

Hazards, Climate & Environment Program About the HCEP Approach

About the *Hazards, Climate & Environment Program's* Multi-disciplinary Collaborative Approach to Measuring and Enhancing Community Hazard Resiliency

Introduction: *Hazard vulnerability* can generally be defined as “the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards” (UN/ISDR, from Birkmann pp. 12).

Within this framework, additional measures of disaster vulnerability have been identified as socio-economic status including education, household size, income and savings; infrastructure including housing quality, access to water, electricity and sanitation; and ecological including distance to hazard (such as distance to an earthquake epicenter & aftershocks) and associated environmental hazards (such as soil type or extreme weather).

Human security and the development of resilience to natural hazards are inextricably linked with the political, economic, social and environmental dynamics of a nation, and therefore the climate of such factors must be gauged in order to design innovative, comprehensive and informed solutions to complex health issues.

Environmental Context—*The following aspects of the environment contribute to a community's hazard vulnerability and resilience:* Geography; climate; agricultural production and import/export; water resources & use; natural hazards in region; land use by type and percent; privatization of local natural resources; GIS hazard mapping (historical & projected); degree of environmental degradation; access to improved infrastructure including potable water, basic nutrition, education, roads, electricity, governmental representation and health services.

Historical, Social, Political and Economic Context—*The following aspects of the above-mentioned contexts contribute to a community's hazard vulnerability and resilience:* Population; Rural vs. Urban vs. Peri-Urban disparities; female to male disparities; age-related and special populations issues; political system and stability (recent, historical, projected); local cultures and diversity; inter-cultural dynamics; GINI coefficient; GINI index; Human Development Index score; poverty level; ECHO Vulnerability & Crisis Score (UNDP); demographic transition position; epidemiological transition position; literacy rates; education rates by grade level completion and school completion.

Climate—*The following aspects of climate and climate change contribute to a community's hazard vulnerability and resilience:* sea-level rise; increase in frequency and intensity of natural hazards such as hurricanes, high-wind and high-surf events; increasing acidity and salinity of coastal waters; wetland and mangrove setback and encroachment; beach erosion; less predictable and more severe fluctuations in temperatures and climatic events.