

6th sem. Hons., CC-14,
Concept of Risk
Study material prepared by Surajit Let

Risk

In general terms, the word Risk means an apprehension or a threat of something untoward happening. In the words of James Neill, the concept of “risk” usually refers to the probability of loss of a ‘valued resource’. The word risk is one of the most notable examples of a word with multiple usages in that a risk may refer to a chance or a probability (“risk of exposure”), a consequence or impact (“the risk from smoking”), or a perilous situation (“a hazardous waste plant creates a risk”).

Risk is a technical concept, which is used by engineering and management specialists to arrive at an estimation of losses in the event of a disaster and the expected probability of its occurrence.

Risk is precisely defined by the International Strategy for Disaster Reduction (ISDR) as **“the probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions”**. Conventionally, risk is expressed by the notation:

$$\text{Risk} = \text{Hazards} \times \text{Vulnerability.}$$

Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. In scenario analysis, risk is different from threat. Threat is a more abstract concept; risk is an expression of perceived threat in specific terms. Threat is a danger that has an extremely low probability of occurrence. For purposes of public policy, threat has to be articulated objectively in terms of component risks, the probability of their occurrence and damages involved. The difference is most clearly illustrated by the ‘precautionary principle’, which needs specific articulation of risks involved for development of comprehensive strategy to mitigate risks involved. A set of well-defined risks has to be derived from threat before an action; project, innovation or experiment is allowed to proceed. For example, apprehension of terrorism was a threat. No policy could be devised to meet the threat, which led to September 11 attacks in United States. Threat was not articulated as risk for preventive policy in this regard. Vulnerability is understood as system faults or weaknesses, which a threat exploits to create the negative ‘impact.’ Risk management involves minimising the vulnerabilities so as to reduce the impact of the threat. Risks, created, or exist, are both inherent in social systems, due to specific environmental variables in the ‘ecology’ of a system. The ecological context is therefore significant in understanding of vulnerabilities of people in different cultures as the causes of vulnerability and the level of risk perception in different countries is likely to be different. Risks are mainly witnessed due to the increased pressure on resources or because of the side effects of external linkages and interventions. Intense use of a resource in mountains exposes them. As a result, it leads to serious degradation. Major forces behind such intensified resource use are rapid population growth, market induced demand, greed of the rich and resource exploitative public policies.

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Irrespective of the factors behind resource use intensification, invariable consequences are the disruption of conditions conducive to biophysical processes that finally harm the stability and sustainability of mountain environments.

Historical Progression of 'Risk' The study of Risk is said to have begun during the Renaissance, when all traditional beliefs were subjected to rational critique. The concept of risk flourished since Blaise Pascal's theory of Probability when risk came to be associated with "probability, uncertainty, occurrence or recurrence of events, the consequences of these events and the human choices involved therein. It has since been applied in game, science, engineering, and business, among other areas of socio economic activity. The related concept of 'uncertainty' evolved further when, in 1703, Gottfried Von Leibniz argued that things are not entirely predictable but actually quite uncertain and the uncertainty has to be enquired into for better understanding of natural processes (Guzman, 2005). Today the study of risk is formalised as an academic arena with great practical relevance, denoted by the label, 'Risk Management.'

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In the context of risk, a pertinent idea is that of locus of control. Locus of control refers to the origin of causation, that is, whether an event lies outside or within one's control. A person's locus of control belief is also referred to as "attribution". Attribution refers to how people perceive events, that is, whether with a fatalistic attitude or with a belief in human causation. Locus of control determines the cultural or attitudinal vulnerability of a community. As per Guzman, understanding of risks is what distinguishes the modern civilisation from the ancient Greek, when natural events were considered visitations of Gods, attributed almost completely to fate. Also, the understanding of hazard, vulnerability, disaster et al, was diffused as the terms were interchangeably applied to refer to all kinds of disastrous situations. Modern civilisation has since inquired into natural phenomena 'rationally' and relied on collective societal action to meet the challenges. The result has been better control over life and growing confidence in human ability to unravel mysterious phenomena.

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Reducing the risk of disease has been a phenomenal achievement in the last century and a half. As referred in the United Nations Disaster Management Programme (1994), “the average life expectancy of someone born in Europe in 1841 was 35 years. Now in most high income countries it is over 70 years and over 50 years even in the 40 poorest countries.” The coin however, has a flip side. Development has brought about new challenges and new risks in that the automobile has cost many lives; energy supplies and industries have introduced new hazards and so on. The scenario as it obtains at present is that risks have been ever present, only the nature of some seems to have changed in that technological risks and those arising from human conflict such as war and terrorism seem to have replaced some of the common ones, like disease. One extraordinary and probably unforeseen as also unexpected consequence of development has been environmental degradation and global warming consequent upon climate change. Natural hazards seem to have got more frequent and also more ferocious, although one could not, with certainty trace the effect(s) to a definite cause(s). Hazards are increasingly manifest now as compound and multiple phenomena, which has made unraveling and strategising for the same increasingly difficult. Some such uncertainties are recounted as follows by Emmanuel D. Guzman:

- 1) “Unpredictable global climate changes have a definitive but not fully understood impact on the occurrence and magnitude of disasters precipitated by natural hazards;
- 2) The combined effects of several natural phenomena aggravate the potential damage;
- 3) The estimation of probabilities and damage potential depend largely on social and political context;
- 4) Because of population density and increased use of technologies, natural events trigger secondary impacts released from technologies and other human made facilities, and natural catastrophes interact with technological social and lifestyle risks.”

Accordingly, the definition of risk management has been expanded, under the aegis of United Nations to include the notion of uncertainty. “Risk’ is now defined, as the possibility that an expected outcome is not achieved or replaced by another or that an unforeseen event occurs.” This is a broad view of risk that includes both uncertainty due to future events and the consequences of limited knowledge, information and experience. The understanding has significant implications for policy craft in that it is likely to make the process more inclusive and broad based/ collaborative across disciplines given the recognition of the limitations attendant on limited perspective.