

**6th sem. Hons., CC-14,
Requirements in Risk Assessment
Study material prepared by SurajitLet**

REQUIREMENTS IN RISK ASSESSMENT :

Understanding Risk in the context of disaster management entails probing the physical, social, economic and cultural/attitudinal vulnerabilities of communities at risk, which increase susceptibility to harm. To understand the multi faceted nature of risk, a technical analytical process, variously described as hazard assessment, vulnerability analysis and risk analysis is undertaken which provides insight into the nature of hazard, its damage potential, the risks involved, ways to mitigate the same, and the constraints (if any) that exist, and charting out the feasible/ desirable course of action.

Risk assessment is a technical evaluation process that seeks to answer all of the above questions. Models in risk assessments have been preponderant in addressing the economic dimension. Economic perspective involves 'rational judgements' based on the cost benefit criterion, whereby utilities should be maximised out of any situation and losses minimised. The classical exposition of this concept is found in Frank Knight's book where he defined the term risk as "measurable uncertainties." The criterion of calculability is the most important feature of the economic determination of risk. Previously such assessments were limited to entrepreneurial behaviour. It has subsequently been extended to examining the potential harmful effects of new technology on people and the environment. Such extension of the 'rationality' criterion to issues affecting peoples' lives has been widely criticised as severely 'bounded' by lack of knowledge regarding all possible outcomes of a decision because of lack of complete understanding of the nature and likely effects of a move on the people.

Restricting risk estimation in disaster management to economic cost- benefit analysis would restrict risk assessment to considering only the policy planners' perspective, neglecting other parties' involved. The approach to risk assessment should therefore be more inclusive in that cognisance should be taken of moral judgments involving protection of life liberty and property of the people involved. According to Scutter, ethical and juridical liability/responsibility of official agencies to assess risk causing or exacerbating risk behavior in crucial decision-making should also be tailored into risk assessments. Such a move would encourage informed decision-making, especially in the matter of public policy where the accountability is to 'diffused publics' rather than an identifiable stakeholder.

Risk assessment may be taken as an integrated approach, which incorporates disaster management techniques and approaches towards vulnerability reduction. To deal with the vulnerability of physical structures and systems and the economic and social systems, a number of approaches and steps are recommended. Creation of proper awareness about disasters and their mitigation feasibility, education and training of personnel, land use zoning and promulgation of building codes, guidelines and bylaws, disaster resistant new constructions as

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well as retrofitting and strengthening of existing buildings, structures and systems, are all the steps towards reduction of vulnerability and mitigation of risk.

Till date, risk assessment techniques have been applied mostly to potential industrial hazards and to the assessment of environmental health risk. The assessment of ecological risk is still not as common, although methods are increasingly being tested and applied, often in conjunction with environmental cost-benefit analyses (for example, in forestry project involving a combination of production and conservation activities, or in the assessment of impacts on natural habitats of water diversions). The main reason for this ecological risk is that the relationship between different human activities and ecological 'chain reactions' in different environmental settings is still subject to great uncertainty. Consequently, there is some resistance towards applying the methodology on a systematic basis. Disaster management institutions will continue to encourage and expand the use of environmental risk assessment and seek to contribute to the development and refinement of risk assessment techniques and their application to new areas.

Risk Management Components

The options available to any society or its administrative and executive bodies to manage risks may, for simplicity, be categorised under the three following headings (Somers, 1995):

- 1) Educationa
- 2) Economic
- 3) Regulatory

Each of the above may be applied in conjunction with others. The policy option, the one most immediately associated with government action should be regarded as encompassing the whole range of regulations from Acts of parliament to guidelines, recommendations, and codes of practice issued from time to time. The techniques used to implement these options are varied and diverse in that they can range from subsidized technology, to hazard identification, to media publicity.

The educational approach can serve to make producers, workers, and the general public aware of the risks so that they make provision for reducing or avoiding these risks. Public

information programmes can enhance health promotion by advocating sensible life- styles such as not smoking cigarettes, having safe sex, limiting fatty foods and regular exercise. Governments can strengthen the impact of these programmes through advertising in the media to vulnerable groups. Community leaders and role models, for example, doctors, film actors or sportsmen can reinforce these messages through examples. Workers can be educated in the hazards of chemicals by courses, posters, films, and by the explicit labeling of chemical

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products. Similarly, consumers can be made aware of the need to handle the pharmaceuticals, household chemicals, pesticides, and garden products with due care and attention. Positive reinforcement, by publicity, can be given to those manufacturers who show corporate responsibility by the safe and judicious treatment of their products, both within and outside their plants.

Economic options provide both positive and negative incentives to measures for control of hazards. The 'polluter pays' is a principle espoused by the Organisation for Economic Cooperation and Development (OECD) with the intention of maintaining equitable trading practices by encouraging polluters to reduce emissions. Other economic instruments include pollution control delay penalties, market emission permits and subsidies for environment friendly production technology. In the first case, schedules are established in which the maximum allowable emissions are decreased over time. Subsidies such as grants for pollution abatement equipment may be used as monetary incentives for pollution control. Tax deductions, rebates and credits all play a part in the fiscal policy of a government's economic control of hazardous products.