



Assessing Human Vulnerability to Environmental Change

Concepts, Issues, Methods
and Case Studies

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Foreword

Most of the world is undergoing fundamental demographic, political, socio-economic and environmental change. The human population is projected to increase from 6 billion in 1999 to 7.3 to 10.7 billion in 2050. The twenty-first century will witness unprecedented expansion in almost every domain of human activity, and greater pressure on resources. Human society will become increasingly vulnerable to environmental change. Natural disasters, technological accidents, biological outbreaks and degradation of life-support systems can result in immense human suffering, and in loss of life, property and infrastructure. The consequences of such events are increasing dramatically.

Assessments of vulnerability, carried out holistically, can provide an important guide to the planning process and to decisions on resource allocation at various levels, and can help to raise public awareness of risks. Such assessments can help to provide answers to basic questions such as who is vulnerable, where and why - answers which are essential when developing early-warning systems to improve preparedness.

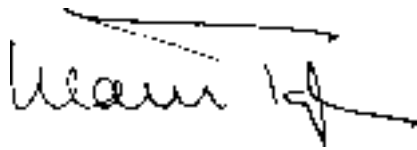
This ongoing process, which reviews various concepts of vulnerability, methodologies for vulnerability assessment, and vulnerability indices, operates within the framework of the United Nations Environment Programme's (UNEP) Global Environment Outlook (GEO).

A new framework for assessing human vulnerability to increasing environmental change has been proposed, which should lead to stronger societal commitment to the environment. Eight different channels through which human welfare will be affected by environmental degradation are: *Damage to Health, Economic Loss, Poverty, Food Insecurity, Loss of Intellectual Property Rights (IPR), Loss of Natural Heritage, Conflict, and Vulnerability Impacts of Extreme Events/Natural Hazards and Climate Change*.

This study concludes that vulnerability is a function not only of exposure to hazards, but also of population density and coping capacity over time. Consequently, poor people in developing countries are more vulnerable than their richer counterparts. Hence the best defence against vulnerability is raising the financial and social capital of the world's poor.

Assessing vulnerability to multiple sources of stress such as environmental changes is a demanding task. I hope that the international scientific community will accept this challenging assignment and develop future research agendas around these themes.

The basic goals of such research would be to provide a framework for assessing the increasing human vulnerability to environmental changes in a holistic manner and to explore and share the subject matter further with academics, policy makers and practitioners around the world. The most important thing is to participate in this adventure and work together to enable multiple dimensions to converge into one and discover, in the phrase of the eminent biologist E.O. Wilson, “the possible consilience”.



Klaus Toepfer
Executive Director
United Nations Environment Programme

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