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# Hazard Assessment, Risk, Mitigation and Preparedness

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#### Hazard Assessment, Risk, Preparedness and Mitigation

#### **Objectives:**

■ Conduct hazard identification, hazard assessment and hazard mapping and explain their functions

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Introduction to the concept of risk, preparedness and mitigation



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#### **Secondary Hazard**

These are hazards that follow as a result of other hazard events. Hazards secondary to an earthquake may be listed as follows to illustrate the concept. Primary hazard is the earthquake. Secondary hazards are

- Building collapse
- Dam failure
- Fire
- Hazardous material spill
- Interruption of power/ water supply/ communication/ transportation/ waste disposal
- Landslide
- Soil liquefaction
- Tsunami (tidal wave)

#### **Multiple Hazards**

When more than one hazard event impacts the same area, there arises a multiple hazard situation. These different hazard events may occur at the same time or may be spaced out in time

#### **Return Period of Hazard**

Majority of hazards have return periods on a human time-scale. Examples are five-year flood, fifty-year flood and a hundred year flood.

This reflects a statistical measure of how often a hazard event of a given magnitude and intensity will occur.

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#### **Hazard Assessment**

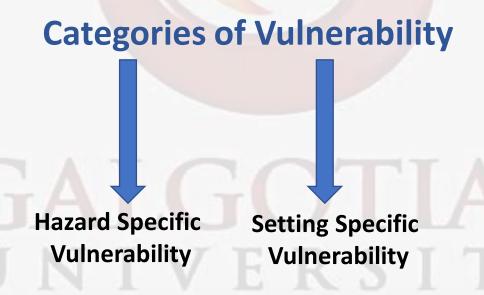
"The process of studying the nature of natural /man made hazards determining its essential features (degree of severity, duration, extent of the impact area) and their relationship".



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# **Vulnerability**

Vulnerability is a concept which describes factors or constraints of an economic, social, physical or geographic nature, which reduce the ability to prepare for and cope with the impact of hazards.



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#### **Concepts of the Risk and its Analysis**

- Risk is a combination of the interaction of hazard, exposure, and vulnerability, which can be represented by the three sides of a triangle.
- If any one of these sides increases, the area of the triangle increases, hence the amount ofrisk also increases.
- If any one of the sides reduces, the risk reduces. If we can eliminate one side there is no risk.



Three elements of Risk Triangle:

- Hazard
- Vulnerability
- Exposure

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# Mitigation in Disaster Management

Long term risk reduction measures taken prior to the impact of a disaster to minimize its effects (sometimes referred to as structural and non-structural measures)

# **Preparedness in Disaster Management**

Short term risk reduction measures taken in anticipation of a disaster to ensure that appropriate and effective actions are taken in the aftermath





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#### **References:**

1. Arambepola, N.M.S.I. (1999) Multiple Hazard Risks: M1-04, *Natural Disaster Mitigation Course*, CHPB, Sri Lanka.

2. Burton, I. And Kates, R.W. (1964) The perception of natural hazards in resource management, *Natural Resources Journal* 3, 412-41

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