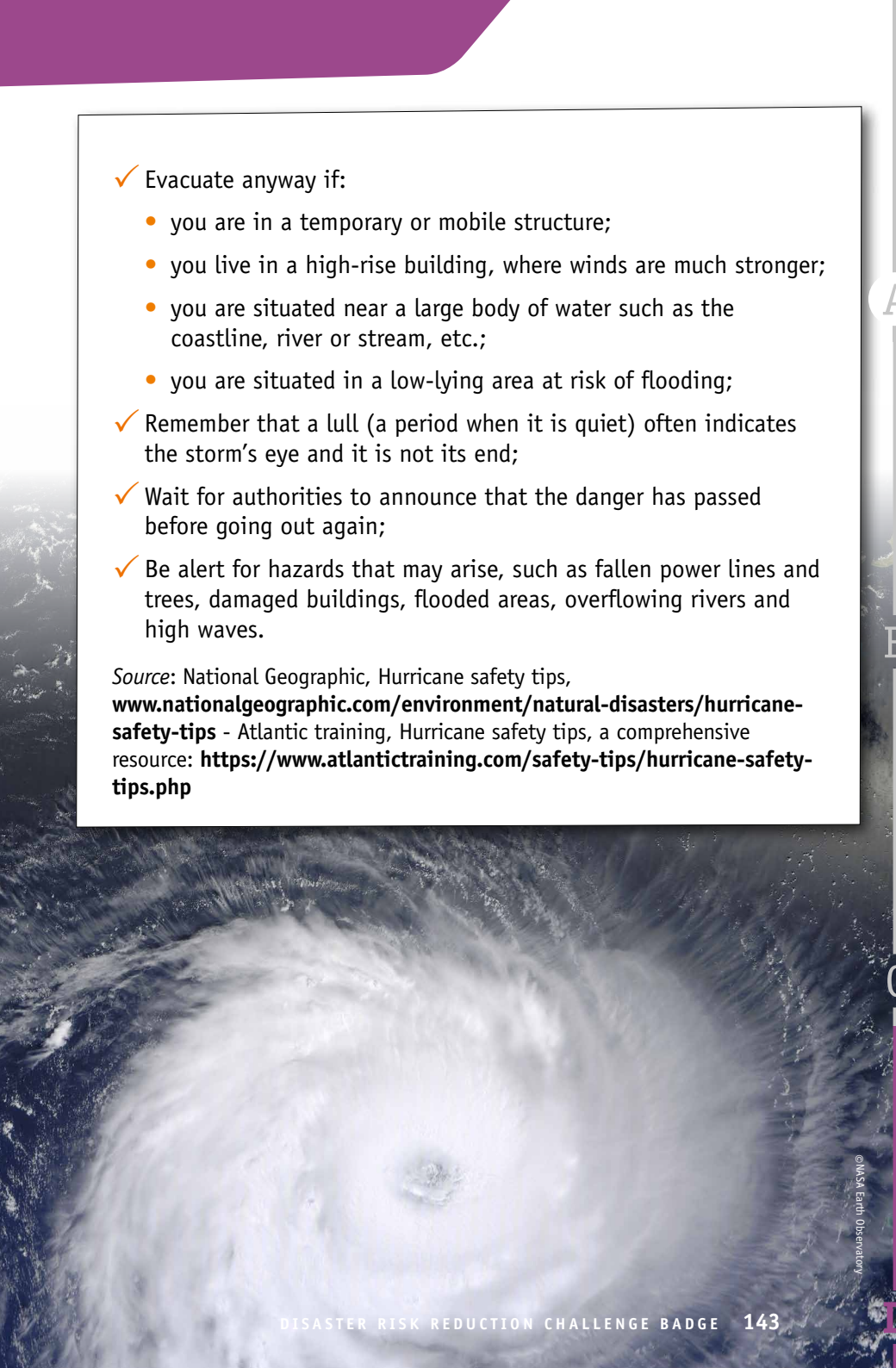
- ✓ Evacuate anyway if:
  - you are in a temporary or mobile structure;
  - you live in a high-rise building, where winds are much stronger;
  - you are situated near a large body of water such as the coastline, river or stream, etc.;
  - you are situated in a low-lying area at risk of flooding;
- ✓ Remember that a lull (a period when it is quiet) often indicates the storm's eye and it is not its end;
- ✓ Wait for authorities to announce that the danger has passed before going out again;
- ✓ Be alert for hazards that may arise, such as fallen power lines and trees, damaged buildings, flooded areas, overflowing rivers and high waves.

Source: National Geographic, Hurricane safety tips, **www.nationalgeographic.com/environment/natural-disasters/hurricane-safety-tips** - Atlantic training, Hurricane safety tips, a comprehensive resource: **https://www.atlantictraining.com/safety-tips/hurricane-safety-tips.php**



©NASA Earth Observatory

CASE STUDY

Local children's group 'Mim Abason' uses skits, songs and mock drills to reduce the impact of tropical storms in Bangladesh

Tropical Storm Mahasen hit Potkakhali, Bangladesh, in 2013, with wind speeds of up to 90 km/h and heavy rains. Mahasen destroyed and caused extensive damage to more than 45 000 houses as well as too many schools; an estimated 128 000 hectares of agricultural land were submerged under water. Yet despite all this, there were just 45 deaths.

In Potkakhali, a local children's group, called Mim Abason, was created to raise awareness of the importance of disaster preparedness. Mukta, a 17-year-old and Mohammed, a 14-year-old. are leading this group. Their activities in their communities have helped convince children and adults of the importance of evacuating to shelters, which was exactly what about one million people did in Potkakhali as Mahasen made its final approach.

It was also important to get people to map the risks in their villages and develop actions to address them. When the storm warning came, Mukta and her friends moved to the nearby shelter. "We were there for two days and were listening to the radio," she says. "We were also playing and singing." Skits and folk songs like "*One flag is for cyclones that are less intense. Two flags are for category 4-6 cyclones and three flags is a signal to run to the cyclone shelter*" are used regularly, while mock drills help children understand how to respond to early warnings. The children have also been trained in first aid.

Plan and South Asia Partnership have been supporting disaster preparedness efforts like this in Potkakhali since 2011, with funding from the European Commission's Humanitarian Office. The message from the children in Potkakhli is loud and clear: children must be at the centre of all disaster preparedness and risk reduction measures.

Making different places where we live, work and play safe

Let us now look at some of the things you can do to make some of the places you spend time in safe.

Safety at school

What the international community is doing

The international community is increasingly recognizing the need to make schools safe from hazards. Doing so not only keeps students and teachers safe, but also prevents interruptions to education, keeps children in school and therefore safe from exploitation and abuse, and strengthens a country's overall resilience.

Safety in schools depends on three main pillars:

1

Safe learning facilities.

This means using disaster-resilient design and construction to make sure school sites are safe.

2

School disaster management.

This involves working with education authorities and local school communities (including children and parents) to empower them to identify and map hazards that could affect the school community, prepare **early warning systems** and take other steps for preparedness.

3

Risk reduction and resilience education.

This refers to training teachers on DRR and developing quality learning materials that address **climate-smart** DRR, as well as integrating risk reduction throughout the school curriculum.

What you can do

- Hold a meeting with teachers and management to discuss your concerns.
- Arrange for a safety inspection of your school facilities.
- If your school does not already have emergency and evacuation plans in place, discuss this with teachers and management to create them.
- Decide on an appropriate shelter area.
- Form a team that can take charge in an emergency. Make sure each team member is clear on his or her responsibilities in case of an emergency, e.g. who will help younger children, who will help the disabled, etc.
- Set up a communication plan and make sure everyone within the emergency team knows how to reach one another.
- Arrange for training of staff members and students on what to do in various hazard situations, and in first-aid and CPR.
- Make sure you have a first-aid kit at your school.
- Publicize the emergency plan so that as many students and teachers as possible are aware of it. Involve parents, too.
- If you don't already have regular emergency drills in your school, then talk to teachers and management about doing so.

In a joint study, UNICEF and the European Commission devised a set of questions for school staff to consider in order to make schools safer.

Check out the questions on page 4 and share them with your school staff.

Safety where you live

No matter where you live, village, small town or city, you should educate yourself about hazard risks in your area and how to best prepare for them. Work with your community members to build resilience. Here are a few points to consider.

DO YOU KNOW YOUR RISKS?
Which hazards are likely to occur where you live? Which areas will be most affected in a particular hazard? You might consider creating a risk map, see the image below for some tips.

WHERE ARE THE NEAREST SHELTERS?
If you need to leave your home during a disaster, you should know where your nearest shelter is.

WHO ARE THE FIRST RESPONDERS?
First responders in an emergency situation include police officers, firefighters and paramedics. Are there trained first responders where you live? Do you need support and training for first responders? Also, find out how to contact them if you need to.

WHAT ARE THE EARLY WARNING SYSTEMS?
Does your community have early warning systems in place? Have they been tested? Are people aware of them?

DO YOU HOLD COMMUNITY DRILLS?
Organizing emergency drills with your neighbours or community members might be a good way to promote everyone's safety in case of disaster.

CREATING A RISK MAP

What you need

- A large piece of paper or an empty blackboard, white board, or wall
- Pens – you might want to use different colours
- Some tape or glue to hang your risk map if it's on paper

1 Draw a map of your neighbourhood, village or town. Include the places where you spend the most time: your home and your school.

2 Include natural landmarks, such as rivers and canals, mountains and steep hills, or coastlines, as well as major infrastructure (roads, bridges, tunnels), and important public buildings (fire stations, train stations, hospitals, police stations, electrical plants). You should also include potentially hazardous buildings like chemical plants.

3 Once you have drawn your map, it's time to become a disaster risk detective! Find out which **hazards** your community is facing. Split up into teams and interview people in your community – everyone from local journalists and disaster management officials to your family and friends. The Internet and your library are great sources of information too. Find out the answers to the following questions:

* Which hazards is your neighborhood/village/town exposed to? Which areas will be most affected if a certain hazard occurs?
* Which disasters have happened in the past in your area? Which sections were most affected and why?
* Does your community already have risk maps for various hazards? If so, were people in your community consulted? Does the map include changes in risk due to climate change?

4 Next, mark areas and buildings that are at risk from a certain hazard. Different groups of students can work on different hazard scenarios (like a small flood versus a large flood).

* Are you frequently in those areas that are at risk?
* Is your school in an area that is at risk?

5 Next, discuss **vulnerabilities**:

* What makes certain people in your neighbourhood more vulnerable than others?
* What makes certain areas, buildings, or infrastructure in your area more vulnerable than others?
* What activities happen in your neighbourhood that increase vulnerabilities?

6 Mark buildings and areas where a large number of people might need help when a disaster strikes, such as schools, community centres, homes for the elderly, and hospitals.

7 Next, think of **capacities**. Mark buildings and infrastructures that are important for disaster response, such as evacuation routes, safe zones, hospitals, fire houses, and others. Discuss how much at risk those facilities are from disasters and how accessible they would be when a disaster strikes.

8 Your risk map is ready! There are so many things that you can do with it: present it to your teachers, your family, emergency workers like fire fighters. Find out if you can display it in the community somewhere. From here, you'll want to start talking about how your community can start to reduce its disaster risk, and how you can be more prepared. Think of ways to identify people who would be vulnerable in a disaster and how they can be helped to safety. What can children/youth do to help?

Courtesy:
A Student's Guide to Disaster Risk Reduction, **https://unesdoc.unesco.org/ark:/48223/pf0000228798**

You've learned about how to make your home and school safer from disasters and what to do in case of specific hazards.

You can also take action towards reducing disaster risk in general. Here are some ideas.

Spread the word

Another way to tackle disaster risk is by spreading awareness. You can organize an event in your community, write a blog or just talk about DRR with your friends and family. The Take Action section of the badge curriculum includes a range of ideas and suggestions.

Join forces

A great way to help reduce disaster risk is to team up with others. Find out if there are any local groups working on DRR in your area. Perhaps you can volunteer with them or take part in their events. A range of global organizations and events also exist. You can follow their work via social media, share your stories and photos, join online discussions and find out if they are holding any events near you. One place to start is the International Day for Disaster Reduction, held on 13 October each year: **www.unisdr.org/unisdr-archives/2017/iddr**.

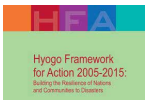
Find more ideas in the *Lazy Person's Guide to Saving the World*:
www.un.org/sustainabledevelopment/takeaction

Let's do something for DRR!

D2 A WORLD OF EFFORT

Achieving DRR will take a combination of factors. Along with improving our knowledge and technology of how to build more **resilient** communities, we also need political will and commitment, institutional coordination, and good communication and collaboration between those involved. Fortunately, the international community is taking heed. Several important agreements and plans for action already exist.

Hyogo Framework for Action 2005 to 2015



In 2005, world leaders, international agencies, disaster experts, and others agreed on the Hyogo Framework for Action (HFA) 2005-2015. The plan came out of a conference held in Hyogo, Japan. It was the first plan to explain, describe and detail what everyone needs to do to reduce disaster losses. The HFA outlined priorities for action, and offered guiding principles and practical means for achieving disaster resilience. Its goal was to substantially reduce disaster losses by 2015 by building the resilience of nations and communities to disasters. This means reducing loss of lives and social, economic, and environmental assets when **hazards** strike.

The Sendai Framework for Disaster Risk Reduction 2015 to 2030

Following form the Hyogo Framework, governments and other relevant actors agreed on the Sendai Framework for DRR at a 2015 conference in Sendai, Japan. The Sendai Framework is a 15-year, voluntary, non-binding agreement. It recognizes that the State has the primary role to reduce disaster risk but emphasizes that responsibility should be shared with others including local governments, private companies and others. It aims for the following outcome: "The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses,

communities and countries". This outcome will be achieved through 7 targets by 2030:

1. Substantially reduce global disaster mortality
2. Substantially reduce the number of people affected globally
3. Reduce direct disaster economic loss
4. Reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities.
5. Increase the number of countries with national and local disaster risk reduction strategies by 2020
6. Enhance international cooperation to developing countries
7. Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people

Source: UNISDR

International climate change agreements

Tackling DRR means tackling **climate change**. The world's formal body for addressing climate change is called the United Nations Framework Convention on Climate Change (UNFCCC). In recent years, there have been intense negotiations between UNFCCC member countries (known as "Parties") on a universal agreement in which all countries will have some responsibility and specific targets for reducing their **greenhouse gas** (GHG) emissions. Negotiations take place throughout the year but especially at the Conference of the Parties, which is held at the end of every year and is the highest decision-making forum in the world of climate change. In December 2015, 195 Parties gathered at the 21st Conference of the Parties (COP21) and endorsed the landmark Paris Agreement (L'accord de Paris). This agreement specifies the path to keep temperature rise well below 2 degrees Celsius and establishes how to address GHG emission **mitigation**, **adaptation** and finance starting in the year 2020. Since 22 April 2016 (Earth Day) the agreement has been open for signature by governments.

Protecting ecosystems and harnessing their power to ward off natural catastrophes are key ways to reduce the risk of such disasters. Here, children plant mangrove saplings on the Camotes Islands.

Courtesy Green Cross and UNISDR/ ©Sandia Gatke/Plan International/ Plan Asia

United Nations Convention to Combat Desertification

Established in 1994, United Nations Convention to Combat Desertification (UNCCCD) is an international agreement that addresses issues such as **drought**, **desertification**, **deforestation**, and the impacts of climate change.

Sustainable Development Goals

On 25 September 2015, world leaders adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 **Sustainable Development Goals (SDGs)** to end poverty, fight inequality and injustice, and tackle climate change by 2030.

Want to learn more about the SDGs or would you rather read a comic? Guess what—you can do both at the same time: www.comicsunitingnations.org/comics. See the front of this booklet to learn more about the specific SDGs concerned in this Challenge Badge.

You've probably noticed that throughout the badge, we've identified when actions for DRR tie in with achieving the Sustainable Development Goals (SDGs). In fact, each and every one of the 17 goals is connected to DRR. **Sustainable development** cannot be achieved while disasters continue to damage economic growth and social progress.

SECTION A:

HAZARDS AND DISASTERS

DO EITHER A.01 OR A.02 AND (AT LEAST) ONE OTHER ACTIVITY OF YOUR CHOICE. AFTER COMPLETING OUR HAZARDS AND DISASTERS ACTIVITIES, YOU WILL:

- **UNDERSTAND what hazards and disasters are.**
- **UNDERSTAND the impacts of disasters and what makes people vulnerable to them.**

DO ONE OF THE TWO COMPULSORY ACTIVITIES BELOW:

A.01 STUDY A HAZARD. Team up with a partner and pick one type of hazard to study. Are you interested in **floods**, **earthquakes**, **tsunamis**, or **volcanoes**? Whichever you choose, learn all about it. What makes this hazard occur? How often does it occur around the world, and where? What kind of damage can it cause? Can you find examples of how people prepared for it and reduced its damage? Come back together as a group and share your findings with each other. Learn more about natural disasters: **www.ourworldindata.org/natural-disasters**.

LEVEL 3 2 1

A.02 HAZARDS AND DISASTERS NEAR HOME. Find out what kinds of hazards tend to occur where you live. Look into the history of your village or city to learn which hazards have happened most frequently, if any. How did your community cope? Has there ever been a disaster? If your area has never been affected, what about your wider country? Talk to people, and look up the history of your region. Do people think **climate change** has made the hazards worse over the years? Are there geographical or **meteorological** reasons that cause these hazards to happen? Prepare a poster with timelines, photographs, and facts about hazards that occur in your area. Include information about any disasters that might have happened.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to SDGs on Climate Action, Sustainable Cities and Communities, and Life on Land

CHOOSE (AT LEAST) ONE ADDITIONAL ACTIVITY FROM THE LIST BELOW:

A.03 WHICH IS THE SCARIEST OF THEM ALL. What kind of hazard do you find scariest? Earthquakes, **hurricanes**, **droughts** or another kind? Why do you find it the scariest? Can you invent a superpower that would keep you safe from it? Share your ideas as a group.

LEVEL 1

A.04 HAZARDS IN YOUR CULTURE. Do people have special beliefs or habits related to hazards in your culture? For example, some cultures believe disasters to be divine punishments, and therefore do not attempt to prevent them. In other cultures, farmers believe that if they do not work on certain days of the month for religious reasons, they tend to lose their crops. Learn more here: **www.ifrc.org/world-disasters-report-2014**, and then find out about beliefs, legends, or traditions local to your area that relate to natural hazards and disasters. Ask a parent, grandparent, teacher or librarian for help. Make a picture book to explain what you find.

LEVEL 2 1

A.05 MAKE A MODEL VOLCANO. Making a homemade volcano is fun and is a great way to learn more about how they happen. Find out how to make one here: **www.learning4kids.net/2012/04/11/how-to-make-a-homemade-volcano/**. And while you're at it, dig around for interesting volcano facts. For example, did you know volcanoes have both a warming and a cooling effect on the planet? Here's why: **www.theguardian.com/environment/2011/feb/09/volcanoes-climate**

LEVEL 3 2 1

A.06 WHY DISASTERS HAPPEN. Pick one of the causes of disasters: poverty, environmental degradation, lack of awareness, etc., and learn more about how it can lead to disasters around the world. Then interview each other about what you learned. Perhaps you can do video interviews and put them together in a movie.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to SDGs on No Poverty, Quality Education and Life on Land

A.07 ON THE MOVE. Did you know that since 2009, disasters have caused one person to move away from home every second? [*Source*: Internal Displacement Monitoring Centre.] Have you noticed any changes where you live? Are people leaving or arriving? If you know anyone who has had to move because of disasters or **climate change**, talk to them about why they had to leave. If there are no disaster or climate refugees where you live, then pick a country that has been affected either by people leaving or arriving. What made the people leave? Where did they go? How many people left home? Create a presentation on your findings and share them.

LEVEL 3 2

GOAL ALERT
This activity contributes to the SDG on climate action

A.08 IN A HURRY. Hurricanes are categorized into 5 types, depending on their wind speed and capacity to cause damage. Find out what these speed categories are. How do scientists measure them? What was the worst hurricane ever recorded? What were its wind speeds? What kind of damage did it cause? What can you do to prepare for a hurricane? Create a webpage or PowerPoint presentation to showcase your research and share with your class or family.

LEVEL 3 2

A.09 VULNERABLE GROUPS. Research a particular group of people that tends to be more vulnerable to disasters, e.g., poor people, women and children. What makes them more vulnerable? Find examples and statistics that reveal how this group suffers more from disasters than others. Prepare a photo slideshow of your findings and present to your class or group.

LEVEL 3

GOAL ALERT
This activity contributes to SDGs on No Poverty, Quality Education, Gender Equality and Reducing Inequalities

A.10 Do any other activity approved by your teacher or leader.

LEVEL 1 2 3

A HAZARDS

B REDUCE

C RECOVERY

D ACTION

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SECTION B:

REDUCING RISK

DO EITHER B.01 OR B.02 AND (AT LEAST) ONE OTHER ACTIVITY OF YOUR CHOICE.

AFTER COMPLETING OUR REDUCING RISK ACTIVITIES, YOU WILL BE ABLE TO:

- **UNDERSTAND the importance of disaster risk reduction.**
- **KNOW how countries can prevent, mitigate, or prepare for the impacts of disasters.**

DO ONE OF THE TWO COMPULSORY ACTIVITIES BELOW:

B.01 SCOPING OUT THE LANDSCAPE. Do you have a favourite spot in nature near where you live? Perhaps a riverbank, forest, or hiking trail you like to visit? Go there as a group and try to identify ways in which the area might be **vulnerable** if a **hazard** occurred. Have trees been cut down in the area? Does the soil seem healthy or damaged? Has the river **flooded** in the past, and has any precaution been taken for future flooding? Make notes and take pictures. Prepare a large poster of your findings and place it in a public spot, e.g. in your school hallway or local library.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to SDGs on Climate Action and Life on Land

B.02 BUILDING BETTER. Make a model of a "super building" that is **resilient** to all types of hazards. Use foam board, clay, papier-mâché, or any other material you like. What special features does your building have that make it resilient? Is it its material? Is it its structure? Does it have special appliances, fittings or warning mechanisms? Let your imaginations run wild and invent a "super building."

LEVEL 3 2 1

LEVEL 1 PARTICIPANTS SHOULD NOT USE SCISSORS OR OTHER CUTTING INSTRUMENTS WITHOUT SUPERVISION.

CHOOSE (AT LEAST) ONE ADDITIONAL ACTIVITY FROM THE LIST BELOW:

B.03 FAVOURITE ANIMAL. What is your favourite animal and why? Write a short story about how your favourite animal got caught in a natural hazard and what it did to protect itself.

LEVEL 1

B.04 GETTING READY. What are the special places where you live, apart from your home or school, that you would like to keep safe if a hazard occurred? Is there a place where you enjoy hanging out with friends and family? A park? A library? A town or village square? What do you think could be done to make that place better prepared for a hazard?

LEVEL 1 2

GOAL ALERT
This activity contributes to SDGs on Sustainable Cities and Communities, and Life on Land

B.05 Q&A. If the plates of the Earth are moving, why do **earthquakes** tend to recur in the same places? How can lightning in the sky cause a **wildfire**? Think of all your questions about hazards and reducing disaster risk and write them down. Then invite an expert on natural hazards to speak to your group and ask him/her your questions. Make a video of the event and share it with friends, family, and schoolmates.

LEVEL 1 2 3

B.06 QUIZ TIME. Split into two teams. One will compile a list of questions on how disasters affect people around the world and the other on disaster risk and how to reduce it. Examples could be: How many people are affected by disasters each year? What are three factors that increase the risk of disasters? Then quiz each other and see which team gets the most correct answers.

LEVEL 1 2 3

B.07 QUAKE READY. Find out if there is an earthquake-proof building in your area and arrange for a group tour. Ask your guide questions such as what makes the building earthquake-proof, and if it has withstood any earthquakes so far. If you can't find an earthquake-proof building, try for a **flood**- or storm-proof building or structure. Take photos and post your findings on a group blog or social media site.

LEVEL 3 2 1

B.08 CALCULATED RISK. Investigate the formula to calculate disaster risk:

risk = hazard x exposure x vulnerability

What does this mean? How could it be applied to a real-world situation? Research case studies of disasters and see how the risk could have been calculated in those situations. Prepare a slideshow of your research.

LEVEL 3 2

B.09 CHANGING FOR CLIMATE CHANGE. As you know, climate change increases the risk of disasters. Is your area being affected by climate change? Talk to local scientists and researchers and even elders in your community. Have they observed any changes in weather patterns over the years? What steps could your community be taking to **adapt** to climate change and be more resilient to disasters? As a group, prepare a map of your hometown and label it with specific climate actions that are needed. Place the map in a visible spot at your school.

LEVEL 3 2

GOAL ALERT
This activity contributes to the SDG on Climate Action

B.10 Do any other activity approved by your teacher or leader.
LEVEL 1 2 3

SECTION C:

RECOVERY

DO EITHER C.01 OR C.02 AND (AT LEAST) ONE OTHER ACTIVITY OF YOUR CHOICE.

AFTER COMPLETING OUR RECOVERY ACTIVITIES, YOU WILL BE ABLE TO:

- **UNDERSTAND** what is involved in recovering after a disaster.
- **REALIZE** how recovery work should take a long-term, big picture approach.

DO ONE OF THE TWO COMPULSORY ACTIVITIES BELOW:

C.01 MEET THE EXPERTS. Arrange to visit an emergency response team (ERT) in your area. ERTs include firefighters, police, and medical workers, among others. Interview them about their work. Have they ever worked in a disaster situation? What were the biggest challenges? What made their work easier? What do they wish people had done to stay safer? What is their biggest safety advice for your group? Then think about what you learned. What do you find interesting about the place where they work? Would you like to be an emergency response worker? Create a video or a photo blog about the meeting and include interviews with each other about your thoughts and reactions. Share the video or blog with friends and family

LEVEL 3 2 1

C.02 EMPATHY FOR ECOSYSTEMS. Natural **hazards** can take a huge toll on our planet's ecosystems. For example, a **tsunami** can hurt coral reefs, mangrove forests and can even cause **invasive species**, while a **wildfire** or **flood** can destroy trees and **vegetation**. Make a painting or a poster that shows how a particular ecosystem can suffer from a hazard, and how to help it recover.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to SDGs on Life Below Water and Life on Land

CHOOSE (AT LEAST) ONE ADDITIONAL ACTIVITY FROM THE LIST BELOW:

C.03 SUPERHEROES. People who rescue others after disasters are like superheroes. They save lives, put out fires, help children find their parents, and bring people food, water, and medicine. Write a story or make a comic about a superhero who helps people after disasters. What special powers does your superhero have? How does he/she save and help others?

LEVEL ○ ○ 1

C.04 YOU TELL 'EM. Everyone, even children, should be involved in planning recovery after a disaster. What would you say if someone asked you for your ideas? How would you **build back** your house, school or entire hometown even better? What changes would you make?

LEVEL ○ 2 1

C.05 SHARING STORIES. Have you ever experienced a hazard or disaster? What kind of hazard was it? Had your community taken any steps to reduce its damage? How did it affect you? How did you and your community recover? Even if you did not experience any loss, perhaps you felt nervous or anxious afterwards. Share your experiences, reactions, and recovery within the group. If you have never personally experienced a hazard, read a story about children who did, and tell your group about the book. Some examples include *The Flood that Came to Grandma's House*, *Earthquake Terror*, and *The Night the Elephants Cried—A Story of the Tsunami*. You can also ask your school or local librarian for suggestions.

LEVEL 3 2 1

C.06 FEMALE PERSPECTIVE. Talk to the women in your life (mothers, grandmothers, aunts, sisters) about recovery and **rebuilding**. What are their ideas for long-term recovery? What changes would make their lives easier as women—different types of buildings or **infrastructure**, greater financial protection such as insurance, or simply being better connected and included? Collect ideas, quotes and photos (for those willing to be photographed) and create a colourful collage that you can display at your school. How do these ideas different from what male family members have told you?

LEVEL 3 2 1

GOAL ALERT
This activity contributes to the SDG on Gender Equality

C.07 DISASTER DIGGING. Team up with a partner and pick a recent disaster anywhere in the world. Study the factors behind it and analyse the recovery work. Did the place recover fairly quickly or has it been a long process? Either way, why was this the case? Did recovery work integrate the principles of **disaster risk reduction**? If yes, provide examples. If not, suggest how recovery work could have better integrated DRR. Interview experts if necessary. Prepare an in-depth feature and submit it for publication in a relevant magazine or journal.

LEVEL 3 2

GOAL ALERT
This activity contributes to SDGs on Sustainable Cities and Communities, Life on Land, Climate Action, and Peace, Justice and Strong Institutions

C.08 HELPING OUT. Recovery that integrates DRR involves developed countries providing support to developing countries with finances, technology, and capacity-building. If you come from a developing country, write a report about what kind of assistance you believe your country needs most. If you come from a developed country, how do you think your country could help?

LEVEL 3 2

GOAL ALERT
This activity contributes to the SDG on Partnerships for the Goals

C.09 SMART MONEY. The international community recognizes the importance of innovative disaster risk financing and insurance solutions to help countries and communities recover after disasters. Research existing schemes and create a presentation about them that is clear and easy to follow. Can you think of other ideas for innovative disaster risk financing? Present your ideas to the group, and consider presenting them at a community disaster-related event.

LEVEL 3

C.10 Do any other activity approved by your teacher or leader.
LEVEL 1 2 3

A HAZARDS

B REDUCE

C RECOVERY

D ACTION

©FAO/Giulio Napolitano

SECTION D:

TAKE ACTION

DO EITHER D.01 OR D.02 AND (AT LEAST) ONE OTHER ACTIVITY OF YOUR CHOICE.

AFTER COMPLETING OUR TAKE ACTION ACTIVITIES, YOU WILL:

- **ORGANIZE and participate in a community initiative for disaster risk reduction.**
- **CONVINCE other people to join in actions for disaster risk reduction!**

DO ONE OF THE TWO COMPULSORY ACTIVITIES BELOW:

D.01 COMMUNITY AWARENESS DAY. Organize a disaster risk reduction awareness day in your community. Prepare posters, flyers, and brochures that you can hand out at the event. These materials should explain the importance of DRR, describe the **hazards** that tend to occur in your region, and include preparedness tips. Talk about the **Sustainable Development Goals** and explain how DRR is connected. You can find SDG campaign materials here: **http://ow.ly/DupR30fKgmA**. Invite firefighters, forest rangers, or medical emergency workers to attend and talk about what they do and provide safety tips.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to all the SDGs.

D.02 HOME INSPECTION. Take a look around your house to see whether you and your family are prepared for a hazard. Do you have an emergency plan? Do you have an emergency kit? Is your house equipped with smoke detectors, fire extinguishers, or other safety devices? Make a list of all the ways you can be better prepared, and hold a family meeting to assign everyone a different task.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to the SDGs on Responsible Consumption and Production, Climate Action, Life Below Water, and Life on Land

CHOOSE (AT LEAST) ONE ADDITIONAL ACTIVITY FROM THE LIST BELOW:

D.03 ODE TO SCHOOL. What do you like best about going to school? Meeting your friends? Learning new things? Homework? (Just kidding!) Imagine if your school got damaged in a disaster and you couldn't go to school anymore. What would you miss the most? If you wouldn't miss anything, why not? Write an essay about how you would feel if a disaster interrupted your schooling. Share it with your parents and teachers.

LEVEL ○ ○ 1

D.04 TESTING, TESTING. Prepare a set of 10 exam questions about disaster preparedness. Example questions are: Why are we told to use the stairs instead of lifts/elevators in case of a fire? Why stay away from windows during an **earthquake**? Give the exam to your family and see how everyone does. Perhaps whoever gets the highest score can get a prize.

LEVEL ○ 2 1

D.05 DO ONE THING FOR THE ENVIRONMENT EACH DAY FOR 30 DAYS. Your action could be as small as turning the lights off when you leave a room, or bigger, like planting a tree. Everything makes a difference! What actions could you take that also support DRR? Keep a diary of each action you take, and include photos or drawings if you like. Re-group after 30 days and compare diaries. Did anyone think of something you didn't think of? Which actions did you enjoy more than others? Has anything become a habit now, so that even after the challenge is over you will continue doing it? Discuss how you think your actions might help towards disaster risk reduction.

LEVEL 3 2 1

Participants should not engage with strangers online without parental supervision.

D.06 CONNECT YOUR COMMUNITY. Create a community blog, social media group, or a newsletter where you provide information on disaster risk reduction, with a focus on **prevention**, **mitigation** and **preparedness** for hazards that tend to occur where you live. Think about which SDGs are especially relevant in your area, too, and explain how they are related to DRR. Invite friends, family, schoolmates and teachers to join the group, share ideas, and stay informed.

LEVEL 3 2 1

GOAL ALERT
This activity contributes to the SDG on Partnerships for the Goals

D.07 RAISE MONEY. Did you know that nearly a quarter of the world's children live in conflict or disaster-stricken countries? [*Source*: UNICEF.] You can help a lot by donating to agencies such as UNICEF (**www.unicef.org**) or Save the Children (**www.savethechildren.org**). Organize a fundraising event in your school or community, such as a bake sale, raffle, poetry reading, movie night, or art show. Send proceeds to a charity of your choice that is helping children in disaster situations.

LEVEL 3 2

D.08 PERSUADE AND PREPARE. Take a look at the Sendai Framework's Four Priorities for Action. How could your region be better implementing the four priorities? Where are you doing ok and where could you be improving? Do you need more community awareness, more technological capacity, better governance and institutions, or more poverty reduction? Prepare a presentation as though you will be convincing funders and policymakers. Then everyone will present their presentation to the group.

GOAL ALERT
This activity contributes to SDGs on No Poverty, Quality Education, Climate Action, and Peace, Justice, and Strong Institutions

D.09 REACH OUT. Do you think your community, town, village, or city is doing enough to integrate disaster risk reduction in development work? Create a proposal about how you think DRR could be better incorporated into **infrastructure**, educational curricula, general public awareness or other areas. Then contact relevant authorities or decision-makers with your proposal. For greater impact, you could send another copy of your letter also to your local/national newspaper as well. Remember to include your address and date at the top of the letter. Making the letter personal by including local issues is a good idea.

LEVEL 3 2

GOAL ALERT
This activity contributes to the SDG on and Peace, Justice, and Strong Institutions

D.10 Do any other activity approved by your teacher or leader.
LEVEL 1 2 3

CHECKLIST

Keep track of the activities you are undertaking with this checklist. When you show that you have completed the activities, you will have earned the DRR Challenge Badge!

NAME OF PARTICIPANT: .....

AGE OF PARTICIPANT: 1 (5–10 years) 2 (11–15 years) 3 (16-20 years)

	Activity No.	Activity name	Date completed	Approved by (signature)
A Hazards and disasters				
B Reducing risk				
C Recovery				
D Take action				

RESOURCES AND ADDITIONAL INFORMATION

STAY UPDATED

This challenge badge is one of several complementary resources and activities developed by YUNGA and its partners. Please visit **www.fao.org/yunga** for additional resources or subscribe to the free news letter to receive updates of new materials by sending an email to **yunga@fao.org**

SEND US YOUR NEWS

We would love to hear about your experience of undertaking the challenge badge! Which aspects did you particularly enjoy? Did you come up with any new ideas for activities? Please send us your materials so we can make them available to others and gather ideas about how to improve our curricula. Contact us at **yunga@fao.org**, twitter us: **https://twitter.com/UN_YUNGA**, of join us on facebook: **www.facebook.com/yunga.un**

CERTIFICATES AND CLOTH BADGES

Email **yunga@fao.org** for certificates and cloth badges to reward course completion! Certificates are FREE and cloth badges can be purchased. Alternatively, groups can print their own cloth badges; YUNGA is happy to provide the template and graphics files on request.

WEB SITES

The following Web sites provide useful educational materials, including lesson plans, experiments, articles, blogs and videos, which could be useful when undertaking the Challenge Badge with your class or group.

THE VIDEO '10 THINGS YOU SHOULD KNOW ABOUT DRR', established by the Humanitarian Practice Network, is an informative and animated video to help you learn more about what hazards, disasters and disaster risk reduction (DRR) is and how it is linked to climate change: **www.youtube.com/watch?v=y16aMLeh91Q**

THE AMERICAN RED CROSS provides useful tips on how to prepare for emergencies, such as:

- Home fire prevention and safety: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/fire.html**
- Hurricane safety: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/hurricane.html**
- Wildfire safety: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/wildfire.html**
- Earthquake safety: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/earthquake.html**
- Winter storm safety: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/winter-storm.html**
- Flood safety: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/flood.html**

Browse the emergency resource library: **www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies.html**

THE BRITISH RED CROSS has great resources for young people to learn more about weather related emergencies.
The Pillowcase Project for 7-11 year olds: **www.redcross.org.uk/What-we-do/Teaching-resources/Teaching-packages/The-pillowcase-project** and resources for 11-19 year olds: **www.redcross.org.uk/What-we-do/Teaching-resources/Teaching-packages/Natural-disasters-earthquakes**

THE PILLOWCASE PROJECT, a partnership of the American Red Cross, the Global Disaster Preparedness Center and Disney, aims to prepare school-age children for disasters: **www.preparecenter.org/activities/pillowcase-project-preparing-students-disasters**

CLIMATE CHANGE DIGITAL MAP, by UNICEF, allows you to see how disasters affect communities around the world, positive steps taken by communities, and much more: **https://www.un.org/youthenvoy/2015/12/cop21-digital-map-launched-by-unicef-helps-young-people-tell-their-climate-change-stories**

CLIMATE CHANGE TAKE ACTION NOW! is a guide to supporting the local actions of children and young people, with special emphasis on girls and young women: **www.ifrc.org/Global/Publications/youth/AYCEOs_climate-change_take-action-now_EN.pdf**.

CUIDAR aims to enhance the resilience of children, young people and urban societies to disasters and enable disaster responders to meet children and young people's needs more effectively. For instance, watch "Transforming Disaster Planning – A Child Centered Approach' CUIDAR International Film: **www.lancaster.ac.uk/cuidar/en/film**

EDUCATION FOR GEO-HAZARDS is a site aimed at children and young people about how to survive hazards when going on holiday: **www.edu4hazards.org/index_en.html**

THE GLOBAL FACILITY FOR DISASTER REDUCTION AND RECOVERY has blogs, data, and infographics about DRR around the world: **www.gfdrr.org**. For example, a publication that provides an overview of what has happened with regard to DRM, titled "A Decade of Progress in Disaster Risk Management": **https://www.gfdrr.org/en/publication/10-decade-progress-disaster-risk-management**

IGGYVOLA: Reducing risks together, by Save the Children, is a resource workbook for children on disaster risk reduction and climate change: **https://resourcecentre.savethechildren.net/node/13224/pdf/drr_guide_children_iggyvola_scfiji_2018.pdf**. Also find Iggy Videos on emergency and safety procedures for schools: **https://youtu.be/2A_0UKQx5mg**

INTERNATIONAL DAY FOR DISASTER REDUCTION is held on October 13 every year. Background information, stories and events that happened during this day: **www.unisdr.org/disasterreductionday**

LET'S LEARN TO PREVENT DISASTERS! Fun ways for kids to join in risk reduction: **www.unisdr.org/files/2114_VL108012.pdf**

NATIONAL GEOGRAPHIC KIDS provides interesting info on:

- **hurricanes** **www.kids.nationalgeographic.com/explore/science/hurricane/#hurricane-aletta.jpg**,
- **earthquakes** **www.kids.nationalgeographic.com/explore/science/earthquake/#earthquake-houses.jpg**,
- **floods** **www.kids.nationalgeographic.com/explore/science/flood/#flood-house.jpg**,
- **tsunamis** **www.natgeokids.com/au/discover/geography/physical-geography/tsunamis**

and other **hazards**.

PASSA YOUTH uses both digital tools and a manual (**https://media.ifrc.org/ifrc/document/passa-youth-manual-and-toolkit**) to provide guidance and resources for safer shelters and better living conditions: **http://passa.ifrc.org**

PARTNERSHIP FOR PEDRR ECOSYSTEMS FOR ADAPTATION AND DISASTER RISK REDUCTION is offering various online courses, for instance its 'Disasters and Ecosystems: Resilience in a Changing Climate', which has had over 12,000 participants since 2015. Find out more about this course as well as others here: **www.pedrr.org/activities/massive-open-online-course**

PICTURING RESILIENCE INTERVENTION (PRI) is a group intervention to help promote resilience and coping skills among youth following a disaster, community crisis, or other challenges. Participants will use cameras during the different sessions and at the end they display their photography in a final PRI exhibit: **www.preventionweb.net/educational/view/62864**

PREVENTION WEB is the knowledge platform for disaster risk reduction and provides news and information about a wide range of themes and topics, including on children and youth as well as education & school safety among others: **www.preventionweb.net**

READY FOR WILDFIRE provides tips on how to prepare and stay informed about **wildfires**: **www.readyforwildfire.org**

SAVE THE CHILDREN INTERNATIONAL (SCI) has developed a Family Disaster Plan Activity Book for children that focuses on 3 themes: 1) knowing about your dangers; 2) reducing your dangers, and 3) being prepared to respond in case of a hazard impact. The activity book is available in English: **https://resourcecentre.savethechildren.net/node/14384/pdf/family_disaster_plan_activity_book_eng_2017.pdf** as well as in Chinese, Spanish and Hindi: **www.preventionweb.net/educational/view/63572**

SCIJINKS has loads of games and activities for learning more about hazards, weather, and disasters. Ready, set, go! **www.scijinks.gov/menu/games**

SENDAI FRAMEWORK FOR CHILDREN is a fun way to learn about how the international community is tackling DRR: **www.unisdr.org/partners/children-youth**

UNICEF aims to reach children and families in crisis situations, such as disasters: **www.unicef.org/what-we-do#unicef-emergencies** For example, it is also helping youth to map the impact of disasters on their communities through the use of a mobile application and online platform 'Voices of Youth Map': **www.youtube.com/watch?v=b00-kC1HsyE**. While on the Voices of Youth website, you can submit your own blog post as well as you can learn how to make your own film: **www.voicesofyouth.org**

UNITED NATIONS OFFICE FOR DISASTER RISK REDUCTION is the UN agency dedicated to DRR around the world: **www.unisdr.org**

UNISDR's **STOP DISASTERS GAME**, is a simulation game developed by partner Player Three that includes five scenarios – tsunami, flood, earthquake, hurricane, wildfire – with three levels of difficulty. The player has a budget that they can use and is assigned tasks to ensure that their town is more resilient against disasters within a time limit before a disaster happens. This game has already been viewed by millions of players and can be accessed here: **www.stopdisastersgame.org**

UN WOMEN is working on gender-responsive disaster risk reduction: **www.unwomen.org/en/what-we-do/humanitarian-action/disaster-risk-reduction**

THE WORLD METEOROLOGICAL ORGANIZATION has a website for youth that includes interesting facts and information about **hazards** and disasters: **http://youth.wmo.int/categories/natural-hazards**

WORLD TSUNAMI AWARENESS DAY, held on 5 November every year, promotes a global culture of **tsunami** awareness: **www.unisdr.org/2017/tsunamiday**

Y-ADAPT is a curriculum by the Climate Centre, created for young people and consisting of games and fun activities: **www.climatecentre.org/resources-games/y-adapt**

GLOSSARY

ADEQUATE: If something is said to be "adequate" it means there is enough of it, or that it is of suitable or acceptable quality – if something is "inadequate" it means there is not enough, or it isn't of suitable or acceptable quality.

ANTHROPOGENIC HAZARD: **Hazards** caused by humans.

ATMOSPHERE: A layer of gases in the air surrounding the Earth.

AVALANCHE: A mass of snow, ice, and rocks falling rapidly down a mountainside.

BIODIVERSITY: The variety of all the different kinds of plant and animal life on Earth, and the relationship between them.

BUILD BACK BETTER: Including **disaster risk reduction** measures in the **recovery**, **rehabilitation** and **reconstruction** phases after a disaster to increase **resilience**.

CARBON FOOTPRINT: The total amount of **greenhouse gas** emissions produced by a person or group of people due to their consumption, particularly of energy, (e.g. transportation, electricity, heating and cooling and cooking). Carbon footprints refer to greenhouse gas emissions in terms of carbon dioxide equivalent (calculated using a special formula).

CLIMATE: It refers to the long-term average, or overall picture, of the everyday weather experienced in a location. It is the big picture of temperatures, rainfall, wind and other conditions over a long period of time (30 years or more).

CLIMATE CHANGE: A change in the overall state of the Earth's **climate** (such as temperature and rainfall). It is caused by natural causes (e.g., **volcanic** eruptions, changes in ocean currents and changes in the activity of the sun) and by human causes (e.g., burning of **fossil fuels**).

CLIMATE CHANGE ADAPTATION: Preparing for **climate change** and taking action to minimise the damage and disruption it may cause.

CLIMATE SMART PLANNING: Planning that addresses the risks and impacts associated with climate change.

CONTINGENCY PLAN: A plan for governments, organizations, communities or individuals, identifying what types of hazards might strike and how to prepare for them.

CYCLONE: A large rotating storm with high speed winds. Cyclones, **hurricanes** and typhoons are the same thing—different places use different names for these storms.

DEGRADATION: Environmental degradation is the deterioration (or worsening) of the environment through damage to resources such as air, water and soil, destruction of **ecosystems** and habitats, and the extinction of wildlife.

DEFORESTATION: Removing a forest or part of a forest (e.g. by cutting it down and burning it) to use the wood (e.g. to make paper or furniture) or to use the land for something else (e.g. farming or building on it).

DESERTIFICATION: The **degradation** of land in dry areas resulting from various factors, including climatic variations and human activity. Desertification damages the natural ecosystem and reduces agricultural productivity.

DISASTER: an event that occurs unexpectedly that disrupts the normal course of life and causes great damage and loss.

DISASTER RISK: The likelihood of death, injury, or destruction and damage from a disaster in a specific period of time

DISASTER RISK MANAGEMENT (DRM): The management of **disaster risks**, which includes **prevention**, **mitigation**, preparedness for response, emergency response and including **DRR** in **recovery** efforts.

DISASTER RISK REDUCTION (DRR): A system of **prevention** and **mitigation** of the impact of a natural **hazard**, as well as improving preparedness to respond.

DROUGHT: A prolonged period of abnormally low rainfall, resulting in a shortage of water.

EARLY WARNING SYSTEM: A complex system for monitoring and predicting hazards and issuing warnings so that people can take action to protect themselves.

EARTHQUAKE: A sudden and violent shaking of the ground, sometimes causing great destruction, as a result of movements within the Earth's crust.

ECOSYSTEM: A community of living things (plants and animals) and non-living things (water, air, soil, rocks, etc.) interacting in a certain area. Ecosystems don't have a defined size: An ecosystem can be as small as a puddle or as big as an entire desert. Ultimately, the whole world is one big, very complex ecosystem.

ECOSYSTEM SERVICES: The benefits that humans receive from ecosystems.

EPIDEMIC: The widespread occurrence of an infectious disease in a community at a particular time.

EROSION: The wearing away of the land surface by rain, running water, wind, ice, gravity, or other natural processes or human activities.

EXPOSURE: The number of people and their belongings who face risk in hazard zones.

FLASH FLOODS: A sudden local flood, typically due to heavy rain.

Flood: An overflowing of a large amount of water, over what is normally dry land.

FLOODPLAIN: Low-lying areas next to rivers that are prone to flooding.

FOOD INSECURITY: It exists when people lack access to sufficient amounts of safe nutritious food and, for this reason, are not consuming enough for an active and healthy life. This may be due to the unavailability of food, poverty or waste [*Source*: FAO].

FOOD SECURITY: The state in which all people at all times have both physical and economic access to sufficient, safe and nutritious food that meets their dietary needs for an active and healthy life [*Source*: FAO].

FOSSIL FUEL: Fuels that are made from old plant and animal remains and take millions of years to form, such as coal and petroleum.

FRESHWATER: Naturally occurring water that is not salty (e.g., water in rivers and lakes).

GEOLOGIST: Someone who specialises in what the Earth is made of and how it was formed.

GEOPHYSICAL HAZARD: Hazards that stem from activity related to the Earth's structure.

GOVERNANCE: The way that a country, city, company, etc., is managed by the people who run it.

GRAVITY: A force that attracts everything toward the centre of the Earth.

GREENHOUSE GASES: Gases in the Earth's **atmosphere** that absorb energy from the sun and trap some of this heat. This keeps the Earth warm, but too many greenhouse gases in the atmosphere are causing climate change.

GROSS DOMESTIC PRODUCT (GDP): The total value of goods produced and services provided in a country during one year.

HURRICANE: A large rotating storm with high speed winds. Hurricanes, **cyclones** and typhoons are the same thing—different places use different names for these storms.

HYDROLOGICAL HAZARD: Extreme events associated with water movement and distribution.

INFRASTRUCTURE: The basic facilities, services, and installations needed for a community or society to function effectively, such as transportation and communications systems, water and power lines, and public institutions including schools and post offices.

INVASIVE SPECIES: Animals, plants and other species that have been introduced to an area from elsewhere, either by accident or on purpose, and negatively affect the native habitat and **biodiversity** by out-competing native species.

LANDSLIDE: A large amount of earth, rock, and other material moving down a steep slope.

MAGMA: A hot fluid or semifluid material below or within the Earth's crust.

MALNUTRITION: A state in which a body can no longer maintain even its basic physical functions because of inadequate (see **adequate**) or unbalanced food intake.

METEOROLOGICAL HAZARD: Hazards caused by extreme weather.

MITIGATION: Reducing the severity of the damage in a disaster.

NATURAL HAZARD: A natural phenomenon cause by factors such as weather or activity within the Earth's crust that could hurt people or the environment.

NUCLEAR ENERGY: A type of energy produced by a nuclear reaction in the metal **uranium**, which is found in rocks and seawater.

NUTRIENTS: Chemicals that animals and plants need to live and grow.

NUTRITIOUS: Nutritious foods supply adequate amounts of essential **nutrients** to allow our bodies to function, grow and develop healthily.

ORGANIC GARDENING OR FARMING: A type of farming or gardening that uses only natural nutrients and methods of pest control, instead of using chemical pesticides and fertilizers.

PREVENTION: Making a sure a hazard does not turn into a disaster.

RADIATION: The process of giving off energy.

RAPID-ONSET HAZARD: One that is triggered by a hazardous event and emerges quickly or unexpectedly.

RECONSTRUCTION: Rebuilding resilient **infrastructures**, services, housing, facilities, and livelihoods that a disaster-affected community needs in order to fully function again, in keeping with the principles of **sustainable development** and "**build back better**," to avoid or reduce future disaster risk.

RECOVERY: Restoring or improving livelihoods and health, as well as economic, physical, social, cultural and environmental conditions, in a disaster-affected community or society, in keeping with the principles of sustainable development and "build back better," to avoid or reduce future disaster risk.

REHABILITATION: The restoration of basic services and facilities in a community or a society affected by a disaster.

RESILIENCE: The ability to cope with a hazardous event and recover quickly from its effects.

RETROFITTING: Reinforcing or upgrading existing structures to make them more resilient to damage from hazards.

SANITATION: Maintaining clean, hygienic conditions that help prevent disease through services such as garbage collection and **wastewater** disposal (e.g. through a sewage system).

SEISMOMETERS/SEISMOGRAPH: An instrument that measures and records details of earthquakes, such as force and duration. Seismometers can also sometimes detect when an earthquake is about to happen.

SLOW-ONSET HAZARD: One that emerges gradually over time.

SUSTAINABLE DEVELOPMENT: Achieving development that is inclusive, does not deplete natural resources, and will continue to meet the needs of future generations.

SUSTAINABLE DEVELOPMENT GOALS (SDGs): A set of 17 goals that the international community has agreed upon to end poverty, protect the planet, and ensure prosperity for all, to be achieved over the next 15 years.

SUSTAINABLY SOURCED: Products that are produced with environmental and social impacts in mind. For example, sustainably sourced paper is produced using methods that do not exploit forests, and is often derived from recycled materials.

TECHNOLOGICAL HAZARD: A manmade hazard caused by accidents related to technology.

TSUNAMI: A large ocean wave usually caused by an underwater earthquake or a volcanic explosion.

URANIUM: A metal that people use to produce **nuclear energy**. It occurs naturally in most rocks and even in seawater.

VEGETATION: The plants and trees in an area.

VOLCANO: An opening (usually in a mountain) in the Earth's surface from which gas, hot **magma** and ash can escape. [*Source*: National Geographic Kids]

VULNERABLE/VULNERABILITY: Being exposed to getting hurt or damaged.

WASTEWATER: Water that has been used and is no longer clean.

WETLANDS: Land consisting of marshes or swamps

WILDFIRE: A large, destructive fire that spread quickly in a wilderness or rural area.

YOUR NOTES

ACKNOWLEDGEMENTS

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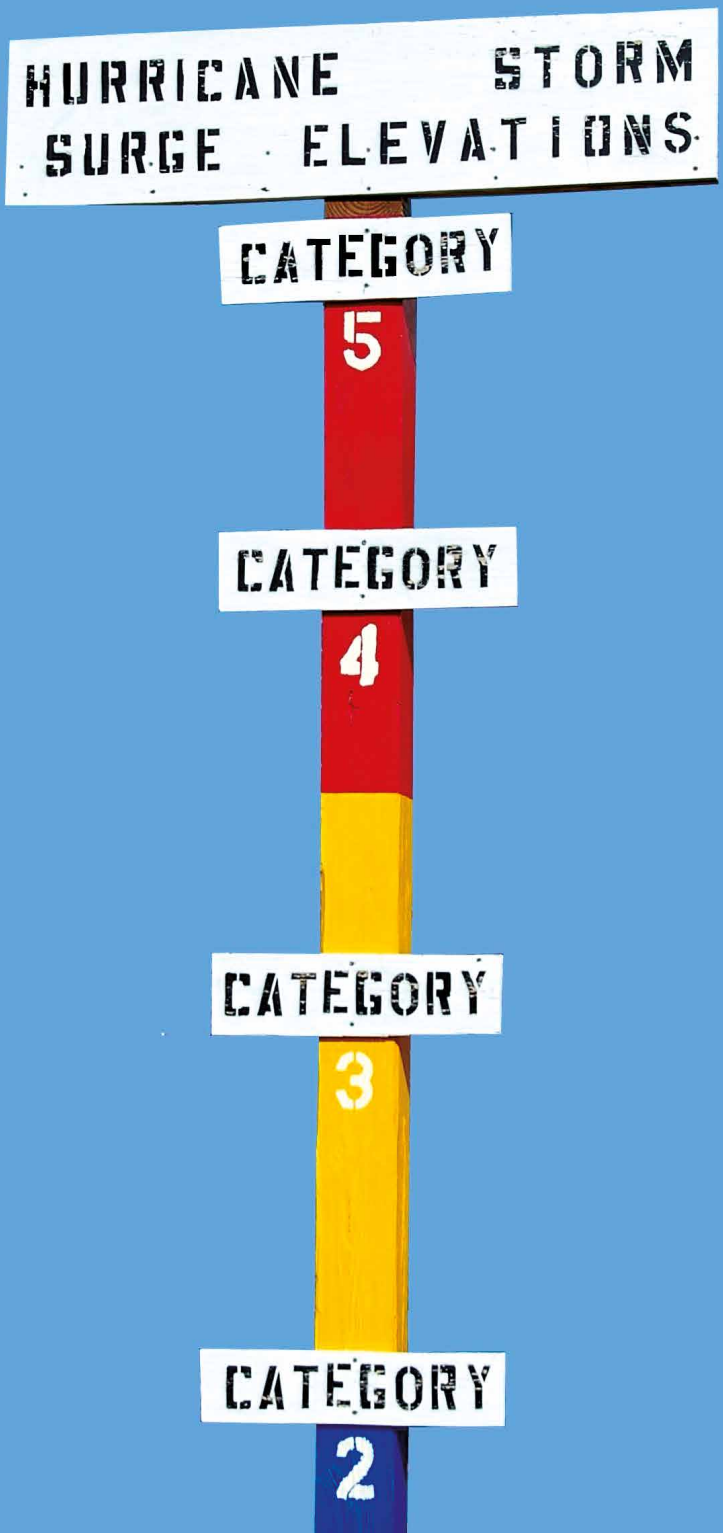
This document was developed under the coordination and editorial supervision of **Reuben Sessa**, YUNGA Coordinator and Youth Focal Point for FAO.


HURRICANE STORM
SURGE ELEVATIONS
CATEGORY
5
CATEGORY
4
CATEGORY
3
CATEGORY
2

DISASTER RISK REDUCTION ADVICE FOR:

- EARTHQUAKES
- FIRES
- TSUNAMIS
- FLOODS
- DROUGHTS
- AVALANCHES
- LANDSLIDES
- TROPICAL STORMS
- VOLCANO ERUPTIONS

This annex has been specifically designed to allow you to make a quick cross check on how to undertake DRR actions to different hazards. You can expand these based on your specific needs and location.

GENERAL PREPAREDNESS INFORMATION

- ✓ Know the types of hazards that can occur in your area.
- ✓ Subscribe to the local emergency alerts and warnings.
- ✓ Know the national emergency number(s) of your country.
- ✓ Make a family emergency/evacuation plan.
- ✓ Identify an escape route from home.
- ✓ Agree on a place to meet up if you get separated.
- ✓ Prepare an emergency kit or (waterproof) backpack with e.g. water, non-perishable food, flashlight, first-aid kit, clothing, essential medication, valuables.
- ✓ Keep important documents, personal papers in a safe place and readily available.
- ✓ Keep a list of emergency telephone numbers.
- ✓ Obtain training in first aid.

EARTHQUAKES

BEFORE

- ✓ Get your home inspected by an expert, to assess its ability to withstand an earthquake.
- ✓ Make sure that there are no falling objects in the rooms.
- ✓ Make sure exits are clear.
- ✓ Store dangerous materials (chemicals, inflammables, etc.) in safe places.
- ✓ Ensure that appliances, such as TVs and microwave ovens, are fixed to walls.
- ✓ Know where your emergency cut-off switches are for gas, power and water.
- ✓ Practice DROP, COVER and HOLD with all members of your household.
- ✓ Pick safe places in each room of your home, workplace and/or school (under a piece of furniture/ against an interior wall away from windows).

DURING

- ◆ Drop to the ground onto your hands and knees.
- ◆ Cover your head and neck with your arms.
- ◆ Crawl for additional cover under a sturdy desk or table as soon as you can.
- ◆ If no sturdy shelter is nearby, crawl next to an interior wall, away from glass and anything that could fall.
- ◆ Hold on to any sturdy cover until the shaking stops
- ◆ If you are in bed, hold on, stay there and protect your head with a pillow.
- ◆ Stay indoors until the shaking stops.
- ◆ If you smell gas, get out of the house and as far away as possible.
- ◆ If you are outdoors, find a clear spot away from buildings, trees and power lines and drop to the ground.
- ◆ If you are in a car, drive slowly to a safe place. Avoid bridges, overpasses and power lines. Stay inside with your seatbelt fastened.
- ◆ If trapped under debris, cover your mouth with your shirt, tap on a pipe or wall so rescuers can locate you and shout as last resort if they do not hear you.

FIRES

BEFORE

- ✓ Obtain training on fire safety.
- ✓ Keep fire blankets and fire extinguishers/ water and sand handy **! Water can not be used for oil fires.**
- ✓ Learn about the different types of fire extinguishers for the different types of fires: some contain water, others foam, power, CO_2 or wet chemicals.
- ✓ Install and regularly check smoke alarms in your home.
- ✓ Keep doorways, corridors and paths clear and unobstructed.
- ✓ Make sure that all electrical appliances and cords are in good condition. Do not overload electrical outlets as faulty electrical equipment can cause a fire. Be aware that heat sources can start a fire (e.g. heating and cooking appliances, cigarettes, lighters or matches)
- ✓ Identify and know the pre-planned escape route.
- ✓ Identify and know the pre-planned safe meeting place.
- ✓ Make sure you have the national emergency number/your local fire department or the park service and contact them if you notice an unattended or out-of-control fire;
- ✓ Never leave a fire unattended and make sure that you fully extinguish the fire before you leave the campsite
- ✓ Avoid burning any waste

DURING

If you're right near the wildfire

- Try to evacuate immediately, but if you cannot, look for a pond or river to wait in.
- If no water nearby, look for a low-lying area with little vegetation or among a bed of rocks, lie low to the ground and cover your body with wet clothing/blanket or soil.
- Stay low and covered until the fire passes.
- Breathe closest to the ground to reduce inhaling smoke.
- If driving, roll up the windows and close air vents. Drive slowly with headlights on.

If a fire starts in your home:

- Try not to panic and tell everyone in the house.
- Use your pre-planned escape route, get everyone out of the building as quickly as possible.
- Call the national emergency number and ask for the fire and rescue service.
- Smoke rises so stay low or crawl on the floor in the cleaner air where it is easier to breathe.
- If possible, close the door to the room where the fire is located and close all doors behind you as you leave (to delay the spread of the fire and smoke).
- Before opening a closed door, touch it with the back of your hand; do not open it if it feels warm – the fire will be on the other side.

Don't go back into the building:

- Find the pre-planned meeting area that is safe away from the building and wait until the fire service arrives.
- If someone is still inside, tell the fire service and give details.
- Do not go back into the building as you prevent the fire service from doing what they need to do and you put your own life at risk too!

If your clothing catches fire:

- STOP where you are.
- DROP to the floor.
- ROLL slowly on the floor or ground, in a rug or blanket if you can, and roll over and over until the flames have been extinguished.
- If possible use a fire extinguisher and combine stop, drop and roll to help stop the fire.
- COOL off as soon as possible with water for first and second degree burns.

TSUNAMIS

BEFORE

- ✓ Learn about the risk of tsunami in your area.
- ✓ Have an engineer check your home and advise about ways to make it more resistant.
- ✓ Be aware of warning signs:
  - an earthquake,
  - a loud roar from the ocean,
  - an unusual ocean behaviour.

DURING

- Protect yourself from an earthquake: drop, cover, hold on.

- Listen to evacuation orders and leave the area immediately.
- Go as high and as far inland as you can (100 feet above sea level or 2 miles away from the ocean).
- Stay away from the beach.
- Never go down to the water to watch a tsunami come in.
- Avoid downed power lines and stay away from buildings and bridges.
- If you are in the water, grab onto something that floats, such as a raft, tree trunk, or door.
- If you are in a boat, face the direction of the waves and head out to sea.

GO TO HIGH GROUND!
THE SHAKING IS YOUR TSUNAMI WARINING

STAY THERE!
TSUNAMI WAVES MAY ARRIVE FOR HOURS

FLOODS

BEFORE

- ✓ Check for local flood plans or details of high-risk areas.
- ✓ Ask authorities about relocation routes and centres.
- ✓ Take steps to make your house watertight.
- ✓ Roll up rugs, move furniture, electrical items and valuables to a higher level.
- ✓ Place important personal documents, valuables and vital medical supplies into a waterproof case.

DURING

- ◆ Put sand bags in the toilet bowl and over any drain holes.
- ◆ Move to higher ground.
- ◆ If you stay home, make sure to always have an escape route if water keeps rising
- ◆ If you leave, lock your home, disconnect electricity and gas and take recommended relocation routes for your area.
- ◆ Avoid walking or driving through flood waters.
- ◆ Stay away from power lines and electrical wires.

DROUGHTS

BEFORE

- ✓ Make water conservation practices part of your daily life.
- ✓ Repair and retrofit plumbing to reduce leakage.
- ✓ Repair any dripping faucets
- ✓ Rethink your landscaping and if you are growing your own food:
  - Plant native, drought-tolerant grasses, plants/crops and trees
  - Plant in the spring or fall, when watering requirements may be lower due to more rainfall, but adjust to your location conditions.

DURING

- ◆ Save used water.
- ◆ Take shorter showers and reduce taking baths.
- ◆ Collect as much rainwater as you can when it rains.
- ◆ Be wiser with your landscaping or if you grow your own food:
  - Practice mulching
  - Practice drip irrigation to water plants and trees.
- ◆ Be aware of water restrictions that may be in place in your region.
- ◆ Be aware of the risks of a wildfire.

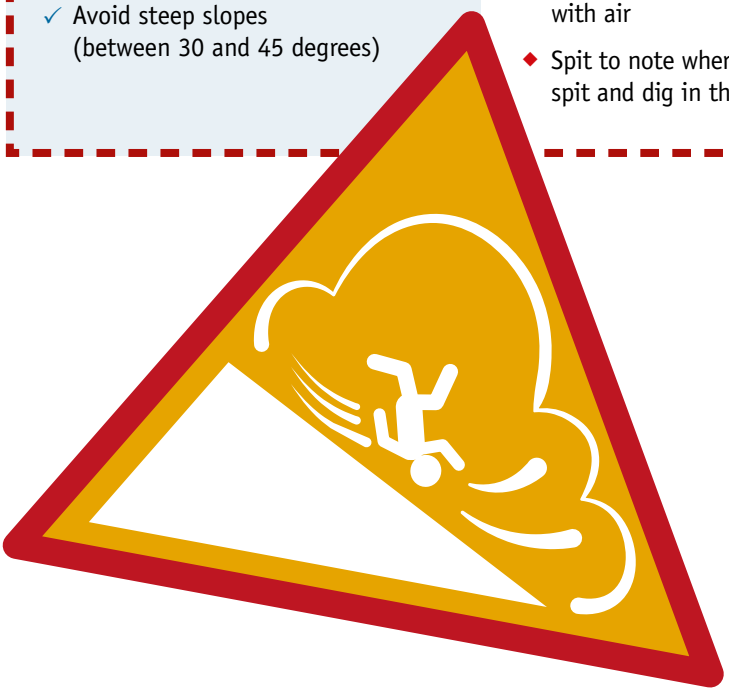
AVALANCHES

BEFORE

- ✓ Be aware of warning signs of high avalanche risk:
  - Recent avalanche activity
  - Cracking, blocking or whooping sounds of the snow pack
  - Significant snowfall in the last 24 hours
  - Strong winds
  - Temperature rise
- ✓ Sign up for alerts on current avalanche dangers
- ✓ Always wear avalanche safety equipment and learn how to use it
- ✓ Avoid steep slopes (between 30 and 45 degrees)

DURING

- ◆ When you see an avalanche heading your way, try to run outside of its path
- ◆ If the avalanche begins beneath your feet, try to jump above the line where the snow begins to slide.
- ◆ Try to grab something sturdy, like a tree branch or a rock
- ◆ Try to swim to the top of the avalanche
- ◆ Keep one arm above your head
- ◆ Once you have come to a stop, create a small pocket of air near your mouth with your hands
- ◆ Expand your chest by filling your lungs with air
- ◆ Spit to note where gravity carries your spit and dig in the opposite direction



LANDSLIDES

BEFORE

- ✓ Become familiar with the land around you to understand the risks and learn whether landslides have previously occurred in your area.
- ✓ Follow proper land-use procedures to avoid doing work that could increase soil instability.
- ✓ Avoid building near steep slopes, close to mountain edges, near drainage ways or along natural erosion valleys.
- ✓ Watch the patterns of storm water drainage on slopes near your home.
- ✓ Report any abnormalities to the municipal authorities, such as cracks on your lot, bulge or depression on a slope, rockslide, or unusual seepage of water.
- ✓ Protect your property by planting ground cover on slopes and building retaining walls if possible.
- ✓ Listen to local news stations for warnings of heavy rainfall.
- ✓ During a severe storm, stay alert and awake.
- ✓ Listen for unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together.

DURING

- ◆ If you suspect imminent danger, evacuate immediately.
- ◆ Try to inform affected neighbours and your public works, fire or police department.
- ◆ Move away from the path of a landslide as fast as you can.
- ◆ Avoid river valleys and low-lying areas.
- ◆ Look upstream before crossing a bridge and do not cross it if a mudflow is approaching.
- ◆ If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and any change of the water from clear to muddy.
- ◆ If you cannot escape, curl into a tight ball and protect your head with your hands and harms.
- ◆ If you are indoors, move to the part of the building opposite of the landslide, take shelter under a solid piece of furniture and hold firmly onto an object solidly anchored until all movement has stopped.

TROPICAL STORMS
HURRICANES/TYPHOONS/CYCLONES

BEFORE

- ✓ If you live in a coastal area at risk of tropical storms, identify a safe shelter and a route to get there.
- ✓ Pay attention to weather conditions.
- ✓ Stay informed and aware of alerts, warnings and public safety information.
- ✓ If you are in an area at risk of tropical storms, further protect your home by:
  - Protect windows and other openings with temporary plywood or other type of material that can be used for coverage.
  - Secure or bring outdoor objects into the house. Stow vehicles, tools, furniture and other equipment in your basement.
  - Fasten your roof more firmly with straps or clips.
- ✓ Ensure that your house is clear from potential debris or falling obstacles, such as power lines or old, large trees.

DURING

- ◆ Seek shelter in a sturdy building or a room in the house, without any window if possible.
- ◆ Avoid driving or going outdoors.
- ◆ Be prepared to evacuate immediately if it is advised to do so.
- ◆ Evacuate anyway if:
  - You are in a temporary or mobile structure.
  - You live in a high-rise building, where winds are much stronger.
  - You are situated near a large body of water, such as the coastline, river or stream, etc.
  - You are situated in a low-lying area at risk of flooding.
- ◆ Remember that a lull (a period when it is quiet) often indicates the storm's eye and it is not its end.
- ◆ Wait for authorities to announce that the danger has passed before going out again.

VOLCANO ERUPTION

BEFORE

- ✓ Try to stay away from active volcanoes as much as possible.
- ✓ If you live near an active volcano, learn about eruption risks in your area and keep goggles and masks handy.
- ✓ Know your evacuation route

DURING

- ◆ Listen to a local station for updated emergency information and instructions.
- ◆ Evacuate only as recommended by authorities to stay clear of lava, mudflows, flying rocks and debris.
- ◆ If you stay, close windows and doors and block chimneys and other vents, to prevent ash from entering into the house and if possible sweep away the ash that may put excess weight on your roof.
- ◆ Change into long-sleeved shirts and long pants.
- ◆ If you leave your home, use goggles or eyeglasses, not contacts and wear an emergency mask or hold a damp cloth over your face.
- ◆ Avoid river areas downstream of the volcano and low-lying regions, areas downwind of the volcano.
- ◆ Stay in areas where you will not at risk of further volcanic eruptions.
- ◆ Avoid driving, ash can damage engines and metal parts, but if you must drive, stay below 35 miles (56 kilometers) an hour.

This badge was developed in collaboration with and is endorsed by:

Food and Agriculture Organization of the United Nations (FAO)
FAO leads international efforts to enhance global agricultural performance while promoting the sustainability of water use for food production. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information, helping countries to modernise and improve agricultural policies in relation to land and water management.
www.fao.org/policy-support/policy-themes/disaster-risk-reduction-agriculture/en

UN Office for Disaster Risk Reduction (UNDRR) was established in 1999 as a dedicated secretariat to facilitate the implementation of the International Strategy for Disaster Reduction (ISDR). It is mandated by the United Nations General Assembly resolution (56/195), to serve as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among the disaster reduction activities of the United Nations system and regional organizations and activities in socio-economic and humanitarian fields. It is an organisational unit of the UN Secretariat and is led by the UN Special Representative of the Secretary-General for Disaster Risk Reduction (SRSG).
www.unisdr.org

The World Association of Girl Guides and Girl Scouts (WAGGGS)
The World Association of Girl Scouts and Girl Guides (WAGGGS) represents 10 million girls from 150 countries, making the world's largest voluntary movement dedicated to girls and young women. For more than 100 years, WAGGGS provides safe spaces for girls to learn by doing, at their own pace and in places local to them.
www.wagggs.org

The World Organization of the Scout Movement (WOSM)
The World Organization of the Scout Movement (WOSM) is an independent, worldwide, non-profit and non-partisan organization that serves the Scout Movement. Its purpose is to promote unity and the understanding of Scouting's purpose and principles while facilitating its expansion and development.
www.scout.org

WE ARE MANY. WE ARE YUNGA!

THE YOUTH AND UNITED NATIONS GLOBAL ALLIANCE (YUNGA) IS A PARTNERSHIP BETWEEN UNITED NATIONS AGENCIES, CIVIL SOCIETY ORGANIZATIONS AND OTHER ENTITIES TO DEVELOP INITIATIVES, RESOURCES AND OPPORTUNITIES FOR CHILDREN AND YOUNG PEOPLE TO LEARN, GET INVOLVED AND MAKE A DIFFERENCE.

YUNGA ACTS AS A GATEWAY TO ALLOW CHILDREN AND YOUTH TO BE AWARE AND INVOLVED IN THE ACTIVITIES AND INITIATIVES OF THE UNITED NATIONS. UNITED NATIONS CHALLENGE BADGES ARE BEING DEVELOPED BY UN AGENCIES AND OTHER ORGANIZATIONS INVOLVED IN YUNGA.

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The purpose of the United Nations Challenge Badges is to raise awareness, educate and, most of all, motivate young people to change their behaviour and be active agents of change in their local communities. Challenge Badges are appropriate for use in schools and youth groups, and are endorsed by WAGGGS and WOSM. They include a wide range of activities and ideas that can easily be adapted by teachers or leaders. Additional badges are available or are being developed on a number of other topics including: Agriculture, Biodiversity, Climate Change, Energy, Forests, Gender, Governance, Hunger, Nutrition, Oceans, Soils and Water.

The DISASTER RISK REDUCTION CHALLENGE BADGE is designed to help children and young people learn about hazards, disasters, and how to reduce the risk of disasters. This booklet includes information about hazards and disasters, reducing ones risk, what to do after disaster strikes and how we can all help towards disaster risk reduction. Most of all, the booklet is packed with activities and curriculum ideas to stimulate learning and encourage children and young people to better understand disaster risks and the ways they can be reduced.

FOR MORE INFORMATION ON THIS AND OTHER MATERIALS CONTACT

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