

IMPLEMENTATION: WHAT IS BEING DONE?

Credible estimates of future loss possibilities can be effective tools in encouraging area stakeholders to mitigate against the damaging consequences of earthquakes.

An important objective of this study is to convey that a low-probability event is a potential reality, carrying with it consequences for which the metropolitan area may be ill prepared. To this end, numerous outreach activities have been initiated for:

- ▶ Creating awareness
- ▶ Putting building and soil inventory data into practice
- ▶ Verifying and improving the HAZUS loss estimation methodology, and
- ▶ Mitigating risks and minimizing losses

Creating Awareness

As part of this outreach, a consortium was formed – the *New York City Area Consortium for Earthquake Loss Mitigation* (NYCEM). The Consortium is an umbrella group of interested organizations and major public and private stakeholders from such areas as emergency management, public service, engineering, architecture, financial services, insurance, and academia. As active

participants in the program, the members continue to work to mobilize their contributions of data and information about area building stock, supporting infrastructures, and socioeconomic systems. We are creating awareness of the potential hazards in several ways:

Publications and website

- ▶ Articles in local, regional, and national publications, including the *New York Times* (Dunlop 2002)
- ▶ *MCEER Bulletin*, which regularly reports NYCEM results

- ▶ NYCEM's website (<http://www.nycem.org>), a repository for technical reports, project results, research data, and maps generated by NYCEM

Presentations, conferences, and meetings

- ▶ Workshops and briefings to share information and refine the default data in HAZUS
- ▶ Papers and slide presentations at technical conferences, for key government

agencies, and for emergency management groups

- ▶ Meetings and dialogues with emergency managers and regional stakeholders about the importance of earthquake hazard mitigation

Media activities

- ▶ TV program on The Discovery Channel called, "Earthquakes in New York?"
- ▶ TV focus piece on WNBC-News

Putting Research into Practice

An effective way to stimulate interest is by putting our research into practice. After the 9/11 World Trade Center terrorist attacks, for example, our comprehensive building inventories (1 million individual records) were used effectively for:

- ▶ Assessing and mapping building damage at Ground Zero, as well as estimating roof damage and debris, to assist the Structural Engineer's Association of New York (SEAoNY)

We anticipate that the activities of the Consortium will stimulate broader community interest in joining this important effort.

- ▶ Predicting losses from the 9/11 terrorist attacks several weeks after they happened, using the *HAZUS* loss estimation methodology

Verifying and Improving *HAZUS*

Credible estimates of future loss can be effective tools in encouraging area stakeholders to mitigate against the possible future damaging consequence of earthquakes. Therefore, we are continuing to develop the necessary databases of geologic and building information to verify and improve the default database in *HAZUS*. These efforts include:

- ▶ Simulating real earthquakes (April 20, 2002 in Ausable Forks, NY) to verify the accuracy of loss estimates generated with *HAZUS* software

- ▶ Improving the analysis capability of *HAZUS* through continued research on New York's tall buildings, a "uniquely metropolitan" infrastructure that concentrates value and people

- ▶ Continuing to develop soil data and building inventories to refine the default data contained within *HAZUS*

Mitigating Risks and Minimizing Losses

Some key implementation strategies for mitigating risk and minimizing losses have already been initiated. For example:

- ▶ Establishing a seismic building code for NYC (signed by Mayor Giuliani in 1995), initiated by the Seismic Code Committee (formed in 1989), and implemented by the Structural Engineers Association of New York (formed in 1996)

- ▶ Retrofitting vulnerable buildings and existing infrastructure

- ▶ Better regulating future construction by promoting seismic provisions in building codes

- ▶ Adding earthquake scenarios to emergency response plans before and after an earthquake, including plans for training and drills for employees

- ▶ Promoting legislation that encourages seismic risk reduction, including the use of tax incentives

- ▶ Increasing public awareness of the potential hazards

We anticipate that the activities of the Consortium will stimulate broader community interest in joining this important effort.