

Working Paper 104

Emergency Management in the 21st Century: Coping with Bill Gates, Osama bin-Laden, and Hurricane Mitch

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2000

INTRODUCTION

The year 2000 is a very interesting junction for emergency management. As a device for discussing emergency management in the 21st century, I have selected three major themes from among the many phenomena and outcomes we experienced in the closing years of the 20th century. They are the emergence of telecommunications in all domains of life, the threat of terrorism throughout the globe, and megadisasters.

Currently, we are experiencing a whirlwind of economic and technological change in the U.S., but how will the new economy and the new technologies affect emergency management? The focus of this paper is on emergency management in the future and some of the key elements of change that appear to have significant implications. Before discussing the major challenges that each of the three themes represent, I would like to make some comments about the current context for emergency management in the U.S. I am using the term emergency management (EM) to encompass the expert systems that manage people and resources to deal with disasters.

The year 2000 is the starting line of a new century, a new millennium, and soon, a new presidential administration. The presidential transition can be said to present both a challenge and an opportunity. Let us assume it is a window of opportunity.

With these transitions, this is a good time to start thinking about past successes, failures, and unmet needs as well. We can then press on to do some new thinking. Some of the relevant issues we must consider in the year 2000 are:

- Our national *economy* has changed rapidly in the last five years or so, with a new emphasis on e-business, e-commerce, and also e-government.
- Our national *work style* is in transition. Telecommunications dominate the nation in all sectors. The mode of work and the tools of work also are changing rapidly.
- The *work force* is changing in size, competencies, and expectations, all of which pose special problems for the public sector. (For example, there are no stock options with public employment!)

BILL GATES: THE CHALLENGE OF THE NEW INFORMATION TECHNOLOGY

New information technology (IT), together with the turmoil and instability surrounding its development and adoption, has - and will continue to have - significant impacts on emergency management. The reality of the new information technology, without going into the whole array of equipment and systems now being used, is awesome but also worrisome. I want to raise some selective concerns:

- According to various technology periodicals, the public sector is years, if not decades, behind in some IT

applications, compared with the private sector.

- We need to know more about the "legacy" systems in emergency management before we can modernize or automate systems. Otherwise we will merely have wired what is not working well.
- Key actors in all sectors may not be doing enough to capture and share the knowledge base for emergency management, including documenting and assessing programs, policies, institutional and organizational arrangements.
- The process of capturing knowledge and experience in a usable form for posterity does not appear to be happening. At a recent FEMA Higher Education Conference, current and future educators in EM were very concerned about identifying and obtaining educational resources.
- Without a knowledge base, not only of hard copy documents but also of sources accessible via the Internet, it will be extremely difficult for faculty and students to engage in "distance learning" in the field of EM. The demand for this new form of learning is growing quickly, but the resources to conduct it are seriously deficient.
- Although student and faculty involved in emergency management use the Internet to do research, the vast majority of hard copy documents that make up the basis of knowledge in the field are not available on the Internet. Furthermore, many state and local officials involved in emergency management are not able to use the Internet (due to lack of hardware and Internet know-how) very extensively for their work. The irony is that those people with the least experience are counting heavily on the Internet, and the practitioners with more experience are not. The essential problem is that of ready availability.

We can expect to see more use of telecommunications technology for all four phases of emergency management, ranging from identifying threats and hazards to maintaining central information repositories of information for victims during the recovery phase. But technology advances are double-edged; the increasing usefulness of these tools and the growing dependency on them by all sectors make those users vulnerable to service interruptions and failures - accidental or intentional.

Special challenges face EM officials in state and local government. Their problems may be even greater than those at the federal level, since they are dependent on federal funding and obligated to engage in planning and response in ways prescribed by federal agencies. Furthermore, the radical changes due to technological advances and globalization are forcing innovation on state governors. "The last time state government faced so much upheaval was nearly 70 years ago [President Roosevelt's New Deal]," according to *Government Technology*, (June 2000). States are in a quandary about their role, and state governors are trying to reassert state roles in the new economy.

OSAMA BIN-LADEN: THE THREAT OF TERRORISM AND THE NEED FOR EXTENSIVE AND SOPHISTICATED COUNTER-TERRORISM EFFORTS IN THE US

Major new pressures are building in Congress regarding counter-terrorism (C-T) and the need for a clear and effective focal point within the federal government for C-T programs/activities. For example, as this paper is being prepared, sizeable appropriations for C-T are pending, while congressional leaders are unhappy with leadership by the Department of Justice concerning C-T. According to a recent issue of *Emergency Preparedness News* (May 9, 2000), some congressional members think that "the c-t program is in shambles and DOJ bears the responsibility for undermining the program." Also some members of Congress want a greater role for the Department of Defense, especially in the event of certain types of catastrophic events.

There has been growing concern with the amount of federal money and the amount of Congressional attention being given to C-T. As this paper is being prepared, some legislative and organizational changes are being considered in Congress. Proposals include some that call for creating a "czar" for C-T in the White House to centrally orchestrate C-T preparation and response. In addition, on June 4, 2000, a presidentially appointed, blue ribbon panel on C-T called for shifting the lead agency responsibility for C-T from the FBI and Federal Emergency Management Agency (FEMA) to the Department of Defense because "the Pentagon's ability to command and control vast resources for dangerous, unstructured situations is unmatched by any other department or agency."

FEMA and the National Emergency Management Association (NEMA) have testified about their concerns regarding separation of EM and C-T. FEMA representatives were quoted as saying, "A new Office of Terrorism Preparedness within the Executive Office of the President could become involved in decisions about mission assignments to other agencies," or possibly involved in the [FEMA Director's] ability to speak directly with the President on such matters as a Presidential Declaration. FEMA Director Witt said he did not want another layer to "slow up the process." NEMA President Stan McKinney said, "There is a desperate need to review all federal terrorism programs, including research and development" (*Emergency Preparedness News*, May 9, 2000).

Does current preoccupation with C-T significantly harm natural and industrial disaster preparedness and response capacity? It remains to be seen if the two main federal response plans (the Federal Response Plan and the National Contingency Plan) can carry the new load of responsibilities inherent in a major C-T response. My own observation is that staff at FEMA and the Environmental Protection Agency (EPA) have been pulled off work dealing with natural and industrial hazards/disasters in order to meet C-T planning needs. I presume the same is true at state and local levels too. In this regard, an important question is: Is the current emphasis on C-T changing the EM landscape temporarily or for good?

HURRICANE MITCH: THE CHALLENGE OF MAJOR DISASTERS IN OTHER COUNTRIES

Hurricane Mitch (1998), which devastated several countries in Central America, demonstrated extreme and unfortunate results when a known hazard agent, a hurricane, caused major, damaging impacts on urban areas and the environment. Additionally, it called attention to the U.S.'s limited ability to assist with international response.

Regarding future major natural hazards and threats, we can expect some catastrophic, so-called "surprise events" and major impacts in the coming years, both from hazards known to us as well as from new ones. I will not go into future threats and hazards here, since I and others have written about them elsewhere (see Rubin, 1998). However, the recently released report *Climate Change Impacts on the United States* (2000), issued by the U.S. Global Change Research Program, made some general predictions for the world as well as offered some suggestions for federal policies and actions:

Global warming in the 21st century will likely cause drastic changes in the climate of the U.S., including potentially severe droughts, increased risk of flood, mass migrations of species, substantial shifts in agriculture and widespread erosion of coastal zones.

The co-chair of the panel said, "There are a lot of local and regional decisions that have to be made now - not just federal policies, - and people have to start thinking hard about what they might want to do."

How Effective is U.S. Emergency Management?

To date, two assessments of natural hazards in the U.S. have been completed in the past 25 years; but we need to go beyond hazards assessments. We have considerable knowledge about the hazards and threats we face currently and in the near future, but, we do not have a great deal of knowledge about emergency management as an important public-sector function. There are few, if any, major analyses of the results and outcomes of major disasters in the U.S., in terms of a) response, including efficiency, effectiveness, and equity of response; b) capabilities of the public agencies and other responders; and, c) desirable outcomes, such as policies, legislation, and organizational changes.

The U.S. has not assessed or evaluated emergency management organizations, operations, or capabilities in a comprehensive way. Nor, to date, have there been any systematic, comprehensive reviews of the major systems - or even major components - in place to plan for and respond to natural and industrial disasters. Some small pieces have been examined, but many questions are unanswered. According to Roger Pielke, who was addressing a roundtable meeting at the National Academy of Sciences, we have little knowledge of policy success or failures (Pielke, 2000). Some examples of the kinds of questions that need to be addressed include:

- What is the effect of receiving (or not receiving) a presidential disaster declaration? How did communities

- denied a presidential disaster declaration manage response and recovery?
- How effective has the National Flood Insurance Program been?
- How effective and efficient are the Federal Response Plan (FRP) and the National Contingency Plan (NCP)?

Concern about State and Local Government EM

Although this paper addresses mainly the federal emergency management system, similar questions should be raised about the state and local systems and organizations in place. Their problems may be even greater, since they are dependent on federal funding, and they are mandated to engage in planning and response in ways prescribed by federal agencies.

As noted above, our rapidly changing economy and society are forcing innovation by state governors, state agencies, and others, and government emergency management agencies at all levels are reconsidering their roles and reasserting their positions in this new economy and new order.

THE DISASTER TIME LINE

Given the need to assess the current state of disaster management in our rapidly evolving world, it is appropriate here to examine the recent past in emergency management in the U.S. and not forget what got us to this point. With the assistance of Irmak Renda-Tanali, I created the *Disaster Time Line: Selected Milestone Events and their U.S. Outcomes (1965-2000)* as a teaching aid for students in emergency management. I selected a group of major natural and industrial disasters that seemed to be "defining events" with respect to emergency management at the federal level in the U.S since 1965. The *Disaster Time Line* shows those major disaster events and the resulting major studies, policies, legislation, and organizational changes that occurred. Most importantly, we attempted to show the causal relationships between events and outcomes in a graphic format.

Based on our work on the chart and feedback we have received, I offer the following observations:

- *Documenting the events and their outcomes is a lengthy and complicated task.* This is significant because, if the events and outcomes are hard to understand and document, then practitioners with operational responsibilities to fulfill under the existing systems must also be experiencing great difficulties doing their jobs.
- *The full 35-year array of events and outcomes clearly demonstrates that major policies, legislation, and organizational changes are reactive.* Legislation, policies, and programs undergo major changes mainly in reaction to major damaging events. Furthermore, EM at the national level has been built by accretion, with incremental changes to the existing systems and organizations being made across decades.
- *Not much is known about the historic interrelationships between events and outcomes - i.e., policies, legislation, programs, and activities.* I interviewed some of the key actors and "living legends" to learn about these links, but research on the causal relationships remains to be done, although Birkland (1997) has made a start.
- *Several national response systems exist.* The Federal Response Plan and the National Contingency Plan are just two of them. The *Disaster Time Line* intentionally highlighted these two distinct response systems that exist to deal with natural and industrial hazards/disasters.
 - Although intentionally including both natural and technological hazards made the graph more complex, I determined that it was essential to show both sets of hazards/disasters and their respective response systems.
 - The approaches to these two kinds of hazards have evolved and grown gradually, with changes being made by accretion to the legislation, policies, response systems, and federal organizations.
 - Two major response systems (the NCP and the FRP) appear to have been working reasonably well, although no formal evaluations have ever been done.

Returning to the theme of counter-terrorism, efforts to incorporate C-T response into existing federal disaster response have resulted in systemic changes, particularly in the past five years, to the two major systems in place. Examples of some of the changes to deal with new threats from terrorism and weapons of mass destruction include:

- *New regulations and organizations to implement them* - Several Presidential Decision Directives (PDDs) have

been issued in the last five years, and they were followed with new organizational actors and organizational arrangements (e.g., FBI and Department of Defense)

- *New distinctions in response actions and new lead roles and responsibilities for new agency actors* - A new distinction has been made between "crisis management" and "consequence management," with the Justice Department responsible for the former and FEMA for the latter.
- *Different roles and responsibilities for the nongovernmental organizations active in disasters* - C-T planning tends to ignore some IT needs and also the role and functions of the nonprofit sector (especially voluntary agencies active in disasters).

The years 1995-2000 provide insights into what might be coming next:

- *Dealing with terrorism* - This recent period shows a large number of new PDDs and many other C-T-related changes in response plans and organizational arrangements at the federal level to deal with C-T.
- *Use of the Internet and the World Wide Web (WWW)* - Since 1995 we have gone from the Internet being a "strange bird" on the horizon to the standard for telecommunications. In about six more years it is estimated that the Internet will be as large an enterprise as the phone company. The two systems may even grow into one.
- *Y2K as a major threat but not a disaster* - Y2K ushered in the new century and set the stage for new types of technological threats that will only become more and more likely. Y2K was an example of the new, major sudden "surprise" threats and disasters that can occur within the yet to be understood Internet and WWW systems and apparatus. Additionally, the Y2K computer problem appears to have captured the attention/investment of the private sector regarding business continuity planning. It exemplified the old adage, "A good scare is worth more than good advice."

SOME POSITIVE ACCOMPLISHMENTS AND OPTIMISM FOR THE FUTURE

(With thanks to Professors William Waugh and Rick Sylves for their suggestions)

Regarding the three themes mentioned initially, it is important to note there is progress and hope in efforts to date to deal with them.

- *More people seem to care about hazards/disasters and emergency management.* We do not know why, but it may be recent events, such as El Nino, Hurricane Mitch, the two recent major urban earthquakes in Turkey and Taiwan, and Y2K, have raised awareness and stimulated interest.
- *There is a huge interest/demand for knowledge, education, and training in EM.* In late June 2000, FEMA hosted its Third Annual Higher Education Conference, which attracted about 80 educators from the U.S. and a few other countries. At present, there are 66 college/university programs available in 47 states concerning EM. This is a major jump from just one year ago.
- *EM is not only a public-sector concern, but increasingly the private sector has become aware of vulnerabilities to offices, plants, and other facilities* and has taken responsibility for business protection and business continuity. This is probably one of the most positive outcomes of the extensive Y2K preparations.
- *At the international level, disasters and EM have a higher profile.* The U.S. needs to think about how to bolster its capabilities to help other countries prepare for and respond to major disasters. There is significant value to the U.S. itself regarding the country's provision of assistance during international disasters because the experience and learning that occurs is useful and can be applied in our country. Nevertheless, there are serious limitations in the size and capacity of the staff of the U.S. Office of Foreign Disaster Assistance (OFDA) (which has a staff of about 60) who are quick to admit their agency's limitations.
- *Use of the Internet has had many positive outcomes for EM:*
 - It allows wider and quicker dissemination of information.
 - It facilitates and expedites education and training of an international audience.
 - It brings information and assistance closer to the grass roots level.

CAN WE SAVE THE FOUNDATION

BUT MODERNIZE THE HOUSE?

There are at least two schools of thought regarding the future of emergency management. They can be characterized in simple terms: 1) the past is prolog; and 2) the future is nothing like the past.

School #1: Review of the Existing Structure: Past Operations and Accomplishments

Some major assessments are needed, especially of programs and systems that are 20-25 years old. Before we can move forward to change and modernize the EM systems, some questions need to be addressed:

- What have we done well in emergency management and why?
- What have we not been doing well and how could things be improved?
- What new threats are likely in the near term and in the more distant future?
- Can we determine priorities for preparing for future threats?

School #2: New Modes of Operation and Frequent Organizational Changes Can Be Anticipated

New methods of working and communicating (particularly among all levels of government EM agencies) will be needed, and great speed in decision making will be assumed - and therefore will become necessary.

RECOMMENDATIONS FOR FUTURE ACTION

In dealing with the modern challenges and issues I have discussed, two needs are clear: 1) a more action-oriented effort, including an assembly of forward-looking experts who on an ongoing basis can assess new needs and provide scientific and expert opinion to those persons who are responsible for emergency management planning and operations; and 2) a strong infusion of new knowledge (scientific and behavioral) and new technology. We need on-going, future-oriented input provided to *all* of the federal agencies engaged in emergency management to a significant extent.

Recommendation #1

An expert Panel on the Future of Emergency Management should be formed, composed of experts from all sectors, to serve as an advisory committee to the many agencies involved in EM. Emphasis should be given to the science and technology needed to be effective and efficient in the present and in the future. Such a panel could be convened under the aegis of the Office of Science and Technology Policy in the Executive Office of the President or by the National Academy of Sciences.

It is essential to take a comprehensive, macro-level view of EM to establish a balanced all-hazards approach and not to address each new concern with special, ad hoc attention. *We need a National Strategy for Emergency Management, developed through a process that provides for periodic review and update.*

Related Recommendations

On August 6, 2000, a similar analysis and recommendations appeared in a *Washington Post* article entitled "Let's Get Real About Risk" (Ropeik, 2000). The author, David Ropeik, states, "When it comes to risk, let facts rule - not fears." He recommends the formation of an independent Risk Analysis Institute that would "rank the hazards we face, so we would know which ones are the most likely to occur; classify risks according to which ones have the most serious consequences; and conduct cost-benefit studies to help us rank mitigation choices by cost and effectiveness, so we would know which options will maximize resources to protect the most people." Ropeik also points out that such an institute could conduct "credible analyses, supporting not a specific policy but rational policymaking in general." In this article, Ropeik noted that [Supreme Court Justice] Steven Breyer in his 1993 book *Breaking the Vicious Circle* recommended the formation of "a small centralized administrative group, charged with a *rationalizing mission* [emphasis added] within government." Robiek continues, "But bear in mind that trust is the most important of all the risk perception factors. An agency of government could not establish that trust."

Recommendation #2

A version of the private sector's approach to dealing with risk and change through the venture capital enabling mechanism needs to be created. Thanks to many potential sources of funding for new ventures, information technology

development has flourished in the private sector. Help is needed for the public sector so that it too can adopt and utilize the best technology for its work. In order to modernize and "electrify" the sharing of disaster information, knowledge, and technology, those persons willing to try new methods and develop new technology applications for the public sector need funding sources that will enable them to take some risks. The entrepreneurs willing to accept the new challenges will need encouragement, flexibility, and financial assistance to do their best work.

ACKNOWLEDGEMENTS

This paper is based on a talk given at 25th Anniversary Hazards Research and Applications Workshop, July 12, 2000, Boulder, Colorado.

The author would like to thank Dorothy R. Schepps for her valuable editorial assistance, as well as the Natural Hazards Research and Applications Information Center staff for the opportunity to prepare this paper for on-line publication.

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August 30, 2000