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Risk and Vulnerability in a Global Perspective— Challenges and Opportunities

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Risk is the probability of a dangerous event occurring. Vulnerability is the degree to which society can manage dangerous events. Both of these factors increase in the context of natural disasters and complex emergencies, and must be addressed urgently.

For natural disasters, the triggers and hazards may be natural, but the disasters mainly are the result of risks and vulnerabilities created by societal and human forces (e.g., unplanned urban growth). Hazards are expected to increase globally due to climate changes. Risks and vulnerabilities also are increasing in some areas (e.g., HIV/AIDS-affected communities or flood-prone cities with fragile infrastructure); and each disaster increases vulnerability by increasing destitution.

In the last decade, conflict has resulted in increased numbers and severity of complex emergencies. Civilians are targets for violence more than ever before. In addition to increased vulnerability from displacement and economic disruption, the lasting consequences of this violence are reflected in the disability-adjusted life year, measured by the World Health Organization, which shows health-related impacts of conflict (e.g., spread of HIV/AIDS, trauma).

These increased risks and vulnerabilities require action. For natural disasters: (1) preparedness must improve; (2) national capacities must improve; (3) early warning and contingency planning systems must be strengthened; (4) development plans should reflect an understanding of vulnerability; and (5) emergency responses must be more timely, effective, and better coordinated. These efforts can be supported by the use of international development frameworks, that prioritize risk reduction. For complex emergencies: (1) systems for protecting civilians under International Humanitarian Law must be strengthened; (2) responses to crises of displacement must improve; and (3) access to affected populations must improve. All such initiatives should support communities' efforts to address these challenges. The World Conference on Disaster Reduction (January 2005) will be a key opportunity for moving these ideas forward.

Keywords: complex emergencies; disasters; hazards; international humanitarian law; preparedness; responses; risk; vulnerability

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Risks, Threats, Vulnerability and Myths, Paradigms, and Truths

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Universally endorsed terms and definitions are necessary to enable and promote professional communication. For international research, as well as for international operations and cross-professional activities, definitions are even more crucial. Unless a common language is endorsed, research and evaluation of disasters will suffer extensively. This is one reason that necessary data: (1) have not been collected; (2) if collected, have not been converted into information; and (3) if converted into information, this information has validity only within the context for which these data were collected.

Such terms and definitions determine the understanding of what leads to disasters and how they are managed. Until recently, most have focused on management. Fortunately, efforts now are beginning to be directed towards explaining what causes disasters, and how they can be prevented and mitigated. There has been a shift of paradigm from post-event action to pre-event mitigation.

Three key terms are crucial in this process: risks, hazards, and vulnerability. Unfortunately, inaccurate uses of these terms have led to a host of definitions, of which many are expressed as mathematical equations. A minimum of 13 such formulas using 18 words to define risk can be found on the Internet, of which many are in use by renowned organizations like PAHO, UNESCO, the Civil Defence of Norway, etc. Practically all of these formulas seem to violate the linguistic properties of some terms, and certainly this is true of the term "risk". Risk is a mathematical entity exclusively indicating the probability that a negative event will happen, and must not be confused with damage. So far, only the Utstein template seems to acknowledge this. Since all of the others are different, at least 12 of them must be wrong. Nevertheless, they represent the current paradigm for that group or organization within which they are used. This prevents universal application and discussion. Analyses conducted using these diffuse definitions have no external validity, as they cannot be compared.

This should explain partially why disaster management and disaster research have failed to reach the standards that evidence-based science demands, and which has been reached within other sciences. Consequently, disaster medicine and disaster management still are struggling with myths and paradigms that are difficult to eradicate if wrong, and hard to confirm if right. Unfortunately, even renowned persons propagate statements, unaware that they are confusing axioms with myths and paradigms with evidence-based truth. This