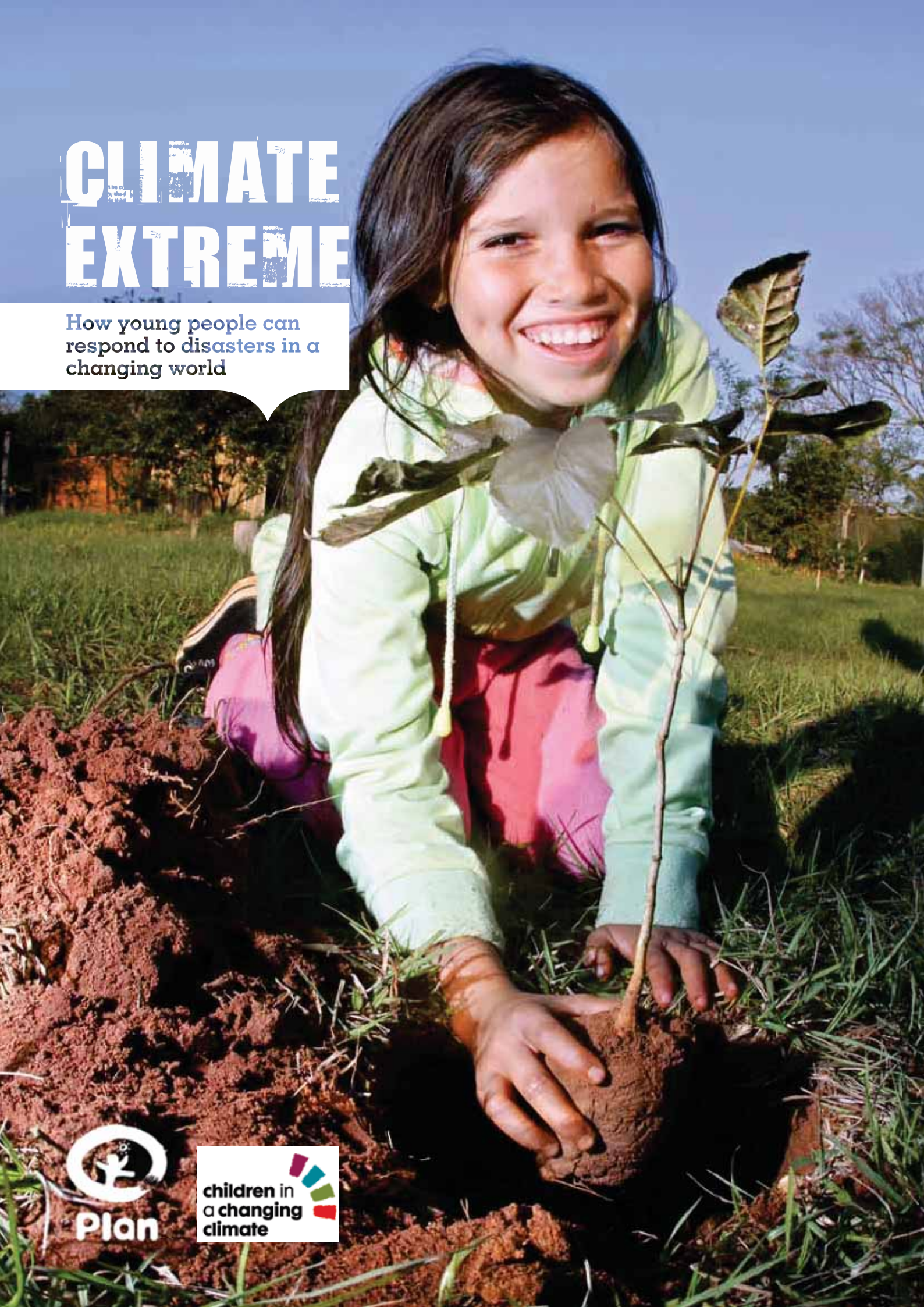

CLIMATE EXTREME

How young people can respond to disasters in a changing world

Plan

children in a changing climate

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Front cover image
A young girl plants a tree as part of a reforestation project in her community in Paraguay.

This report has been produced by Plan International on behalf of the Children in a Changing Climate coalition. The Intergovernmental Panel on Climate Change asked the Children in a Changing Climate coalition to produce a youth-friendly summary of the recent publication, 'Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.'

For more information please visit
www.childreninachangingclimate.org

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The Intergovernmental Panel on Climate Change (IPCC)
is a scientific body first established in 1988 by two United Nations organisations, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), and later endorsed by the United Nations General Assembly. Its mission is to provide comprehensive scientific assessments of current scientific, technical and socio-economic information worldwide about the risk of climate change caused by human activity, its potential environmental and socio-economic consequences, and possible options for adapting to these consequences or mitigating the effects. As such it produces regular reports, the latest of which, the 'Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation,' is the subject of this youth-friendly summary and from where the majority of the information has been sourced. To view the full report please go to **www.ipcc-wg2.gov/SREX/**

Children in a Changing Climate
Children in a Changing Climate is a coalition of leading child-focused research, development and humanitarian organisations each with a commitment to share knowledge, coordinate activities and work with children as agents of change. Members of the coalition include UNICEF, World Vision, Plan International and Save the Children.

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Founded 75 years ago, Plan International is one of the oldest and largest children's development organisations in the world. We work in 50 developing countries across Africa, Asia and the Americas to promote child rights and lift millions of children out of poverty. Plan is independent, with no religious, political or governmental affiliations.

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Have you heard of the Convention on the Rights of the Child? It was written for children and young people up to the age of 18 and includes a statement that people of this age have the right to information tailored for them. It means governments and the media should be giving you information in ways you can understand – even if the topic is complicated. This is one reason we have summarised the Special Report, because you have the right to know this stuff! If you want to know more about your rights check out this website: www.voicesofyouth.org

CONTENTS

INTRODUCTION

Is climate change causing more disasters? Why are some people affected by disasters more than others? And what can we do to reduce the impact of disasters?

Answering these questions requires us to understand what climate change is and how it interacts with people's lives. Even though we know a lot there are still some things that remain uncertain and it's important that we make decisions now, so that we can improve our outlook for the future.

Specific local effects of climate change are hard to predict but we do know that significant changes in weather can lead to more disasters. As you can imagine these changes affect people in many parts of the world, and unfortunately some of the least able to cope are often the hardest hit.

Because of the link between climate change, disasters and the impact on people, different countries asked the Intergovernmental Panel on Climate Change (IPCC) to investigate further to help them understand the links and explore what could be done to reduce the impacts of disasters.

This led to the publication called the 'Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation' (we call it the SREX) – a big title and a huge topic! Basically the SREX looks at how climate change affects disasters, how people are being impacted now and in the future and how we can support people to become more resilient.

Climate change is here and it is already having an impact on people around the world – particularly the poor. With an increasing amount of people exposed to the effects of our changing climate we need to increase efforts to reduce people's vulnerability and exposure to make sure people are not hit even harder in the future than they are now.

What we do about climate change and how we respond to disasters are the big challenges facing us. This publication looks at the issues, what's being done and how we can address the situation – now and in the future.

TIPS

» **Check the first page of each chapter for definitions of words that will help you understand that chapter**
» **Make sure you check out the case studies and fact boxes so you can see how all this affects real people**
» **Keep your eyes open for suggestions about where you can go for more information**

» Students evacuate their school during an emergency drill. Their school in the Philippines is prone to landslides and floods when tropical storms strike.

CHAPTER 1

WHAT'S GOING ON WITH OUR CLIMATE?

KEY POINTS

» **Changes in our climate have been recorded for decades.**
» **We are seeing an increase in temperatures, rainfall, and sea levels and in some areas more intense droughts.**
» **A changing climate leads to changes in weather extremes, which can lead to disasters.**
» **Disasters affect many areas of life and can be felt for a long time after the disaster itself.**

Changes in our climate have been seen by looking at records of local and regional changes in weather patterns. In some places these have been recorded for decades, so scientists and researchers are confident that the patterns noted and the changes expected in the future are accurate. However, there are differences in the quality and quantity of information available – some countries have better records than others and some weather patterns are easier to view and record.

So how sure are we about specific changes?

As you can imagine, when you gather information from around the world it is all very different – in terms of how reliable it is, what is being looked at, what different people think is important enough to record and how easy it is to get the information. So it's hard to be certain about current patterns and expected changes because everything depends on the quality of the information gathered.

This means that when we use statements about expected changes in the climate we need to use 'relative terms'. Basically, these are specific words that show how confident experts in the SREX are in what they are predicting – sometimes they are ***virtually certain*** something will happen, whereas other times they believe it is ***exceptionally unlikely***.

But what does this really mean? Each of the below phrases corresponds with a statistical probability; a number that shows how likely it is that the event you are measuring will happen. This is worked out according to the evidence that is available and the agreement of experts.

Here's what the language we're using means:

Virtually certain	99-100% probability
Very likely	90-100% probability
Likely	66-100% probability
About as likely as not	33 to 66% probability
Unlikely	0-33% probability
Extremely unlikely	0-10% probability
Exceptionally unlikely	0-1% probability

» So, for example, SREX experts predict the probability that temperatures will rise is between 99-100%.

DEFINITIONS

Climate change A change in the average pattern of weather over a long period of time, typically decades or longer. Climate change may be due to natural processes such as volcanic eruptions and changes in solar activity, or may be caused by human activities such as increases in greenhouse gases as is currently the case.

Extreme event The occurrence of a weather or climate event that is significantly above or below normal expectations.

Disaster When dangerous events lead to widespread human, material, economic and environmental damage and require immediate emergency response to ensure people have their basic needs met and can begin recovery.

Changes now and in the future

Here are some things we can state with confidence about the future:

» It is **likely** that the frequency of heavy rainfall will increase over this century in many regions.

» It is **virtually certain** that increases in extremely hot days, and decreases in really cold days, will happen throughout the world.

» It is **likely** that the strength of tropical cyclones will increase, although possibly not in all cyclone prone areas. It is also **likely** that there will be either a decrease or no change in the number of cyclones.

» It is **very likely** that the rising sea level will lead to flooding from time-to-time in coastal areas.

Many changes in our climate, like ice ages in the past, are caused by natural patterns. But we also know that these can exist alongside changes caused by human activities, such as greenhouse gas emissions. Both work together to keep our climate shifting and changing what we can expect in the future.

In focus: sea levels

Let's explore this a little more by focusing on extreme sea levels. Brief changes in sea level can be caused by storm surges or earthquakes and may lead to tsunamis. These brief changes come and go once the cause has been removed – so a storm may result in the sea moving further inland but once it has passed the water retreats. These brief changes are called sea level extremes. However, there is now growing evidence that the normal sea level has risen, and will continue to do so. Experts in the SREX have high confidence that there has been a rise in sea levels in the 19th and 20th centuries. Scientists say it is ***very likely*** that human activity contributed to this rise in the last half of the 20th century. For example, this means that when a storm surge or tsunami occurs, it will be more severe because the sea level was higher to begin with.

Confused? Take a half full glass of water and blow onto the surface – the water moves up the side of the glass, just as the sea would move up the beach during a storm. Now take a full glass and blow with the same strength...did you spill any? The higher the water level, the less room it has to move. In the case of the sea, the higher the level the more land is at risk of being swamped during an extreme event.

So, is our climate becoming more extreme?

While there is evidence that greenhouse gases have caused changes in some extremes there's no easy answer. The problem is, because our climate and the occurrence of extreme events are so complex it's difficult to collect enough measurements to be sure. The following table demonstrates how some weather patterns are easy to observe and predict for the future, while others lack the data for the same level of confidence. This table also shows what changes are currently being observed and what is predicted to happen up to the year 2100.

The uncertainty around different aspects of our climate does make things difficult. It is best to focus on individual aspects of our climate, such as extreme temperatures, and decide if that aspect is becoming more common and if so where, how and what we can do. This means we can make decisions based on specific local information rather than a generalised conclusion about the climate as a whole.

		Observed changes since 1950	Probable cause	Projected changes up to 2100
Changes in weather and climate	Temperature	Very likely decrease in very cold days and very likely increase in hot days. Medium confidence in increase in heatwaves	Likely to be human causes	Virtually certain increase in hot days and very likely increase in heatwaves
	Precipitation (rain)	Likely increase in heavy rainfall over many regions, but regional differences are strong	Probably related to human activities on a global scale	Likely increase in heavy rainfall, particularly in tropical areas
Extreme events related to climate changes	Monsoons	Low confidence in trends because of lack of data	Not sure about causes because there is a lack of data	Low confidence in projections because there is a lack of agreement
	Tropical cyclones	Low confidence that observed long-term increases are accurate because of past observation techniques	Low confidence in human activity influencing cyclones because of poor data quality and lack of understanding of cyclones	Likely decrease or no change in frequency but a likely increase in average maximum wind speed in some areas Likely increase in heavy rainfall linked to tropical cyclones
Impact on physical environment	Droughts	Medium confidence that some regions have experienced more intense and longer droughts, in particular in Southern Europe and West Africa	Medium confidence that these are related to human activity	Medium confidence in an increase of length and intensity of drought, in particular in the Mediterranean, central Europe, central North America, northeast Brazil and southern Africa
	Floods	Limited evidence available to assess climate driven changes in floods	Low confidence that human influence has affected floods but high confidence that human activities have affected some factors, such as rainfall and early snowmelt, which affect flooding.	Low confidence in global projections because of lack of evidence and the causes of changes in precipitation and flooding are complex. Medium confidence that projected increase in rainfall would affect flooding
	High sea level	Likely increase in high sea level worldwide	Likely human influence	Very likely sea level will continue to rise. High confidence that places experiencing land erosion and flooding from high sea levels will continue to do so.

Links between climate change, extreme events and disasters

It is important to understand the link between climate change, extreme events and disasters. We already know that climate change, both natural and man-made, can lead to changes in expected weather patterns but is climate change affecting extreme events?

It is difficult to determine if a single extreme event is definitely caused by something, such as increasing greenhouse gases, because extreme events are usually caused by a range of factors and can occur even in an unchanging climate. However, it can be possible to link a cause to an increased probability of an extreme event. For example, it has been estimated that human influences have more than doubled the chances that Europe will have another heatwave like it did in 2003.

In the summer of 2003, Europe experienced temperatures that soared far above those of previous years. Because people weren't prepared for this they suffered and up to 70,000 people died. As a result of this experience plans were put in place for future heatwaves and in 2006 – when again average temperatures were above normal – these plans meant support systems were in place and people were better able to cope. It also meant that fewer people died than was predicted if such systems had not been in place.

Some changes in our climate happen quickly, such as sudden spikes in temperatures for a summer, or above average rainfall that leads to flooding. Sometimes, several changes can take place at the same time, which is more dramatic than a single change. Just imagine if there was an increase in rainfall, a stronger than usual cyclone, and higher sea levels in the same place at the same time – this would lead to more severe flooding than any one of these changes alone would have caused.

Changes that seem small and slow can still have a big impact. For example, when you combine decreasing rainfall over several years, higher than normal temperatures over a summer, and record low humidity it can lead to bush fires. This happened in Victoria, Australia in 2009, and as a result 173 people were killed.

It's important to note that these changes and extremes can only be described as a disaster when they take place in an area populated by people and overwhelm their ability to withstand them.

Impact

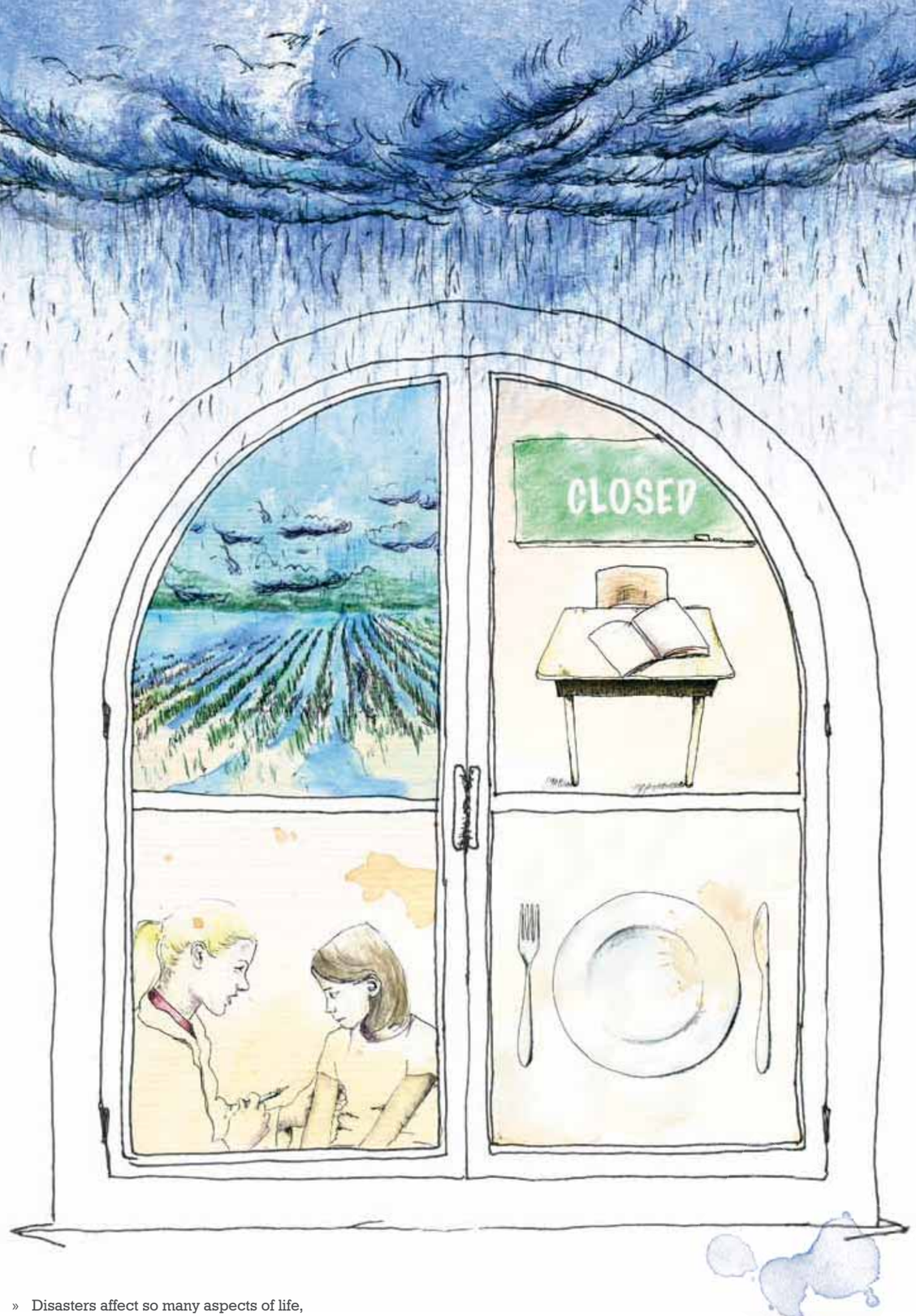
The impact of a disaster includes loss of economic activities, deaths of community members, mental health effects and loss of environmental assets. So, for example, your quality of life is significantly affected by your health and by climate extremes – such as heatwaves, floods, droughts and cyclones.

If we focus on the impact that a flood can have on health we can see that it can:

- cause deaths and injuries, lead to infectious diseases like diarrhoea and lead to malnutrition when crops are destroyed
- lead to a shift in where malaria is found because water levels can change the breeding ground for malarial mosquitoes
- lead to human migration into areas already known for malaria and increase the outbreaks among people with little immunity.

In 1998 a severe flood in Bangladesh was linked to an increase in diarrhoea during and after the flood, and the risk was higher for those from poorer communities who did not have tap water.

» Left: A view of Pakistan after severe floods in 2010.



» Disasters affect so many aspects of life, including health, nutrition, livelihoods and education.

» A girl takes part in a psychosocial support activity in Pakistan. After severe floods in 2010, agencies worked with children affected to help them overcome their emotional distress caused by the disaster.

In focus: impact on health

Finding out the true impact of extreme events on health can be difficult. The SREX points out that usually disaster impact is only linked to injuries and deaths directly caused by the event whilst indirect impacts are often not recorded.

Examples of indirect impacts are:

- injuries and deaths from the damage caused to services like medical centres
- stress, anxiety and mental illness caused by evacuations and displacement
- disruption to food production leading to malnutrition, which can happen months after the event
- loss of income

Even though it's important to understand indirect impacts they are under-researched so there is still a lot that we don't know. Partly this is because of a lack of information recorded about these impacts in developing countries. As you can imagine, this information can be incredibly important when planning support systems for affected populations and without it, it is difficult to plan key services that would help people recover from disasters.

But how is this relevant?

So if we know that:

- the climate is changing
- those changes are linked to extreme events such as flooding and heatwaves
- those events can lead to disasters
- and disasters can have a huge impact on people

Then we need to figure out how to respond to both the changing climate and disasters. Later in the report we will discuss solutions that are already in place around the world and look at the changes we can make to ensure climate extremes don't overwhelm people.

Did you know there is growing evidence that the mental health impact from extreme events is large? The stress of experiencing the event, grieving for friends and family who died during it, or being involved in rescue efforts can affect people emotionally for years to come. The grief, depression and anxiety that can be caused by a disaster can in turn lead to drug and alcohol abuse. It certainly doesn't always happen, but what services would your community need to support people struggling in this way? Keep thinking about this question as you read and see if your answer changes as you learn more.

Learning recap

This section has shown us that:

- **There are already changes taking place in our climate .**
- **These changes can lead to even more frequent and severe extreme events, like floods or droughts.**
- **These events can become disasters if people are badly affected or don't have the capacity to cope.**
- **The impact of disasters can be severe and have both direct and indirect effects.**

HAVE YOU EXPERIENCED A DISASTER?

KEY POINTS

» Developing countries have higher death tolls from disasters than developed countries.
» Exposure and vulnerability are key factors in your level of risk in a disaster.
» Some people are more vulnerable than others during a disaster – the most vulnerable are normally in areas of high poverty.
» Disasters can undermine sustainable development.

As we discussed in the previous chapter, the impact of a climate extreme is not just determined by the event but also by the exposure and vulnerability of the community affected.

Extreme events will lead to a disaster if a community is exposed to the events and if they are highly vulnerable to those events. They can also have an impact on a community's ability to cope with future disasters. Cumulative effects – one effect on top of the other – of disasters can destroy people's ability to recover, even when they were able to cope with a single major effect.

So it's not the size of the event that determines the disaster risk, but rather how many people are exposed to that event and whether they can cope with it. Think of it as three petals of the same flower – each is required to make up the whole. So the event, the exposure of people and the vulnerability of those people all interact to determine if there is a risk of disaster (or if you don't like flowers, check out Diagram 1).

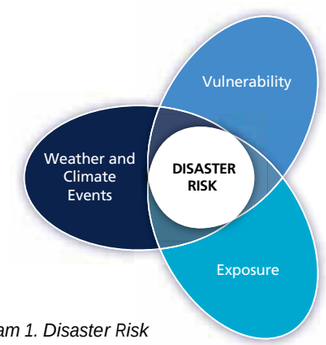


Diagram 1. Disaster Risk

Factors of vulnerability

How vulnerable you are can depend on where you live, how well your government is prepared, whether there is a stable political system, whether the hazard you face is seen as a potential risk by your community, and if you have the economic resources to prepare or to cope with an extreme event. These aspects are both individual and held by your community and country.

DEFINITIONS

Exposure The presence of people, cultural and social assets, livelihoods, services and resources in places that could be affected by a disaster.

Vulnerability A state in which you are more at risk of negative affects to various events.

Risk Disaster risk is a combination of the hazards and the vulnerabilities of people exposed and can point to how likely it is that an extreme event will severely change the normal functioning of a community.

Resilience The ability of an individual or a society to predict, minimise, respond to and recover quickly from the effects of a disaster.

Disproportionate Too large or too small in relation to something else. For example, if the amount of money you paid at the supermarket was too expensive for the amount of food you bought then what you paid was disproportionate to what you got.

If these people were to face a disaster, who do you think would be most vulnerable? What kind of extra support would each of these people need?

A combination of things can increase your vulnerability:

- » Gender
- » Wealth
- » Your livelihood
- » Where you live
- » Age
- » Ethnicity
- » Health (including disability)
- » The assets you have (including education and training)

Refugees, internally displaced people and those pushed into difficult areas because of violence are examples of people who are at risk from the negative effects of extremes events. This is increased because violence can destroy facilities like schools and health centres. The need to escape the violence means their usual support networks and coping strategies may not be available and their homes, farms and businesses have been left behind.

Because the impact of disasters is worsened by physical and social conditions, poor countries are *disproportionately* affected.

From 1970-2008, over **95%** of natural-disaster-related deaths occurred in developing countries.

Impact of disasters on girls and young women

- It is estimated that 90% of people killed by the 1991 cyclone in Bangladesh and up to 80% of those who died in the 2004 Asian Tsunami were women and girls. A study by the London School of Economics (LSE) looked at disasters in 141 countries and found that in communities where women and men enjoy equal rights, losses in lives due to natural disasters were more gender balanced.
- The LSE study also found that boys are likely to be rescued first, and in the aftermath of disasters both women and girls suffer more from food shortages, and from a lack of privacy and safety of toilet and bathing facilities and sleeping arrangements.
- In many countries, girls are discouraged from learning survival skills such as swimming or climbing.

Poor communities have fewer options for lessening their exposure to hazards and minimising their vulnerability than their wealthy neighbours do. This means that extreme events and a changing climate can have a bigger impact on them than on wealthier communities who have the resources to cope.

Vulnerability does not stay the same forever – it changes over time because of environmental factors, people's own actions to reduce their risks or the weakening or strengthening of support systems. Frequent disasters mean communities have a lot more difficulty recovering before facing another crisis. Vulnerability levels need to be constantly checked; so, additional stress and any new solutions that have been found to counteract vulnerability need to be considered when looking at how a community will cope at any time.

Resilience

However, there is another aspect of all this we are yet to explore – resilience. This is the positive side of the story and where we begin to talk about the solutions to risks, exposure and disasters.

Resilience is the ability to recover from a disaster and also minimise the potential effects of a crisis. Even people who live in highly exposed areas and are very vulnerable may have the ability to recover from a disaster and all the stress that comes with it. The key to resilience is that you can strengthen it by making sure people have support, resources and choices. When a disaster strikes the government response should support local coping strategies in order to build peoples' resilience, enabling them to repair their lives and move forward.

What do climate change and disasters mean for development?

Development efforts aim to give people better and fairer access to the resources everyone needs to survive and thrive. Development should build the resilience of people, of whole communities and of the physical structures and systems we all depend on. It should also improve living standards, including the ability to cope with the hard times, such as sickness in the family or a community-wide disaster. Ideally, the results of development work are long lasting with short-term priorities never damaging long-term resilience.

We already know that disasters can have a massive impact on those living in poverty and that without adequate resources, responding to disasters is much more difficult. But we should also be aware that development can actually put people at risk if potential disasters are ignored.

In focus: development at risk

Imagine this scenario. You are a development worker who has worked for several years helping farmers increase their rice crop to improve both their nutrition and their ability to earn money. But you forget to pay enough attention to the exposure of this village to potential flooding; you ignore the wide range of risks they face; and you don't realise that many of the farmers live close to the rice fields, which are near a river. Although the rice yields may rise an unexpected flood could not only devastate the crop, but would also destroy many homes and other village assets.

Disaster risk management considers all hazards, including those that are not linked to climate change, such as volcanos and earthquakes. Climate change adaptation considers the impact of more gradual processes, not usually called disasters, such as rising sea level. Both processes address events such as floods, droughts and heatwaves.

The work of managing the risks and effects of disasters and supporting development comes together when we focus on reducing vulnerability and increasing resilience; keeping both eyes open to potential risks in the short and long term.

We will explore the different ways to do that in Chapter 3, but for now it is important to highlight that:

» Disasters can undo progress made by development projects and communities.

» Development efforts have the potential to increase resilience to disasters, but can also increase risks and vulnerability when not properly planned.

» Disaster management and development efforts need to come together to ensure resilience to poverty and to disasters are both addressed at the same time.

And all this has to be done while levels of vulnerability and knowledge change, and there is uncertainty about just what climate change will bring in the future.

» Development work that aims to reduce peoples' vulnerability can be put at risk if disasters are not properly planned for, this reduces the sustainability of development efforts and therefore has consequences for future generations.

» Ashley is 12 years old and lives in Guatemala. She has only one more year left at primary school but plans to continue her education so one day she can be a teacher.

CASE STUDY

Challenges of including children with disabilities

Children are one of the most vulnerable groups during disasters, especially in poor countries like Bangladesh. Children with disabilities are even more vulnerable because there are a lack of services for them and discrimination towards the children themselves. This means they are excluded from many aspects of community life, including efforts to reduce the risk of disasters.

Two examples of this are described below.

In one community a group of children were finding ways to better prepare their village for cyclones. The children suggested securing a roof to avoid it being blown away. During a planning meeting for this activity children felt that the child with a disability, who was part of the group, could not help. However, the group leader suggested that although the child was not able to help by actually tying the rope on the roof, she could be involved by mobilising community members to support their work and in monitoring the work itself. Once the children understood that children with disabilities have lots of other capacities, they then understood the importance and the need to include them.

Another group was organising a community rally to draw attention to the need for the community to work to reduce its risk of disasters. During the planning meeting a disabled child agreed not to participate in the rally due to not being able to walk. No one made the simple suggestion of arranging a wheelchair or rickshaw.

Lack of training, negative attitudes and no access to physical assistance can mean that children with disabilities are often blocked from activities in their communities. However, when children with disabilities were included, research by one agency found that:

- They were able to demonstrate their capacities and be involved in all activities
- Negative attitudes held about children with disabilities were improved once people were able to see the abilities of these children
- Those children with disabilities who did participate were inspired and proud to be included
- Participation in this work often meant children with disabilities began to participate in other areas of community life as well
- At times the children with disabilities were so active in their efforts that they set an example for other children to follow.

(Source, Plan International)

Learning recap

This section has shown us that:

- The impact of an extreme event turns into a disaster when people are exposed and vulnerable
- Vulnerability is multi-layered and changes constantly. It is higher among poorer populations and people in the same area can have different levels of vulnerability
- When properly planned and linked to disaster management, development can support a community to become resilient to disasters and overcome poverty.

HOW WOULD YOU COPE?

KEY POINTS

- Adaptation, mitigation and disaster preparedness are key to reducing the impact of extreme events.
- The best solutions can be effective now and can also have a positive influence on the future.
- Communities play an important role in their own resilience and recovery.
- Solutions to climate change have to combine local knowledge with scientific expertise.
- Decision making should be shared so varying perspectives and opinions are considered.

People around the world are working hard to lessen the negative effects of climate change, reduce their vulnerabilities and manage disasters. Some of the ways they are doing this is through adaptation, mitigation and disaster preparedness.

Adaptation, mitigation and disaster preparedness

According to our definitions below, adaptation and mitigation are both ways to cope with the impact of climate change, extreme events and disasters. They require knowledge of the risks and their causes, and the ability to change behaviour in order to find solutions.

It's a little easier to understand what these concepts mean in terms of people's behaviour. We know from Chapter 2 that women are particularly vulnerable during disasters and there is often a disproportionate death toll among women. In many places in the world women lack decision-making roles, are less likely to have access to education, have less legal and social protection, and are expected to remain within the home.

But if a group of people know this, is it possible for them to change their practices so that the survival rate of women is improved?

In focus: knowledge leads to change

The SREX discusses a situation in La Masica, Honduras where communities did just that. In 1998 people in La Masica began training and planning for disaster preparedness. This included training about the different levels of vulnerability men and women face. After the training, community members decided that women and men should participate equally in all disaster management activities. About six months after the training and planning had taken place a hurricane struck Honduras. Because people in La Masica were prepared the evacuation was quick and no deaths occurred. Women participated in all disaster management activities; they went on rescue missions, helped repair local buildings and distributed food. When these communities included women, it was a change in behaviour and many see this change as a major part of the fact that, unlike other areas, La Masica had no deaths.

The key in this example is knowledge. People were trained on how to deal with a disaster and how to respond to a higher level of vulnerability within their community. Without that knowledge the outcome may have been very different, as it was for many other communities.

What is the Hyogo Framework for Action?

In 2005 the second World Conference on Disaster Reduction was held in Japan. This continued international efforts to reduce disaster impact, especially on developing countries. At that Conference, 168 governments agreed to a 10 year plan to make the world safer from natural disasters. This became known as the Hyogo Framework. Find out more here:

www.unisdr.org/we/coordinate/hfa

No regrets solutions

The best solutions to the negative impact of climate change are called 'no regrets solutions'. These are activities that provide benefits now and also lay the foundation for coping with future changes. Many of these also help to address other goals, such as efforts towards better livelihoods or human health. They include: early warning systems; communicating information about risks between decision makers and local people; improvements to water supply, sanitation and irrigation and better education and awareness of the issues.

As shown in the example above, disasters can be reduced if people are well informed and motivated to prevent risk and build their own resilience. One 'no regret solution' that works to increase knowledge is education about reducing disaster risks.

The Hyogo Framework for Action asks governments to "use knowledge, innovation and education to build a culture of safety and resilience…" Involving children and young people is important for long-term success because, as you will see in the case studies below, they are skilled at bringing about change in their communities. Because of this, education about disaster risk reduction is being included in school curriculums. But to make this work, teachers have to be trained too.

In focus: teacher training

In 2007 in Indonesia, the Disaster Awareness in Primary Schools project helped teachers increase the use of interactive teaching methods – visual aids and activities were increased for example – and got them involved in activities such as first aid. The project made sure the disaster awareness information could be used in many different subjects so all teachers could participate. The lessons did not need much preparation and were easy to teach. Improving teachers' abilities to teach meant that important information, like evacuation routes, was well understood by students.

We can see that when people are given the right information and can take action based on that learning, the outcome for people hit by a disaster, or at risk of one, is better. Turn the page to read two case studies that demonstrate what young people can achieve when they have the information and motivation to change things in their communities.

» Boys in their classroom in Myanmar look at an educational poster that teaches them how to stay safe in times of disasters.

DEFINITIONS

Mitigation i) *Mitigation*, relating to the possibility of a disaster, means to take actions to reduce existing hazards, exposure or vulnerability, such as the use of an early warning system.

ii) *Climate change mitigation* means to reduce the rate the climate is changing by managing the causes of that change, such as reducing greenhouse gas emissions.

Adaptation Adjusting to current climate realities or expected climate changes and their effects, so that harm is reduced and people can make the most of any benefits that may arise from the changes.

Disaster Risk Management Disaster Management is the process of improving peoples' preparation for future disasters as well as the response to, and recovery from, disasters when they happen. This can take place at local, national and international levels.

CASE STUDY

Disaster Preparedness

Children Save Lives in Flood

When tropical storm Ida hit El Salvador and swept through Cerco di Piedra in November 2009, it caused massive flooding. However, young people who had been trained in disaster preparedness were able to help.

Cerco di Piedra's civil protection committee included five young people aged 14-21. They were trained in early warning systems, first aid and evacuation. When Ida struck late in the evening and the river began to flood, the young people alerted community members of the danger of flooding using megaphones and ensured that everyone was awake and evacuating from their homes. As the flood waters rose, they worked alongside adults to help direct members of the community into safe shelters.

One of the youth involved, Erika, 19, compared this experience to the previous year's floods, and explained that although there was more damage to property, they were able to save the lives of almost everybody in the area.

"Now we know how to respond in many types of emergencies...because we know what to do, not like last year... Last year's flood left us with nothing, and we were just starting to recover. Things might look worse now, but at least we managed to save most people."

Tropical Storm Ida caused the loss of 199 lives nationwide but only one person died in their hometown. The young people in Cerco di Piedra demonstrate that children and young people have the capacity to lead and coordinate efforts to make their communities safer.

Adaptation

Children move their school

Children's determination to adapt to the possibility of landslide was demonstrated in Santa Paz, a community in the Southern Leyte province in the Philippines. Children convinced parents and politicians to relocate their school from a landslide-prone area.

The Philippines Mines and Geosciences Bureau ordered hazard assessments across the province of Southern Leyte after a devastating landslide killed 1,100 people in the town of Guinsangon in 2006. The results showed that Santa Paz was at high risk.

Santa Paz National High School, attended by 379 students, was situated directly in the line of a potential landslide and the Department of Education recommended that the school be relocated. Some sections of the community fiercely disagreed and argued that "vague warnings" of a future disaster were not enough to warrant a move. There was also anger from those who sold snacks to student who argued that a move would affect their livelihoods. One adult said, "I'm not worried about climate change. It's been raining here a long time and nothing has ever happened."

Children felt differently, a 17-year-old student named Honey said;

"We learned that if it ever rained for several days, the mountain may collapse on our school...We decided we had to relocate it; if we had stayed there, none of us would have been able to concentrate on our studies."

With the support of their head-teacher, the school children began a letter writing campaign to authorities and started an education campaign in their community about landslides. They were successful. The school was relocated to a nearby area in safer ground 2km away from the old site.

Marjon, a 16-year-old student, said;

"...with the new school I no longer worry when there is heavy rain. I can concentrate on my studies. The petition campaign paid off well. It made us more aware of our rights to be heard and our power to make change."

The new school was built with disasters in mind. It was built well above ground level to avoid floods, is earthquake resistant and the students have planted trees around the perimeter to minimise risks of landslide. It also has a rainwater harvesting system as well as toilets for every classroom and is designed so that it can be used as an evacuation shelter during emergencies.

The active role played by the Santa Paz children to get their school relocated despite local opposition is an example of children's ability to lobby for change and to take action to ensure their own safety.

(Source, Plan International)

Linking local, national and international efforts

As discussed before, we know that disasters are felt locally and people will experience them differently depending on how well they are prepared and what level of exposure and vulnerability they have. But when we look at reducing the impact of disasters we know that work has to take place locally, nationally and also internationally if it is going to succeed.

A key point in the SREX is that when we respond to climate extremes it is important to use local knowledge, and then enhance it with scientific knowledge. This improves local participation in disaster risk reduction and climate change adaptation. Local people record their experiences, particularly after extreme events and in response to obvious changes in climate. This leads to discussions and actions that can uncover or emphasise existing abilities within a community.

In focus: co-operative farming

This happened in South Africa. A group of rooibus (a local crop used to produce a tea that is now sold globally) farmers got together to find new ways to counteract the droughts their area was prone to. They founded a co-operative to help farmers market their rooibos crop jointly which also developed into a source of local and scientific knowledge about the crop. After a severe drought from 2003-2005 the farmers decided to monitor the local climate and get together four times a year to discuss strategies to respond to seasonal weather forecasts and participate in disaster preparedness activities.

Identify the risks

However, local identification of disaster risk and collective action is lacking in many places. As a first step in any attempt to manage a possible disaster you must be aware of the kind of risks in your community, the vulnerabilities and inequalities that can affect how people cope, and the existing abilities to respond to risks and stresses. While some people are able to cope with disasters, others have limited resilience and will therefore need to call on national and international help.

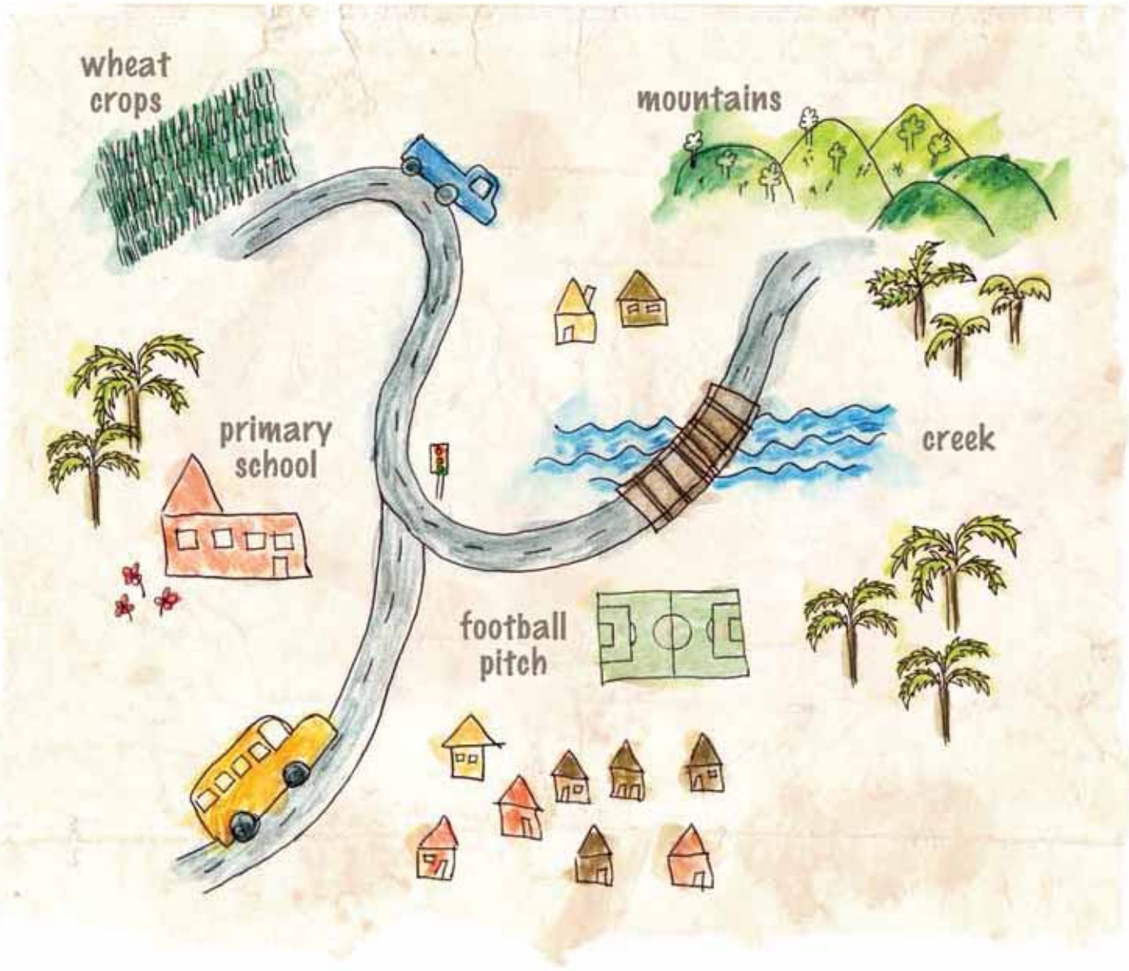
Children and young people have their own understanding of risks and vulnerabilities in their community – which is often different from the knowledge adults have. Research has shown us that although the experience of a disaster can be very distressing for young people, they are also quite resilient and can adapt to environmental changes. They also contribute to their families' and communities' ability to adapt.

People all over the world have developed the skills and knowledge they need in order to live in their environment and respond to extreme events. Often these skills are helpful and give the community a way to earn money and meet their basic needs. Unfortunately some actions are increasing the risk of disaster, such as deforestation. So it is important to know that although climate change can cause extreme weather events, other human activities also affect the way communities can cope with disaster risks.

» What's my role? There are so many roles to play in disaster preparedness and adaptation. What different roles do you think these people play?

Activity » What risks do you face?

Take a look around your school or community. What risks can you identify? Draw a map of the area and include any risks you think should be marked and identify who are the most vulnerable. Does anyone else identify different things? How will you reduce these risks? What changes need to be made to ensure everyone is safer? Who is most at risk and in need of extra help?



» An example of a risk map.

» Children in Mozambique draw a map of potential risks in their community.

Planning for the future

Disaster risk management and climate change adaptation are mostly about planning for an uncertain future. This is challenging when the decisions are urgent but the details are not all clear. Often people making these decisions – for their own households and also at national and international levels – look to the past to help them predict what will happen in the near future. Part of this process involves deciding how the future might change. The SREX offers information to help with that planning for uncertainty.

Difficult choices may be needed. For example in many places, as water becomes less available, a choice will need to be made between:

1. Improving water infrastructure to provide irrigation to existing crops and farming techniques; and
2. Changing the kind of crops you grow and the sort of farming you do.

Of course, deciding which of these options is best depends greatly on how the future is being viewed by different people, and what value they put on existing practices and the choices available.

In this case who should participate in the decision? If the government makes it alone and decides to change farming practices, where does that leave farmers? How will a farmer make a balanced decision about a future water problem when he needs to earn money today to look after his family? These are complicated issues and the decision-making is influenced by who holds power and what their motivations are.

Communicate the risks

An important part of making these hard decisions is to make sure risks are communicated to everyone properly. For example, even though the risk of water shortage may be recognised at the national level, it needs to be communicated to local farmers and community members in a way that makes sense to them and allows them to contribute to the discussion. But there will also be risks that local people are aware of that may not be obvious to national decision makers.

Basically, communication needs to take place on a lot of levels and in every direction. And remember, members of the same community will experience risks differently so people of different ages, genders, professions and abilities must all have a chance to take part.

The best decision making and planning includes everyone and has a clear understanding of who will 'win' and who may 'loose' in each situation. The thing is, choices made today can worsen current and future vulnerability, and can assist or complicate future responses. So we need to think hard to get them right.

It is not always easy to make sure different perspectives are represented in high level decision making, but there are many examples of young people making their voices heard – and influencing decision makers about the best ways to deal with climate change.

Activity » Risky Communication

Look at your risk map. Do you think there are risks that decision-makers don't know about? If so, how would you communicate the risks to them? Is your school, family or community aware of the risks you have identified? How will you communicate the risks to those groups? When you consider how to do it, remember to make sure you create opportunities for others to identify risks you haven't seen.

CASE STUDY

Too young to be involved ... wanna bet?!

At the international policy level where decisions are being made on climate change and disaster management, children and young people have proven to be important and influential when seeking change and raising public awareness.

Children make up more than half the population in poorer countries, which are predicted to experience the worst impacts of climate change, so their right to participate is linked to their right to survival, development and to protection. Children and young people have participated in major global events on climate change and disaster risk management, including the UNFCCC Conferences of the Parties (COP) meetings, the UNISDR's Global Platform and the European Union's Green Week.

In 2007 at the COP13 meeting held in Bali, young people challenged ministers and official delegates to uphold the rights of all children as they increasingly face the effects of climate change. Eni from Indonesia who attended COP13 voiced the concerns of many young people:

"Can we just sit still and not do anything? Choosing to be silent, or not doing anything while watching this, is the same as to make this thing last forever and make things worse. It is true that our government, I think, has not yet shown that it can tackle climate change. But, I will not just sit still and wait."

At the UNFCC COP15 meeting, a group of eleven children from all over the world attended as young journalists, where they had the opportunity to interview global leaders and policy makers, such as Desmond Tutu, Gordon Brown and Wangari Maathai, and report on the negotiation process to major news networks around the world.

Aakash and Annie, COP15 youth journalists from the UK have continued to engage with the UK's Department of Energy and Climate Change and were invited to give a keynotes speech at the "Climate Revolution" event in London, on January 2010, where children and young people presented their Action Plan on Climate Change to the UK Secretary of State for Climate Change.

A young journalist from Kenya, Joseph, aged 12, who reported on COP15 in Copenhagen to a local community radio station, was invited by the Kenya Minister of Environment to visit his office in Nairobi to continue a discussion about climate change adaptation. Joseph is also engaged in a climate change school linking project where he is active in sharing his Copenhagen experience with students in Kenya and the United Kingdom, Malawi and Senegal.

Children and young people in many countries have demonstrated that they are interested in taking part and contributing to decisions being made at the global level which directly affect their lives. Their determination is proving successful. At the 2010 UNFCCC climate change meeting in Cancun (COP16), the former Executive Secretary of the United Nations Framework on Climate Change, Yvo de Boer, said;

"We have to give children the opportunity to get their voices heard and then we can understand that climate change is not just about environment and glaciers but also about people. We need to hear from people particularly affected... and that's children."

Around the world, high level leaders, risk reduction and development practitioners, teachers, parents and children themselves are increasingly supporting the participation of children and young people in climate change and disaster risk reduction decision-making and action. This is not just because they have the right to participate, but also because, people understand the added value and insights that children and young people offer to secure their future, and ours.

(Source, Plan International)

Getting young people heard

One way of making sure different views are included in government planning is to get children and young people to meet with government officials. With support from a child focused development agency, a group of children from a school in the Phuket Province of Thailand conducted a risk assessment and drew up a risk map of their community and surrounding area. They then decided to share their findings with the local authorities.

When the children met the authorities, they were shown the 'official' risk map for their area and they were able to identify and discuss differences from their observations and other developments at local level. Not only did the children have more scientific data to inform their own mapping and risk assessment, they also had the opportunity to share their views on what other factors were not being considered by the official risk assessment. These included factors at the planning level as well as at the community level, from emphasising the need to better address risks faced specifically by minority and marginalised groups, to highlighting specific dangers in children's spaces such as playgrounds.

This was the first step for setting up a formal system to share information and include children's participation in the disaster management process. The value of listening to children has gained new fans; a local government official from Phuket province said

"I'm glad... the children came and shared their thoughts. I must tell you this is the first time. Actually I'd love to have many groups of children to come, talk, get and give advice. I've learnt from them".

(Source, Save the Children)

» Youth journalists Reina from Indonesia and Beatrice from Kenya, take part in a Children in a Changing Climate (CCC) discussion.

Learning recap

This section has shown us that:

- The impact of disasters can be reduced if proper planning and training take place and involve as many parts of the community as possible.
- Sharing knowledge is one way to ensure the solutions that work now will also work in the future.
- Local people have an important role to play and their perspectives should be heard, but they also need to have risks and information clearly communicated to them by scientists and the government.
- Young people have a big part to play – how will you play yours?

CONCLUSION

Climate change is already having an impact on people around the world, especially for those who are particularly vulnerable. So how can we respond?

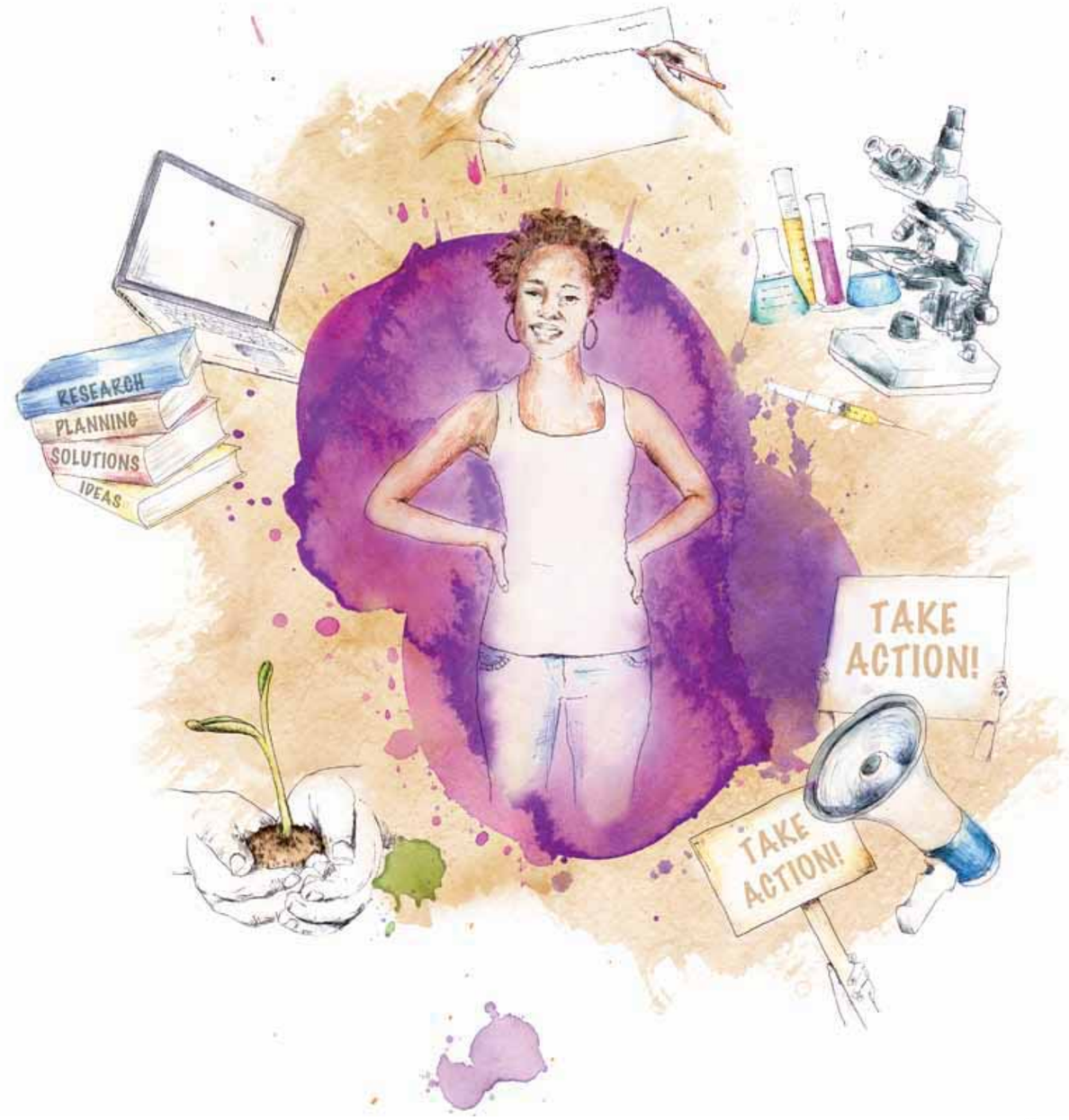
Deciding what to do is about understanding what is happening now, what is expected for the future and how people are likely to cope. Your country may already be well prepared but that means it is probably in a position to do more for those countries with fewer resources. There may be particular groups in your community who do not have the support they would need if disaster strikes. Maybe your school could be safer, or your village could do more to mitigate the risks it faces. What do you think are the priorities for you and your community when it comes to climate change and disaster management?

Young people have a unique perspective both about the risks they face themselves and about those present in their communities for others. Young people also have unique abilities to lend to climate change adaptation and mitigation. They are a strength both for the present and the future.

» Community members in Paraguay hold a tree sapling in their hands.

Activity » What do you think young people in your community can do?

What do you think should be the priorities for your community in responding to climate change and disaster management? List them and choose one or two of your favourites. Now figure out who you would need to speak to in order to take action on these priorities – who makes decisions relating to this priority? Who could you influence? What information do you need before you talk to them?



CLIMATE EXTREME

How young people can respond to disasters in a changing world

Is climate change causing more disasters? Why are some people affected by disasters more than others? And what can we do to reduce the impact of disasters?

Climate Extreme is a youth-friendly summary of a publication called the *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (we call it the SREX) – a big title and a huge topic! Basically the SREX looks at how climate change affects disasters, how people are being impacted now and will be in the future and how we can support people to become more resilient.

Climate Extreme describes how young people around the world are contributing and asks what else can be done to adapt to the risk of climate change related disasters.