STUDENT'S NAME:

UNIT TITLE:

COURSE TITLE:

INSTRUCTOR'S NAME:

DATE OF SUBMISSION

**Describe Common Natural Hazards and its characteristics**

The following are common natural hazards

**Floods:** inundation of extensive land area with water for several days in continuation.

Flooding is associated with significant rise of water level in a stream, lake, reservoir or

Coastal region.

**Storms:** wind with a speed between 48 and 55 knots.

**Tsunami:** the seismic waves caused by an earthquakes traveling through sea water,

Generating high sea waves and cause great loss of life and damage to property.

**Hurricanes:** Large-scale, closed-circulation system in the atmosphere above the western

Atlantic with low barometric pressure and strong winds that rotate clockwise in the

Southern hemisphere and counterclockwise in the northern hemisphere. Hurricanes are

Cyclones of tropical origin with wind speed of at least 118kph. A hurricane is a large,

Rotating storm while the winds moves around a relatively calm center called the “eye”.

Usually a hurricane lasts several days. These storms are known as “typhoons” in the

Western pacific “cyclones” in the Indian Ocean and “baguios” in the Philippines.

**Volcanic eruptions:** an event caused by acidic lava that flows only a short distance

Before cooling and solidifying. The build-up of material blocks the vent, which raises the

Pressure and results in a series of violent blasts where pyroclastic material is ejected.

**Droughts:** a naturally occurring phenomenon that occurs when precipitation is

Significantly below normal levels, causing water level to drop and vegetation to die. This

Extended period of dry weather usually lasts longer than expected and leads to significant

losses (crop damage, water supply shortage) in a community.

**Landslides:** in general, all varieties of slope movement under the influence of gravity.

More strictly, the term refers to down-slope movement of rock and / or earth masses

among one or several slide surfaces.

**Earthquake:** Tectonic forces caused by endogenetic thermal conditions of the interior of

the earth. An earthquake is a motion of the ground surface, ranging from a faint tremor to

a wild motion capable of shaking buildings apart and causing gaping features to open in

the ground. The earthquake is a form of energy wave motion transmitted through the

Surface layer of the earth in widening circles from a point of sudden energy release, the

focus.

**Characteristics of Hazards**

Hazard events may be discussed according to several characteristics of magnitude,

frequency, duration, areal extent, speed of onset, spatial dispersion and temporal spacing.

These dimensions define a hazard and can determine the type of response each requires

or permits.

**a) Magnitude:** describes the strength or force of an event. In order to assess the

magnitude, one must first have a base line for comparison. In the case of floods for

example, magnitude is often described as the maximum height of flood waters above

average sea level, flood stage, or simply above ground. For seismic events, magnitude is

measured on the **Richter scale** which is an estimate of the amount of energy released by

an earthquake. But the strength of an event can also be measured by more than it has

physical characteristics. **Intensity** provides a useful measure of the severity of an event

based on the subjective human experience of it. For example, the **Modified Mercalli**

**scale** measures the intensity of earthquakes based on damage to structures and the human

experience of the event. For hurricanes, the **Saffir-Simpson scale** is a measure of both

intensity and magnitude. It evaluates hurricane strength and impact based on a five-point

scale with Category 5 hurricanes listed as the most severe and destructive

**b) Frequency:** describes how often an event of a given magnitude or intensity occurs.

This can be given in qualitative terms such as "frequent" or "rare," or in more quantitative

estimates such as recurrence intervals. For floods, a recurrence interval of 10 years

suggests that in any year, a flood of that magnitude has a 1 in 10 (10%) chance of

occurring.

**c) Duration:** is another temporal dimension that describes how long an event persists.

This can range from periods as short as several minutes for an earthquake, to periods as

long as decades or more. For example, floods may last for weeks and drought for years.

**d) Areal extent:** is a measure of the space covered by an event. Some hazards like a

tornado or a small gasoline spill may have a small areal extent; others such as droughts or

major nuclear accidents (like the one at Chernobyl in 1986), affect large geographic

regions while a flood or a lava flow may cover many hectares of land.

**e) Speed or rate of onset:** refers to the length of time between the first appearance of the

event and its peak. We can think of rapid onset events such as tornadoes, earthquakes and

nuclear power plant accidents or slow onset hazards such as soil erosion, pollution, or

drought. The speed of onset is a hazard characteristic that is crucial in efforts to avoid

some of the worst impacts of hazards. Indeed, much of modern hazard management effort

is geared toward improving our ability to detect signs of an impending hazard event as

early as possible so as to expand the time between signal detection and the peak of the

event for warning and possibly evacuating vulnerable populations.

**f) Spatial dispersion** refers to the distribution of hazards over the space in which they

can occur. Spatial dispersion is a useful measure of the geography of hazards because it

differentiates between hazards that occur within a particular region and those that are

more widespread. For example, although tornadoes can occur just about anywhere in the

US, they primarily occur in the "tornado belt" of the Central Plains from Texas to

Nebraska. Drought and heat waves are usually much more wide spread in occurrence

than other events.

**g) Temporal spacing:** describes the sequencing and seasonality of events. Some hazards

are quite random in their timing (industrial accidents, volcanic eruptions), whereas other

hazards have a seasonal or regular periodicity (tornadoes, hurricanes). The implications

of temporal spacing for hazard management are quite clear; if you can expect certain

hazards to be more likely in certain seasons or at relatively regular intervals, you can be

ready to communicate the risk to potentially affected populations in a timely manner, and

mount the necessary efforts to allow you to respond more quickly and effectively to an

emergency. Randomly occurring hazards are much more challenging to emergency

response agencies because they require a low level of preparedness at all times for the

rare case that requires quick, efficient, and effective responses.

**h) Exposure**: refers to the nature of exposure which is an important concern in reducing

risk and mitigating the impact of hazards. For example, is exposure voluntary or

involuntary? With many environmental hazards, we have little control over whether or

not we are exposed to them; we can neither control the weather nor stop earthquakes. On

the other hand, we do have some degree of choice (voluntariness) about where we live

(e.g., floodplains, coastal regions), what kind of food we eat (e.g., organically or

commercially grown produce), or what types of activities we engage in (e.g., scuba

diving, using drugs, or smoking) that directly affect our vulnerability to some hazards.

These characteristics of hazard events are significant when measured in terms of the type

of response each requires or allows. Of these seven characteristics, the most salient is

magnitude as it denotes the essential characteristics of a hazardous event (impact of

destruction).

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