

**6<sup>th</sup> sem. Hons., CC-14,**  
**Factors of Vulnerability and its Dimension**  
**Study material prepared by SurajitLet**

**The key factors of vulnerability are defined as follows:**

**1. Exposure:**

**Exposure** describes the extent to which a unit of assessment falls within the geographical range of a hazard event. Exposure extends to fixed physical attributes of social systems (infrastructure) but also human systems (livelihoods, economies, cultures) that are spatially bound to specific resources and practices that may also be exposed. Exposure is then qualified in terms of spatial and temporal patterns.

**2. Susceptibility**

Susceptibility (or fragility) describes the predisposition of elements at risk (social and ecological) to suffer harm. Although susceptibility and fragility imply subtle differences in various concepts, we mainly use them synonymously within the meta-framework in order to emphasize the core differences between exposure, susceptibility, and lack of resilience. In this context, susceptibility (or fragility) can be calculated and addressed often independent of exposure.

**3. Lack of resilience**

**Lack of resilience** or societal response capacity is determined by limitations in terms of access to and mobilization of the resources of a community or a social-ecological system in responding to an identified hazard. This includes pre-event risk reduction, in-time coping, and post-event response measures. Compared to adaptation processes and adaptive capacities, these capacities focus mainly on the ability to maintain the system in light of a hazard event impacting the system or element exposed. In this sense, the capacity to anticipate, the capacity to cope, and the capacity to recover can include significant changes to existing practices around a referent hazard event/scenario but does not include learning based on the potential for future change in hazard and vulnerability contexts. However, the concept of resilience also includes learning and reorganization processes, and therefore is positioned as a subcomponent of the adaptation box. Compared to the key factor “lack of resilience”, which refers to existing capacities, the adaptation box also deals with the ability of a community or a system to learn from past disasters and to change existing practices for potential future changes in hazards as well as vulnerability contexts.

**4. Potential Occurrence :**

Hazard is used to describe the potential occurrence of natural, socio-natural, or anthropogenic events that may have physical, social, economic, and environmental impact in a given area and over a period of time. Therefore, hazard is defined by the potentiality of geodynamics or hydro-meteorological processes to cause effects upon exposed elements. In addition, the

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concept of coupling emphasizes the framework's assertion that any defined hazard is given form and meaning by interaction with social systems, and similarly, social systems are influenced by their actual and perceived hazard context.

**Multidimensional Vulnerability**

In addition to key factors of vulnerability, core thematic dimensions of vulnerability have to be addressed within a holistic assessment process. Key thematic components are explained as follows:

**SOCIAL DIMENSION:** propensity for human well-being to be damaged by disruption to individual (mental and physical health) and collective (health, education services, etc.) social systems and their characteristics (e.g., gender, marginalization of social groups).

**ECONOMIC DIMENSION:** propensity for loss of economic value from damage to physical assets and/or disruption of productive capacity.

**ENVIRONMENTAL DIMENSION:** potential for damage to all ecological and biophysical systems and their different functions. This includes particular ecosystem functions and environmental services (see e.g., Renaud, 2006) but excludes cultural values that might be attributed.

**INSTITUTIONAL VULNERABILITY:** potential for damage to governance systems, organizational form and function, as well as guiding formal/legal and informal/customary rules—any of which may be forced to change following weaknesses exposed by disaster and response.

The majority of assets and systems exposed to hazard will exhibit more than one dimension of vulnerability.