Vulnerability Reduction or Increasing?

- Science-practice interface after 1999 Chi-Chi Earthquake in Taiwan

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Abstract

This case study aims to analyze the lessons of vulnerability reduction efforts, either success or failure, after a devastating earthquake hit Chi-Chi Township region in central Taiwan on September 21, 1999. Scoring 7.3 on the Richter scale, the Chi-Chi Earthquake caused more than 2,400 people dead and 11,000 people injured. Since then, the integrated work for vulnerability reduction has been geared up by scientists, governmental practices, NGOs, and public. These efforts have strengthened resilience for the society in general, however, increasing vulnerability has occurred in some disadvantaged villages where are more vulnerable to frequent mud-sliding and flooding prone areas due to earthquake effects. This study addresses the major efforts of science, policies and practices that have implemented on the region and how these efforts have reduced vulnerability significantly (*core question 11), as well as where and why the science-practice interface is vulnerable to failure (*core question 10). Two villages/communities comparison studies provide examples of these lessons.

Proposed outline:

1. The nature of multiple hazards before and after 1999 Chi-Chi earthquake: the coupling effects of nature and the human system
2. The institutional changes and scientists involvement in policy-making process after earthquake
   - The function of institutional transition in hazards reduction;
   - Re-emphasis of scientific research dimensions from earth science toward social and economic studies and applications;
   - The construction of knowledge-sharing mechanisms
3. Successful and unsuccessful communities: comparison case studies

   - The first community (Pu-li) has a better science-practice interface which incorporated local knowledge that has transformed a vulnerable community to a better recovery practice and greater resilient to external stresses; while another community (Song-ho) demonstrates the science-practice interface to be a failure due to the disregard of multiple nature of hazards as well as social capitals. The later involves vulnerability differentiation among ethnical groups in the area based on their own cultural knowledge and value toward nature and hazards.

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