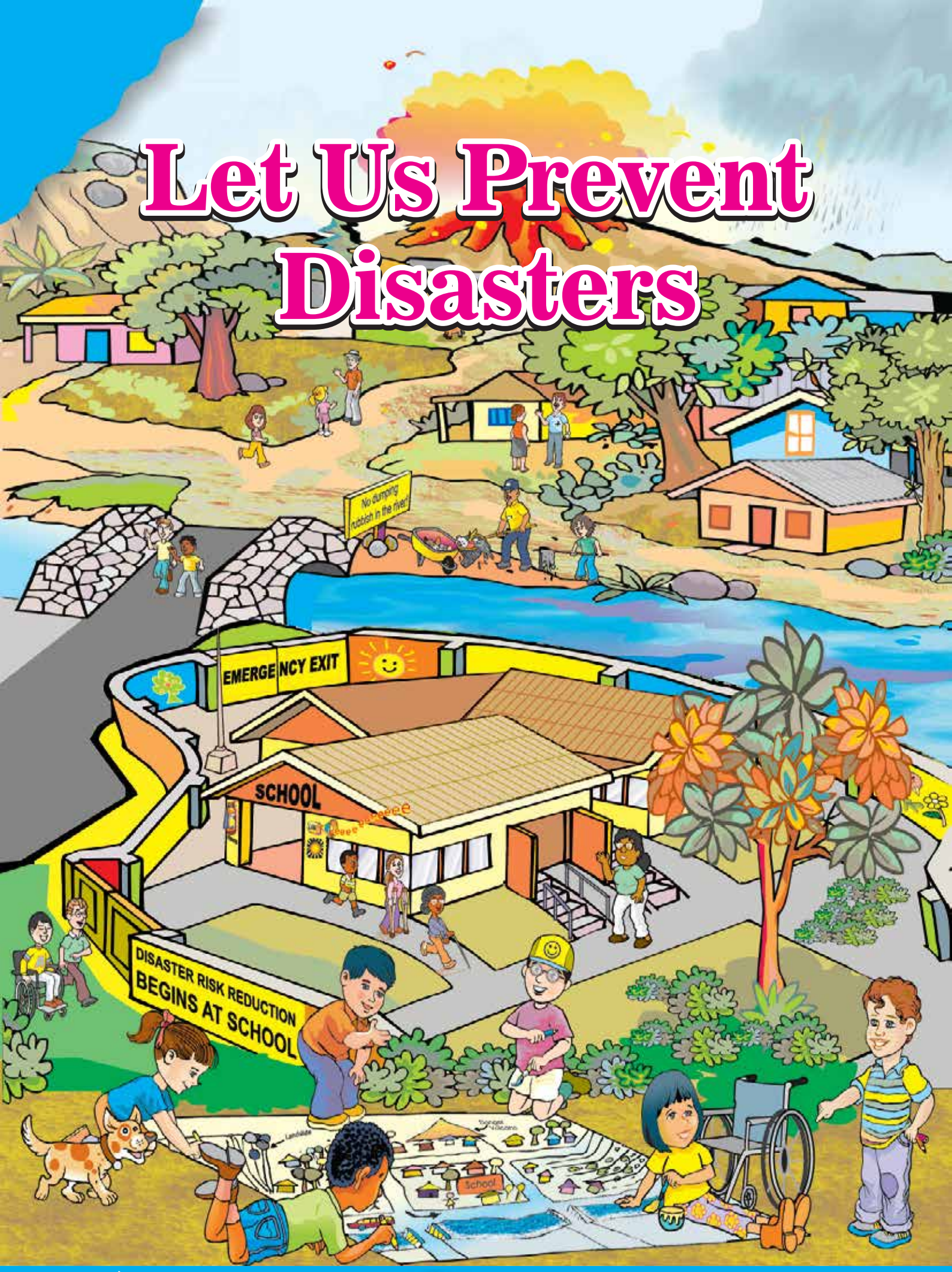
Let Us Prevent Disasters



Disaster Management Centre

Let Us Prevent Disasters

Handbook based on theoretical and practical experiences for school

Ministry of Education

Disaster Management Centre

Let Us Prevent Disasters

ISBN 978-955-674-142-1

First edition – 2019

Disaster Management Centre
3rd, 4th Floor, 120/2 Vidya Mawatha Colombo 7.

Print -

Message of the Director General of Disaster Management Centre

Sri Lanka has been identified as a country prone to many natural hazards such as floods, landslides, droughts and fires which occurs frequently. With the Tsunami catastrophe in 2004, which devastated the entire coastal line of the country ensuing loss of a large number of properties and lives, the government of Sri Lanka focused a special attention on Disaster Management. As a result, the Disaster Management Act No 13 of 2005 was enacted in Parliament and the Ministry of Disaster Management and the Disaster Management Centre were established.

Though the disasters are caused mainly due to natural calamities, the present-day human activities and the fast-growing population with the limited resources conjunction with unplanned as well as uncontrolled development/urbanization has aggravated the devastation. Many factors such as unplanned and illegal use of land, environmental degradation, impact due to climate change, pollution etc exacerbate the disaster situation. Further, the propensity of people living in disaster prone areas is also at an increasing due to scarcity of affluent lands/locations for self-conceived comforts and easy living with comfortable proximity.

High level awareness and knowledge among the community starting from kindergarten level is important to reduce disaster risk. Improving knowledge and undertaking training in eco-friendly practices should take place from an early age from the school level, so that disaster risk mitigation can be incorporated into the lives of the community.

Introducing this book is one such effort made to achieve these objectives and I hope that, our school children will be able to gain an understanding of disaster risk assessment and basic disaster management concepts.

Sudantha Ranasinghe RWP RSP MSc ndu PSC
Major General (Retd)
Director General
Disaster Management Centre

Message of the Secretary of Education

Earthquakes, floods, hurricanes, volcanic eruptions and landslides are natural phenomena which have been present throughout the history of humanity. However, rapid population growth, environmental deterioration and pollution, increasing poverty and other factors in turn transformed these natural phenomena into disasters.

Disasters due to natural hazards cause the loss of lives of over a million of the world's population every decade. Millions become displaced and economic losses due to disasters have tripled in the last thirty years. By improving awareness on disaster risk mitigation, working continuously and collectively with people, the impact of disasters can be minimized. It plays an important role in the safety of the children who are the lifeblood of the country and ensuring their safety against disasters is of paramount importance. Considering this aspect, the Disaster Management Centre in collaboration with the Ministry of Education proposes to provide basic knowledge on disaster risk management to school children in primary grades under the Disaster Risk Reduction Inclusion Programme. I earnestly hope that this book will be of great help in order to archive the envisaged objectives.

R.M.M. Rathnayake
Additional Secretary
(School Education)

Considering the urgent need for inclusion of disaster risk mitigation in the mainstream of development for sustainable development, priority has been given to the inclusion of disaster risk mitigation in the field of education under the “Disaster Risk Reduction into the Mainstream of Development” programme. This book has been created to impart basic knowledge on disaster risk reduction to school children under 12 years of age.

The book is based on a set of tools provided by the United Nations International Strategic Organization and the United Nations Children's Fund to adapt to Sri Lanka's disasters and society. I would also like to thank Mr.A.D.M.D Bandara (Director, Co – Curricular Guidance) Mr.B.A.W.R. Pathmashantha (Assistant Director, Education, Ministry of Education), Major General (Retd) Sudantha Ranasinghe RWP RSP MSc ndu PSC (Director General Disaster Management Centre), Mr.S.R.R.P Smarakoon (Assistant Director - Disaster Management Centre), Mr.A.M.R.K Rathnayake (Assistant Director - Disaster Management Centre) and all the staff of the Mitigation, Research and Development Division for their untiring efforts in compiling and making arrangements for publishing this book.

Anoja Senevirathna
Director (Mitigation, Research and Development Division)
Disaster Management Center

Let's be aware of disaster risk

Nature is the source of life

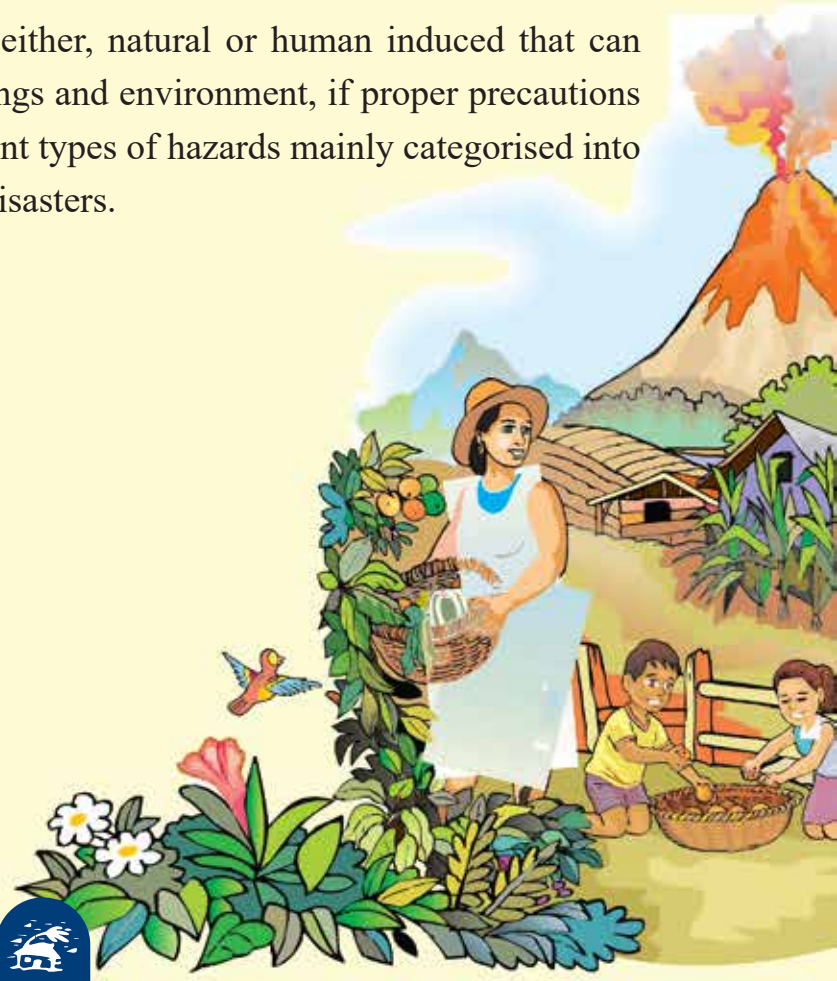
Human beings form part of the natural environment and our quality of life depends on all forms of life that share this planet. We must care for nature because our well-being depends upon it. The natural environment is in a permanent process of transformation. Which is shown in various ways for example, through regular natural physical phenomena like rain, wind, earth tremors and natural soil erosion.

Earthquakes, floods, fires, volcanic eruptions, tropical storms, tornadoes, lighting landslides, droughts, El Niño and La Niña phenomena are all part of natural disasters. In the past people had their own explanations which were passed down from generation to generation about these natural phenomena. The science, history and geology of today, enriched by ancestral wisdom helps us to understand these events better. This understanding helps us to take action, instead of simply being afraid and awaiting them to strike.

However, these phenomena still cause more damage than they should in every corner of the world, seriously affecting people in places where a culture of disaster risk prevention has not been developed.

What is a hazard?

A hazard is a phenomenon or a process either, natural or human induced that can endanger a group of people, their belongings and environment, if proper precautions are not taken in advance. There are different types of hazards mainly categorised into two main types as natural and manmade disasters.



Among various natural hazards we can identify

Earthquakes, earth tremors: Violent shaking or jolt of the earth's surface due to movements originating from deep underground which, can cause a lot of damage.

Volcanic eruptions: Explosions or emissions of lava, ashes and toxic gases emanating from deep inside the earth, expelled through volcanoes.

Landslides, mudslides: Soil, rocks and debris that move suddenly or slowly down a slope. They mainly happen during the rainy season or during times of seismic activity

Tsunamis: Gigantic wave or series of waves that smash into the shore, caused by an earthquake, volcanic eruptions or landslides under the sea.

Hurricanes: Strong winds that start over the sea, rotating in big whirling circles, and bringing rain with them. They are also known as tropical cyclones.

Insect/pest attacks: A widespread catastrophe that afflicts a whole town or a community for caused, by huge numbers of insects or animals who destroy crops.

Droughts: Caused by lack of rain covering a large geographical area for a long a period of time (months or years), and causes severe damage to soil, crops and animals, with serious impact to people.

Floods: An over flow of large amount of water, generally caused by heavy rains which the soil is unable to absorb.

Wildfires: Destructive fires in forests and other areas covered by vegetation. These fires can get out of control and easily spread over vast areas of land.

Tornadoes: Very violent gusts of whirling, funnel-shaped winds which spin along over the ground.

What is a disaster?

A hazard would get transformed to a disaster when the following three conditions occur at the same time

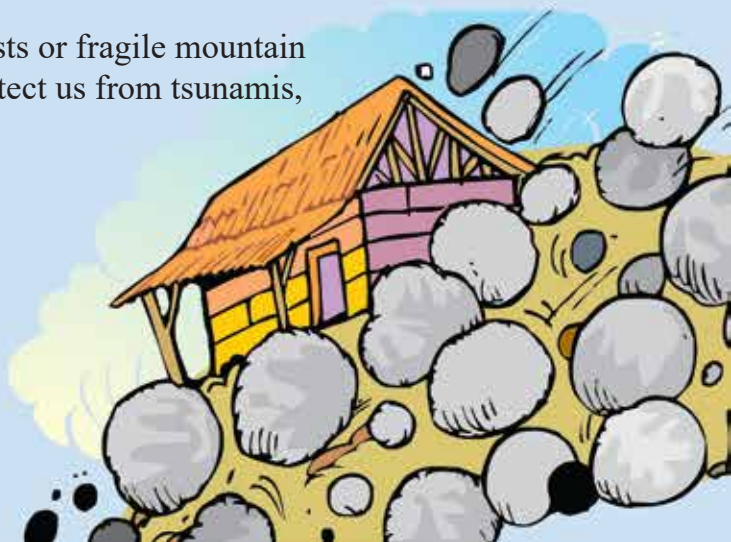
- A natural or human-induced hazardous event occurs
- People live or gather in locations prone to hazards such as close to an active volcano or on unstable slopes where landslides are likely to happen or close to rivers which could overflow causing flood.
- When the hazardous event causes a significant damage properties and loss of lives.

Are disasters caused by people or by nature?

Natural phenomena can sometimes strike very hard and cause severe damages if preventive measures to reduce the impacts have not been taken or if some human activities have harmed the natural environment or upset the balance of the ecosystem. For instance, too much water that the soil is unable to absorb can cause floods, while too little water in some regions can lead to drought. However people can make the situation worse for example when trees are chopped down and no new trees are planted. This makes the soil very dry and dusty, which can lead to erosion. Since there are not enough roots of trees and vegetation to bind the soil together landslides tend to occur during heavy rain.

Most wildfires are caused directly or indirectly by people. As for example sometimes farmers burn their fields to get rid of weeds before planting and the fire can get out of control. Sometimes people are careless with lit cigarettes or forget to put out bonfires when they go camping. A little spark is sometimes all it takes to start a fire.

If we destroy parts of nature such as coral reefs, forests or fragile mountain plants, we are destroying the natural barriers that protect us from tsunamis, drought, landslides, floods and other hazards.



What is “El Niño”?

“El Niño” is the name of a change in normal weather patterns. It is cyclical, which means it comes and goes regularly, like Christmas, although it does not happen every year and it does not always start on the same date. It is common for it to happen around Christmas, which is why it was called El Niño. “El Niño” means “the boy child”, referring to baby Jesus, although it has nothing to do with little boys or girls.

“El Niño” happens when the surface waters of the Pacific Ocean get warmer than usual, off the coasts of Peru and Ecuador. This can cause floods, drought, wildfires and other hazards in Latin America and other parts of the world. Scientists later discovered another phenomenon, which is the opposite of “El Niño” and they called it “La Niña”, which means “the girl child.”. “El Niño” warm up the water, while “La Niña” makes it colder.

How do we measure the intensity and magnitude of earthquakes, tornadoes and hurricanes?

Richter scale: The Richter scale is used for measuring the magnitude or amount of energy released by an earthquake. To date, the worst recorded earth quakes have registered 9 on this scale.
Modified Mercalli scale: The Modified Mercalli scale is used for measuring the intensity or shaking of an earthquake, in other words, the effects or damage it causes. It goes from I to XII.
Fujita scale: The Fujita scale is used to classify tornadoes: (F0, F1, F2, F3, F4 and F5).
Saffir-Simpson: The Saffir-Simpson scale is used to classify hurricanes based on wind speed. Category 1 (119-153 Km/h), Category 2 (154-177 Km/h), Category 3 (178-209 Km/h), Category 4 (210-249 Km/h) and Category 5 (250 Km/h or more).

What is Climate Change?

The average temperature of the earth is increasing. It is just like when you are ill and your body temperature increases. What is happening to earth to make the temperature increase?

People who study global warming happening across the planet say that human beings are responsible for changing the amount of greenhouse gases (GHGs). The greenhouse effect is a natural phenomenon that is necessary for life on earth and without it the temperature would be very low and there would be no life forms at all.

The earth is warmed up by solar energy that reaches the earth in the form of rays. The solar energy that reaches the atmosphere and planet earth is divided and part of it bounces back into space some is absorbed by the earth's surface and the rest scatters, making the sky look blue.

Part of the energy that is absorbed by earth goes back to outer space. The natural phenomenon responsible for keeping this energy is known as the greenhouse effect. This maintains the heat using gases known as greenhouse gases (GHGs) that work like a blanket absorbing the energy. This allows the earth to maintain an ideal temperature so that we can live. The same principle is used in a greenhouse to produce crops. The main GHG is called Carbon Dioxide (CO_2), others include Methane (CH_4), water vapour (H_2O) and Nitrous Oxide (N_2O).

If the effect of greenhouse gases is a natural phenomenon and is necessary for life then, what is the problem? Well, GHGs are in the atmosphere maintaining a balance. The problem occurs when for example, CO_2 increases and upsets this balance. This increase in CO_2 boost the greenhouse effect and the temperature of the earth increases more than normal, further upsetting the balance, which leads to global warming. Global warming then leads to another environmental problem known as climate change where average temperatures vary.

Who is responsible for the increased Carbon Dioxide (CO_2) in the atmosphere?

And who is responsible for the increased Carbon Dioxide (CO_2) in the atmosphere? It is down to us human beings. We have caused deforestation but above all we are burning fossil fuels (The formed underground from plants and animals that have decomposed millions of years ago and creates fuel) like bunker or fuel oil, diesel, coal and other products. When fossil fuels burn, they release carbon dioxide. This is precisely the fuel that human beings use in cars and aero planes, for energy production or to make factory machines work.

According to researchers, climate change causes widespread impact. Increasing temperature melt the glaciers and the heat is expected to make water levels rise. Fewer crops are expected to be produced; rains and droughts will increase in different locations, there will be more intense heat waves and water shortages. We can also expect increased levels of plagues and contagious illnesses due to the imbalance in different eco systems.

Take an active part in the change we need

- Speak to your friends, classmates and family about climate change and its negative impact.
- Ask your teacher to give you some lessons on this issue.
- Save energy, then we won't have to produce more than we need
- Reuse plastic products - they take more than 500 years to decompose
- Plant a tree, it absorbs Carbon Dioxide (CO_2)
- If you have a bicycle, use it more often. It will make you fit and healthy and you will not have to use transport that releases large amounts of Carbon Dioxide (CO_2)
- Water is a limited and vulnerable resource. Use water responsibly as some countries already have a problem with water shortages.

To learn more about erosion fill in the missing words. Clue: every word has its own colour, and spelt from left to right in the following sentences.

1.The continuous wearing away of the soil by heavy rain, wind or poor land use can cause

2. Erosion can be the result either of or

causes.

3.Heavy rains wash away the

and make the land prone to erosion.

4. is an important activity to conserve soil and prevent erosion.

Sort out by letters you find in the drawing and you will discover the name of a hazard that has destroyed the entire community due to high risk in locations.

What does vulnerability mean?

Vulnerability is the inability to resist a hazard or to respond when a disaster has occurred. For instance, people who live on plains are more vulnerable to floods than people who live higher up.

For an example, during floods, the vulnerability of people in the flood plains is much higher than the people in hilly areas. In actual fact, vulnerability depends on several factors, such as peoples' age, state of health, local environment and sanitary conditions as quality and state of local buildings in the particular area.

What type of human actions can increase our vulnerability?

There are several situations action and that can increase our vulnerability to disasters. One example is when people cut down too many trees at a faster pace than nature can replace them, which is reoffered to as deforestation. It increases the vulnerability of many communities to disasters due to heavy rain fall on unprotected soil, as it causes mudslides, landslides, floods and avalanches.

Building houses in high risk locations makes us more vulnerable. For instance, if you live too close to a river and people have been throwing garbage into it obstructing the free flow of water, you will be more vulnerable to floods.

Location is a factor for vulnerability. Families with low income often live in high risk areas around cities because they cannot afford the high cost of land and houses at safer locations Exposure to disaster is another factor for vulnerability and we need to pay attention to the duration of exposure and location of a likely disaster.

How can we reduce our vulnerability?

Reinforcing buildings: Every school should be safe. If the school was not built to withstand impact of an earthquake, the infrastructure must be reinforced to reduce the chances of collapse.

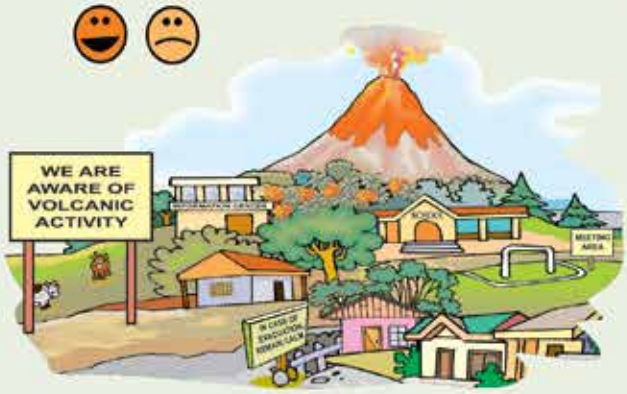
Education on disaster risk reduction: Schools that teach disaster risk reduction as part of the curriculum, will improve the awareness of children to live in harmony with nature, to avoid major risks, and to protect themselves, their families and community in the event of a disaster.

What is risk?

Risk is the probability which a hazard will turn into a disaster. Vulnerability and hazards considered taken separately does not create dangerous situations but together, could happen is more likely a risk or in other words, the probability that a disaster.
Nevertheless, risks can be reduced or managed if we are careful about how we treat the environment and are aware of our weaknesses and vulnerabilities to existing hazards, then we can take measures to make sure that hazards do not turn into disasters.

Risk management can prevent disasters as well as contribute to sustainable development. We can live a healthy and happy life in a way that does not harm the environment in the long run, preserving it for the future generations. At present, if we live in a way that harms the environment, we will surely face disasters in the future.

Indicate which situation is safe and which is not?



What is Disaster Prevention and Mitigation?

Prevention and mitigation are all those actions we can take to ensure that a disaster doesn't occur or, if it does happen, damages and losses could be minimum. We can't stop most natural phenomena happening. For example, we cannot prevent an earthquake, but we can reduce the damage caused by an earthquake by building stronger houses on stable solid ground.
What is prevention? Taking measures in order to avoid an event turning into a disaster. For example, Planting trees could prevent soil erosion and landslides. It can also prevent drought.
What is mitigation? Measures that reduce vulnerability to certain hazards. For instance, there are new building techniques that ensure our houses, schools or hospitals buildings will not be destroyed by an earthquake or a hurricane.

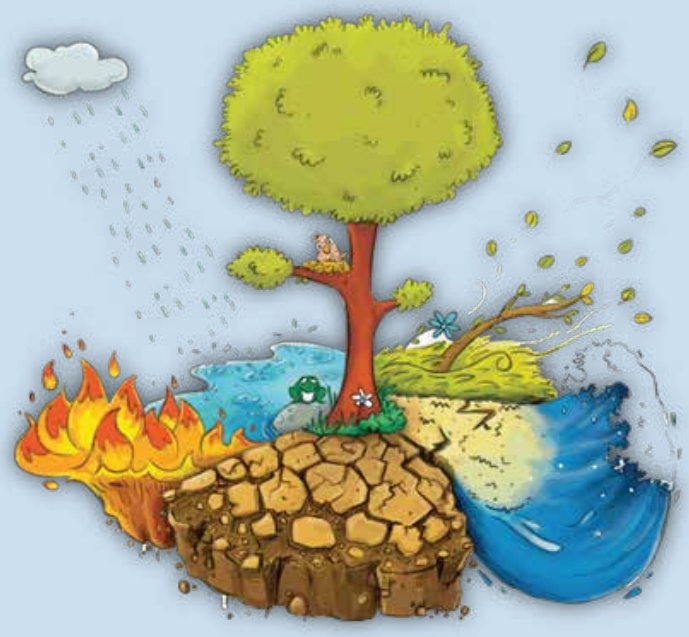
Prevention and mitigation begin with:

- Have a good understanding of the area we are living, hazards and risks we are exposed to.

- Develop preparedness plans, with the involvement of members of family and community, to minimize the impacts of hazards, reduce risk and prevent disaster damages and losses, ensure the availability of personnel with technical knowhow to assist in the process. Implement the plan developed to reduce vulnerability.

Can we prevent a disaster?

We can't stop occurring of natural phenomena., However we can minimize damages and losses if we understand better when, where and why they happen, and what we could be done to prevent or mitigate the impacts.
In some instances, people are partly responsible for converting a hazard into disasters. Therefore, we have to change our approach and follow technically sound practices, in order to prevent or reduce the impact of natural hazards.
Every community member shall be aware of the limits of using natural resources. Every community must get to know its own environment and its special characteristics: the natural environment as well as environment built by human beings. This is the only way for a community to prevent hazards prevalent in the area and to reduce the vulnerability of the community to these hazards.



Don't be scared, be prepared!

Learn about the history of the place where you live. Ask your parents, grandparents and friends if they have ever experienced a disaster. What made it happen? What did people do that they shouldn't have trigger a disaster? What did they do to make things better?
Share and join in. Newspapers, radio and television can help you to learn more about disasters and disaster prevention. School activities can be useful too. Making drawings about what you have learned can help you to understand disasters and disaster prevention better and to explain them to other people. Talk to your family, friends and people you know about the way risks can be reduced in your community.
Get ready. Get together with your family to identify places. Convince your parents that your family should have an Emergency Plan. Assemble an Emergency Kit with them.

Did you know that…?

For indigenous communities, nature is sacred because they believe that various types of gods and spirits are living in the natural environment and they have to worship them.
Indigenous peoples believed in the sacredness of nature, woods and lakes and therefore prevent people destroying the forests and building houses in destroying environment. Today, we call this concept land use management.
Land-use management is a concept describing suitability of land for undertaking various activities in the country.

Raise awareness in your community!

You too have an active and important role to play in making your community aware of the need for disaster prevention. Here are some examples of what could be done to reduce the impact of disasters in your community. Discuss these examples in class with your teacher:

Spot dangerous places…

Do you know any high-risk locations in your community that are dangerous to live in? Draw a risk map with your classmates, getting the assistance of your teacher. Discuss possible solutions for reducing the risks. (What is a risk map and how to draw it is given in another page)

Organize prevention campaigns…

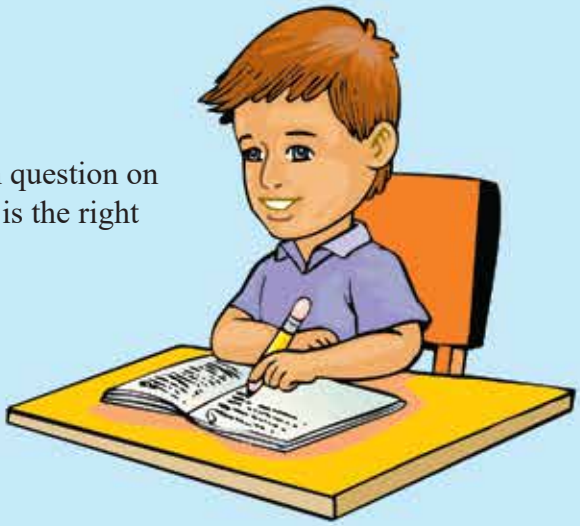
What happens if we dispose garbage in the wrong place, such as into a river? The river will be polluted, animals and plants may die, and you might even trigger a flood! Maybe you and your classmates, together with your teacher, could organize a campaign to clean up the rivers in your community.

Encourage people to protect nature…

As we saw earlier, cutting down trees makes our communities more vulnerable to floods and landslides. You can promote planting trees and other plants in your school or in your community. By doing so, you could protect nature and help prevent landslides, soil erosion, and other negative consequences.

Learn By matching!

Choose the picture on the right that comes closest to answering each question on the left. Draw a line from the question to the drawing that you think is the right answer..



A volcano is erupting! Which is the most vulnerable population, the one most likely to be affected?

Point one of the human actions that can cause landslides.

Medhavi has noticed that the level of the river is rising rapidly. What should the authorities do?

What would be a good prevention program that these kids could carry out to get to know more about the hazards in them community

Uh oh, a tremor! Where is the least risky place for Haren to go until it stops shaking?

To find the vertical word in the coloured squares, fill in the right words in the circles

Violent shaking of the earth's crust due to movement in deep underground and which could cause a lot of damage

Lava, ash, and toxic gases from the depths of the earth's crust rise to the surface.

Slowly or rapidly sliding soil and pieces of rocks down the slope, this commonly occur during the rainy season or earthquake

A series of gigantic waves caused by an earthquake, volcanic eruptions or landslides under the sea.

A Strong wind starting over the sea, rotating in big whirling circles, followed by Heavy rains. They are also known as tropical cyclones.

Sometimes insects or animals in vast swarms migrate into villages or large geographical areas cause extensive damages to vegetation and crops.

The lack of adequate precipitation for long period(months or years), could cause depletion of soil moisture, damages and losses to crop, animals and unrest among people.

This happen when large quantities of water is buildup in the underground soil layer, generally caused by heavy rains disturbing the equilibrium of the soil layer.

Very violent gusts of whirling, funnel-shaped winds that spin along and over the ground.

Destructive wild fire originate in forests and jungles covered with vegetation. Such fires can get out of control and spread very easily over vast areas.

Risk Maps of the area:

Be aware and Be prepare!!
How can you reduce the vulnerability of your family, your friends and your belongings before a disaster happens? You can help your community to take precautionary actions before disaster happen by making them understand the risk of a disaster. The best ways to do this is to prepare and demonstrate a hazard and risk map of your community in a central location.
A risk map is a big drawing or model of your community, showing all the important buildings such as schools and hospitals, farm land, roads, and any other elements that could be affected in the event of a disaster. You could draw map or make the model with your schoolmates and friends, with the help of your teacher. Risk map should depict potentially hazardous location prone to floods, or very dry grasslands that could catch fire and areas prone to landslide. It should also show all the resources available in the area, such as the fire station, or a health care center or schools, religious places which could strengthen the and preparedness and safety of the community. In order to show all these things on the map you could use symbols. You could even invent your own symbols, as long as other people could understand them.

What is the objective of preparing Risk Maps?

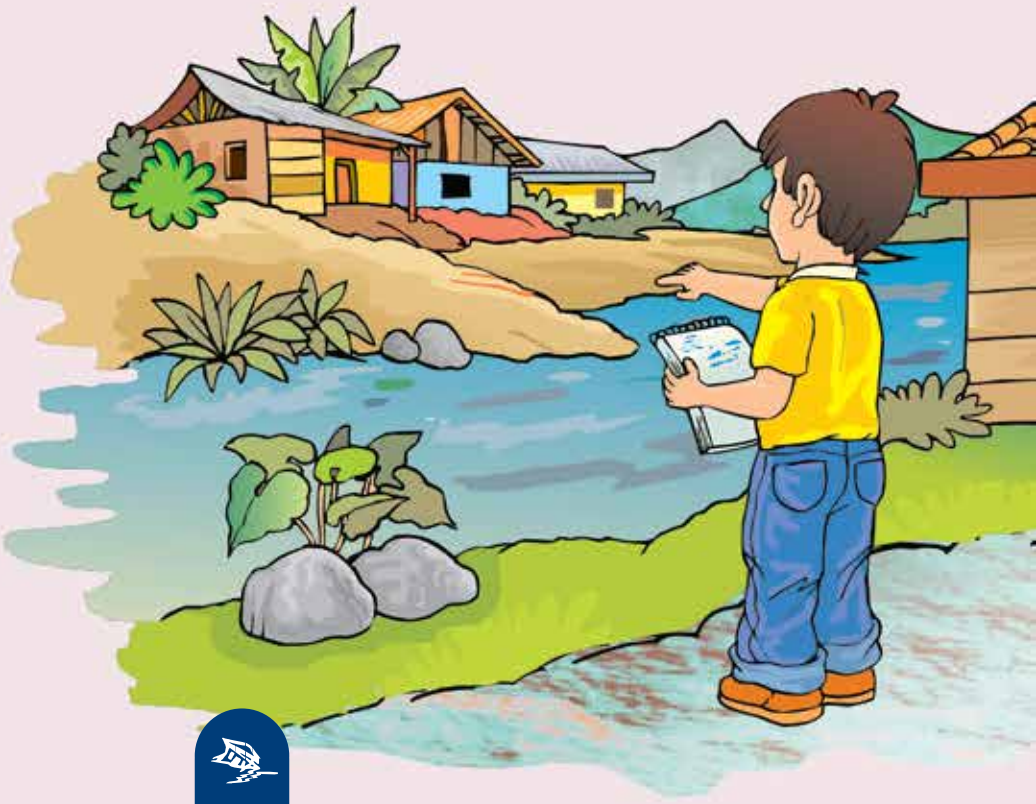
Risk maps help you to understand the hazards and risks in your community and encourage everyone in the community to take action to prevent a possible disaster or reduce its impacts if it happens. For example, map shows schools or other important buildings that are in high-risk area for landslides. It also helps you be better prepared for a potential emergency. For example, map shows you where the safest buildings are, or which are the best routes to follow if you are ordered to evacuate the area. This way, you and your community will know what to do in case of an emergency.

Get going! Draw a Risk Map of your community!

With the help of your teacher, find out the meaning of these words: disaster, risk, and vulnerability. (you can find these words in the Glossary. Meaning of these words are also given in text you have read so far.) Search in books old papers, or ask elders in your community, what important disasters have occurred in the past. Identify places that were affected by floods, earthquakes, storms, landslides or volcanic eruptions. These are some of the questions you could ask:

- What disasters have taken place in this area? When it was and what happened at that time? What did people did at that time?
- What should be done to prevent a disaster happening in the future? Identify people in the community and institutions who could help in the events of a disaster.

Draw in the map the most important buildings: schools, town hall, hospitals, fire station, police station and houses. Also draw high risk buildings and infrastructure such as factories, dams, or electricity generating plants as well as buildings that are not properly maintained and in a state of disrepair. Draw a different symbol for each kind of building. Identify all the roads, rivers, electricity lines, water supply and sewage systems and waste dumps. Use a different color to show each of these items.
Show how badly the buildings could be affected (Minor impacts, partially damages and totally destroyed) and use a different symbols or colors depending on the level of risk and the type of risk, for instance flood areas or landslide areas. Identify demarcate in the map those people who need the most help in the event of a disaster (schools, homes for the elderly, hospitals and nursery schools).
Discuss different strategies for reducing the risks and preventing disasters in your community. Share with your classmates and teacher what the people in the neighborhoods you have visited have told you. What measures the community could take to ensure safety of people.? Identify those in the community who could assist in search and rescue and relief operations. Ask your teacher to invite different members of your community to your school, such as the mayor, fire fighters, police officers, a leader from the local emergency committee, journalists, doctors, meteorologists and social workers. Talk with them about what you have seen and share with them your ideas about what could be done to prevent a disaster happening in the future.



Get Going! Get emergency kit ready!

Every family should have an emergency kit in their home. If there is an earthquake or a hurricane, for instance, there could be a power cut, or the water could get polluted. You might be stuck at your home for several days or transfer to a safe center because of a storm or a flood. Having an emergency kit ready could help if anything like this happens. Your family will probably never need it, but it's best to be prepared. With the help of your parents, get your emergency kit ready in a single plastic bag, so that you can find it easily in the case of a disaster. Your emergency kit includes the following supplies:

1. A First-Aid Kit

The first-aid kit should contain, among other things, surgical sprit, cotton wool, bandages, gauze, painkillers, sterilized water and burn ointment. You could seek advice from the Medial Officer of Health in the area about additional items to be included.

2. Food and Drink

It is advisable to keep non-perishable food supplies. In other words, food that won't spoil out of the fridge, such as canned food. There should be enough food for three days. It is better if the food does not have to be cooked. Don't forget the can opener! And don't forget water and some chlorine tablets to purify it.

3. Clothes

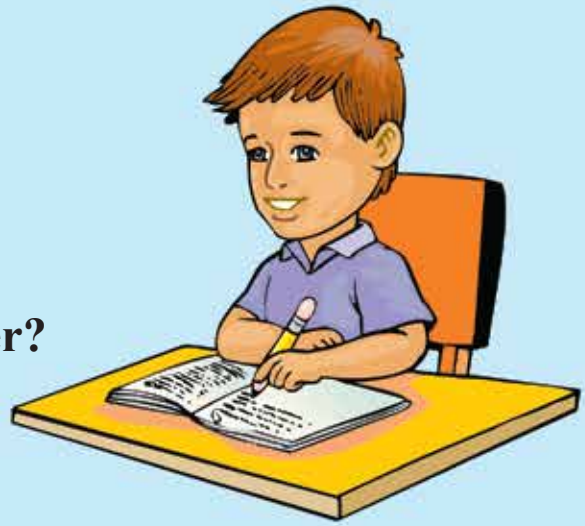
It's a good idea for each family member to have a spare change of clothes, including waterproof boots and a raincoat, as well as some warm blankets in case you have to sleep outdoors, just as if you were camping!

Other things you can put in the kit

Flashlight and spare batteries (because there may be a power cut), paper and pencils, portable radio, soap etc;

Don't forget these things need to be checked regularly to be sure that they work well. Check the expiry date on any canned food.

You can also put in a backpack some of the things that are important to you, such as a toys, pens and paper, or some other thing that you care about.



How does it feel like when there's a disaster? Remember that:

- Things soon get back to normal after most disasters.
- Disasters are not a punishment of God.
- You can find something to do to pass the time and have some fun even if you don't go back home for a while. You'll be in a new place and can make new friends.
- Ask grown-ups for help if you are feeling confused or afraid. They will help you understand what is going on. Don't be afraid to ask any questions such as “How long are we going to be in this shelter?” or “When will I go back to school?”
- It is possible that after a disaster you might have to live in a temporary shelter for a while. To present diseases and accidents within the shelter you should remember to keep the place clean and tidy, wash your hands often, use the latrines, bury the garbage to stop flies, mosquitoes and rodents from breeding, and avoid dangerous areas.
- Sometimes it helps to write or draw about what happened. You can describe what happened and how you feel, so that you can remember it all better when it's all over and you want to tell how brave you were.
- It is fine to cry about what happened, if ever you feel like it. But remember that everything is going to get better.
- There are many things children too could do in a safe center to help elders... Girls and boys of all age can help by taking care of other children and playing with them. After a hurricane or an earthquake, even at home you could help by arranging things, removing debris and cleaning the house.

Express yourself creatively!

You can write poems or songs, or make drawings, to show what you think or feel about disasters. You can share the messages in them with your friends in the community, to help make them understand the disaster risk. Try to write a song or a poem about surrounding environment.

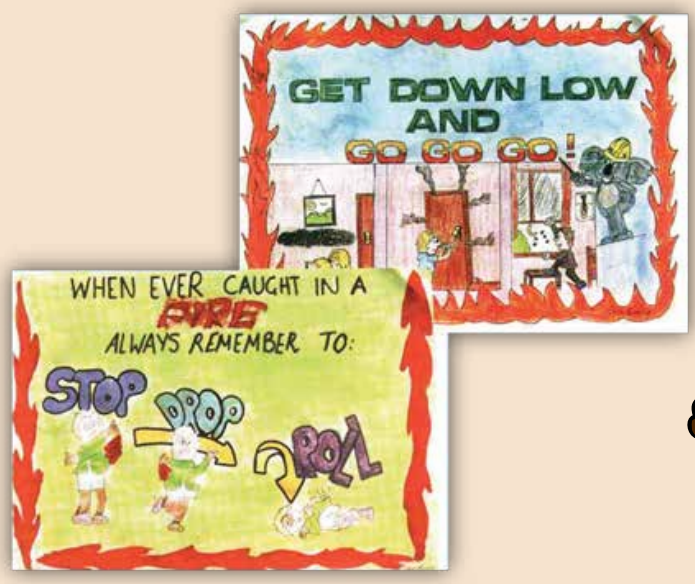
Children around the world express themselves through art

Some ways in which you can talk about disasters

1. Draw a story that describes a disaster. How did the disaster happen? What did the people do? What would you have done? Show it to your class mates.
2. Make a mural one big drawing with the assistance of your friends. Talk about what to draw beforehand. Then make sure you hang it in a place where lots of people could see it!
3. Make a picture book together with your classmates about a recent disaster. Make it show what people did before, during, and after the disaster.

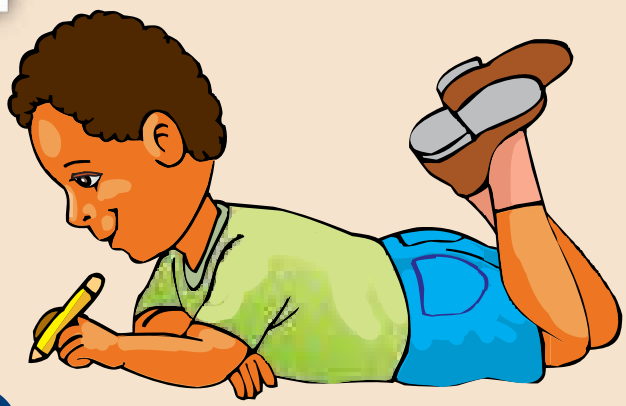
Draw how to reduce the risk of disasters in your community.

Draw disasters you are facing. Express your thoughts and feelings through drawing. You can take part in the drawing contest as well.



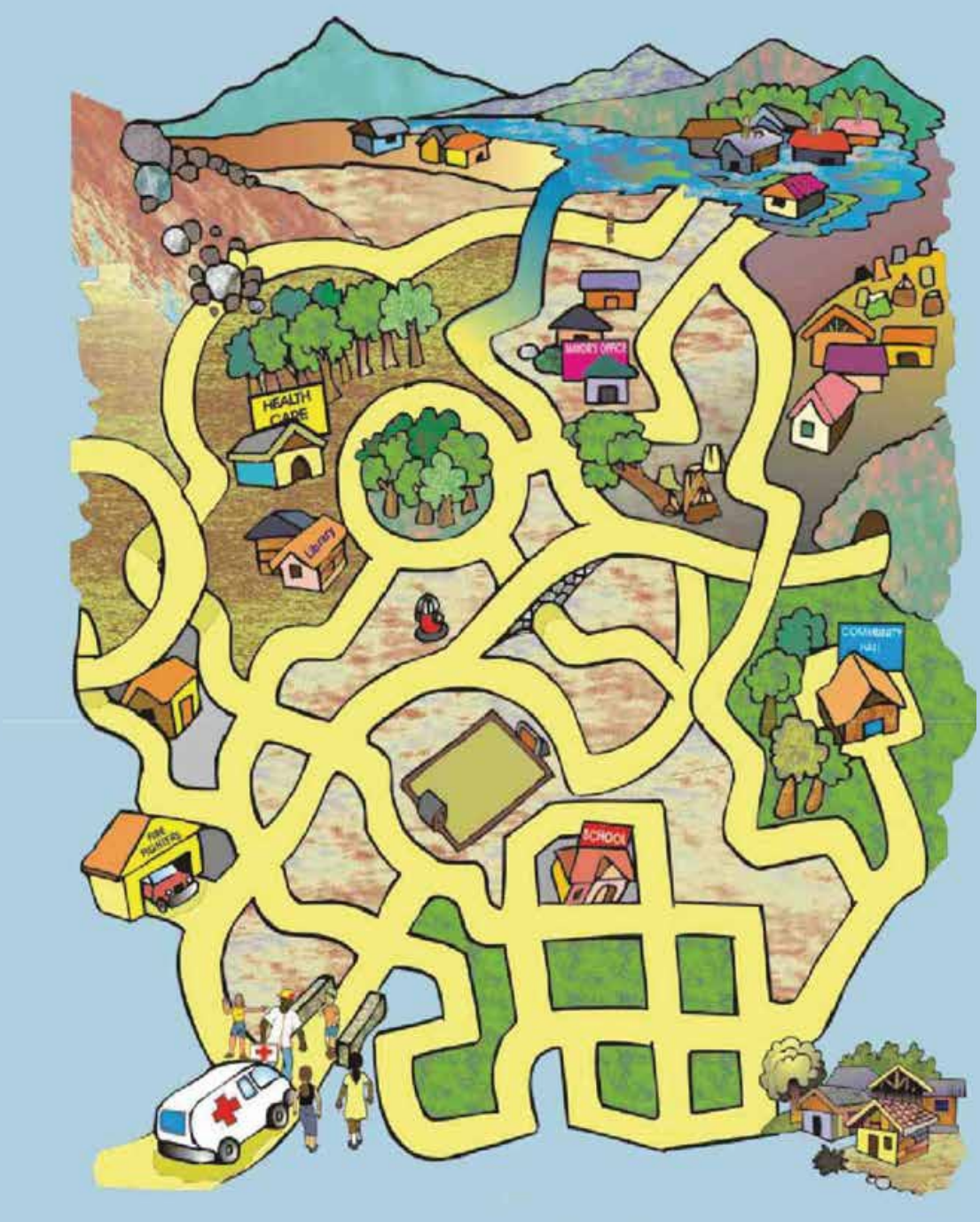
Get Going!

Now draw a picture of what you could do to make you and your community less vulnerable to hazards



Find the right route

1. Help the rescue team to find the right route to assist the population affected by the flood.



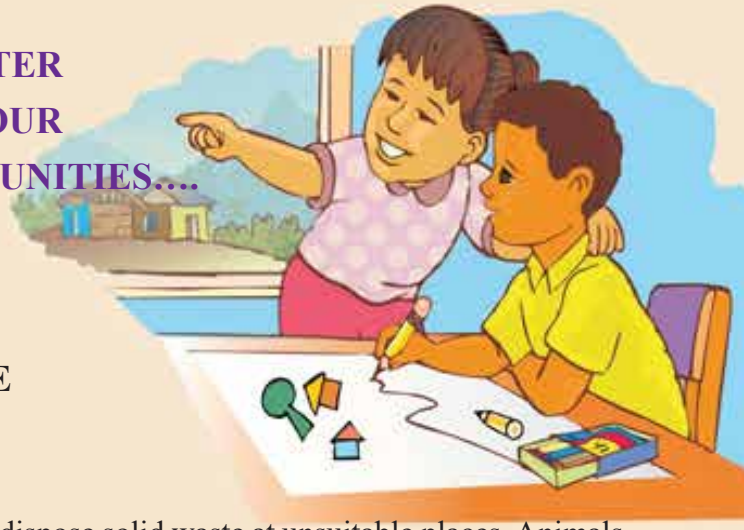
Find at least six institutions that could help before, during and after an emergency. Write or down what each institution could do.

1 ..... 4 .....

2 ..... 5 .....

3 ..... 6 .....

WHAT YOU CAN DO TO REDUCE DISASTER T RISKS AND PREVENT DISASTER IN YOUR SCHOOL PREMISES AND LOCAL COMMUNITIES....



ORGANIZE PROGRAMS TO DEVELOP, CONSERVE AND PROTECT THE NATURE

The rivers, seas and oceans become much polluted if we dispose solid waste at unsuitable places. Animals and plants, both on the land and in the water could die due to pollution. In cities, synthetic papers used to wrap sweets, or plastic bottles thrown on the ground could end up in drains blocking the drainage systems. The increasing volume of solid waste could be one of the reasons for flooding streets and pathways. You could organize a Sramadana campaign together with your school friends, teachers, family members, the Local Government Authority and community leaders to keep your local drains, canals and rivers clean.

This would be a good project for risk prevention and disaster reduction. If you have facilities to take photographs it could be handy, to show everyone working together and the amount of rubbish you have collected.

Request your parents and adults to assist you in organizing an exhibition using the photograph taken by you. . This could be held in your school, town hall, local council buildings or the public library. You could use these photographs to make everyone aware of the amount of solid waste you collected from the drains, canals and river. It would also show that it is everybody's responsibility - big and small – to keep the river clean. Keeping rivers clean could prevent floods and reduce environmental degradation.

PROMOTE CONSERVATION OF NATURE

An increase in the number of trees being cut down specially in the hill country, could intensify soil erosion and landslides during heavy rain. Work with local authorities in area your school is located and community members to organize a tree planting project. Make sure that the selected tree species are native to your country or region. This way, you will help protect environment, conserve nature and avoid landslides and soil erosion.

BE PART OF THE CHANGE AND GET OTHERS INVOLVED TOO

Encourage your family, friends and classmates to use resources sensibly. Help them to save energy, use water sensibly and to reduce the amount of waste they dispose.

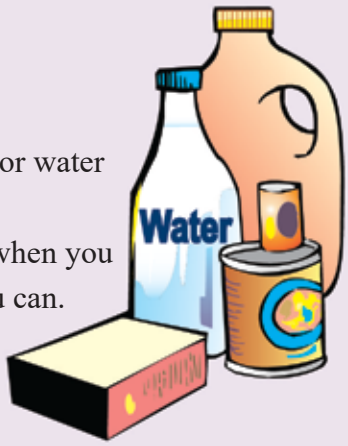
If you show them how to save energy, your family will follow you:

- Turn off lights when they're not being used.
- Turn off the television if no one is watching.
- Sunlight is healthy and free. Be organized and do your homework mostly in the daylight.

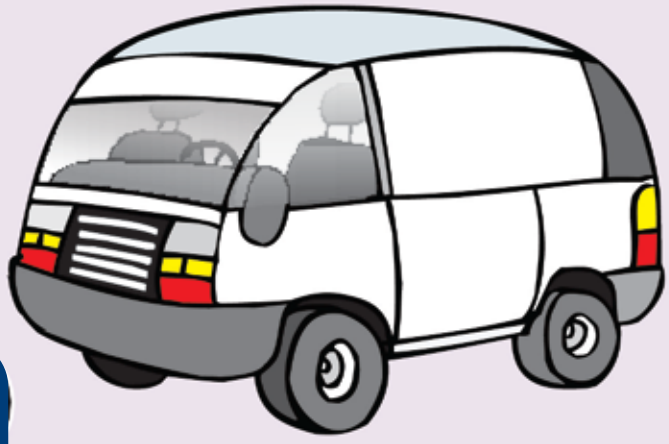
Reduce the amount of waste disposed.

- Reuse packaging (plastic or glass).
- Avoid buying products with a lot of packaging - they produce more waste
- Reuse paper whenever you can.

Save Water



- If you see a dripping tap, turn it off immediately.
- If you see a leak in your town supply system, reported it to the local council or water supply authority.
- When you brush your teeth, turn off the tap in the wash basin.; do the same when you wash yourself and your hair in the shower. Take the shower as quickly as you can.



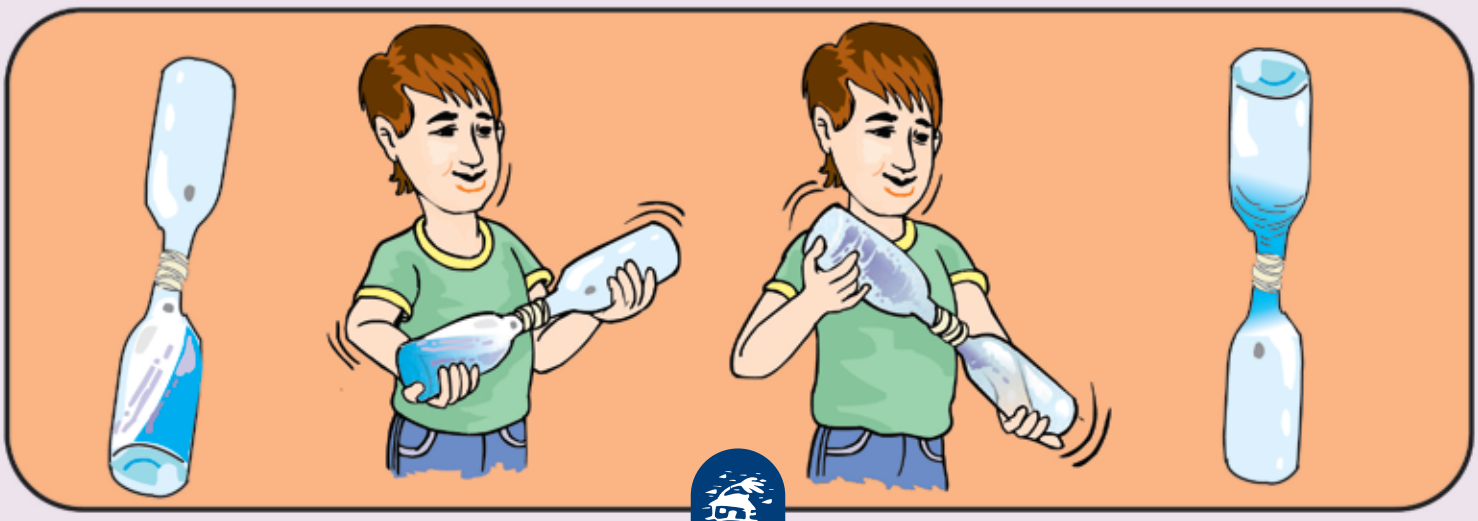
EXPERIMENT: MAKE YOUR OWN VORTEX (WHIRLWIND)

You will need:

- Two plastic bottles which are the same size - the bigger the better.
- Sticky tape
- Optional: Food colorings, paint or ink to colour the water to make it more attractive

Instructions:

- Take one of the bottles and fill it with water at least halfway up. Add the colour to water to observe rotating liquid clearly. Attach the opening of the two bottles together with the tape. Wrap enough tape around the openings of bottles to ensure the bottles are securely attached as the water has t flow from one bottle into the other. Check for leaks so that no water can escape.
- When the bottles are firmly fixed together begin to turn water around with a rolling motion to make it spin. When the water is rotating fast, place the empty bottle on the flat surface for example, a table or on a stool.
- Now watch as gravity pulls water down into the other bottle. The movement of the water as it passes from one bottle to the other is similar to the vortex of a hurricane or tornado, although the , material in the hurricane is not water, but air, saturated with water vapor.



DISASTER REDUCTION BEGINS AT SCHOOL.

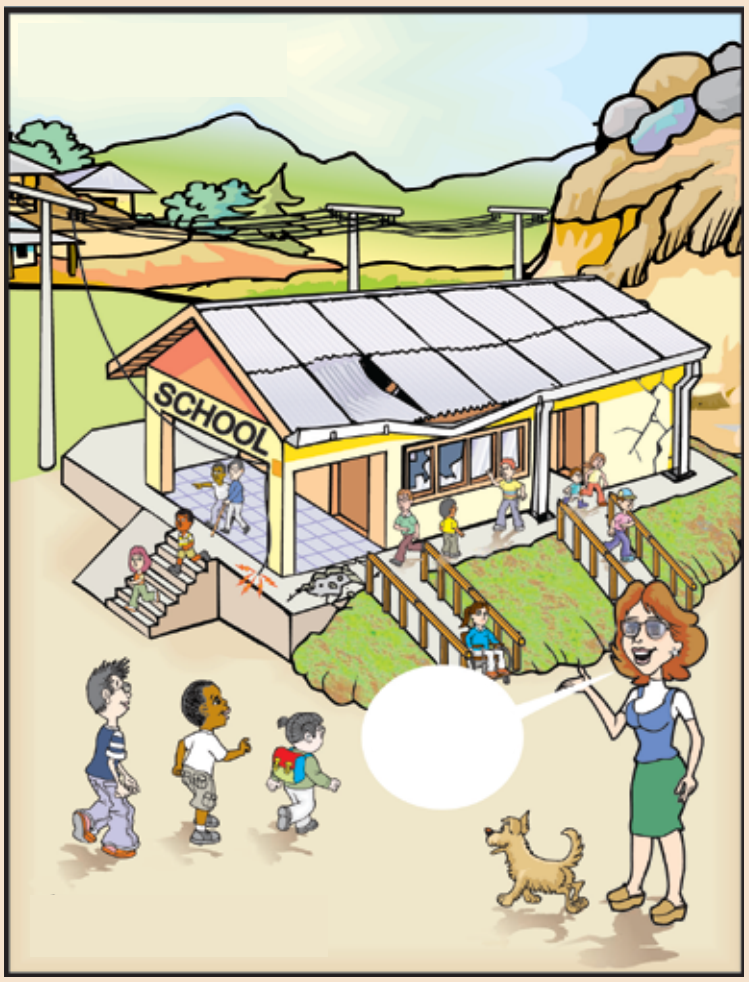
Building safe schools

A safe school is built in a safe place using good quality materials and built conforming safety standards and building codes. That way specific features of the local area and the requirements of those occupying building could be included.

IF DISASTER RISK REDUCTION IS TO BEGIN AT SCHOOL;

- Education centers must be resistant to earthquakes, hurricanes and storms in order to protect children, teachers and supporting staff involved in proving education.
- For example, schools use as safe shelter to accommodate people displaced during a disaster could be shown to emphasis the importance of safe buildings Local Government Authorities and people with the knowledge on safety standard and regulation are important requirements to construct houses, offices, factories, health centers and shops that are as safe as the school buildings.
- A well-maintained safe school will protect its students from disasters and allow education to continue even after a disaster.
- Over time deterioration of buildings cannot be avoided. Infrastructure facilities of the school used daily also fail regularly: The electrical equipment report frequent failures, roofs develop leaks and windows may get damages. Similarly, a small earth tremor could cause slight damage, cracking walls and floors or a strong wind can even lift some parts of the roof.
- Maintaining the school building is as important as building it in a safe place to start with. If we allow the infrastructure of our school to deteriorate, it will soon be an unsafe school building for the whole educational community.

Identify eight Problems of the Following school



01.....

02.....

03.....

04.....

05.....

06.....

07.....

08.....

School Safety Plan

Safety Plans for school, family and community are a good starting point for risk reduction and disaster prevention.

What sort of a plan would that be?

Listing out things to be done whenever we plan to organize a day out will provide a good understanding on the planning process. Once we have decided where to go, we make a list of what we are going to eat and what activities we want to do. Then, we share out the tasks and responsibilities depending on capability of each person. Kumudu is given the responsibility of bringing bread, because the bread shop is just near her house. Ayesha will bring the cheese and lettuce. Prasanna got a fruit shop and therefore he can bring the drinks and fruit. Rest of us will bring other things required for the picnic and games, so we can have fun in the fresh air. Not forgetting that we are planning to travel by bus.

When we want to reduce risks and prevent disasters, we also need to be organized and prepare a plan. This will identify the risks we face, the resources and capacities we could rely on. The plan also could allocate responsibilities to those resource personnel identified earlier to implement it.

How to draw up a School safety plan?

1.Getting organized

Disaster reduction requires the unity, participation and corporation of everybody in the community: the carpenter, the teacher, the mayor, students, engineers, naturalists, the students, engineers, environmentalists and children. Everybody has the right to participate in decisions making process that will improve their living conditions while caring for the environment and reducing disasters.

Children have the right to express an opinion. When adults make a decision that affects them, their opinion shall be taken into account.

2.Identifying hazard, vulnerability and risk

01. Before you take action, you must be having a clear understanding of what you suppose to do.

- Firstly, you have to know whether the hazard is natural or man-made;
- You must identify how and when you will be vulnerable to these hazards
- In assessing your vulnerability, you must also identify the capacities and resources available to help you deal with the possible hazard.

02. Defining actions for risk prevention

•Once you have identified the hazards, vulnerabilities and capacities, it is time to decide what disaster prevention actions you will take. Prevention means anything you do to avoid risks and, if the disaster risk already exists, what you will do to manage the disaster risk to minimize the damage it could cause.

03. Defining preparedness and response actions

- A disaster cannot always be prevented, but you could reduce the impact. Depending on where you live, your family and the community could be exposed to man-made or natural hazard. Preparedness means any action you take to deal with the disaster, thus reducing disaster damages and losses. Your own family and school are the best starting point for preparedness planning to deal with any disaster, as you form part of a larger community. Children's participation and opinions are very important in implementing preparedness plans.

04. Putting the plan into practice

- Don't forget, you have to practice the plan and simulate proposed actions. This step allows you, your school, community and family to know whether what you have planned achieve the desired results and where improvements need to be made in the plan, so that people can really be safe in the event of a disaster.

05. Keeping the plan up to date

- The plan must be revisited and updated at least once a year.

GLOSSARY

Aftershock: Tremors following an earthquake or larger earth tremor.

Disaster: A disaster is the outcome of the impact of a hazard on the community. The effects of the disaster depend on the degree of vulnerability of a community to a certain hazard, or their capacity to cope with it.

Disaster: A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

Disaster Prevention: The actions taken to prevent a situation from becoming a disaster.

Drought: A period of time (months-years), during which an area of the Earth suffers from a lack of rain, causing serious damage to the soil, crops, animals and even people, sometimes causing death.

Earthquake: Strong movements from within the Earth's crust. These come from inside the Earth and can cause serious damage.

El Nino, La Nina: A climatic phenomenon which occurs every few years. It starts when the surface waters of the equatorial Pacific become hotter (El Niño) or colder (La Nina) than normal along the coast of Peru and Ecuador. This can cause floods, droughts, forest fires and other extreme phenomena in various parts of the world.

Emergency Supplies: Resources prepared by each family that they can carry with them quickly in the event of an emergency. These should include non-perishable food, drinking water, clothes, a torch and batteries, a portable radio, and a first aid box.

Erosion: The continual wearing away of the soil by heavy rain, wind and poor land use.

Fire: A chemical reaction which combines three elements: oxygen, heat, and a flammable substance.

Flood: The building up of large quantities of water, generally caused by heavy rains which the soil is unable to absorb.

Hazard: A phenomenon caused by natural or human forces which endangers a group of people, their belongings and their environment, when they have not taken precautions. For instance, if you live near a volcano, the eruptions are a hazard even though they may not occur for many years.

Hurricane: Strong winds that start over the sea, rotating in big whirling circles, bringing rain with them. They are also known as tropical cyclones and typhoons. Between 80 and 100 occur every year in the region of the Equator. The Atlantic hurricane season starts on June 1 and ends on November 30. In the Northeastern Pacific, it begins on May 15 and ends on November 30.

Landslides, mudslides: Soil, rocks and vegetal debris that are transported suddenly or slowly down a slope because the soil is not sufficiently stable. Landslides may happen when there is a lot of rain, or during earthquakes or volcanic eruptions. The risk is greater when people build their homes in the wrong place, or cut down tries so that there is nothing left to bind the soil when it rains heavily.

Mitigation: The lessening or minimizing of the adverse impacts of a hazardous event.

Plague: A widespread catastrophe that afflicts a whole town or a community caused by, for instance, huge numbers of insects or animals that destroy crops.

Risk: The probability of a hazard (earthquake, hurricane, etc) turning into a disaster, with serious economic, social and environmental consequences.

Risk Management: Ability developed by a community to handle hazards properly so that they do not necessarily become disasters.

Risk Map: A drawing or model that shows the key elements of a community, such as schools, hospitals, town hall, and other important buildings, as well as farm land and parks. It also shows potentially dangerous places or areas such as rivers and other sources of floods, landslides, dangerous volcanoes, etc. The map also indicates the degree to which those elements exposed to these hazards could be affected (for example, a little, a lot, totally destroyed).

Sustainable Development: A form of development that allows current needs to be met without endangering future generations. In other words, that does not turn nature into a hazard for human beings, nor human beings into a threat to nature.

Seismic activity: Vibrations in the earth's crust, which may sometimes result in phenomena such as earth tremors, earthquakes or tsunamis.

Tornado: Very violent gusts of whirling, funnel-shaped winds which spin along over the ground.

Tsunami: Gigantic wave, or series of waves, caused by an earthquake, volcanic eruptions or landslides under the sea.

Volcanic eruptions: Explosions or emissions of lava, ashes and toxic gases from deep inside the earth, through volcanoes.

Vulnerability: The inability of people and communities to withstand a hazardous phenomenon, or the inability to respond after a disaster has occurred.

Wildfire: Uncontrolled fire which destroys forest, jungle and vegetation as well as animal species. Such fires can get out of control and spread very easily over vast areas. Depending on the type of vegetation or material that is being burnt, they are called forest fires, bush fires, grass fires or peat fires.

Inform the

Emergency Response Unit

of the

Disaster Management Center immediately

in the event of a disaster

117

Disaster Management Centre
3rd, 4th Floor, 120/2 Vidya Mawatha,
Colombo 07.