Kids and Youth

Games and projects for you and your friends

Hi! welcome to this page made specialy for you. Here you will find a lot information about disaster prevention.

Get enjoy, learning

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Let's Learn About Disasters!

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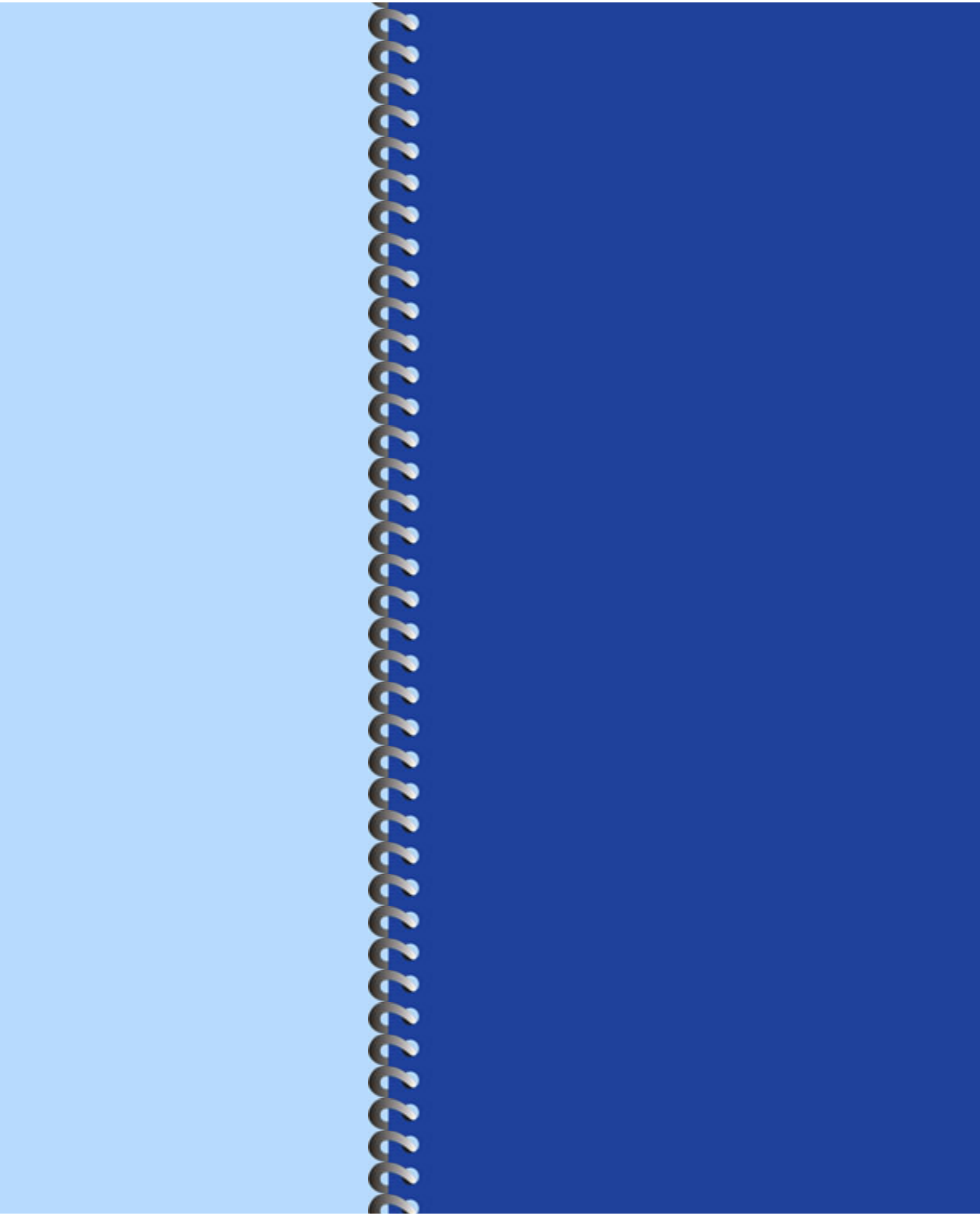
Nature is the source of life

We human beings are a part of nature, and our quality of life depends on all the living things that share this planet with us. We must take care of nature, because our well-being depends on it. Nature is always moving and changing. This happens in different ways, for instance through natural phenomena that occur quite regularly, such as rain, winds, earth tremors or the natural processes of soil erosion.

Earthquakes, floods, fires, volcanic eruptions, tropical storms, tornadoes, electric storms, landslides, droughts, plagues and other phenomena such as "El Niño" and "La Niña" are a part of nature, just like the sun and the rain. These natural phenomena affect almost the entire Earth. In olden times, people used to come with legends to explain these phenomena. They would say the volcano was angry, or that the gods were demanding a sacrifice.

Today, science, technology and history help us to understand these events instead of merely fearing them. However, such phenomena still turn into disasters, affecting lots of people in every corner of our planet where a culture of prevention has not yet taken root.



What is a hazard?

A hazard is a phenomenon or a process, either natural or human-made, that can endanger a group of people, their belongings and their environment, if they do not take precautions.

There are different types of hazards. Some are natural while others are caused by human beings, such as so-called industrial or technological hazards (explosions, fires, toxic chemical spillages). Wars and terrorism are also hazards caused by human beings

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 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.

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

Droughts: A period of time (months or years) during which a part of the land suffers from lack of rain, causing severe damage to the soil, crops, animals, and even people, sometimes causing death.

Floods: The building up of large quantities 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 disaster takes place when the following three conditions occur at the same time:

- When people live in hazardous places like, for example, close to an active volcano, on unstable slopes where landslides are likely to happen, or close to rivers which could flood.
- When a hazardous phenomenon occurs, be it natural or human-made.
- When the phenomenon also causes a lot of damage, especially where no preventive measures have been taken.

Are disasters caused by people or by nature?

Natural phenomena can sometimes strike very hard and cause disasters if preventive measures 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. But people can make the situation worse, for example when trees are chopped down and no new ones are planted. This makes the soil very dry and dusty, which can lead to erosion. When the rains come, there are not enough roots and vegetation to bind the soil together, and a landslide can occur.

Most wildfires are caused directly or indirectly by people. Farmers, for example, sometimes burn their fields to get rid of weeds before planting, and the fire can get out of control. Sometimes people are careless with 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 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.

In actual fact, vulnerability depends on several factors, such as people's age and state of health, local environmental and sanitary conditions, as well as on the quality and state of local buildings and their location with respect to any hazards.

- Families with low incomes often live in high-risk areas around cities, because they can't afford to live in safer (and more expensive) places. This is what we call economic vulnerability.
- Similarly, a wooden house is sometimes less likely to collapse in an earthquake, but it may be more vulnerable in the event of a fire or a hurricane. This is what we call physical vulnerability.

What human actions can increase our vulnerability?

There are several situations 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. This is what we call deforestation. It increases the vulnerability of many communities to rain which, when they fall on unprotected soil, cause mudslides, landslides, floods and avalanches.

Building homes in high-risk places makes us more vulnerable. For instance, if you live too close
to a river and people have been throwing garbage into it so that the water cannot flow on through,
you will be more vulnerable to floods.

A well-informed and well-organized community, that meets to talk about what they are going to do about the natural hazards, is less vulnerable than a community that is unaware of them.

What is Risk?

Risk is the probability that a hazard will turn into a disaster. Vulnerability and hazards are not dangerous, taken separately. But if they come together, they become a risk or, in other words, the probability that a disaster will happen.

Nevertheless, risks can be reduced or managed. If we are careful about how we treat the environment, and if we 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 doesn't just help us prevent disasters. It also helps us to put into practice what is known as sustainable development. Development is sustainable when people can make a good living and be healthy and happy without damaging the environment or other people in the long term. For instance, you can make a living for a while by chopping down trees and selling the wood, but if you don't plant more trees than you cut down, soon there will be no trees and will no longer have the means to make a living. So, it isn't sustainable.

What is Disaster Prevention and Mitigation?

Prevention and mitigation are all those actions we can take to make sure that a disaster doesn't happen or, if it does happen, that it doesn't cause as much harm as it could. W can't stop most natural phenomena happening but we can reduce the damage caused by an earthquake if we build stronger houses and on solid ground.

What is prevention? Taking measures in order to avoid an event turning into a disaster. Planting trees, for example, prevents erosion and landslides. It can also prevent drought.

What is mitigation? Measures that reduce vulnerability to certain hazards. For instance, there are building techniques that ensure that our houses, schools or hospitals will not be knocked down by an earthquake or a hurricane.

Prevention and mitigation begin with:

- Knowing which hazards and risks we are exposed to in our community.
- Getting together with our family and our neighbours and making plans to reduce those hazards and risks and to avoid them harming us.
- Actually doing what we planned to do in order to reduce our vulnerability.
- Taking action, not just talking.

KINDS OF HAZARDS

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Hurricanes

What is a hurricane?

It is a violent storm that develops over tropical waters. It is characterized by a significant low-pressure "eye" or center, surrounded by an organized system of storm clouds that form a spiral which, in the case of the Northern Hemisphere, rotates in a counter-clockwise motion. A hurricane is also distinguished by sustained winds of at least 120 km per hour or higher, as well as by large amounts of rainfall and strong tides.

How do hurricanes develop?

A key element that contributes to the formation and development of this natural phenomenon is the sea surface temperature, which must be higher than 27 degrees Celsius.

Where does the word "hurricane" come from?

It comes from the name used by the Mayans to refer to Storm God, but also to evil spirits.

What other names are used in other places to refer to hurricanes?

- Cyclone in India
- Baguio in the Philippines
- Typhoon in the west area of the Northwestern Pacific
- Willy-Willy in Australia

- Taino in Haiti

In which regions do hurricanes occur?

- North Atlantic Region: the Caribbean Sea, Gulf of Mexico and Western Atlantic.
- North Pacific Region: Western Mexico.
- North Pacific: Western Pacific Ocean, Sea of Japan, China Sea, and the Philippines.
- India: Gulf of Bengal, Sea of Arabia.
- South Pacific Region: Northern Australia and Coral Sea.
- Western Indian Ocean: Madagascar y and the eastern coast of South Africa
- Eastern Indian Ocean: Northwestern Australia, Arafura Sea, and Southern Indonesia.

How have hurricanes given names throughout history?

During the 18th and 19th centuries, as well as in early 20th century, hurricanes were named after saints. Subsequently, during World War II a code in alphabetical order was used to identify hurricanes. In 1953, the U.S. National Weather Service decided to use female names in alphabetical order. In 1978, it was decided to alternate the use of female and male names to make reference to hurricanes that occurred in the Northeastern Pacific. In 1979, this practice of alternating female and male names was also incorporated into the lists of hurricanes occurring in both the Atlantic Ocean and the Gulf of Mexico.

Actualmente los nombres de este fenómeno que integran la lista, son seleccionados y convenidos en las reuniones internacionales de la Organización Meteorológica Mundial (OMM) por los países que integran la organización. Las letras Q, U, X, Y y Z no están incluidas para denominar los huracanes

del océano Atlántico por los pocos nombres comenzados por estas consonantes. Cuando los huracanes ocasionan un impacto muy severo en su área de influencia, causando numerosas pérdidas de vidas y muchos daños económicos, el nombre es retirado de la lista.

How is hurricane intensity classified?

The Saffir-Simpson scale is used to classify hurricane categories:

- Category 1 (119-153 Km/h)
- Category 2 (154-177 Km/h)
- Category 3 (178-209 Km/h)
- Category 4 (210-249 Km/h)
- Category 5 (over 249 Km/h)

What should we do if a hurricane poses a threat to us?

- Listen to local radio or TV stations for weather updates and last-minute news about the storm;
- Secure all outdoor objects and bring in all garden furniture, ornaments and decorations found outside (hanging plants, garbage cans and shovels, among others);
- Secure the house roof, doors and windows. Board up windows with shutters and bear in mind that adhesive tape does not prevent window glass from breaking; therefore, its use is not recommended;
- Fill up the gas tank of your car;
- Make sure to keep handy matches, candles, flashlights, first-aid kits, medicines, drinking water, a radio, personal documents and canned food;

- Keep all important family documents in plastic bags and store them in a safe place in the house, far above the ground;
- Dentro de la casa preparar el lugar más seguro y fuerte.
- Prune trees next to or around the house; and,
- Make sure that pets and other animals are in a safe and covered place.

What should we do after the hurricane?

- If evacuation has not been advised, stay indoors and away from windows, in the middle of the house, in a closet or in a bathroom with no windows;
- Do not go out after the eye of the storm. Winds will start again in a matter of minutes or up to a half hour. They will blow stronger and, this time, in the opposite direction.
- Listen to all announcements released by those institutions in charge.

What to do after a hurricane?

- Continue listening to local radio stations or TV channels in case other instructions are given
- If you had to evacuate, do not go back to your house until authorities indicate that it is safe to do so.
- Do not touch any electric wires on the ground.
- Inspect the house to find out if it has been damaged.
- Use flashlights if it gets dark. Avoid using candles.
- Cyclonic swells may develop.

What are cyclonic swells?

These swells are formed due to high winds that blow over the ocean, lakes and rivers, causing large waves that reach a speed similar to cyclones. After striking the shore, swells could rapidly penetrate nearby areas.

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What is a landslide?

A landslide is the downward movement of soil, mud and rocks along a hill slope. This movement can be slow and gradual or very rapid.
When sliding down a hill, this material sweeps away trees and buries everything found in its path.

Why do landslides occur?

Landslides are almost always caused by human actions, but nature also contributes. The following are some of the causes:

- Deforestation on hill or mountain slopes.
- Crop planting practices that are not suitable for hills (for example, sowing on slopes).
- Housing construction or settlement of entire communities on hill slopes.
- Heavy rainfall for many days.
- Highways and roads cuts into the side of mountains.

How can we prevent landslides?

- Plant trees on hill slopes. Plant roots help keep the land from crumbling and absorb water.
- Plant crops in terraces, following the natural curves of the land.
- Avoid populating hill slopes, or respect existing vegetation.

How to cope with landslides?

Before a landslide

- Build houses in safe places. Do not build them on eroded soil or on wet hill slopes.
- Take care of forests. They improve soil firmness and protect soil against erosion.

- Do not burn vegetation as a crop-planting technique. This practice causes the destruction of the vegetation layer of land, erodes soil and may produce widespread fires.
- Avoid using grazing land excessively. Periodically take cattle from one place to another to avoid exhausting land properties and prevent soil from eroding.
- Have emergency equipment ready, which must include first-aid kits, a radio, flashlights, batteries, blankets, matches and candles, among others.

During a landslide

- Remain calm at all times. Promptly evacuate to previously established locations and make sure that each family member brings only what is needed. Do not forget I.D. cards.
- Help others if possible.

After a landslide

- The Civil Defense or Protection Committee of your community will carry out a technical inspection of houses in order to determine which may be inhabited again.
- This committee will also organize all efforts needed to reestablish basic services such as water supply and road repairs.

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¿Qué sabe usted sobre los riesgos de los incendios?

¿Qué es el fuego?

El fuego es una reacción química entre tres elementos: oxígeno, calor y combustible. Si alguno de estos tres elementos desaparece, el fuego lo hará también. Si las condiciones son óptimas, un incendio puede iniciarse casi en cualquier lugar, en cualquier momento. La mayoría de los riesgos de incendio ocurren cuando el clima es seco y caliente.

La fuente de calor para iniciar un incendio en áreas silvestres puede ser natural, como por ejemplo la caída de un rayo, u ocasionada por el ser humano, como el uso descuidado del fuego e incluso de cigarrillos. Entre los combustibles se incluye cualquier cosa, desde pasto y hojas secas hasta ramas, madera o ¡casas! Los diversos tipos de combustible arden a diferentes temperaturas, debido a que cada sustancia posee una denominada "temperatura de combustión". Ello es cuando la sustancia se torna lo suficientemente caliente para estallar en llamas. Por ejemplo, debido a su baja temperatura de combustión, el aceite que se encuentra en las hojas de los árboles de eucalipto es uno de los combustibles más explosivos que existen en la naturaleza.

¿Qué son los incendios silvestres?

Los incendios pueden salirse de control y esparcirse muy fácilmente sobre extensas áreas. Por ejemplo, una pequeña fogata desatendida puede salirse de control fácilmente y causar un extenso y descontrolado incendio. Frecuentemente, se hace referencia a este tipo de incendios como "incendios silvestres". Dependiendo del tipo de vegetación o material que esté quemándose, se puede hacer referencia a los mismos como "incendios forestales", "incendios de arbustos", "incendios de pastizales" o "incendios de turba".

¿Qué causa los incendios silvestres?

La causa natural más común de los incendios silvestres es la caída de los rayos. Sin embargo, la mayoría de los incendios silvestres es causada directa o indirectamente por la gente. Por ejemplo, el fuego puede escapar cuando los granjeros queman el suelo para hacer que la tierra sea más fértil (se hace referencia a éstos como incendios descontrolados o accidentales por el uso de los suelos), o cuando los niños juegan con fósforos. Los incendios pueden iniciarse también cuando la gente es descuidada con el uso de cigarrillos, o cuando se cocina en el bosque, o cuando se utiliza una fogata. Algunas veces, incluso, la gente inicia incendios intencionalmente (incendios premeditados).

¿Son buenos o perjudiciales los incendios silvestres?

El fuego puede ser una herramienta útil para el ser humano mientras se encuentre bajo control, pero si se sale de control el mismo puede ser muy peligroso tanto para la gente como para la naturaleza. A continuación se citan algunos ejemplos de los efectos tanto positivos como negativos del fuego para la gente y la naturaleza.

Para la gente:

- Efectos positivos: útil herramienta para la agricultura, el pastoreo y la silvicultura
- Efectos negativos: dañino para la salud y seguridad humanas, destruye propiedades (casas, tiendas, edificios públicos, escuelas, equipo de importancia, etc.)

Para la naturaleza:

- Efectos positivos: el fuego puede ser útil para el mantenimiento de los ecosistemas. Puede estimular el crecimiento de los pastizales, ayudar a algunas plantas a reproducirse debido a que algunas semillas solamente pueden germinar después de un incendio.
- Efectos negativos: extensos y destructivos incendios pueden destruir y reducir la cantidad de diferentes tipos de plantas y animales dentro de un área determinada y, por tanto, pueden perjudicar permanentemente la riqueza del paisaje.

¿Qué se puede hacer para prevenir que ocurran los incendios silvestres?

Debido a que la gente causa la mayoría de los incendios silvestres, muchos de los mismos pueden prevenirse. A continuación se presentan algunas ideas de cómo puedes prevenir incendios en tu barrio:

- Nunca juegues con fósforos. ¡Un solo palillo de fósforos puede incendiar el bosque completo!
- Si observas que alguien está jugando con fuego y tira una colilla de cigarrillo en el bosque, informa a un adulto inmediatamente.
- Nunca hagas una fogata sin la ayuda de tus padres u otros adultos.
- Si el clima es seco y está ventoso, no hagas una fogata.
- Si las condiciones son propicias y decides hacer una fogata, escoge un lugar abierto, lejos de los árboles, las hojas y las ramas secas. Limpia la tierra de basura o desperdicios 3 metros a la redonda del lugar donde planeas hacer la fogata.
- ¡Nunca dejes solo el fuego!
- Antes de dejar el área, con cuidado apaga el fuego con agua y tierra.
- Mantén limpio el entorno forestal. No dejes o tires botellas o cristales en el bosque. Estos podrían hacer las veces de vidrio refractor e iniciar un incendio.

¿Qué puedes hacer para protegerte a ti y a tus amigos de los incendios?

Si un incendio se acerca:

- No entres en pánico
- Aléjate del fuego
- Solicítale a los adultos una casa que te proteja de las llamas.

Si el humo es denso y dificulta la respiración:

- Cubre tu boca con un pañuelo seco
- Solicítale a los adultos una casa que te proteja del humo.

Si tus ropas se prenden en llamas:

- No entres en pánico
- Aléjate del fuego

- Tírate al suelo y cubre tu cara
- Rueda una y otra vez hasta que el fuego se apague.

Si un amigo tuyo o los miembros de tu familia están quemándose:

- Envuélvelos en una manta
- Haz que rueden por el suelo hasta que el fuego se apague.

¿Qué puede hacerse para proteger tu casa de los incendios silvestres?

- Haz un cortafuego alrededor de la casa. Un cortafuego es una barrera de tierra que se ha despejado o arado con el fin de detener y controlar la propagación del fuego forestal, de pastizales o de arbustos. Un río o una carretera también pueden servir de cortafuego.
- Deshazte de la basura, los desperdicios y del material inflamable que se encuentren alrededor de tu casa, tales como pasto, hojas y ramas secas.
- Almacena las sustancias inflamables lejos de tu casa.
- Utiliza regaderas para mantener el suelo y la vegetación húmedos alrededor de la casa.
- Mantén el equipo contra incendios, tales como mangueras y extinguidores, a la mano.

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Terremotos

¿Qué es un terremoto?

La tierra tiene movimientos naturales que se dan a cada rato y algunos se logran sentir, otros son tan grandes que pueden causar muchos daños; son producto del acomodamiento del planeta Tierra.

¿Por qué se originan los movimientos sísmicos?

Según investigaciones modernas existen cuatro procesos que causan sismicidad:

a por movimientos de las placas tectónicas: cada vez que estas placas se desplazan, se presionan entre sí y crean una gran cantidad de energía provocando los terremotos.

b por acción volcánica: antes de entrar en una fase eruptiva, en el macizo volcánico se produce un aumento de la temperatura del magma, ejerce una presión que se traduce en energía y esta al liberarse provoca sismos.

c por ruptura local de la corteza terrestre: que ocurre como resultado de la acumulación de energía sobre bloques de la corteza terrestre y al liberarse de un momento a otro genera el terremoto.

d por un hecho humano: son artificiales ya que son producto de explosiones superficiales o subterráneas que se llevan a cabo con distinto fin. Los más conocidos son los originados por experimentos con energía atómica.

¿Qué es el epicentro?

Es el punto sobre la superficie terrestre situado directamente sobre el foco o hipocentro del sismo.

¿Qué es el hipocentro?

Es el punto en la profundidad de la tierra donde la roca se rompe o choca.

¿Qué es la magnitud de los terremotos?

La magnitud está relacionada con la energía que se libera donde se ha generado un sismo. Para calcular la magnitud de un terremoto es necesario utilizar el sismógrafo. Cada terremoto tiene su magnitud y no depende de los efectos que causa, sino de la energía liberada.

¿Qué es la intensidad de los terremotos?

La intensidad clasifica los efectos que el terremoto produce sobre la tierra, los edificios y la gente. La intensidad de un sismo es menor si se aleja del epicentro.

¿Qué es la escala modificada de Mercalli?

Es la que mide los efectos del terremoto según los daños que causa en una determinada zona geográfica o población. En la escala de Mercalli los terremotos van del I al XII.

¿Qué es la escala de Rithcer?

Es la que se usa para medir la magnitud de la energía liberada por el sismo. Hasta la fecha los mayores sismos que se han registrado están en el rango de 9 grados.

¿Cómo prepararse para enfrentar los peligros causados por los terremotos?

Antes

- Prestar mucha atención cómo están construidas las viviendas.
- Tener un plan familiar, para saber qué hacer y a dónde ir en caso de una emergencia, además de reconocer las salidas más rápidas de la casa; en caso de separarse, tengan un punto de reunión donde puedan encontrarse y practicarlo cada cierto tiempo.
- Mantenga escrito el plan de emergencia y colóquelo en un lugar visible.

- Saber donde están localizadas las llaves del agua, del gas y la palanca de la caja de electricidad para cerrarlas en caso de una emergencia.
- Fijar bien a las paredes los estantes, cuadro, espejos o cualquier objeto pesado.
- No tenga objetos pesados colgando de sus paredes o del techo.
- Tener un manual de primeros auxilios.
- En un lugar accesible, tenga preparados alimentos en lata, agua fresca para tomar (5 galones como mínimo), radio portátil, foco con baterías, una cobija y materiales de primeros auxilios.
- Mantener cerca zapatos cómodos.

Durante

- Si se encuentra dentro de la casa debe mantener la calma y colocarse en el lugar más seguro: puede ser debajo de una mesa o escritorio, un marco de puerta firme o en una esquina de la casa.
- Evite estar cerca de ventanas y espejos, muebles altos y lugares donde haya fuego.
- Si está afuera, manténgase en campo abierto, aléjese de edificios altos, cables de electricidad y árboles.
- Si se encuentra en lugares donde hay mucha gente, evite correr hacia las puertas, mantenga la calma y busque un lugar seguro según donde se encuentre.
- Si se encuentra en edificios altos, aléjese de ventanas y lugares donde hay muebles en alto y busque un lugar seguro.
- Si se encuentra en un auto, colocarse a un lado de la carretera, no estacionar en puentes, ni debajo de cables eléctricos.

Después

- Una vez que salgan mantener la calma y si hay herido(as) ayudarles. Usar el teléfono únicamente para emergencias.
- Es bueno hacer saber a los demás lo que sentimos y darnos un abrazo.
- Pueden ocurrir otros temblores: tener precaución de no entrar en edificios dañados.
- Revisar la vivienda detenidamente, apagar la cocina si está encendida, no encender fósforos, apagar el interruptor de energía y agua.

- Si se encuentra en edificios de varios pisos, no usar el ascensor.
- Encender la radio para escuchar las noticias e indicaciones.
- Usar zapatos para protegerse los pies.

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Floods

What is flooding?

Flooding occurs when the level of rivers, lagoons, lakes and oceans rises to the point that water overflows onto nearby areas that are usually dry.

¿Por qué se producen las inundaciones?

Floods are caused by such natural phenomena as rain, tropical storms and hurricanes, but also by human activities such as deforestation and housing construction in low-lying areas next to rivers or in places prone to flooding.

What damage may a flood cause?

a. When flooding happens slowly:

There are fewer casualties.

- But many people may be injured.
- Crop areas are flooded.
- In the long-term, many children will suffer from malnutrition.

b. When flooding happens fast:

There may be many casualties

- But fewer people may be injured.
- Many houses are destroyed.
- Widespread hunger is likely

What to do to prevent flooding?

- Follow closely the news from the Meteorological Institute. They will inform us about how long it will rain.
- Sometimes it is possible to know when our community will be flooded and how much time there is for preparedness.
- Do not build houses next to rivers or in low-lying areas.
- If there is no highland available, only build houses on piles (wooden poles).
- Do not deforest the riverbanks
- If you live in an area next to the rivers, measure their water level. This helps find out if your community is at risk and will permit flood warnings to be issued.

What to do when flooding happens?

The population must be evacuated to a safe place (it could be, for example, a shelter). The evacuation must be organized and well-prepared prior to the flooding. People must carry only what is absolutely necessary, such as clothing, fresh water and food. After a community has been flooded, it will be necessary to seek and rescue people who could not be evacuated.

What to do after a storm or after the raining stops?

- It is advisable to stay away from rivers and streams.
- Because the occurrence of flash floods is possible, it is not recommended to camp in low-lying areas.
- Never cross the river by foot if its water level surpasses your knees.
- It is advisable to stay out of flooded areas.
- Avoid crossing a river by car if its water level is rising.
- If a car is stuck in flooded areas, leave it behind as long as you can do this in a safe manner.
- Stay tuned to a radio station to keep yourself informed about weather conditions.

What can we do after the flood?

- Do not drink water if it is not clean. Water must be boiled or filtered before drinking it.

- Do not eat food that has been in contact with flood water.
- Do not visit disaster areas without prior authorization.
- Do not use electric equipment in areas that are wet
- Keep yourself informed and follow all the directions of the authorities.

What elements do indicate that an alluvium may occur?

- The speed of the river flow.
- The water level of the river.
- The potential appearance of froth and undercurrents.

Bibliographical References

1. Michienzi, Jaquelina. Senior Meteorologist- The Weather Channel of Latin America.
2. Barrios G. Javier, “Desastres Naturales: Manual para agentes comunitarios”. Acción Médica Cristiana. Noviembre, 2000.
3. Acción Médica Cristiana. “Inundaciones ¿Cómo prevenir los daños?”. Nicaragua, Setiembre 1999.
4. Acción Médica Cristiana. “¿Qué hacer cuando ocurre una inundación?. Nicaragua, Setiembre 1999

Tornadoes

What are tornadoes?

Tornadoes are similar to hurricanes, given that they are also violent, whirling gusts of air that rotate while hitting the ground. They are usually accompanied by heavy rainfall, hailstone, thunders and lightning. Tornadoes develop rapidly and move at high speeds.

How are tornadoes classified?

According to the Fujita Scale, tornadoes are classified into F0-F1-F2-F3-F4-F5. Wind intensity is given in both MPH and KM/H,
as follows:

F0: 40-72mph.....65-115km/h
F1: 73-112mph.....117-180km/h
F2: 113-157mph.....182-252km/h
F3: 158-206mph.....254-332km/h
F4: 207-260mph.....334-413km/h
F5: 261-318mph.....415-505km/h

What should we do when a tornado happens?

- Seek shelter in basements.
- Stay away from windows.
- Keep open the windows facing the opposite direction of the wind.
- If you are outdoors in the country, go to the nearest irrigation channel, trench or hollow and remain there until danger is over.
- Do not stay in the car.

Bibliographical references

1. Michienzi, Jaquelina. Senior Meteorologist- The Weather Channel of Latin America. 2. Barrios G. Javier, "Desastres Naturales: Manual para agentes comunitarios". Acción Médica Cristiana. Noviembre, 2000.

Volcanic Eruptions

What is a volcano?

A volcano is a sort of crack in the Earth's surface, through which molten rock, called magma, is forced out. It is like a chimney from which, every once in a while, magma that comes from inside our planet escapes. This hot rock is found many kilometers deep and its temperature is very high (over 1000º C). At this temperature, rocks melt and form a thick "soup" with bubbles. This substance may contain a great amount of gas. The solid surface of Earth is like a lid that has been placed to cover a pot of boiling water. The lid prevents gases from escaping, but if this solid surface breaks, gases shoot up through the opening and spill over with magma. This is called lava. After shooting up and flowing outward, lava cools down and turns into volcanic rock. As lava comes out, slowly or with force, a type of smoky mountain develops: the volcanic cone. Smoke, ashes and lava come out of the top of this cone.

What is a volcanic eruption?

A volcano may or may not be active. Whenever they are active, they throw smoke or, when they explode violently, eject solid material such as rocks, liquids and gas through a crater. A volcano is said to erupt when it ejects material and lava flows, or when it experiences violent eruptions.

How do we know that an eruption might occur?

Volcanic activity may be watched from a nearby community:

a. Compare how the volcano has acted in previous days. If there are any changes, the volcano must be watched closely.

b. Attention must be paid to any changes experienced by fumaroles, that is, smoke holes, as well as by springs located in volcanoes;
if the weather becomes hotter, if tremors are continuous, or if there are any variations in the size of the crater hole.

What are the types of eruption?

- Outpouring of mud from the crater. This mud is very hot and slides its way down slowly or quickly, depending on the hillside slope.
  This represents the main cause of destruction and death produced by volcanoes.
- Outburst of burning rock. Large blocks of rock can destroy houses located up to a distance of 3 kilometers from the crater.
- Pyroclastic flows, which is an avalanche of incandescent material, formed by a mass of overheated gases that also includes dust,
  hot ashes and lava fragments. It reaches a speed up to 160 kilometers per hour.
- Acid rain. Turbid and whitish water that rains down.
- Contamination of air by toxic gases.

What to do in case of a warning?

There are many observatories located near a large number of volcanoes, so that early warnings may be given. A surveillance or watch observatory is an ideal means to follow up on the volcano activity between eruption periods, so that eruptions may be anticipated. In
these observatories, vulcanologists watch volcanoes on an ongoing basis -visually of course, with different devices that are able to
detect motion signals such as trembling ground, air changes and volcanoes whose sizes change, among other things. The following is
an alert chart:

Levels of volcanic alerts	Type of warning	Possible term before an eruption (indicative)
Green	There is no warning	Several years

Yellow	Watch	One year (or several)
Orange	Pre-alert	Months or weeks
Red	Alert	Imminent-in progress

When there is a code red alert:

- If you are outside, you must go indoors immediately and listen to the radio or watch TV to know what is happening.
- You must stay indoors or go to a safer place, which has been identified previously.
- If you must go out when ashes are falling, you must cover your eyes and nose with a handkerchief to be able to breathe better.
  Wait for instructions from the proper authorities.
- If the eruption becomes stronger, obey your parents and follow the advice of police officers, the army and vulcanologists. You
  might have to abandon your house for a few days until the volcano quiets down.

What should we do before, during and after a volcanic eruption?

Previous pieces of advice:

- Prepare yourself mentally to avoid situations of fear and panic.
- Stay calm if a sudden eruption occurs.
- Keep yourself informed about the development of this phenomenon through official authorities and scientific staff.

Before an eruption:

- Have a mask or handkerchief available to cover your mouth.
- Know about evacuation routes.
- Cover water tanks to avoid contamination.
- Protect windows, since they might break due to rock falling.
- To protect yourself inside the house, bear in mind that the safest places are the interior rooms.
- Cover door and window cracks with adhesive tape to prevent ash from coming inside your home.

- Get away from valleys and gorges next to the volcano to avoid potential mud flows.
- You must keep these items at all times: enough drinking water, nonperishable and canned food for at least 8 days, first-aid kits, water filters, paper cups and plates, flashlights and candles.

During the eruption:

- Meet with your family in a safe place and pay special attention to children, elders and people with any type of medical condition.
- During the eruption, stay indoors and do not go out until the atmosphere clears up.
- Use a mask to breathe. You may also use towels or handkerchiefs moistened with water.
- If the environment is contaminated, protect your ears and eyes.
- In case a great amount of ash is falling, cars must not be driven to avoid any accident due to the ash-darkened environment.
- If you are caught in the car by a rain of ashes, stay inside with doors and windows closed. If cars can be driven, this must be done slowly to avoid stirring up ashes on the ground.

After the eruption:

- Keep yourself informed until authorities announce that the volcanic activity has ceased.
- If sewers are clogged or river drainages blocked, stay away from these places and let the proper authorities know.
- If your house is located in a risk area in terms of mudflows, go to higher lands. It is also adequate to reinforce doors, windows and vulnerable walls, so that mud cannot penetrate their construction.

Bibliographical References:

1. Barrios G. Javier, "Desastres Naturales: Manual para agentes comunitarios". Acción Médica Cristiana. Noviembre, 2000.
2. EIRD. "Diario de los volcanes". Costa Rica, 2002

Cientific corner

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Earthquake Scales

People have created different scales to measure how violent earthquakes are. In America, the Modified Mercalli Scale is commonly used and it is based on the effects that a seism causes in human facilities. This is called intensity. Another scale used is the Richter Scale, which measures an earthquake's magnitude.

The Modified Mercalli Intensity Scale

Levels	Common Characteristics
I	Only detectable by seismographs.
II	Felt particularly by people who are on the upper floors of buildings.
III	Not many people indoors feel the earthquake. A rapid vibration is felt, like that of a passing heavy vehicle.
IV	Not very noticeable outside of buildings or other constructions. In buildings and houses, a slight swing of lamps and the rattle of tableware are detected. Some pieces of furniture are overturned. It awakens some people.
V	It is also felt outside of buildings. Grass and leaves are moved by nonexistent wind. Lamps, dishes and furniture also sway dangerously and some of them fall down and break. Doors and windows are swung as well. Window glass breaks and almost everyone awakes.
VI	Earthquake is felt by everyone. A considerable amount of glassware and dishes breaks, Pictures fall from walls and books and other objects fall from shelves. It cracks plaster walls and ceilings.

VII	Church bells ring. Water in lakes and rivers becomes turbid. Hanging objects on walls fall. Slight damage in built structures, particularly in towers and chimneys. Some architectural ornaments fall.
VIII	Trees sway and some of them are uprooted and fall down. Some pieces of furniture are noticeably moved or overturned. Towers and chimneys crack, break and fall. Buildings are considerably damaged. On steep slopes, ground is cracked, and mud-charged water is ejected in small amounts from wet ground.
IX	Even those structures built to withstand earthquakes are damaged. Buildings in general are severely damaged: wood-framed structures are shifted off their foundations and masonry is destroyed.
X	Most non-earthquake-proof buildings are destroyed including their frame structures. Railroad rails bend slightly. Cracks and folds are found on street pavement. Water violently strikes lake and river banks, among others, causing them to suddenly collapse.
XI	All masonry structures and almost all wooden constructions are destroyed. Railroad rails are considerably bent. Landslides and earth slumps occur; ground shows serious cracks and fissures. In soft or wet ground mud and water eject.
XII	All construction works are destroyed. Faults are detected in stony areas. River and lake banks slump; waterfalls spring forth, river courses change and entire lakes are moved from original locations, etc.

The Richter Magnitude Scale

It measures earthquakes in terms of their size, depending on the amount of energy released. The difference between the Modified
Mercalli and the Richter scales is that the former

reads the intensity with which a quake damages human facilities. On the other hand, the Richter scale measures the amount of energy released by a seism. A seismologist quantifies an earthquake's magnitude through the lines recorded by a seismogram. It is said that Richter is the most widely-used scale, but it is also the standard most incorrectly used by the population at large.

It is worth mentioning that the Richter Magnitude Scale has a logarithmic basis. What does this mean? Each whole number step represents a ten-fold increase in measured amplitude. The following example illustrates the above: if tremor A -whose wave recorded by a seismogram allows a specialist to determine that its magnitude is 4.0-, is compared with earthquake B, -whose magnitude is 8.0-, it would be wrong to state that B doubles A in magnitude. What would be correct to say is that B has released 100,000 times more energy than A.

According to Richter, the magnitude logarithmic expression is conceived as follows:

0 - X
1 - 10
2 - 100
3 - 1000
4 - 10.000
5 - 100.000
6 - 1.000.000
7 - 10.000.000
8 - 100.000.000
9 - 1.000.000.000

This scale is more objective, given that it seeks safer and more reliable elements when measuring an earthquake. According to this scale, A magnitude 2.0 quake is the lowest event that human beings are able to feel. The highest earthquake registered to date had a magnitude of

8.9.

Bibliographical references:

"Guía para preparar información sismológica dirigida a los medios de información". Editado electrónicamente por el PED/OPS y DIRDN 1992.

The Fujita Scale

There are many scales used to measure a tornado, but the most accepted standard in the world is the Fujita Scale, developed in 1957 by Theodore Fujita from the University of Chicago. This scale is based on the destruction that tornadoes cause to man-made structures, and not on their size, diameter or speed. Their intensity, therefore, cannot be measured or determined by just watching them; damage must be assessed first.

There are 6 different levels (from 0 to 5) and an "F" is placed in front of each level, in honor of its creator:

Scale Level	Intensity	Wind Speed	Damages
F0	Gale Tornado	60-100 km/h 40-72 mph	DChimneys are damaged and branches and small trees are broken. Sign boards are also damaged.

F1	Moderate Tornado	100-180 km/h 73-112 mph	The lower limit is the beginning of hurricane wind speed. Tornado peels surface off roots, overturns cars and mobile homes. Some small trees are uprooted.
F2	Considerable Tornado	180-250 km/h 113-157 mph	Considerable damage. Roofs are torn off from frame houses. Poor-built houses are destroyed. Large trees are uprooted and light objects are thrown out at high speeds.

F3	Severe Tornado	250-320 km/h 158-206 mph	Tornado damages well-constructed structures and overturns trains. Most trees are uprooted.
F4	Devastating Tornado	320-420 km/h 207-260 mph	Well-built structures are severely damaged and those with weak foundations are blown off or overturned. Cars and other heavy objects are also overturned.
F5	Incredible Tornado	420-550 km/h 261-318 mph	Large buildings are seriously damaged or destroyed. Cars fly through the air 100 yards or more. Steel

			structures are damaged.
F6	Unconceivable Tornado	319-379 mph	Total destruction of all man-made structures

In theory, an F6 tornado could occur, with a Mach 1 wind speeds up to mach 1. Their occurrence, however, has not been proved.

Light Tornadoes: F0 and F1. These represent 69% of the total and only cause approximately 5% of casualties. Light or weak tornadoes last between 1 and 10 minutes.

Strong Tornadoes: F2 and F3. They correspond to 29% of tornadoes, causing 30% of deaths. They may last more than 20 minutes.

Violent Tornadoes: F4 and F5. They represent only 2% of the total and cause 70% of casualties. These tornadoes last more than one hour.

Bibliographical references:

orbita.starmedia.com/ampgonpo/escalator.htm

Let's prevent disasters

Back

Can we prevent disasters?

We can't stop natural phenomena from happening. But we can make them less damaging if we understand better why they happen, and what we can do to prevent or mitigate them.

Since people are partly responsible for disasters happening, we have to change what we are doing wrong, in order to avoid or reduce the impact of natural phenomena.

Every community must get to know its own features and surroundings: the natural environment as well as environment built by human beings. This is the only way for a community to manage the hazards that surround it and to reduce its own vulnerability to these hazards.

Don't be scared, be prepared!

- **Learn** about the history of the place where you live. Ask your parents, your grandparents and your friends if they have ever experienced a disaster. What made it happen? What did people do that they shouldn't have? 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 spot safe places, convince your parents that your family should have an Emergency Plan (see page 16), and put together an Emergency Kit with them (see page 17).

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 you can do to reduce the impact of disasters on your community. Discuss these examples in class with your teacher:

Spot dangerous places…
Do you know which places in your community high -risk, places that are dangerous to live in? Draw a risk map with your classmates, with the help of your teacher. Discuss possible solutions for reducing the risks. (Go to page 14 to learn what a risk map is and how to draw one.)

Organize prevention campaigns…
What happens if we dump garbage in the wrong place, such as a river bottom? The river will be polluted, animals and plants may die, and you might even start 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 at a fast rate makes our communities more vulnerable to rain and landslides. You can promote planting trees and other plants in your school or in your community. By doing so, you protect nature and you help prevent landslides, soil erosion, and other negative consequences.

RISK Map

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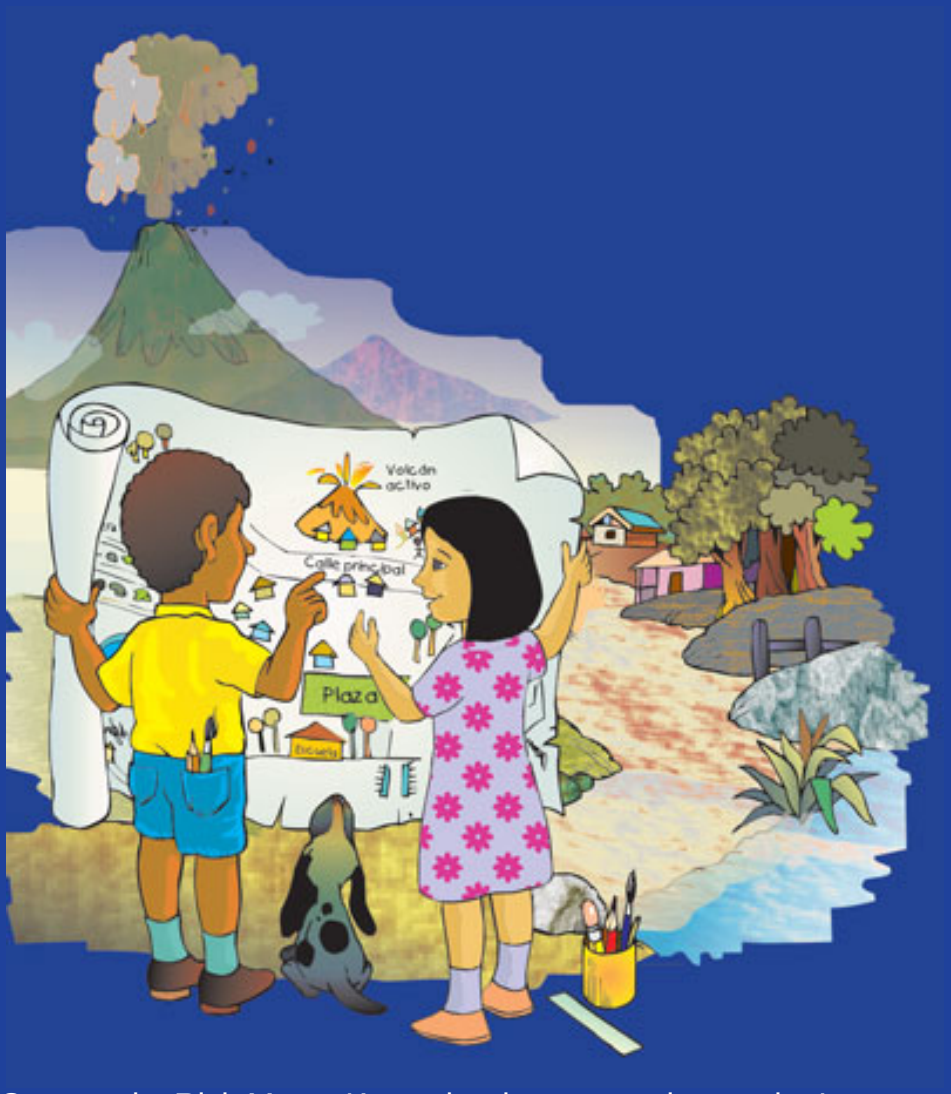
What is a RISK Map?

What are RISKS Maps For?

Get going!

What is a Risk Map?



Community Risk Maps: Know the dangers and get going!

How can you reduce the vulnerability of your family, your friends and your belongings before a disaster happens? You can help your community to realize the risk of a disaster may happen and take preventive action. One of the best ways is to put up a hazard and risk map of your community.

A risk map is a big drawing or model of your community that you can draw or make with your schoolmates and friends, with the help of your teacher, showing all the important buildings such as schools and hospitals, farm land, roads, and any other things that could be affected in the event of a disaster. It also shows potentially hazardous elements or places such as nearby volcanoes, areas that might get flooded, or very dry grasslands that can catch fire. It also shows all the resources, such as people and things that can help your community to get ready and protect itself, like the fire station, or a health care center. To show all these things you can draw symbols on the map. You can even

invent your own symbols, as long as other people can understand them. What symbol would you use for a hospital? Or a volcano?

What are Risk Maps for?

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 effects if it happens. For example, they show schools or other important buildings that are
in high-risk area for landslides. It also helps you be better prepared for a potential emer-gency. For example, they show 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

communityWith the help of your teacher, find out what these words mean: disaster, risk, and vulnerability. (Hint: you can find them in the Glossary on page 22 and 23. Even better, try) to remember what you have read so far!

Look up in books or in old papers, or ask elders in your community, what important disasters have occurred in the past.
Pinpoint the places that could be 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? What happened? When?
- What did people do?
- What should be done to prevent a disaster happening in the future? ¿Which people and institutions in the community can help?

Draw the most important buildings: school, town hall, hospital, fire station, police station and houses. Also draw buildings that could be dangerous, such as factories, dams, or electricity generating plants as well as buildings that are in a weak state of repair. 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 areas.

Show how badly the buildings could be affected (a little, quite a lot, totally wiped out) and use a different symbol or color depending on the level of risk and the type of risk, for instance flood areas or landslide areas. Identify where the people who will need the most help in the event of a disaster live: schools, homes for the elderly, hospitals and nursery schools.

Discuss different possible solutions for reducing the risks and preventing disasters in your community. Share with your classmates and teacher what the people in the neighbourhoods you have visited have told you. What measures could your community take to make people safer? Which people in your community could help you?

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.

A Family plan For disaster preparedness

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Family plan For disasters

Things you can do

Get emergency Kit ready

A family plan for disaster preparedness

Your family, and the community where you live, may be exposed to natural hazards or hazards caused by humans. The best starting point is getting to organize your own family, making sure that everyone takes part. Here are some of the things you might do:

Things you can do:

Look around you. What are the hazards nearest your home? Could improvements be made to your house to make it safer? Are there places in your house, or in your community, that might be safer in the event of a hazard? Where are the nearest people and institutions that could help you, such as the fire station, the Red Cross, the hospital or the health centre?

HMake sure you have a floor plan of your house. Mark the quickest and safest way out. If there are several ways out of your house, choose and mark the safest ones depending on where you, your parents, your brothers and sisters sleep, play or work.

You should also agree on the following:

- Where to meet outside your home, like a public park or the home of neighbour that you can trust.
- Where to meet if you are ordered to leave the neighbourhood: maybe the home of a friend or relative in another neighbourhood or town.
- A telephone number to call in case you find yourselves separated from your family when a disaster strikes. Learn by heart the phone number of a relative living in some other province, county or district so that your family can find out where you are in the event of a disaster.

- You can also talk to your neighbours about preparedness plans and making risk maps. Find out which neighbours could help you in the event of an emergency: doctors, engineers, firefighters, psychologists.

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 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 include the following supplies:

1. A First-Aid Kit

The first-aid kit should contain, among other things, alcohol, cotton wool, bandages, gauze, painkillers, sterilized water and burn ointment. The Red Cross or the your community health centre will be able to advise you about what else to include.

2. Food and Drink

It is advisable to keep non-perishable food supplies. In other wo rds, 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 to purify it.

3. Clothes

EIt'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, matches, candles, a can opener, and hygiene items such as soap and toilet paper.

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

You can also put in a backpack some of the things that are important to you, such as a toy, pen s and paper, or something else that you
care about.

What else would you like to include?

Artistic Corner

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Art Gallery

Fable

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.
2. Make a mural one big drawing done by you and your friends. Talk about what to put in it beforehand. Then make sure you hang it in a place where lots of people will 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.

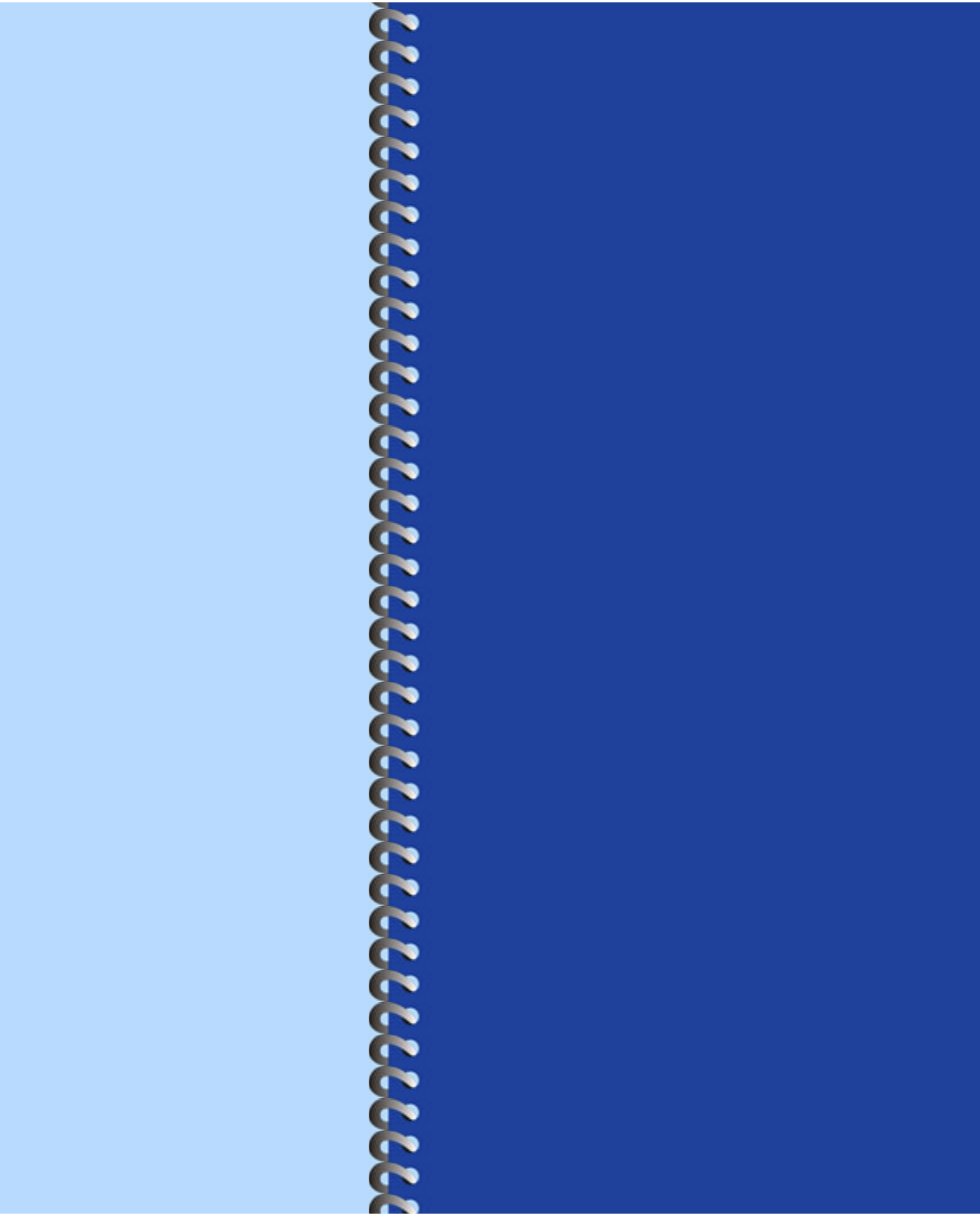
DRAW HOW TO REDUCED THE RISK OF DISASTERS IN YOUR COMMUNITY

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

In Australia, children drew pictures about how to protect themselves in the event of a fire. The pictures were part of a contest for the International Day for Disaster Reduction, organized by the United Nations.

¡Get Going!

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



The river and the settler

* From the book Fábulas de la Naturaleza (Nature Tales), by Alfonso Mata.
San Jose, Costa Rica: Editorial UCR, 1998.

A foolhardy man was building his house too near a river.

“Don’t build your home in my bed,” whispered the river. “Remember that some
years the clouds become angry and it rains harder, and the banks you see now
are now wide enough for all the water that falls on my basin. Your house might
be flooded!”

But the man, who was sawing and hammering, paid no attention.

“Also, if on the mountains where I was born men have felled the forests, the rainwater will run madly downhill, washing away the soil and pouring mud and trees into my course that I will be forced to carry down to the sea. Stop hammering and use your head!”

The river kept whispering until the man finally paid attention and said, “Hush! Don’t you see that other houses
have been built next to you even higher upstream and nothing has ever happened to them?”

“I am warning you, this has happened before. Don’t make the same mistakes others have made.”

But the man ignored the river’s advice.

One year, the rains were the worst in living memory, and the river overflowed its banks, as it had done for thousands of years whenever

this happened. The strong current grew and grew like a voracious tongue lapping up trees and rocks and everything else in its path,
wrecking many houses and flinging them downstream. Nothing could stop it. The rubbish that people had been lazily throwing into the
river only made matters worse. Now the river did not whisper; it roared, angry at the rubbish and the foolishness of those who had not
heeded its warning.

“Stop, impulsive river!” cried the frightened villagers while trying to rescue at least a few of their soggy, muddy possessions. “Can’t you
see we are losing everything we have worked for so hard over many years?”

“I warned you in time,” the river roared. “It is the force of gravity that forces me to take this water down to the sea as quickly as it will go.
That is the way of Nature, and no one can go against it, not even me. This is the punishment she metes on anyone who disobeys her.
Will you ever learn?”

Most of the people in the village, sensibly, had built their houses on higher ground. As on previous occasions, they rushed downhill to
help their more imprudent neighbours.

After the flood subsided, the villagers got together and agreed to use the land more wisely by building in safe places, protecting the
river, and not using it as a rubbish bin.

Glosary

Back

AFTERSHOCK: Earth tremors that occur after a notable earthquake, sharing the same cause.

DISASTER: A disaster is the result of a hazard that has struck the community. The effects of a disaster depend on how vulnerable the community is to a particular hazard, or its inability to withstand it or respond to it.

DISASTER PREVENTION: Measures taken to prevent a hazard turning into a disaster.

DROUGHT: Period of time (months or years) during which a part of the land suffers from lack of rain, causing severe damage to the soil, crops, animals, and even people, sometimes causing death.

EARTHQUAKE: Violent shaking or jolt of the earth's surface due to movements originating from deep underground.

EL NIÑO-LA NIÑA: A change in the weather that happens every few years. It starts when the surface waters of Pacific Ocean near to the Equator become warmer or colder than usual off the coasts of Peru and Ecuador. It can cause floods, drought and other extreme phenomena all over Latin America and in other parts of the world.

EMERGENCY KIT: A bag or a box that every family should have ready prepared to take with them in case of an emergency. It should contain non-perishable food, drinking water, clothes, flashlight and batteries, a portable radio, and a first-aid kit.

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: 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.

MITIGATION: Measures to reduce vulnerability to hazards.

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.

SISMIC 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.