# Measuring Risk

People who live in areas of high physical exposure to natural disasters have high human vulnerability and are usually found in the poorest parts of the world.

We can measure the level of risk of these people using the **disaster risk equation**:

$$\text{Risk} = \frac{\text{Frequency or magnitude of the natural hazard X the level of}}{\text{Capacity of population to}}$$

**Hazards:**

We can recognise that **not all natural hazards are equally as devastating**. For example the effects of an earthquake on buildings results in more deaths than the effects of flood or cyclones. Furthermore some hazards are fast acting such as avalanches and landslides, whilst others we can monitor e.g. hurricanes.

**Vulnerability:**

The vulnerability of a person is determined by what proximity they are to a natural hazard. For example a person who doesn't live near a volcano won't be vulnerable to the lave flows, but may be vulnerable to the effect the ash has on the climate.

***Our vulnerability is increasing:***

**In the last half of the 20th century our vulnerability has increased**. This is because of various factors such as:

1. ***Economic factors*** – The exploitation of the environment e.g. **deforestation makes us more vulnerable**. The **decreased amount of interception** by trees makes the ground more saturated, which can ultimately lead to an **increase in the amount of landslides**. Without the roots of the trees **it disrupts water flows within the ground**, which can lead to rivers overflowing, **leading to flooding**.
2. ***Population growth*** - the **population has grown significantly over the past decades with 2.5 billion people in the 1950s growing exponentially to 6.5 billion in 2005**. The greater number of people means that we have increased vulnerability**. Rural to urban migration has increased** also, so that when a disaster strikes in a **highly urbanised area the costs are extremely high**. In LEDCs especially **people are living on marginal land or flood plains** which greatly **increases their vulnerability**.
3. ***Ageing Population*** – Countries such as Japan and the **UK have an ageing population**, this means that when a disaster strikes they are **more susceptible** due to the fact they **are less mobile** and therefore have **less capacity to cope** before a disaster occurs.
4. ***Technological Factors*** – The belief that we have in the modern day is that we can predict and control the effects of a natural hazard. This has partly been our downfall, as we are **so reliant on these technologies and the infrastructure** such as power, water, and gas that we are making **ourselves more vulnerable**. Finally this infrastructure that is designed to protect, can make us **more vulnerable** when a disaster strikes e.g. gas main burst causing fires.

**Capacity:**

**Our capacity to cope is how capable a community is to absorb the impacts of the disaster and recover from the effects.** For example people in Japan have increased their capacity to cope for

earthquakes by regularly practising what it would be like in the event of one occurring. However people living in slums have a lower capacity to cope due the poor buildings which they live in and this therefore increases their risk.

***Our capacity to cope is decreasing***

Overall our capacity it cope is decreasing as when a disaster strikes communities need money and tools to cope with its affects. However unfair trade agreements and large amounts of debt due to corrupt governments means that the most vulnerable lack these resources. Furthermore rural to urban migration has increased which means that there is extra pressure on services within urban ares to provide help, aid and emergency care after a disaster.