Interdependency Study of Critical Infrastructure Management in the Border Region

University Research Grant 2009

By Haibo Wang, Ph. D.
October 29, 2008

Introduction: Critical infrastructures are "systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters."[1]. Many critical infrastructure systems can be understood as complex systems with many entities and human participants, all pursuing their own somewhat limited objectives and acting with variable and limited information inputs. The Department of Homeland Security recognizes the following critical infrastructure sectors: agriculture and food, water, public health, emergency services, government, defense industrial base, information and telecommunications, energy, transportation, banking and finance, chemicals and hazardous materials, and postal and shipping[2]. According to congressional report, geographic concentrations of critical infrastructure systems are often associated with combination of social-economic influences such as community preference, resource location, financial interest of publish and private sectors. Such concentration alleviates the vulnerability of human society to the man-made and natural disasters.

Project Objective: The proposed initiative aims at: 1) to utilize the data and knowledge provided by Department of Homeland Security HAZUS data repository and GIS platform to provide decision support for border security management team; 2) to provide training environment for emergency management team with different scenarios through simulations; 3). to help understanding the interdependency among infrastructures which affect human society; 4). to motivate multidisciplinary collaboration to address the issues in border security related infrastructure management; 5) to help border region community to sustain business and organization resilience to disaster and maintain business continuity.