

# An Overview of Natural Hazards and Urban Concerns

## Earthquake



Sudden violent shaking of the earth. Caused by friction of plates under the earth's surface, earthquakes occur along narrow belts where mountains are forming and/or volcanoes are active.

**Urban concerns:** Most of the biggest urban disasters are due to earthquakes -- many densely built, densely populated cities lie on earthquake belts. Collapsed buildings/infrastructure are the main cause of deaths and damages following urban earthquakes.

## Landslide



Rocks and soil sliding rapidly downhill. Variations: mudflows, rockfalls, avalanches. Triggered by: earthquakes, volcanic eruptions, storms, waterlogged soil, heavy construction.

**Urban concerns:** Growing amounts of badly built housing on/below steep slopes, on cliffs, or at river mouths of mountain valleys. Often on illegally occupied land, such housing ignores planning/building codes.

## Volcanic Eruption



Burst of ash, rock, gases and/or flowing lava from deep inside the earth. Effects: ash falls pollute air (regionally or even globally), mudflows (lahar) of up to 100 km/hr., blasts of gas, ash, fragments (pyroclastic flows)

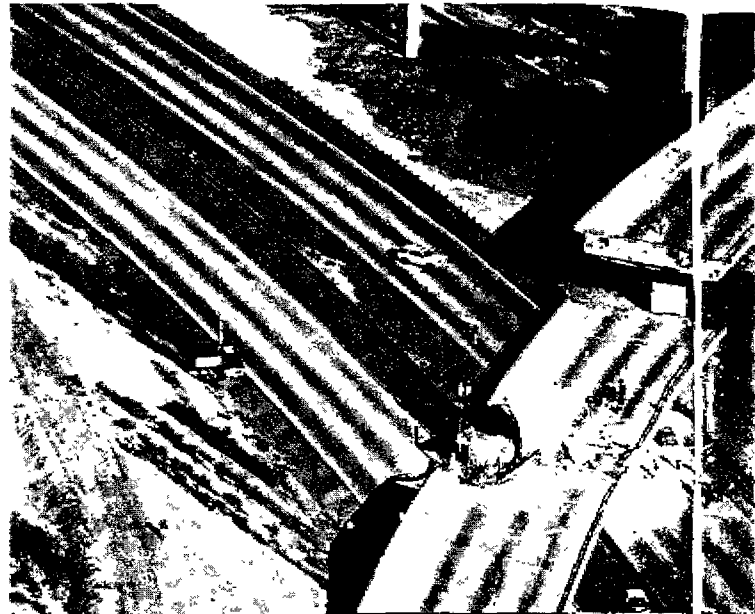
**Urban concerns:** Settlements on volcano flanks or in historical paths of mud/lava flows; adequate early warning, constructions to withstand ash and lahar are concerns for urban areas as well as rural ones situated near volcanoes.

## Tsunami



Series of big sea waves that crash onto coasts, following vibrations from earthquakes, volcanic eruptions or landslides on the ocean floor. From Japanese "tsu" (harbour), "namu" (wave). Mostly in the Pacific, due to many earthquakes. Tsunamis affect coasts up to 400m inland

**Urban concerns:** Many urban areas are along tsunami-prone coasts. Construction, early warning and evacuation are primary concerns for them



*Collapsed highway in the 1994 earthquake in Los Angeles.*



*A mother and children in the 1988 flood in Bangladesh.*

## Tropical Cyclone



Heavy rain/wind over sea and coast. Also known as hurricane, typhoon. Affects large areas, floods, storm surges, landslides, mudflows. About 80-100 cyclones/year around the equator

**Urban concerns:** Shantytowns along coasts are a particularly urban concern. Construction and early warning are concerns for both urban and rural areas

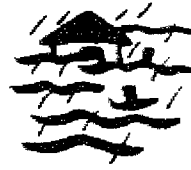


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### Flood



Too much water in the wrong place. Causes are both natural and human, including dam failures, blocked drainage systems, burst water mains, and heavy storm rains. Floods are the most frequent disasters and growing more rapidly than other disasters.

*Urban concerns:* Rapid urbanization is a major factor in the increase of floods. Flash floods a growing concern due to concrete/compacted earth which absorbs little water, the decline of open spaces, engineering works that divert river flows and weak city drainage systems. Inappropriate housing on river banks or near deltas (due to construction and/or location) is a major concern

### Wildfire

Spreads over large areas and can get out of control.



*Urban concerns:* Urban fires stem from industrial explosions or earthquakes. Fire risks are increasing due to heavy building density, new building materials, more high-rise buildings, greater use of energy in concentrated areas

### Drought



Much less water than crops or people need. A "slow-onset" disaster -- too little rain, groundwater or river water over a period of time. Affects more people than any other disaster.

*Urban concerns:* May trigger mass migration to cities, putting pressure on housing, employment, basic services. Cities may lose food supply from surrounding countryside

### Technological Disaster



Systems failures, chemical accidents, industrial explosions, spillage in ground, water, or air. Can be a secondary disaster following earthquakes and other natural disasters (natural/technological compound disasters, or "na-techs")

*Urban concerns:* Na-tech risks are increasing with rapid, uncontrolled urbanization and industrialization.