

## Book Review of “Measuring Vulnerability to Natural Hazards”

F. Guzzetti

CNR IRPI, Perugia, Italy

MEASURING VULNERABILITY TO NATURAL HAZARDS, EDITED BY: JÖRN BIRKMANN, UNITED NATIONS UNIVERSITY PRESS, TOKYO, 524 PAGES, ISBN-10 92-808-1135-5, ISBN-13 978-92-808-1135-5, PAPERBACK, PRICE US\$ 39.00, 2006.

The United Nations University Press has published a number of books related to natural, environmental, and technological risk assessment and reduction. A welcomed addition to the collection is a volume on the vulnerability to natural hazards. Despite natural hazards causing frequent and widespread damage to the population, the built-up environment, and the economy in many areas of the world, little is known about the vulnerability to natural hazards. This is surprising, as vulnerability is mandatory information to determine risk. Vulnerability essentially is the potential to experience adverse impacts; a measure of the damage suffered by an element at risk when affected by a hazardous process or event. Elements at risk commonly comprise the population, properties, economic activities, public services and the environment.

The book, coordinated by Jörn Birkmann, an academic officer at the United Nations University Institute for Environment and Human Security, and Chair of an International Expert Working Group on Measuring Vulnerability, is a compilation of 24 chapters on the vulnerability to natural hazards and the evaluation of the associated risks. Considered geophysical, meteorological and climatic hazards include earthquakes, volcanic activity, tsunamis, floods, landslides, droughts and cyclones. Emphasis is given to vulnerability measurement for risk reduction or, as the book sub-title reads, to establish disaster resilient societies.

Forty authors – the majority of which are planners, risk managers, and civil defence experts – discuss attempts to measure vulnerability to natural hazards at multiple geographical scales, from the local to the global scale. The individual chapters present different concepts, methodolo-

gies and procedures for measuring vulnerability and coping capacity, ranging from damage functions, retrospective loss and mortality assessment, macro trend analysis, identification of archetypes and patterns of vulnerability, to self-assessment and participatory tools. The assortment of examples illustrates that it is not yet possible to draw general conclusions that fit all concepts and methodologies. The first six chapters set the scene by providing the framework and the theoretical basis for modern vulnerability assessment, including a critical appraisal of the criteria and indicators used to measure vulnerability, and an analysis of the multiple environmental aspects of vulnerability. These are perhaps the most significant chapters of the book. The next sections describe global, national, regional and local attempts to measure vulnerability. Significance of the results obtained varies considerably, indicating that common and consistent approaches to vulnerability measurement for risk reduction are still in their infancy. In general, results obtained by local and regional assessments are more significant than those obtained for the global assessments, some of which appear evident (e.g. that landslide related risk are highest in mountain areas, or that the risk posed by volcanoes are localised). This outlines an intrinsic constraint of global and continental assessments that are evidently limited by the availability and quality of the relevant information. The volume ends with a set of general and specific recommendations, and with an annotated glossary that represents well the Babylonian confusion of languages and terms used (and abused) in vulnerability measurement and risk assessment.

Overall, the book is well produced, it reads well, and it is clearly illustrated, although some of the figures and graphs could have been improved. The price is low. Measuring Vulnerability to Natural Hazards provides theoretical and concrete information on the complex, uncertain, and multifaceted discipline of vulnerability measurement for risk reduction. For this reason, it represents a useful addition to the technical literature, and a good reading opportunity for scientists, engineers, and practitioners interested in measuring vulnerability, and in the design of policies for risk reduction.



Correspondence to: F. Guzzetti  
(fausto.guzzetti@irpi.cnr.it)