

How to Recognize Landslide Warning Signs

- Doors or windows stick or jam for the first time.
- New cracks appear in plaster, tile, brick, or foundations.
- Outside walls, walkways, or stairs begin to pull away from the building.
- Slowly developing or widening cracks appear on the ground or on paved areas such as streets and driveways.
- Bulging ground appears at the base of a slope.
- Ground water seeps to the surface in new locations.
- Fences, retaining walls, utility poles, or trees tilt or move.
- You hear a faint, rumbling sound that increases in volume in one specific direction and may begin shifting in that direction under your feet.

Identifying stability issues

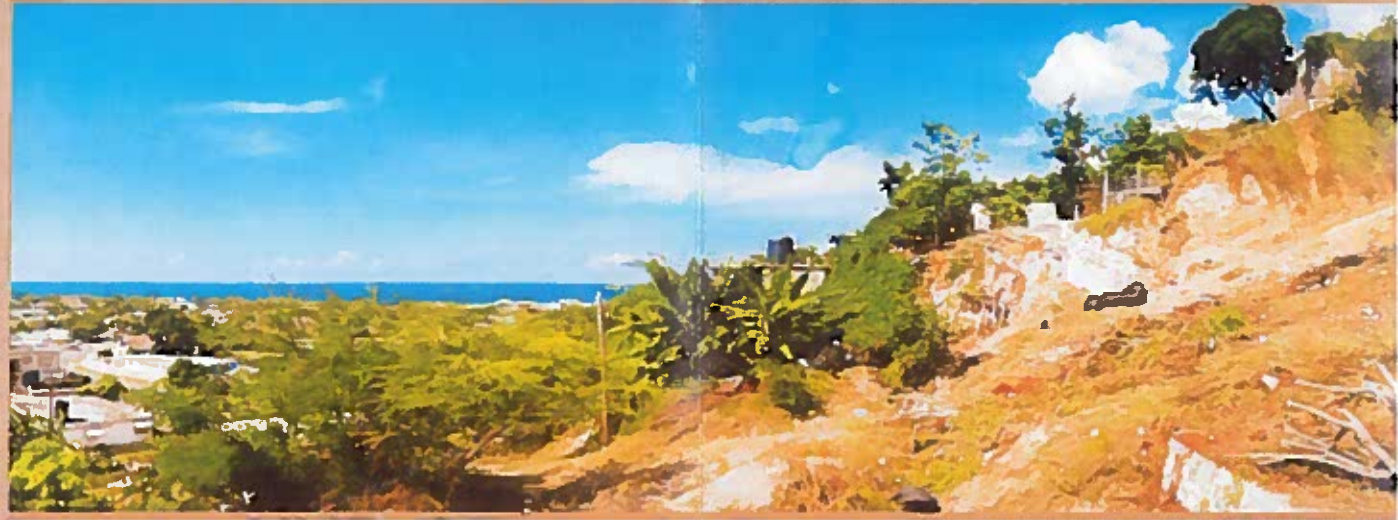


Which of these affect your community?

Source: MoSSaiC 2007



Landslide Safety... Identifying and Mitigating Risks



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See inside for information about:

- Understanding landslides
- Staying safe if you live in a high risk area
- Preparing for a landslide
- Recognizing landslide warning signs



Government of Japan

World Bank

"Disasters Do Happen, Be Prepared"

Understanding Landslides

What is a Landslide?

Landslides are described as downhill earth movements that can move slowly and cause damage gradually, or move rapidly, destroying property and claiming lives, suddenly and unexpectedly.

Triggers of Landslides

Landslides occur for a variety of reasons. They often occur as a result of natural phenomena but human activity can also be a factor. Triggers include:

1. Vibrations from earthquakes.
2. Waterlogging due to heavy rains which can saturate the top layers of unstable soil and cause them to slide downhill.
3. Deforestation, vegetation removal, construction of roads, and construction of buildings on steep slopes.
4. Creation of new site conditions such as changes to natural slopes due to construction activities.

Staying safe if you live in a high risk area

Ensure that your household is aware of what to do if a landslide should occur.

Be aware of local emergency response and evacuation plans.

Watch for patterns of storm water drainage on slopes near your home, especially where run-off water converges.

Assemble and store an emergency supply kit.

Before a Landslide

- Avoid building near steep slopes, close to mountain edges, near rivers and drainage ways.
- Order a comprehensive engineering geology assessment of your property if you are located in a vulnerable area.
- Protect your property by planting ground cover and trees.
- Talk to your insurance company about insuring your home. Debris flow may be covered by flood insurance.

Be Alert during Storms

During storms or episodes of excessive rainfall, the likelihood of a landslide occurring increases. The following tips should be considered if your home is located close to water ways.

- Be on constant alert. Landslides can occur rapidly leaving very little time to respond.
- Listen for unusual sounds that might indicate moving debris such as cracking walls and trees roots and branches as well as rocks.
- Be just as alert for mudflows and debris flows as they too can cause significant damage.
- Stay tuned to local news station for flood and/or storm alerts and updates.
- Consider relocating during a storm or period of excessive rainfall.

Practices to reduce landslides in your community

- Reduce water run-off by retrofitting your house with guttering and tanks for catchment.
- Create water channels or drains to encourage free flow of surface water from houses and rainfall.
- Keep drains clear of debris to avoid clogged drains that can lead to flooding.



Picture demonstrating management of water run-off on slopes

- Utilize terrace farming to minimize instances of soil erosion.
- Consult a qualified engineer or engineering geologist prior to undertaking construction activities.
- Create defense/ retaining walls at areas of suspected or evident land movement.



Tyre Soil Retaining Wall constructed in Metbrook Heights 2014