EMERGENCY SURVIVAL PROGRAM

ESP FOCUS

Landslides/ Mudslides

The ground can move without a quake!

When most people think about ground movement, they probably envision images of the ground below them moving from side to side, or up and down, during an earthquake.

It is important that residents who live on steep hillsides and in canyons be prepared for landslides. Areas that don't have grass, trees, shrubs and plants, such as after a fire, are more likely to have landslides. This includes sliding, falling and flowing soil, rock, mud, brush and trees, especially during or after heavy rains.

Slow-moving landslides can cause significant property damage, but they usually don't cause injury or death. Mudslides, however, are much more dangerous. According to the California Geological Survey, mudslides can easily exceed speeds of 10 miles per hour and often flow at rates of more than 20 mph. Because mudslides travel much faster than landslides, they can cause deaths, injuries and significant property damage.

Wherever you live, work, or play, take the actions on the reverse side of this Focus Sheet to help reduce your risk of death, injury and property losses from landslides, mudslides and other types of ground failure.

YOUR KEY TO SURVIVAL
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Before the Landslide/Mudslide

You can reduce the potential impacts of land movement by doing the following:

- ☐ Assume that burn areas and canyon, hillside, mountain and other steep areas are more likely to have landslides and mudslides.
- ☐ Limit the height of plants near buildings to 18 inches.
- ☐ Use plants and bushes that are less likely to burn and keep them watered. This not only helps with landslides/ mudslides but is also helpful for fire safety
- ☐ Water landscape to promote early growth.
- ☐ Eliminate litter and dead and dry vegetation.
- ☐ Inspect slopes for increases in cracks, holes and other changes.
- ☐ Build away from steep slopes.
- ☐ Build away from the bottoms or mouths of steep ravines and drainage facilities.
- ☐ Consult with a soil engineer or an engineering geologist to minimize the potential impacts of landslides.
- ☐ Develop a family plan that includes:
  - ☐ Out-of-state contact
  - ☐ Place to reunite if family members are separated
  - ☐ Routes to evacuate
  - ☐ Locations of utility shut-offs
- ☐ Store the following emergency supplies:
  - ☐ Food
  - ☐ Water
  - ☐ First aid kit
  - ☐ Flashlights and batteries
  - ☐ Battery-operated radios
  - ☐ Special medications/eye care products
- ☐ Store an evacuation kit that includes:
  - ☐ Cash (small bills and change)
  - ☐ Important documents
    - ☐ Birth certificates
    - ☐ Insurance policies
    - ☐ Marriage certificates
    - ☐ Mortgage documents
  - ☐ Irreplaceable objects
  - ☐ Games, toys for children
- ☐ Purchase supplies to protect your home:
  - ☐ Hammer
  - ☐ Nails
  - ☐ Plywood
  - ☐ Rain gauge
  - ☐ Sand
  - ☐ Sandbags
  - ☐ Shovel
- ☐ Contact your local public works department for information on protection measures.

When it Rains

- ☐ Monitor the amount of rain during intense storms. More than three to four inches of rain per day, or 1/2-inch per hour, have been known to trigger mudslides.
- ☐ Look for geological changes near your home:
  - ☐ New springs
  - ☐ Cracked snow, ice, soil or rocks
  - ☐ Bulging slopes
  - ☐ New holes or bare spots on hillsides
  - ☐ Tilted trees
  - ☐ Muddy waters
- ☐ Listen to the radio or watch television for information and instructions from local officials.
- ☐ Implement protection measures when necessary:
  - ☐ Anticipate runoff and place sandbags in areas as needed
  - ☐ Board up windows and doors
- ☐ Prepare to evacuate if requested to do so.
- ☐ Respect the power of the potential mudslide. Remember, mudslides move quickly and can cause damage and kill.
- ☐ Prioritize protection measures:
  - ☐ Make your health and safety and that of family members the number one priority.
  - ☐ Make your home the number two priority.

Key Considerations

- ☐ Use permanent measures, rather than sandbags, if possible.
- ☐ Deflect, rather than stop or dam, debris.
- ☐ Use solutions that do not create problems for your neighbors.

Extracted and adapted from the Los Angeles County Department of Public Works publication "Homeowners Guide for Flood, Debris and Erosion Control" *and the California Department of Conservation publications* "Hazards from Mudslides — Debris Avalanches and Debris Flows in Hillside and Wildfire Areas" *and* "Landslide Facts."

HEALTH TIP: During a landslide/mudslide water and sewage pipelines may break leading to a contaminated water supply. It is important to listen to your radio or television for the latest news on health and safety updates for the affected communities.

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This Focus Sheet is produced as part of the Emergency Survival Program (ESP). ESP is an awareness campaign designed to increase home, neighborhood, business and school emergency preparedness. ESP was developed by the County of Los Angeles. The California Governor's Office of Emergency Services (OES) and representatives from Contra Costa, Imperial, Inyo, Kern, Los Angeles, Marin, Mono, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura counties; Southern California Edison; the Southern California Earthquake Center and the American Red Cross assist in the development of campaign materials and coordination of the campaign.