

## 2010 LUNCHTIME SEMINAR SERIES: BEST PRACTICE IN RISK MANAGEMENT

### Regional infrastructure resilience in floods & earthquakes: A scenario-based approach Tuesday 17 August 2010: 12.15 - 1.00 p.m.

Resilience of complex systems is of great interest to researchers, system operators, and those who rely on system outputs. The focus here is on vulnerability and resilience of infrastructure systems in disasters, specifically earthquakes or floods, from a regional perspective as opposed to a site or individual system perspective. The approach is practice-oriented; while building on important concepts from system resilience, it makes use of extensive interviews and a structured workshop involving infrastructure and emergency managers. We focus specifically on potential infrastructure failure interactions (IFIs) that may prolong and greatly exacerbate the effects of a disaster. Our approach rests on two basic assumptions: (i) previous experience with infrastructure systems in disasters is important in attempting to predict potential IFIs and their consequences, and (ii) the informed and structured judgments of technical specialists familiar with the specific systems and their interrelationships are crucial for understanding potential IFIs, their consequences, and the merits of mitigation efforts to reduce IFI risk. We apply this approach to scenarios of flood and earthquake for metro Vancouver, Canada. Results provide insights into: the degree, extent, and duration of infrastructure disruption; critical interdependencies; discrepancies in expectations between infrastructures; the role of system structure; and key differences between planning for floods and earthquakes. The presentation concludes with a discussion of the applicability of this approach for other hazards and countries.

#### PRESENTER: Stephanie Chang

Stephanie is a professor at the University of British Columbia, Canada, with a joint appointment in the School of Community and Regional Planning (SCARP) and the Institute for Resources, Environment, and Sustainability (IRES). She holds a Canada Research Chair in Disaster Management and Urban Sustainability. Her specialty is in the socio-economic impact of natural disasters, particularly earthquakes. She has co-edited a book on *Modelling Spatial Economic Impacts of Disasters* (2004) and published extensively on loss estimation models for critical infrastructure systems, infrastructure interdependencies, economic evaluation of disaster mitigations, and urban disaster recovery. Dr. Chang has recently served on the editorial boards of the journals *Earthquake Spectra* and *Papers in Regional Science*, and on the U.S. National Research Council's Committee on Disaster Research in the Social Sciences. She received her B.S.E. in Civil Engineering (1989) from Princeton University and Ph.D. in Regional Science (1994) from Cornell University.



The seminar will be conducted by conference link with the presenter speaking from Christchurch

**Cost: Members \$5 / Non Members \$10. No money required in advance - please pay at the door.**

#### VENUES: (RSVP's required)

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[http://www.risksociety.org.nz/professional\\_development/index.php?page=lunchbox](http://www.risksociety.org.nz/professional_development/index.php?page=lunchbox)

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