Building internal capacity for community disaster resiliency by using a collaborative approach: A case study of the University of New Orleans Disaster Resistant University Project

John J. Kiefer, PhD
Monica T. Farris, PhD
Natalie Durel, MPA

ABSTRACT

This paper describes the development of a disaster resistant community at the University of New Orleans (UNO). It includes the process for obtaining leadership support and “buy in,” for identifying specific expertise within the university community, and for enlisting and ensuring broad stakeholder support and participation in the plan.

In late 2004, the author’s research team at the University of New Orleans successfully sought and was subsequently awarded a FEMA-sponsored grant to develop a Disaster Resistant University (DRU). This resulted in the formulation of a comprehensive mitigation plan aimed at identifying and reducing risks throughout UNO’s campus.

Early in the planning process, the research team decided that, unlike other universities who had been awarded FEMA DRU grants, it would be important to develop local, “in-house” expertise in disaster resiliency to ensure sustainability. Rather than contracting an external agency to develop the mitigation plan, the researchers decided to leverage the disaster expertise already resident in the UNO community. At the same time, the UNO researchers considered it essential to use a methodology in developing the plan that would ensure representation from a broad range of stakeholders. To do this, the research team utilized a unique collaborative methodology in the hazard identification and mitigation process.

INTRODUCTION: A HIGHLY VULNERABLE COMMUNITY

Since 1993, the Federal Emergency Management Agency (FEMA) has awarded millions of dollars in disaster assistance to public and private universities and colleges in the United States to develop disaster-resistant campus communities. The goal of a disaster-resistant university is to create a campus with the ability to withstand the effects of probable hazard events without unacceptable losses or interruptions; in other words, to be resilient. This does not mean creating a campus where there will be no damage from disaster events. Indeed, damage from natural and technological disasters varies by the force and location of the event. A disaster-resistant university strives to mitigate the damage. Steps taken to become more disaster resistant complement the long-term sustainability of the campus and improve the overall quality of life.¹

The University of New Orleans is located in New Orleans, Louisiana, on the south shore of Lake Pontchartrain. The main campus is made up of 195 acres and consists of 20 major academic, administrative, and residential buildings, while the East Campus consists of 200 acres that include an arena with a seating capacity for 10,000 people, sports facilities, and one administrative building. UNO is a public university with an approximate enrollment of 17,000 students (13,000 undergraduates and 4,000 graduate students) resulting in its ranking as the largest university in the city and the second largest in the state. The student body is diverse, with 56 percent white, 22.3 percent black, 6 percent Hispanic, 5 percent Asian, and approximately 800 international students.²
UNO has a substantial influence on the economy of New Orleans as well as the state of Louisiana. The university employs 1,541 faculty and staff, making it the 19th largest employer in Louisiana. Overall, the university generates more than $100 million in research grants and a budget of $194,309,969.

In just the last decade, disasters have regularly affected the university campus, sometimes causing death and injury and imposing monetary losses and disruption of the institution’s teaching, research, and public service. The damage to buildings and infrastructure and interruption to the institutional mission have resulted in losses that can be measured by faculty and student departures, decreases in research funding, and increases in insurance premiums at the least, and injury and loss of life at the extreme. These losses can be substantially reduced or eliminated through comprehensive predisaster planning and mitigation actions.

In 2004, the University of New Orleans successfully sought funding from FEMA to reduce and manage vulnerability to hazards through development of a comprehensive campus mitigation plan. Although the mitigation plan targeted natural hazards, it also focused on multiple hazards including those that are man-made, whether intentional or accidental.

**Lack of a comprehensive community plan**

Over many preceding years, the University of New Orleans had created and implemented a variety of emergency plans to meet such general threats as hurricane, fire, chemical release, etc. However, no comprehensive, integrated, multi-hazard emergency plan existed. This had the potential of placing students, faculty, and staff in danger, and costing the university millions of dollars in lost research projects and damaged infrastructure.

It was evident that a long-term approach to reduce hazard vulnerability on the UNO campus was needed. Systematic and comprehensive advance planning was the logical solution to correcting the often fragmented and disjointed plans resident at the university. The goal was to produce a program of activities that would best mitigate the impact of local hazards. The plan would ensure that the maximum possible mitigation activities were reviewed and implemented in an efficient, holistic approach. It would ensure that activities were coordinated both with each other and with other existing goals and programs, avoiding costly and inefficient redundancies.

**Methodology: Building Capacity Through a Collaborative Approach**

The ability to build the capacity to conduct hazard mitigation planning and have it remain resident within the university community was an important goal of this project. Indeed, similar projects in other communities had often used a “contracting out” approach, leaving little or no internal organizational understanding of mitigation planning at the conclusion of plan development. It was recognized that a research methodology that included a high degree of collaboration by various stakeholders was essential to the development of a user-focused, comprehensive mitigation plan. This approach to hazard planning would produce several important outcomes. It would 1) develop a core cadre of interorganizational expertise in hazard planning, 2) create plan “buy in” through the involvement of a broad range of university community stakeholders, and 3) increase the validity of the plan by involving multiple data sources.

The UNO approach to developing the multihazard mitigation plan incorporated the characteristics of a “Comprehensive Vulnerability Management” paradigm, as suggested by David A. McEntire, et al. This approach calls for “holistic and integrated activities directed toward the reduction of emergencies and disasters by diminishing risk and susceptibility, and building resistance and resilience.” Comprehensive vulnerability management provides a framework for developing proactive, tangible strategies to create disaster resilient communities. Specific elements include:

- an inclusive, holistic approach based on consideration of risks and vulnerability in the physical, social, and organizational environments;
- a primary focus on vulnerability through efforts to identify and reduce all types of disaster vulnerabilities;
an all-hazards approach that addresses all types of hazards, natural or otherwise;

- incorporation of comprehensive emergency management that incorporates and moves beyond the four elements of comprehensive emergency management; and

- participation by a wide range of stakeholders, including public sector organizations, citizens, businesses, and nonprofit organizations.

Multiple methods, multiple stakeholders

The research methodology used multiple methods, multiple data sources, and multiple stakeholders to maximize validity. These included a risk assessment, priority profiling of potential hazards, a vulnerability assessment, focus group discussions, and multiple interviews with key stakeholders. An interdisciplinary advisory team of resident experts from UNO was formed, with team members representing a wide range of offices and departments, including the Environmental Health and Safety Office; the Center for Hazards Assessment Response and Technology (CHART); the College of Urban and Public Affairs (CUPA); University Administration, including the Chancellor’s Office, Academic Affairs, Facility Services, Human Resources, University Computing and Communications; and the Lakefront Arena and Campus Police.

These people were selected for their ability to provide collaborative input, to ensure broad acceptance of mitigation strategies, and to integrate diverse viewpoints in order to create a disaster-resistant university campus. Moreover, because they were a part of the already-established UNO Emergency Preparedness Committee created by the chancellor to discuss emergency issues and strategies on campus, these professionals had the experience of a long history of campus emergency situations.

The research team consisted of five members of the UNO faculty and staff, representing CHART, CUPA, the Environmental Health and Safety Office, the College of Engineering, and two graduate students from CUPA and the geography department. This team had expertise in a broad range of disciplines that included political science, public administration, environmental sociology, environmental engineering, civil engineering, and facilities management.

A systematic process of secondary data analysis

Once the research and advisory teams were organized, the research team conducted an in-depth risk assessment, identifying potential hazards that might impact the university. The research started with analysis of secondary data. Sources included articles in the local newspaper, the Lexis-Nexis database, Internet web sites such as those of FEMA and National Oceanic and Atmospheric Administration (NOAA), claim files held in the University’s Office of Risk Management and the State of Louisiana’s Office of Risk Management, and area and regional hazard profiles compiled by the city of New Orleans and the state of Louisiana. The significant amount of data collected from these sources yielded a list of potential hazards that had historically impacted UNO and the surrounding region.

While secondary data were being compiled and analyzed, a detailed inventory of campus assets was assembled. This inventory went beyond the mapping of the asset locations; it provided the description and value of each asset on campus. The assessment helped determine the actual risk from a potential identified hazard and allowed the research team to estimate potential structural and monetary losses. At the same time, the inventory allowed for some initial degree of prioritization of risk.

The research team also identified three critical structures—the Administration Annex, the University Communications and Computing Center (UCC), and the Central Utility Plant—as particularly vulnerable because of their high concentration of occupancy and/or high-value contents. For these three facilities, detailed engineering surveys were conducted to ascertain structural vulnerability.

A unique visual component of the hazard profile was developed

Using the information generated in the analysis of secondary data as a foundation, a comprehensive Geographic Information System (GIS) map of the
UNO main campus was developed. This tool provided intricate details and descriptions of each building, facility, and infrastructure on campus. It included the location of emergency responders and emergency response equipment as well as the location of hazardous materials on campus. The resulting map graphically provided information to the research team in a user-friendly, intuitive format about campus facilities and infrastructure affected by a variety of potential hazards. In addition to its utility as a planning tool for development of the mitigation plan, the map is now used, maintained, and updated by campus emergency personnel for continuing planning, mitigation, response, and recovery operations.

**Stakeholder involvement adds depth to the mitigation plan**

Based on the secondary information gathered for the initial hazard profile and vulnerability assessment, a refinement of the research team’s understanding of campus hazards was undertaken. This was done using both a focus group and interviews with several subject matter experts. The intent of the research team was to gather additional data that would help them identify additional hazards, narrow the focus of vulnerabilities, clarify alternative mitigation strategies, develop additional strategies, and prioritize those strategies to mitigate UNO against potential natural and technological hazards.

The focus group consisted of four mid- to senior-level UNO Facility Service workers, selected because of their considerable hands-on experience of past hazards that affected the UNO campus. In addition to the focus group, eight individual interview sessions were conducted. The interviewees were a purposeful sample, selected from members of the university’s Emergency Advisory Committee. Each informant provided an important paradigm for understanding risk and vulnerability. The questions the moderator asked were open-ended questions, suggested from a FEMA template provided in their document *Building a Disaster-Resistant University*.

**Coordination with adjacent and responding agencies**

Throughout the mitigation development process, contacts were made with agencies and organizations that were adjacent to the campus and/or would be active participants in a disaster response role. These included the local fire and police departments, the city’s homeland security manager and emergency manager, and the local chapter of the American Red Cross. At the end of the planning process, each of these agencies was sent a notice requesting their review of the draft mitigation plan. They were advised that the draft could be reviewed on the university’s web site, and they were asked to provide comments or revisions as necessary.

**RESULTS: HAZARD IDENTIFICATION, ASSESSMENT, AND MULTIHAZARD MITIGATION PLAN**

As a result of the secondary data analysis, focus group and interviews, and interagency input, an extensive profile of potential hazards was created. This process had been suggested by Dan Henstra, who argued that an important step in building disaster resilience is to identify potential hazards in the community and assess the level of risk associated with them. To that end, various hazards identified through the risk assessment were then prioritized based on the likelihood of occurrence, severity of the hazard, and cost of damage to the university. This information provided a basis for mitigation planning efforts in terms of focus and allocation of resources. The hazards are shown in Table 1.

The research team, in consultation with the advisory committee, next considered a wide range of strategies that could positively affect the impact of the hazards and developed alternatives. They were organized under five general strategies that included:

1. property protection (e.g., relocation out of harm’s way, retrofitting buildings);
2. preventive (e.g., restricted access to sensitive areas, securing power plant);
3. emergency services (e.g., warning, response, evacuation);
4. structural projects (e.g., drainage improvements); and
These alternatives formed the basis for a university “action plan” approved by the university’s chancellor, which specified recommended projects, responsibility for implementing the projects, and a detailed timeline for project completion.

CONCLUSION

The development of a comprehensive, integrated, multihazard mitigation plan for UNO was successful in large part due to its usability and consensus-driven, participatory design. The internal capacity to conduct hazard-focused disaster planning will remain resident within the university community and extends to the myriad departments, organizations, and elements that make up a diverse, urban campus. To supplement the mitigation plan, the university, drawing largely on this resident expertise, conducted a broad range of multicultural community outreach activities and educational forums. For example, the university’s Environmental Health and Safety Office developed tailored programs for special needs populations on campus that include disabled students, faculty, and staff; international students; students enrolled in the Intensive English Program; children enrolled in the UNO Children’s Center; and single students with dependent children living on campus. Other outreach efforts included the development of videos, brochures, and posters containing guidelines and nonstructural mitigation techniques that continue to be disseminated campus-wide.

AUTHOR’S NOTE

This mitigation plan and article were completed just prior to the arrival of Hurricane Katrina on August 29th of 2005. The university, the city of New Orleans, and indeed the entire Gulf Region have only just begun the long recovery process. The University of New Orleans was the first university in New Orleans to begin offering an abbreviated Fall 2005 semester in the wake of this devastating hurricane, with classes starting only six weeks after impact. In a follow-up article, the authors will present an assessment of this new mitigation plan in light of lessons learned post-Katrina.

This paper has not been presented at any meeting. There are no commercial or financial associations that might pose a conflict of interest in connection with this article. Funding for this project provided by the Federal Emergency Management Agency.

John J. Kiefer, PhD, Assistant Professor, University of New Orleans, College of Urban and Public Affairs, New Orleans, Louisiana.

Monica T. Farris, PhD, Assistant Professor and Assistant Director, University of New Orleans, Center for Hazard Assessment Research and Technology, New Orleans, Louisiana.

Natalie Durel, MPA, Research Associate, University of New Orleans, College of Urban and Public Affairs, New Orleans, Louisiana.

REFERENCES