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Emergency management—both as an area of study and an emerging profession—is relatively young, and, as such, is going through considerable growing pains. One persistent problem is the lack of uniform definitions of key terms by scholars and practitioners (including this author). Among the many concepts that do not, as yet, have an exact definition is the term “hazard.” Lack of agreement regarding how to define this term hurts our understanding of the multicausality of disasters and may adversely affect emergency management (EM) policies and their chances for implementation.

There are two schools of thought regarding the concept of hazards, but it is worth noting that there is not always consistency about which perspective is accepted and applied.1-4 One view is that hazards are reducible to the physical events that trigger disasters. This interpretation of hazards is illustrated in the following definitions:

- elements in the physical environment harmful to man and caused by factors extraneous to him5;
- hazards triggered by climatic and geological variability, which is at least partly beyond the control of human activity6;
- natural phenomena that have the potential to cause fatal and costly damage, such as lightening, windstorms, and floods7;
- an extreme geophysical event capable of causing a disaster3;
- natural geologic processes such as floods, earthquakes, volcanic eruptions, and drought8;
- hazardous processes, such as massive volcanic eruptions, that are beyond human influence8; and
- events accompanied by a violent release of energy exceeding the capacity of human beings to modify their environment9.

The second, and currently more popular, perspective on hazards acknowledges the role of the physical environment but also acknowledges the complex relationship between hazards and human activity. The definitions provided below reflect this approach:

- an interaction between a system of human resource management and an extreme or rare natural phenomenon9;
■ a product of risk, vulnerability, exposure, and the capacity of humans to respond to extreme events; 

■ a threat to people and the things they value arising from the interaction between social, technological, and natural systems; 

■ a threatening condition that exists because humans and their activities are constantly exposed to natural forces; 

■ a naturally occurring or human-induced process, or event with the potential to create loss; that is, a general source of future danger; and 

■ a predisaster situation in which risk exists primarily because the human population has placed itself in a position of vulnerability; and 

■ a source of danger whose evaluation encompasses three elements: the risk of human harm, the risk of property damage, and the acceptability of a degree of risk.

Although this second school of thought is substantially different than the first, those who espouse it frequently refer back to the former, thus rendering the human element a secondary place in the causation of disaster. For instance, one of the proponents of the latter school observes that hazards may be geophysical, atmospheric, or biological in origin. Other research makes similar references, giving the impression that these potentialities are reducible to their sources (environmental, climatological, geophysical, biological, technological, or civil/conflict origin).

It is apparent that most individuals assume a hazard to be the latent threat or active agent that triggers disasters. This view is not incorrect, and, understandably, it is widely used. However, the desire to put this definition of hazards at the center of EM presents unrecognized challenges for the field. Problems inevitably arise when we rely heavily on this concept because it inadvertently downplays human culpability for disasters. The first view tends to completely overlook the role of people, policies, and politics, and the second, while acknowledging vulnerability, relegates it to an inferior position.

According to Blaikie et al., “Too much emphasis in doing something about disasters is put on natural hazards themselves, and not nearly enough on the social environment and its processes.” In other words, we focus excessively on the disaster agent and insufficiently on what we can and should do to better minimize impact and deal with the aftermath. This is ironic in that we cannot stop earthquakes, floods, hurricanes, and the like. We have some control over technological and other anthropogenic hazards (e.g., a hazardous materials spill or a terrorist attack), but our ability to prevent them may be curtailed because of the negligent or intentional actions of others (e.g., businesses that ignore regulations or political extremists who want to intimidate others).

In contrast to the often uncontrollable nature of hazards, we do have the ability to determine our degree of vulnerability to various threats based on our mitigation and preparedness efforts. While it is undoubtedly true that vulnerability can never be completely eliminated, we can and must do more to reduce our risk and susceptibility through land-use planning, improved construction, enforced regulations, insurance coverage, and institution building, among other things.

Scholars have long proposed that we reconsider the “naturalness” of disasters, arguing that we must acknowledge the social construction of such events. It is my opinion that over-reliance on the term hazards in EM perpetuates the myth that we have absolutely no influence over disasters. There are numerous cases of this among civilians, politicians, and the media. Some notable examples come from the 1997 and 1998 Peruvian disasters related to El Niño. During several interviews, taxi drivers decried the effects of El Niño and then asked, almost verbatim, “but what can be done against Mother Nature?” One presidential minister said the government was not to blame because the flooding was part of a natural phenomenon, while the director of Peru’s
Sea Institute reportedly stated, “If it wasn’t for El Niño, the Andes Mountain chain, and the Humbolt current, we would be drinking piña coladas like those in the Caribbean.”

Evidence suggests that we must give greater priority to vulnerability if we are to overcome the attitudinal barriers impeding the progress of effective EM. Many in the field agree with the importance of this concept.20,21 This is not to deny the value of the hazards concept and the need to comprehend complex physical, technological, and anthropological agents. More dialogue among scholars and practitioners will be needed to evaluate the relative merits of these concepts in the future. Hopefully, we will be more sensitive to the possibility that our professional vocabulary may directly or indirectly influence our ability to reduce the frequency and impact of disasters.

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**INTRODUCTION**

All employers face the potential of dealing with workers who act in ways that are contrary to the best interests of the organization, whether it be a unit of government, private business, or other entity. Indeed, personnel issues may consume a large percentage of the emergency manager’s time. While employment law has many potential intricacies, understanding the basics will help emergency managers plan ahead to avoid personnel disputes and also provide insight into the best way to react when problems do occur.

Ideally, both the employer and employee understand it is to their mutual benefit to cooperate in helping the enterprise to succeed. Unhappy workers mean lower performance and decreased satisfaction for the head of the organization. The boss benefits when the group does well, so it is in his or her best interest to assist in that effort. In reality, however, disputes between people at different levels of authority are a daily part of economic and social life. As such, employment law can be very political.

Employment law includes a lot of federal and state regulation, and employers frequently also have extensive standards and guidelines for employees. This is particularly true when a job involves significant potential hazards, as is the case with emergency response and emergency management (EM). Four kinds of legal rules govern the daily life of employees. These include:

1. statutes, which often authorize administrative agencies to take action;
2. the body of law that comprises the rules, regulations, and rulings of administrative agencies;
3. common law tort and contract rules; and
4. state and federal constitutional specifications that delineate employee rights, mostly regarding government employees.

Two types of statutes govern the employment relationship: those that govern collective action (union activity), and those that cover all employees. Collective action is governed by the National Labor Relations Act\(^1\) and primarily relates to federal employment. Federal EM employees, such as those working in the Department of Homeland Security, have extremely limited rights compared with their counterparts in other agencies.\(^2\) State regulation of union activities is frequently preempted by the broad federal statutes.

**TORTS**

Work-related torts cover an assortment of interests. They are discussed briefly below.

*Invasion of privacy*

An employee has only a limited expectation of privacy at work. Generally, however, conduct that can...
be described as “snooping” by the employer goes too far. This does not mean that the employer cannot obtain information on the employee that directly affects workplace performance (like reasonable and impartial testing for drugs or alcohol) or may endanger the employer’s reputation or the safety of other employees. Also, because EM has a role in public safety, employees may have access to classified information. As such, a greater degree of intrusion into employees’ affairs may be appropriate. It is very important, however, to consult with legal counsel before taking intrusive action to avoid potential litigation.

**Defamation**

Employers may not do harm to their employees’ fame, character, or reputation by means of false or malicious declarations. The declaration may be in the form of gestures or action rather than words. In one case, an employer fired an employee, stood over him while he packed his belongings, and escorted him to the door. This was found to be defamatory activity, because it implied that the employee was dishonest and untrustworthy.3

**False imprisonment**

False imprisonment means detaining a person without cause and not permitting him or her liberty to leave, and the person knows he or she may not leave. An example is found in a case where a security guard and the owner of the security service kept a grocery clerk in a room and would not let her use the telephone other than to receive one call during a three-hour interrogation. The guard put himself between her and the door and told her he would decide if she was going to jail.4

**Intentional infliction of emotional distress**

To prove intentional infliction of emotional distress, the employer must have acted in an extreme and outrageous way, must have intended to cause emotional distress or had a substantial certainty that it would ensue, and the behavior must have resulted in substantial emotional distress. Courts have differing ideas about what is outrageous. In one case, an employer ordered an employee to lower his trousers and expose himself to fellow employees. The trial court found for the employee, the appeals court reversed, and the state supreme court reversed again, holding for the employee.5

**Fraudulent misrepresentation**

Fraudulent misrepresentation happens when an employer falsely makes a statement of opinion, fact, law, or intention, intending the employee to act based on it. One employer told an employee that if the employee would accept a job in California, the employer would buy his house. After accepting the transfer, the employee tried to get the employer to buy the home and was fired. The employer’s lie changed the way the employee evaluated the job offer, and recovery was permitted.6

**Intentional interference with contractual relations**

In this case, the employer must act, with knowledge of an existing or possible contract between the employee and a third party, with the intent of interfering with that contract and causing the intended harm. This tort must be carefully kept in mind by EM supervisors, since many contractors attempt to “cherry pick” the best employees to work for them. Interfering with this process, despite understandable anger with the employee, may expose the supervisor and employer to liability.

**Malicious prosecution**

For this action to succeed, one must prove that the antagonist began a legal action, the antagonist lost the case, the antagonist did not have probable cause to begin the case, the antagonist began the case with “malice,” and the case caused harm for which damages may be had. Either employer or employee may use this approach, but courts do not like this type of action. When successful, however, large damages may be won.

**Abuse of process**

Like malicious prosecution, this type of case springs from misuse of the legal system and may be used by either employer or employee. One must prove
that the adversary used the legal system due to an ulterior bad motive, and as such, the legal process was used for a purpose other than that for which it was intended. This occurs, for instance, when someone plants evidence to discredit a person and calls the police to arrest the person.

Blacklisting

This tort involves preventing or trying to prevent an employee from getting future employment. The employee must establish that the employer did this out of malice. Employers have a limited privilege to talk about matters that concern them both. Giving a bad reference is the classic example of this. If false information is given out, there will be a basis to get damages. If the statements are on overall “suitability,” they may be held to be mere opinion or information.7

Constitutional provisions

The US Constitution defines the relationships between the federal and state governments as well as between the government and its citizens. It does not regulate conduct between citizens. It is, therefore, not relevant to many employment relationships. The Constitution does, however, regulate employment relationships in the public sector, as these are between the government and its citizens. Constitutional provisions control government EM programs.

As a general matter, no level of government may exercise its power to take away constitutionally guaranteed rights of employees. The rights of privacy, free speech, and association are those most often at issue.

Right to privacy

Searching a government employee’s desk has been found to be unconstitutional.8 As mentioned above, however, the fact that EM is a public safety entity may create greater opportunities for employee oversight. Again, an attorney should be consulted prior to any potentially invasive oversight action.

Free speech and association

The Supreme Court has ruled that hiring, promotions, transfers, and recalls of a low-ranking government employee may not be based on support for a particular political party.9 The employee’s First Amendment rights of free speech and association would be improperly limited by such a requirement unless party membership can be shown to be a proper prerequisite for effective performance in the job. This would be a difficult matter to prove. In a similar vein, the Fourteenth Amendment’s equal protection clause prohibits racial discrimination by government employers.

REGULATIONS OF SPECIAL INTEREST TO EMERGENCY MANAGEMENT

There are many governmental regulatory programs that affect employment, and their full scope is well beyond this article. Some must be mentioned, if only in passing, because of their effect on EM activities.

Health and safety

Occupational Safety and Health Administration (OSHA). OSHA regulations apply to all workplace activities, including those of government entities.10 The OSHA statute permits states to have responsibility for workplace safety if their programs meet specific guidelines.11 The state standards must be at least as strict as those of the federal government. The emergency manager should become familiar with the regulations that exist pertaining to his or her workplace.

OSHA imposes two duties on employers: provision of a hazard-free workplace and compliance with OSHA standards.12 The OSH Act gives employees several important rights:

- to question unsafe conditions and request a federal inspection;
- to assist OSHA inspectors;
- to bring an action to make the Secretary of Labor seek injunctive relief where there is imminent danger to employees; and
- to gain access to records about the employee’s health and exposure to hazardous substances.13
Employers of 11 or more employees must keep records of occupational diseases and injuries. Failure to do so may result in huge fines.

Workers’ compensation. Government and private-sector employees are typically compensated for their on-duty injuries through workers’ compensation regulations. These vary from state to state. Workers’ compensation programs include “exclusive remedy” clauses, which prevent all but a very small number of lawsuits against employers for workplace injuries. The big exception occurs when the employer clearly intended to harm workers. Federal civilian employees are covered by the Federal Employees Compensation Act (FECA), which provides coverage for temporary or permanent disability due to employment-related injury or disease as well as partial wage compensation.

PROGRESSIVE DISCIPLINE

Many employment contracts use a system called “progressive discipline” to deal with employees who perform below par or contrary to the employer’s rules. Such programs typically call for a graduated set of penalties before an employee can be terminated. An example of progressive discipline would be a verbal reprimand for a first offense, a written reprimand for a second offense, uncompensated suspension for a third offense (typically a period of two weeks), and then termination. Frequently, the written reprimand and suspension periods will be accompanied by a plan for correction. This is a sort of mini-contract in which the manager specifies areas of shortfall, and the employee agrees to correct shortcomings on a schedule. Failure to comply with the plan may result in further discipline.

One challenge with this system is its requirement that managers actually manage. All too often, an underperforming employee is given one verbal reprimand after another, with no written documentation. Eventually, the sum of failures to perform may be sufficient for termination, but the fact that these events have not been noted in the employee’s file may mean the employee stays on for additional time while a sufficient record for termination is compiled. Such a situation may be the basis for discipline of the manager by his or her superiors. This situation is frustrating for the attorneys who must explain the need for such documentation and fight the employee’s appeal.

Of course, where an employee’s actions are illegal or bring the employer into disrepute, like running a gambling ring from one’s desk, immediate termination may be appropriate. Similarly, putting oneself or one’s fellow employees at risk through unsafe behavior, such as a heavy equipment operator who drinks on the job, may also be grounds for immediate termination. Any possible deviation from the system must, however, be discussed with legal counsel before taking place.

AVOIDING ETHICAL LAPSES IN EMERGENCY MANAGEMENT

Both government and business employees are bound by ethical standards. The difference between the two is that ethical standards for business are largely self-imposed, while those binding government employees may be matters of law or policy. Government ethics guidelines apply to the actions of employees whether they are at work or not. The reason for this intrusion into employees’ private lives is that they are seen as representing the government at all times. Public service is a public trust; therefore, government employees must behave in ways that promote trust by the general public. As such, situations such as conflict of interest, moonlighting, or use of government resources for private purposes must be avoided.

The following are minimum standards of conduct for government employees (excerpted from the Indiana Ethics Commission standards):

- Employees are to be impartial in the discharge of their duties.
- Decisions and policies must not be made outside the proper channels of government.
- Public office is not to be used for private gain.
- Employees may not make unapproved use of government property, personnel, or facilities.
- Employees may not use government time for other than official duties.

- Employees may not benefit financially from information of a confidential nature gained through government employment.

- Employees may not solicit or accept outside payments for the performance of official duties.

- An employee may not accept a gift, favor, service, entertainment, food, or drink which could influence the employee’s action.

- Payment for an appearance, speech, or article may not be accepted if the appearance, speech, or article could be considered part of the employee’s official duties.

- An employee may not accept payment of expense for travel, conventions, conferences, or similar activities that could influence the employee’s action.

- Employees may not have outside employment incompatible with their government employment or against their agency’s rules.

- Supervisors may not solicit political contributions from employees they supervise.

- An employee may not solicit political contributions from persons or entities that have a business relationship with the employee’s agency.

THE HATCH ACT

The Hatch Act applies to state and local employees of the executive branch. They must be principally employed by programs financed in whole or in part by loans or grants made by the United States or a federal agency. EM agencies that operate using federal funds made available through EM performance grants as well as employees whose salary is partially paid by programs like the Chemical Stockpile Emergency Preparedness Program (CSEPP) are subject to the Hatch Act. State law and agency regulations also apply to such employees.

State and local employees covered by the Hatch Act may:

- run for public office in nonpartisan elections;

- campaign for and hold office in political clubs and organizations;

- actively campaign for candidates for public office in partisan and nonpartisan elections; and

- contribute money to political organizations and attend political fundraising functions.

Covered state and local employees may not, however, be candidates for public office in a partisan election, use official authority or influence to interfere with or affect the results of an election or nomination, or directly or indirectly coerce contributions from subordinates in support of a political party or candidate.

Violation of the Hatch Act may result in significant penalties. If the Merit Systems Protection Board finds a violation that calls for discharge from employment, the agency must either remove the employee or surrender a part of the federal assistance equal to two years’ salary of the employee. If the board decides the violation does not warrant the employee’s firing, there will be no penalty.17

CONCLUSION

All employers, and particularly those in the field of EM where contract and high-risk employment occur more frequently, will at some point be faced with employee conflicts. When both employers and employees know their rights and limitations under local, state, and federal law, both will be better
protected from unlawful practices and undue risk. Basic knowledge of employment law and clear guidelines for employees provide the best means for avoiding personnel disputes.

William C. Nicholson, JD, Assistant Professor, Department of Criminal Justice, North Carolina Central University, Durham, North Carolina (wcnicholson@nccu.edu). Note: This article is for information only and does not constitute legal advice. For legal advice, consult your own attorney.

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2. The extremely limited rights of Department of Homeland Security employees was the subject of vigorous debate during the adoption of the HS Act.
11. 29 USC § 667.
12. 29 USC § 634(a).
13. 29 USC § 657.
14. 29 USC § 657 (c).
15. 5 USC §§ 8101-8151.
16. Indiana ethics laws and enforcement procedures are detailed at 40 Indiana Administrative Code Article 2 (2004).
17. For further information on the Hatch Act, see www.osc.gov/hatchact.htm.
“The US Senate passed the Voinovich Amendment, adding $56M for Emergency Management Performance Grants to S. 2537, the Department of Homeland Security Appropriations Bill for 2005. This funding will help state and local emergency managers to prepare for, respond to, and recover from all hazards, including terrorism.”

“Figures released today by the National Emergency Management Association show a massive assistance effort under way for the victims of Hurricane Charley through the Emergency Management Assistance Compact. Over 240 emergency services personnel from 21 states are on the ground in Florida and at the National Emergency Operations Center to assist with response and recovery efforts.”

“Serious funding gaps have resulted from the focus on terrorism preparedness in federal grant funding, leaving states to shoulder much of the burden for the costs of natural and manmade disasters.”

As I read these new releases on the National Emergency Management Association (NEMA) Web site (www.nemaweb.org), I wondered what all this attention to emergency management (EM) will do to the field. How many internal conflicts will be created? How will people navigate the state and local labyrinths? What conflicts will this create between agencies?

Conflict is part of life. Everyone knows that, from the child on the playground, where it is called “games,” to those involved in global events, where it is called economic survival or war. We encounter it daily throughout the organizations and environments in which we work. Whether it is within our departments, between competing divisions, or even with our clients, conflict is ongoing. Emergency managers are no exception; it is a part of daily business.

Conflicts occur in many arenas and at many levels. Areas of conflict can be professional, such as those relating to personnel, coworkers, leadership, and intra- and extraorganizational tensions, or personal, such as those relating to home and friends. The list goes on.

Conflict is too often viewed as a “bad” thing when, in truth, it is a normal and natural part of human interaction. When managed and resolved, conflict can help build better relationships. It may be a motivator for behavioral changes that reduce the probability of debilitating conflict in the first place.

This article focuses on developing a better understanding of the underlying causes of conflict and ways in which to manage it, so that people involved at all levels of EM can achieve a higher degree of success when dealing with it. A better understanding of relationships can improve job effectiveness, whether it relates to getting along with colleagues, participating effectively in a crisis, or completing a successful collaborative project.
WHAT IS CONFLICT?

Healthy conflict involves two or more parties willing to engage in the sharing of ideas, thoughts, opinions, and experiences in a manner that leads to constructive outcomes. Within the EM field, or any other, everyone has thoughts and opinions based on their unique perspective of the world. In a spirit of openness, individuals share their knowledge and experience; in other words, they appreciate each other’s differences and work toward a joint solution based on common underlying assumptions.

When conflict is unhealthy, people argue about ideas and opinions in a manner that leads to destructive outcomes. This debate is often a defensive reaction based on perceptions that are personal to each person. Unhealthy conflict often deteriorates critical relationships, gives rise to win/lose or lose/lose situations, and breaks down trust and support. Competition is often the underlying cause—the mindset that everyone is in it for themselves. Table 1 compares the positive and negative values of conflict.

CAUSES OF CONFLICT

The following are some of the known underlying causes of conflict:

- differences in personal or organizational needs;
- differences in goals, objectives, tasks, and desired outcomes;
- differences in values;
- differences in styles;
- differences in language (a problem of translation from another language or even of dialects in the same language);
- differences in the perception of motives, actions, and reactions;
- differences in agenda (e.g., priority conflicts); or
- unwillingness to cooperate, compromise, or collaborate.

Examining these differences and their relationships yields five basic underlying sources that, if understood, can help mitigate the difficulties arising through personal or corporate conflict.

Territorial disputes

Personal and professional territory has been an important measure of personal achievement in

<table>
<thead>
<tr>
<th>Table 1. Effects of conflict</th>
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<tbody>
<tr>
<td><strong>Healthy conflict</strong></td>
</tr>
<tr>
<td>- increases attention to and motivation around an issue</td>
</tr>
<tr>
<td>- clarifies problems and positions</td>
</tr>
<tr>
<td>- creates an environment in which people work together</td>
</tr>
<tr>
<td>- leads to innovation and creativity</td>
</tr>
<tr>
<td>- makes people more aware of their own positions</td>
</tr>
<tr>
<td>- brings conflicts (personal and private or interpersonal) to the surface so they can be addressed</td>
</tr>
<tr>
<td>- leads to recommendations for improvement</td>
</tr>
</tbody>
</table>
human relationships, especially in the United States. This drive is often associated with personal or professional status (i.e., being at the top of organizational charts). The desire of having one’s own space and one’s own control of that space is a naturally occurring human drive.

Seeking control within a department may be an attempt to gain that department and so make a claim to an “empire” within an organization. In EM, because of its impact on the community, leaders have a broad potential sphere of influence. This influence can be seen positively as a valuable aid to the organization’s profile in the community or negatively as one’s own “kingdom” or personal enterprise.

**Unclear definition of roles**

In the past, lack of clarity about EM and its role within an organization often caused conflict. As EM became more defined, the conflicts reduced. When conflict does occur today, it is usually the result of failing to convey how EM activities contribute to the organization as a whole, assigning tasks that don’t appear to relate to the work that needs to be done, being unclear about expectations, and failing to clearly define individual roles and responsibilities.

When people are trying to perform and are impeded in an assigned task, or when they are performing a task in good faith based on what they’ve been asked to do rather than what they perceive a situation calls for, frustration or even anger results, and explicit conflict eventually arises.

**Self-centeredness**

Self-centeredness can be defined as being solely concerned with one’s own desires, needs, or interests. Conflict often arises when individuals encounter an attitude of “my way is the only way.” Self-centered individuals are seldom open to alternative ways of thinking—or behaving—and typically discount the contributions of others. This lack of appreciation of another person’s way of working manifests itself in the imposition of one’s own style on others, leading people to become angry because they’re ignored or made to feel less significant or important than others.

**Inappropriate reward**

Most reward systems are set up with good intentions. The person who sets the goals perceives a bonus to be a reward for behavior that contributes to the achievement of specific goals. This perception, however, is often the root of conflict. An organization may be attempting to reinforce an idea, such as building an emergency response team, but the existing reward system instead reinforces individual behavior. In other words, the reward is given to only one person, while it is the organization as a whole that benefits from, and contributes to, the attainment of the goal.

Another source of conflict is that significant rewards often go to the leaders, and not enough reward goes to the workers who accomplished the task for which the leader takes the credit. People acting out of self-interest are often unwilling to acknowledge any other person’s role in their achievements. This lack of appropriate reward erodes morale and productivity and creates situations of incapacitating conflict.

**Fear**

Fear arises from a breakdown of basic trust. When people cannot predict their world, fear emerges. These fears can be caused by concerns over job security, reduced status, or perceived threats to one’s sense of space. People sometimes have “hidden agendas”; that is, their actions have an ulterior motive. For example, someone may volunteer for activities not out of a desire to contribute but to get prestige, a raise, or a promotion. Someone on this type of mission, who is reliant on others to contribute to his or her success, often is fearful and mistrustful, which gives rise to conflict.

**Managing Conflict**

Conflict reduces individual, team, and organizational effectiveness. Conflict that is not addressed soon after it emerges generally escalates. Although it is not possible to resolve all disagreements, every attempt should be made to settle them and establish rules for appropriate behavior before they arise. Conflict can be managed.
Four methods of managing conflict have been identified that have very predictable results. Three of these methods usually have destructive or unhealthy consequences, whereas the fourth generally leads to cooperation and a sense that everyone gained from the encounter. Table 2 details these four encounters and the associated behavior and feelings that arise in the people involved in them.

### Table 2. The four-pane window of interpersonal conflict

<table>
<thead>
<tr>
<th>Person 1</th>
<th>Person 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lose</td>
<td>Win</td>
</tr>
<tr>
<td>Lose-Lose</td>
<td>Win-Lose</td>
</tr>
</tbody>
</table>
| - avoidance, denial, suppression of feeling  
- both parties come out of the conflict feeling bad  
- neither gain from the encounter; deterioration or loss of relationship results |
| - "gamesmanship": a sense the situation was manipulated by the eventual winner  
- polarization of feelings and actions  
- the other party feels he or she lost and you won  
- you “won the battle but lost the war,” because the competition may not want to play the game again |
| Lose-Win | Win-Win  |
| - deferred action, passive aggressiveness, accommodation, and placation  
- leaving the encounter feeling as if you lost while the other gained |
| - cooperation, collaboration, compromise  
- both parties come out feeling they've won  
- both parties benefit from the encounter |

Four methods of managing conflict have been identified that have very predictable results. Three of these methods usually have destructive or unhealthy consequences, whereas the fourth generally leads to cooperation and a sense that everyone gained from the encounter. Table 2 details these four encounters and the associated behavior and feelings that arise in the people involved in them.

### Conflict Resolution

Conflict resolution is the method we use to manage disagreements. The goals of conflict resolution are to identify the conflict, contain it, and bring about a win/win solution (Table 2). As the “conflict resolver,” every attempt should be made to understand the feelings associated with each position.

To follow is a detailed description of the steps involved in achieving a win/win scenario:

1. Identify the conflict. Although this may seem obvious, it seldom is. A superficial assessment can be easily obtained, but identifying the “real” conflict takes time and understanding. The more the roots of the deeper conflict emerge, the greater the chance of successful resolution.

2. Meet with the individuals involved, and get them to recognize and agree to the fact that they are in conflict.

3. Establish win/win resolution rules, to which both parties agree. Examples include focusing on the problem, not the person; respecting one another’s ideas, opinions, and feelings; listening carefully to one another to understand each other’s point of view; and actively working toward a solution.

4. Diagnose the conflict and create an assessment (Table 3). Ask each party to state his or her position and create a written summary. Based on the summaries,
identify the nature of the differences. Facts, goals, and values are expressed in the summaries; by highlighting them, the reasons for the differences can be identified, and the areas of disagreement can be isolated and prioritized.

5. Plan a strategy. Identify alternative actions and behaviors, and prepare an intervention plan (be ready to deal with resultant feelings and issues).

6. Discuss the alternatives, and seek agreement on which is the most acceptable solution. Restate the agreement that the parties would work together. Address any differences regarding the agreed upon resolution.

7. Outline and discuss how the resolution will be achieved (i.e., the stages that need to be accomplished).

8. Summarize the entire plan, ensuring that each person is committed to it and has a sense of ownership for it.

9. Conflict resolution relies on follow-up. Once a resolution plan is underway, continue to meet with the involved parties to discuss progress. Identify what is working and what is not. If a new conflict arises, deal with it immediately.

10. Get feedback on the win/win process:

   Do both persons feel they won?
Was the conflict resolution process helpful?
How could it be improved?
Did the relationship suffer lasting damage?
Were individual rights respected?
What lessons were learned?

Table 3 illustrates the Conflict Resolution Analysis Tool, a simple yet very useful matrix to help understand and resolve a conflict. It assumes that the mediator is working with two parties and is following the whole of the process described above.

**CONCLUSION**

Unhealthy conflict can prevent EM personnel from being able to effectively conduct their work. Following the basic steps outlined above for successfully resolving differences leads to better relationships between EM personnel, associated departments, and external agencies.

Tension between people is an unavoidable presence in life. Conflict can bring people together negatively in the form of bickering or outright hostility, or positively, in an atmosphere of learning and cooperation. When dealt with positively, tension between people can be a creative force.

If we are to deal with conflict in a healthy way, we must learn to be explicit. We need to understand and respect the differences between the dissenting parties with regard to perceptions, goals, and the values they hold sacred. In doing so, we can determine the areas where disagreement will always exist, neutralize them, and generate alternative plans of action that benefit all those involved.

The management of conflict never ends. When one problem is solved, another one rises to takes its place. Remember that there is always a win/win scenario, and work toward it. As the steps outlined above become habit, conflicts will become easier and easier to resolve. Managing tension and conflict in a healthy way will foster an image of competence and creative effectiveness to the world both for yourself and your department or organization.

Neil Simon, BS, MA, Managing Partner, Incident Mitigation LLC, Southfield, Michigan (njsimon@incidentmitigation.com).

**FACTS in BRIEF**

**DCC LAUNCHES 2005 EMERGENCY NOTIFICATION GRANT PROGRAM**

Dialogic Communications Corporation (Nashville, TN), the leading provider of emergency notification technology, has announced it will begin accepting applications for its 2005 Grant Program on July 1, 2005. The grant program is open to all city and county fire, law enforcement, and emergency management agencies nationwide, including colleges and universities. DCC will award two winners access to its hosted notification solutions, Communicator! NXT and GeoCast Web, free-of-charge for two years. Recipients will also receive comprehensive web-based training and a software maintenance and technical support.

To request an application, e-mail GrantInfo@dccusa.com or call 800-723-3702, ext. 3979. All interested operations must display a genuine need for emergency notification technology and also demonstrate a strategic plan for its use. The deadline for submissions is September 30, 2005.
ABSTRACT

Staffing an emergency 911 center is a difficult task. During a hurricane threat, maintaining the appropriate amount of staff and having the preparations in place to support them are more important than ever. Ensuring proper breaks, food, and sleeping accommodations are overlooked by many 911 centers. Taking care of families, having backup facilities, and having support policies in place are essential to success. A recent survey of Florida 911 centers provided the basis for the suggestions and best practices discussed in this study.

INTRODUCTION

A survey regarding 911 centers and hurricane staffing was sent to a number of Florida emergency centers (see Appendix). Thirteen agencies responded to the survey, all of which were in areas evacuated during the 2004 hurricane season. The quantitative intent of the research was to establish a correlation among call volumes, population, and staffing. The qualitative purpose of the survey was to evaluate the treatment of personnel during a hurricane threat. This included issues such as providing food, monetary compensation, and care for their families.

METHODS

The initial hypothesis was, as the percentage change in call volumes increases, so too would the percentage change in staffing. The independent variable was the percentage change in call volumes; the percentage change in staff was the dependent variable. The next hypothesis proposed that the increase in call volume due to a hurricane threat is related to area population. In this second hypothesis, the population was the independent variable, and the change in call volumes was the dependent variable. Brainstorming for the project was conducted using Inspiration Software (Portland, OR), which generated progressively more concise diagrams to shape the research approach. The diagram in Figure 1 provided the basis for the final written survey.

Sample

The survey (Appendix A) was sent out via e-mail to 68 Florida 911 managers and coordinators. The list of names was obtained from the National Emergency Number Association Web site (www.nena.org). The surveys were sent to Florida centers because they are veterans in this arena, perhaps more so than any other state in North America. They have experienced the pitfalls and rewards of their planning.

A cover letter explained the intent of the survey and the reason for the request. Some of the people who received the e-mail indicated that they were not the person who should have received the survey and forwarded it to the proper individual. After a repeat reminder and several phone calls, 13 surveys were completed and returned, and 12 were used for the purposes of this study. The response was not as many as initially desired; however, the information received was informative and, in some cases, detailed. Two agencies provided additional data—a call volume chart from Hurricane Ivan and a staffing policy. The results were tabulated and then analyzed via a Microsoft Excel spreadsheet.

RESULTS

Call volumes

One of the initial intents of the survey was to
Figure 1. Bubble diagram used to structure the final emergency-center staffing and hurricane survey.
determine differences in call volumes between regular peak periods and hurricane threats. The lowest increase in calls during a hurricane threat was 47 percent, whereas the highest was 650 percent. The average number of calls per day for the agency with a call volume on the low end of the scale was around 34 calls during peak. During a hurricane threat, this same agency received a peak volume of 50 calls. The agency on the high end of the scale received, on average, about 200 calls during a regular peak period day. During a hurricane threat, the agency received 1,500 calls per day. Of the 12 respondents examined, the average increase in calls during a hurricane threat was 309 percent (Figure 2).

There are a number of reasons for the differences in call volumes during regular peak periods compared with call volumes during a hurricane threat. To start with, the severity of the hurricane and subsequent damage dramatically affects call volume. Although many agencies may be under a hurricane threat, the regions that sustain the most damage will have a higher increase in call volume than the regions on the outskirts of the storm. Damage to areas with a larger infrastructure, e.g., more buildings and roads, will also have an increased call volume as damage will affect more people.

In a similar vein, population of a given area affects call volume. It was hypothesized that an increase in call volume could be directly related to the population of an area. Although population density should have had an impact, once again call volume was related to the severity of the situation. Some areas saw a significant increase in calls per 1,000 people, whereas others saw a very small increase in call volume.

Another factor in this mix is the regular number of 911 calls received. If an area regularly receives a lower number of 911 calls than other areas with similar population numbers, it could be due to a number of factors. Economic conditions, local law enforcement efforts, location of hospitals and fire departments, and a rural versus urban environment all can affect regular call volumes. During a hurricane, few of these factors come into play—the calls are overwhelmingly hurricane-related. Thus, although areas with similar sized populations might experience a similar number of 911 calls during a hurricane threat, their volumes during regular peak periods may be quite different (Figure 3).
Number of personnel

The survey attempted to examine the number of personnel required to staff a 911 center during a hurricane threat versus regular peak periods. Results were inconclusive, because many 911 centers employed their entire staff during a hurricane threat. All but one of the centers responding to the survey required all staff members to report to work during an emergency.

All but two of the centers modified the number of hours worked and the shift rotation during hurricane threats. An analysis of the figures indicates that some centers did not increase the number of operators on the floor during a hurricane threat, whereas others had a 400 percent increase (Figure 4). On average, respondents indicated an 88 percent increase in staff during hurricane threats—just under double the usual number during peak periods.

When looking at the data, one must remember that only a certain number of operators can actually work at a computer at a time. It depends on the number of workstations a 911 center has at their disposal. If a 911 center has five workstations and, during regular peak periods, all five workstations are manned, the ratio will be the same during a hurricane. Likewise, if a communications center has only six employees, then only six employees will report to work during a hurricane. The increase in the number of personnel working is dependent not on call volume but on physical and human resources.

Finding employees to work during a hurricane threat

One survey question asked, “Are employees mandated to come to work during a hurricane threat if it falls outside of their regularly scheduled shift?” The answer was an overwhelming yes. Most 911 center employees are designated as essential service providers and, therefore, must come to work during emergency situations if requested. One 911 center manager stated that they “are terminated without discussion if they do not.” Two others indicated that refusal would result in disciplinary action. Not working during an emergency was simply not an option. Staff designated as essential employees know they are expected to work during disaster situations.

Compensation

All of the respondents indicated that staff members were compensated with overtime pay for their efforts during a hurricane threat. There were some differences between agencies in the amount of time compensated, and some agencies provided additional perks. One agency paid overtime and, if the county closed their offices, it was considered a holiday, and all staff were paid for an additional 12 hours. Most agencies provided compensation for the entire time.
their employees were at work during a hurricane threat. It did not matter if the employee was actually taking calls, sleeping, or on break. One agency stipulated that employees were to be paid only for time spent working, not while on break, while another agency offered overtime and additional leave.

It appears that paying overtime is standard for all agencies. If a recommendation for best practices were to be made, it would be paid overtime for all hours present during a hurricane threat. Operators with families would likely prefer to be with their families during a stressful event and should be compensated for the time away. Agencies that go over and above this standard no doubt instill a great sense of morale in their employees, and, in turn, the individual employees feel valued by their agency.

Budget considerations

The vast majority of 911 centers surveyed did not set aside additional funds for staff coverage during hurricanes. Many stated that they rely on the Federal Emergency Management Agency (FEMA) to reimburse them for funds spent during a declared disaster. One manager cited that the budget process for his jurisdiction was more reactive than proactive; in other words, pay out what is required, and find the money after the fact. It may be worthwhile to have an idea of what additional funding sources can be tapped in the event that the existing budget is exhausted by a hurricane.

Families of staff

Another question on the survey was, “What happens to the family members of your staff during a hurricane threat?” The response to this varied. Sixty-nine percent of respondents stated that they looked after family members of staff in some way or another. One county designated a specific school for evacuation of the families of county employees. This same agency indicated that, in all their shelters, a sheriff’s deputy is assigned to maintain peace and order. Many other agencies had similar responses, e.g., “The county provides transportation and shelter,” and “family members stay at the sheriff’s offices.” One region used the county jail as the evacuation site for public safety employees’ families. Two respondents indicated “sheltered as needed,” implying that, in many instances, it isn’t required. Of the four respondents

![Figure 4. Operators working during peak periods and during hurricane threats.](image-url)
who indicated they made no provisions for employees’ families, one said they were looking into it. Another stated that their current policy of not providing shelter for families caused problems.

The overall recommendation is to provide a designated shelter for employees’ families. Whether for public safety employees only or all county employees, the number of people involved and budget considerations should determine how this might be achieved.

Food and sleep

Providing food and sleeping accommodations for employees is a considerable logistical issue during a hurricane threat. Only three agencies reported having no sleeping provisions whatsoever. Of the three that had no sleeping areas, two said that showers were available. Many agencies lacked dedicated sleeping areas; however, they made use of vacant offices, conference rooms, and classrooms. Some respondents indicated that staff members were required to bring their own blankets and sleeping bags. Others provided sleeping cots.

As far as food was concerned, three agencies stated that their employees had to bring their own food. One agency even required that each employee bring enough food to last 72 hours. Two centers stated that food was supplied by either the Red Cross or the Salvation Army. Two others had kitchen facilities with cooks on site. The rest of the agencies surveyed reported that food was either catered, brought in from local restaurants (if open), or the responsibility of the emergency operations center.

Obviously, it is important that critical emergency staff get adequate food and sleep during a hurricane threat. These needs must be met if employees are to be expected to help others. A relatively quiet area to rest, with beds, cots, sleeping bags, or blankets, should be available to operators. Further, it should be the responsibility of the agency to bring in or provide meals on site. When operators are preparing to come to work during a hurricane, they do not need the stress of trying to pack a lunch large enough to sustain them for three days. Food should be the responsibility of the agency rather than the employee.

Backups

Every 911 center surveyed had a backup facility of some sort. Of these, all but two had a mobile command post at their disposal. Other centers reported that their backups were a smaller version of their public safety answering points (PSAPs). One respondent indicated that, although they had a backup facility, they hoped they didn’t have to use it, because it needed work. Another specified that their backup facility didn’t have true 911 ability because there was no Automatic Number Information/Automatic Location Information (ANI/ALI) information available. One county reported that all of the PSAPs in the county serve as backup communications centers for each other.

Comments about mobile command posts were limited. Mobile command posts are small and, therefore, have limited capabilities in a hurricane situation. Most do not have 911 capabilities—only radio. One agency was working on a 911 laptop computer solution for their mobile command post in an effort to address the lack of ability to take calls.

A backup site is preferred. At the very least, a backup plan for call taking should be required. One of the managers surveyed strongly recommended an emergency backup facility that provides the same technical and communication capabilities as the primary site. The same respondent also pointed out that switching from computer-driven operation to paper is extremely counterproductive. The ability to dispatch emergency services from the field or while en route to a backup site would also be a plus.

Policy

Ten of the respondents had written guidelines pertaining to the staffing of their 911 center during hurricanes. Two did not have policies, although one of these was in the process of developing them. One administrator commented that they had policies in place; however, in light of recent experiences, they were “rewriting the book.” Another indicated that a clearer policy for locking down the building (i.e., not allowing employees to leave during a storm) would be helpful. He did not state why specifically, but it is safe to assume his facility encountered a problem in this area. Overall, respondents recommended having some sort of emergency staffing policy in place.
Other recommendations

Many respondents provided additional information and suggestions for staffing-related issues during hurricanes. Two agencies stated that hurricane call volumes are actually low during the hurricane itself. People have secured themselves and are riding out the storm. It is after the storm, when people are assessing the damage and straightening things out, that injuries and destruction are reported and call volumes increase. Two county managers suggested that, in anticipation of the increase in calls received immediately after a hurricane, it would be a good time to have fresh call takers and dispatchers ready to respond.

Mentally preparing staff for the rigors of call taking and dispatching during a hurricane is often overlooked. One agency manager suggested better mental preparation for his staff as well as the availability of critical incident stress debriefing (CISD) teams to help staff members cope with the emotional trauma related to the disaster.

Operators have families and property to worry about. One manager suggested providing time for staff to prepare before the hurricane strikes. He also suggested that time be granted for staff to tend to their families and clean up after the storm. This is obviously not an easy suggestion to implement, but it goes along with the suggestion of rotating staff just before and after a storm. Clean up would not necessarily have to be immediately after the hurricane passes—just as soon as reasonably possible, and dependent on the amount of staff available.

CONCLUSION

This research looked at the relationship between changes in call volumes and changes in staff between regular peak periods and times when hurricanes threatened. No significant relationship was found between the two. Many factors affect call volumes during a hurricane (Figure 5); economics of an area, infrastructure, prior mitigation and preparedness efforts, and recovery work all affect the number of 911 calls a center receives. Increased staffing did not solely correlate to anticipated call increases. Emergency centers can only staff operators for whom workstations are available. Although additional staff can be called in, call taking activities are still limited to the number of available workstations.
Best-practice recommendations gleaned from the survey results can be, for the most part, easily adopted:

- Emergency operators are essential employees. They must report to work during disaster situations unless otherwise notified. Overtime should be paid for all hours that an operator is present at work during a hurricane threat, regardless of whether they are taking calls or resting.

- Managers and administrators should know what sources of funding exist to offset unanticipated hurricane-related staffing expenses (e.g., FEMA grants).

- Family members of employees should be provided with a safe evacuation location. Beds, cots, sleeping bags, and/or blankets should be provided for operators not working but required to be present.

- Food should be provided for emergency employees, whether it is catered, cooked on site, or provided by relief agencies.

- All 911 centers should have a backup plan.

- All 911 centers should have a backup facility in the event that evacuation is required.

- Mobile command posts with high-tech communications capabilities should be considered, although their small size may limit usage in large-scale emergencies.

- All 911 centers should have clear policies for staffing during hurricane threats.

- Managers should plan for shift changes immediately after the hurricane passes, when call volumes typically increase.

- Managers should prepare staff mentally, and CISD teams or counselors should be available after an event.

- Managers should provide staff with an opportunity to prepare their families and properties for the hurricane, if possible.

- Managers should provide staff with clean-up time after the event, if possible.

Best practices can help 911 centers provide better service to their staff members and, consequently, to the community at large.

Christopher J. Kearns, Operations Manager, City of Saint John Public Safety Communications Centre, New Brunswick, Canada.
APPENDIX: 911 CENTER STAFFING AND HURRICANES SURVEY

Thank you for participating in this survey. Research is being conducted to determine appropriate staffing levels and policies for 911 emergency call centers in hurricane-prone regions. Questions concerning this survey can be directed to the author.

Instructions: Please answer the following questions as completely as possible. If the information is not available or unknown, please indicate.

Identification:
Your name: __________________________________ Your position or title: ______________________________
Address: ________________________________________________________________________________________
E-mail: ______________________________________ Phone: ____________________________________________
Municipality or county your center serves: __________________________________________________________
Population of area served: ________________________________________________________________________

General Staffing:
1. What is the personnel breakdown of your 911 center?
   a. full-time:______ b. part-time:______ c. supervisors:______ d. managers:______ e. total employees:______
2. What sort of shift arrangement do you have? (Please provide a brief synopsis; i.e., four shifts, 12 hours each shift, four days on/three days off, part-time employees on call as needed, etc.)
   ____________________________________________________________________________________________
   ____________________________________________________________________________________________
3. How many operators are on shift at one time during peak periods (e.g., on a typical Friday night)?
   ____________________________________________________________________________________________
4. How many operators are on shift at one time during slow periods (e.g., on a typical Sunday morning)?
   ____________________________________________________________________________________________
5. How many supervisors are usually working at a time? ______________________________________________________________________________________
6. What is the average daily 911 call volume for your center (an estimate is fine)? ________________

Staffing during hurricane threats
7. How many operators work at a time during a hurricane threat? _________________________________
8. How many supervisors work at a time during a hurricane threat? _________________________________
9. What members of management are present during a hurricane threat? ___________________________
10. Are the hours of work of the staff modified during a hurricane threat? If yes, how so? (For example, normally they work a 12-hour shift; during a hurricane threat, they work six hours on, six hours off).

11. Are replacement personnel readily available? If yes, how so? (For example, the entire staff is present, but half are on break and half are working).

12. During a hurricane threat, do you have sleeping facilities for the staff either at or close by the center (specify which)?

13. How do you feed your staff during a hurricane threat (e.g., rations on hand, through local restaurant, etc.)?

14. What happens to the family members of your staff during a hurricane threat? Do they evacuate? Are they sheltered? Please explain.

15. Do you provide additional compensation to your staff for their presence during a hurricane (e.g., overtime, standby pay, special allowances)?

16. Are staff mandated as part of their employment agreement or legislation to work during a hurricane if it occurs outside of their regularly scheduled shift (please specify)?

17. If the answer to question 16 is “no,” is it difficult to get staff to work during a hurricane?

18. Are additional funds budgeted in for hurricane staffing (e.g., additional overtime time, food allowances, lodging)?

19. Does your center have a back-up communications center in the event that evacuating your center becomes necessary?

20. Does your center have a mobile command post for communications purposes in the event of an evacuation?
21. In the event of an evacuation of your 911 center, do you rely on other 911 centers to take your calls?

__________________________________________________________________________________________________

22. Have you ever had to evacuate your center due to a hurricane threat?

__________________________________________________________________________________________________

23. On scale of 1 to 5 (where 5 is “excellent”), how would you rate your staffing plans for a hurricane (circle one)?

1             2             3             4             5

24. On scale of 1 to 5 (where 5 is “excellent”), how would your call takers and dispatchers rate your staffing plan for a hurricane (i.e., would they say they like it and that it works for them)?

1             2             3             4             5

25. Has your area or region either experienced a hurricane or been evacuated due to a hurricane threat (circle one)?

Yes                   No

If you answered “no” to question 25, please skip to question 29.

26. Which is the most recent hurricane, and what year?

27. What was the highest daily call volume during that hurricane threat?

__________________________________________________________________________________________________

28. What was the lowest daily call volume during that hurricane threat?

__________________________________________________________________________________________________

29. Do you have documented policy or procedures regarding staffing during hurricanes?

__________________________________________________________________________________________________

30. If you could make any improvements to your plans, what would they be?

__________________________________________________________________________________________________

31. Please provide any additional comments that you feel may be relevant to this survey.

__________________________________________________________________________________________________

Thank you for taking the time to assist with my research. I would be happy to share the results of my findings. Please indicate if you would like a copy of my final report.

Yes                   No
AbstrAct
A six-county region in northeastern Alabama put together one of the United States’ most progressive efforts to assist the special-needs population in preparing for and protecting themselves against emergencies. The region is host to a US Army depot that stores and incinerates an aging chemical weapons stockpile, the release of chemical weapons agent from which could pose a threat to the surrounding area. Almost a decade ago, the counties collectively agreed to provide their most vulnerable residents—those with physical, medical, or mental disabilities or those lacking transportation who have no family, neighbors, or friends nearby—with emergency preparedness assistance equal to or greater than that provided to the general population. Due to their immediate proximity to the depot, two counties faced the greatest challenge in providing “maximum protection” to their residents. These counties made substantial adjustments to the protective-equipment distribution process and to the public training process for those residents with special needs. Self-sufficiency is sustained through repeated, empathetic contact between emergency management personnel and the special-needs population with additional specialized resources deployed on a proactive basis throughout the region.

IntroductIon
The 1988 signing of the Memorandum of Understanding between the US Army and the Federal Emergency Management Agency (FEMA) created the Chemical Stockpile Emergency Preparedness Program (CSEPP).¹ The agreement called for the establishment of an emergency response program to prepare for potential accidents related to chemical weapon storage and disposal operations.

Six counties ring the Anniston Army Depot (ANAD) in Anniston, Alabama. The Alabama CSEPP has aggressively prepared its citizens for the unlikely event of a release of a chemical weapons agent (CWA) at ANAD. A key component of the emergency preparedness effort has been to plan for the population of persons with disabilities and other special needs.²⁻⁴ This article reports on the steps that were taken to protect them.

ChemIcAl weApons storAge At ANAd
Prior to the beginning of the ANAD CWA destruction program in August 2003, ANAD stored approximately 2,254 tons of CWAs in a variety of configurations. The CWAs present in the 2003 ANAD stockpile included the nonpersistent nerve agent GB, the persistent nerve agent VX, and vesicants (blister or mustard agents) HD and HT. These agents are being incinerated pursuant to federal law and international treaty, with completion expected around 2010. Meanwhile, although unlikely, a situation could arise wherein airborne CWAs could reach the surrounding population.

The magnitude of the impact of a CWA release depends on a number of factors, including the amount of agent released, the type of agent released, the type...
of release (spill, fire, or explosion), weather conditions, distance from the accident, and the ability of the population to take appropriate protective actions. For all accident scenarios, the primary hazard to the population is agent vapor, because it can be carried downwind very quickly.

The primary objective of off-post ANAD-area emergency planning was to provide the general public with “maximum protection” from the consequences of a CWA release. Maximum protection has been defined as taking preparedness and protective actions “to mitigate the effects of an accident to the maximum extent practicable.” In Alabama, this has been further defined as ensuring a risk of no greater than “one fatality in 2,500,000 years,” which is one-tenth of 1 percent of the fatality risks to which the general public is exposed from other potential accidents such as automobile crashes.

**IMPETUS FOR ADDRESSING THE SPECIAL-NEEDS POPULATION IN THE ALABAMA CSEPP**

In 1997, the six counties comprising the Alabama CSEPP community—Calhoun, Cleburne, Clay, Etowah, St. Clair, and Talladega—committed themselves to providing a level of protection to persons with special needs that was equal to or greater than the protection being provided to the general population. This initiative was strongly supported by the federal government and widely featured in the news media. The measures taken by the CSEPP community in preparing its general population provided the framework for its outreach efforts to the special-needs population. These efforts are consistent with federal laws enacted as part of a burgeoning national campaign for public safety following the events of September 11, 2001. A federal appeals court ruled in 2000 that a public school violated Title II of the Americans with Disabilities Act (ADA) when it excluded a disabled student from its emergency evacuation plan. A Maryland state court held in 2004 that Title III of the ADA required the emergency evacuation plans of a privately owned department store to reasonably accommodate the needs of disabled customers. Also in 2004, the President issued an Executive Order for Individuals with Disabilities in Emergency Preparedness, and the US Department of Justice issued An ADA Guide for Local Governments. The National Organization on Disability began its Disaster Mobilization Initiative

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**Mitigating disaster effects on persons with special needs**

Emergency planners can do little to counter some of the effects of disasters, such as psychological distress and changed city environments, on people with disabilities. What can be done is to ensure that the most critical services and special needs are made a priority during the recovery phase. Major considerations include:

- making allowances at blockades, shelters, and other impacted areas for access by attendants, home health aides, visiting nurses, guide animals, and other individuals crucial to the immediate healthcare needs of people with disabilities;
- identifying the impact on the disability community of an interruption in utility services;
- planning for accessible shelter and appropriate temporary housing needs;
- addressing how people with disabilities who are employed by businesses will get to work; and
- involving representatives of the disability community in “after action reviews” or “hot wash reports” to capture the true impact of the disaster and to improve plans for the future.

The ability of emergency professionals to make informed, often split-second decisions for and about special needs issues during the response and recovery phases of an emergency is directly related to planning and preparation prior to a disaster. (Source: Emergency Preparedness Initiative: Guide on the Special Needs of People with Disabilities for Emergency Managers, Planners and Responders. Washington, DC: National Organization on Disability, 2005: p. 23.)
in 2001 and has issued a 35-page guide on the special needs of people with disabilities specifically for emergency managers.17

WAYS TO MINIMIZE OR AVOID CWA EXPOSURE

If a CWA release were to occur, protection from exposure to vapors could be accomplished in two ways: evacuating the area before the vapor plume arrived or taking shelter while the plume passes through the area (which may, in turn, need to be followed by evacuation). Evacuation has the advantage in that protection from exposure is complete. In areas where it is not possible to relocate before the plume arrives, sheltering in a building with little infiltration of outside air offers the best protection. However, the degree of protection offered by sheltering is affected by how long shelters are exposed to an agent, the methods used to reduce air infiltration, whether sheltering begins before arrival of the plume (e.g., in a predesignated safe room), and whether persons exit the shelters at the optimum time for avoiding unnecessary exposure.

Four levels of sheltering effectiveness have been defined4:

- Normal: closing all windows and doors, turning off heating and air-conditioning systems, and remaining in an interior safe room.

- Expedient: additions to normal sheltering that may be implemented quickly and easily at the time of an emergency (e.g., placing a rolled towel at the base of the safe room door; taping over air vents, electrical outlets, or other openings in the safe room; taping over door cracks; or taping plastic sheeting over windows and doors).

- Enhanced: measures taken in advance of

Figure 1. Emergency planning zones in the Alabama CSEPP community.
an emergency such as caulking, sealing, or structural modifications that reduce the rate at which external vapors enter a building or safe room.

- **Pressurized**: using special filter-blower units to pressurize a tightly sealed safe room (the unit filters incoming air and produces an outflow of air through leakage points, keeping out contaminated air).

For the general population, the Alabama CSEPP community adopted a level-of-protection approach based on distance from ANAD. The surrounding area was divided into two emergency planning zones (Figure 1). The immediate response zone (IRZ) is roughly circular with a radius of 6.2 to 12.4 miles. The approximately 30,000 IRZ households would have less than one hour to respond to a CWA release, so sheltering in place is probably preferable to evacuation. The second zone is the protective action zone (PAZ), which extends further outward with a radius of approximately 18.6 to 31.1 miles. Most people in this zone could respond either by evacuation or sheltering in place.

**IMPLEMENTATION OF THE ALABAMA CSEPP IN THE GENERAL POPULATION**

In mid-2003, each of the six Alabama CSEPP counties received the funding necessary to begin the acquisition and distribution of protective equipment for the general population. Residents in the IRZ were required to travel to the McClellan CSEPP Training and Distribution Center to receive their zone-appropriate equipment and training. Equipment options included some or all of the following:

- **Respiratory protection devices providing a** specially filtered individual air supply (can be donned for limited periods while sheltering in place or evacuating) for those in close proximity;
- **Portable room air cleaners (PRACs)** with charcoal filters for use in conjunction with shelter-in-place kits to remove CWAs that infiltrate the safe room;
- **Tone alert radios (TARs)** (special radios that can be activated by local government agencies to deliver hazard notification and protective action recommendations) out to 11.4 miles; and
- **Shelter-in-place (SIP) kits** to reduce infiltration of outside air into the safe room of a building (kits consist of items such as duct tape, painter’s tape, plastic sheeting, scissors, towels, and sealing instructions).

The six county emergency management agencies (EMAs) strove to educate the general population through a myriad of publications (calendars, flyers, and booklets) and media campaigns about the availability of protective equipment and what constitutes appropriate protective action. As a result, 39 percent of IRZ households received protective equipment, while those who reside closest to ANAD had a 50 percent rate of receipt. Approximately 21 percent of the 138,000 PAZ households requested and received SIP kits. When Warning Systems, Inc., an emergency-notification systems provider, was contracted to implement the counties’ offer of free TAR installation, approximately 95 percent of households accepted.

<table>
<thead>
<tr>
<th>Table 1. Distribution of protective equipment to the general population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protective equipment</strong></td>
</tr>
<tr>
<td>Tone alert radio (TAR)</td>
</tr>
<tr>
<td>Shelter-in-place (SIP) kit for expedient sheltering</td>
</tr>
<tr>
<td>Portable room air cleaner (PRAC)</td>
</tr>
<tr>
<td>Respiratory protection device</td>
</tr>
</tbody>
</table>
CHARACTERISTICS OF THE SPECIAL-NEEDS POPULATION

The term “special-needs population” is defined by the CSEPP as including sensory, mobility, or mentally impaired individuals; individuals with special equipment needs because of medical conditions; chronically ill persons; individuals who do not own or have access to a vehicle; and unattended children who would need assistance in the event of an accident. The emergency planning literature shows clear differences between the ability of the general public to prepare for and respond to emergencies in contrast to the special-needs population. Parr, for example, noted that both children and the elderly are especially vulnerable in disasters, and that their increased risk under such circumstances should be taken into account in disaster planning and preparations. Rahimi echoed these sentiments, pointing out that the general preparedness guidelines provided for able-bodied individuals fall short of helping disabled groups. Van Willigen et al. went on to state that the disproportionate impact from disasters suffered by the special-needs population could be mitigated by appropriate programs and policies. Jones stressed that preplanning in matters of life safety can significantly boost the independence of the physically disabled.

Different types of impairments have varying impacts on the ability to take protective action. For instance, elderly and mobility-impaired persons may have considerable difficulty implementing expedient shelter-in-place protection because of impaired physical ability or lack of resources to seal a safe room properly. Some conditions, such as back problems, may make it difficult to implement shelter-in-place measures without assistance but may have little or no impact on the ability to evacuate prior to plume arrival, seek shelter inside a building, or evacuate from an area after exiting a shelter. Other conditions, such as the inability to drive, may have no effect on the ability to shelter in place but may make it impossible to evacuate without assistance prior to plume arrival.

In 1998, the Alabama EMA and the six CSEPP county EMAs took aggressive steps to identify and register persons with special needs who required assistance to prepare for and carry out instructions to leave or shelter in place. This effort resulted in an annually updated voluntary registry of individuals and the disabilities causing them to need special assistance. To facilitate the emergency planning efforts, Argonne National Laboratory (Argonne, IL) developed the Special Population Planner (SPP), a computerized geographic information system. Metro Services of Anniston, an Argonne subcontractor, used the SPP software to enter and geographically reference data on each person with special needs who chose to participate. Because few special-needs persons used post office boxes for mail delivery, the residences were relatively easy to map and geocode.

The first priority was to register those persons with special needs who did not have family or a circle of friends and neighbors nearby to assist them in preparing for and responding to emergencies. (Approximately 30 percent of persons with special needs had a guardian or other caregiver to assist in the registration process.) Because first responders would be unable to accommodate a large number of calls for assistance in an emergency, and since plume-transit time might not permit any response in some areas, this population needed to become more self-sufficient.

The first major data-gathering effort took place in 1999, with annual updates occurring thereafter. The Alabama EMA and the six Alabama CSEPP counties decided that data would be voluntary and self-reported; i.e., no attempt would be made to assess or second-guess the accuracy of reports by persons who registered themselves as having special needs. The information that the special-needs population reported to Metro Services about their conditions and their ability to take protective actions became the basis for identifying special-needs households and assessing the measures that would be needed for each. It was soon apparent that many persons with special needs lacked support in preparing for emergencies due to a variety of circumstances, including living in high-crime neighborhoods where they did not trust those around them; not having established a support network with neighbors; not having family members or friends residing in the area; not having maintained church or social contacts because of health problems.
or a lack of transportation; or having spouses and/or companions who had become incapacitated or ill, requiring most of their time.

The SPP database of persons in the IRZ is repeatedly updated using a combination of saturation mailings, targeted distributions, referrals, record verification, and telephone contact. Three full registry updates have been completed (Table 2) in which everyone in the database received his or her personal record for verification. All residences and post office boxes were sent self-registration packets in case unregistered occupants felt they now needed assistance. Each year, fewer inactive (unverified) records have remained as the process of updating has become more effective. The volatility of the SPP database has decreased over time as well, with some 40 percent of those records verified in 2004 continuing in the database since the March 2001 update. Registration turnover continues to be an issue, however. A nearly 30 percent turnover of the database resulted from the fourth annual data-gathering cycle.

An analysis of the data provided by those registering in 1999 as persons with special needs revealed that the special-needs population in the IRZ consisted mostly of elderly persons; 62 percent of the population was 70 years of age or older, and 80 percent was 60 or older. Some 38 percent were married. The rest were either widowed (42 percent), divorced (10 percent), or had never married (10 percent). Women outnumbered men by a ratio of two to one. Members of the special-needs population resided in houses (79 percent) or in apartments, condominiums, or duplexes (13 percent). Eighty percent owned their residence. Of those who reported income, 68 percent stated they had incomes of $15,000 or less. Half had completed at least 12 years of schooling. Those with physical or mental impairments had generally experienced these problems for more than five years.

Table 3 presents the percentage of registered persons from the IRZ reporting various impairments at the conclusion of the 2004 registry update. At that time, 2,239 persons with special needs living in 1,993 households had registered. Many of them reported multiple disabilities. The term “general disabilities” refers to the inability to perform mental or physical functions required to take protective actions (for example, being unable to walk well or unable to drive).

Except for those designated as “children alone” or “mentally disabled,” the persons with special needs were predominantly elderly. The average age of persons in the mentally disabled group was 57 years compared with 69 years for the rest of those registered.

### CSEPP’s Strategy for Protecting Persons with Special Needs

Faced with the reality that first responders might not be able to assist all persons with special needs during a significant CWA accident, the Alabama CSEPP community decided that its best option was to enhance self-sufficiency of these residents in anticipation of emergencies. Protective equipment was adapted for this purpose.

<table>
<thead>
<tr>
<th>Year of registry update</th>
<th>Total number of registered persons</th>
<th>Number of first-time registrants</th>
<th>Inactive records**</th>
<th>Turnover (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>2,337</td>
<td>736</td>
<td>1,693</td>
<td>51</td>
</tr>
<tr>
<td>2002</td>
<td>2,859</td>
<td>998</td>
<td>1,092</td>
<td>37</td>
</tr>
<tr>
<td>2004</td>
<td>2,213</td>
<td>378</td>
<td>730</td>
<td>28</td>
</tr>
</tbody>
</table>

*Records were removed from the registry when previously registered persons stated that they were no longer living independently, stated that they no longer needed assistance, requested that their records be removed from the database, could not be reached, were reported as deceased, etc.
Table 4 compares the protective equipment distributed to the general population with the additional protective enhancements for persons registered as having special needs.

The first of the enhancements, alternate shelter-in-place materials, provides an easier way for persons with special needs to tape and seal safe rooms when sheltering in place is the only practical protective action during a CWA release. The Alabama EMA requested that Argonne National Laboratory conduct a preliminary assessment of commercially available alternatives to duct tape and plastic sheeting. Argonne concluded that painter’s tape and self-adhering shelf laminate (contact paper) were more user-friendly and provided a level of in-leakage protection at least equal to conventional duct tape and plastic when placed directly over the air gaps around windows and doors. Four counties included a roll of painter’s tape in their SIP kits in place of duct tape because of the recommendation. Information on the easier-to-handle components was also provided to persons with special needs.

Second, in response to concerns by Calhoun County officials about the capacity of safe rooms to prevent inflow of potentially contaminated air in the homes of special-needs residents, FEMA contracted with the Mobile district of the US Army Corps of Engineers to furnish caulking, sealing, and structural modification assistance. Persons with special needs who resided in close proximity to ANAD had the option of receiving an assessment of the air infiltration characteristics of their safe rooms and free upgrades of the rooms if needed.

The Corps evaluated 218 residences, with 167 residents accepting the offer to have their safe rooms made more effective. A high percentage of those accepting enhancements had multiple impairments including vision problems, inability to walk well (many were wheelchair-bound or confined to bed), and mental disabilities. The Corps installed and replaced 76 doors and 48 windows in safe rooms, replaced and framed 30 window-mounted air conditioners, and repaired or replaced a number of damaged walls with painted sheet rock.

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Reported impairment (percent)*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General disabilities</strong></td>
<td></td>
</tr>
<tr>
<td>Mentally disabled</td>
<td>10</td>
</tr>
<tr>
<td>Unable to walk well</td>
<td>54</td>
</tr>
<tr>
<td>Cannot drive</td>
<td>49</td>
</tr>
<tr>
<td>Child alone</td>
<td>3</td>
</tr>
<tr>
<td><strong>Specific impairments</strong></td>
<td></td>
</tr>
<tr>
<td>Sight-impaired</td>
<td>35</td>
</tr>
<tr>
<td>Hearing-impaired</td>
<td>29</td>
</tr>
<tr>
<td>Heart problems</td>
<td>37</td>
</tr>
<tr>
<td>On oxygen</td>
<td>10</td>
</tr>
<tr>
<td>Wheelchair-bound</td>
<td>13</td>
</tr>
<tr>
<td>Back problem</td>
<td>34</td>
</tr>
<tr>
<td>Confused</td>
<td>17</td>
</tr>
</tbody>
</table>

*Percentages total more than 100 because many individuals have multiple impairments and disabilities.
The Corps conduct an annual review of the upgrades and make adjustments as necessary.

Third, Calhoun and Talladega Counties modified the user instructions and provided auxiliary features for PRACs to better suit the requirements of the special-needs population. While members of the general population were instructed to keep their 39-pound, three-foot-tall PRAC wrapped in plastic and in its original container unless notified of an emergency, special-needs households were permitted to have their PRACs operational in their designated safe rooms. This alteration was made following research confirming that the PRACs’ charcoal filters would retain their filtration capacity for more than 10 years even if opened to the air. In addition, the equipment vendor was authorized to add a remote on/off switch to PRACs in close proximity to those confined to bed or unable to move.

Finally, small indicator lights were placed on top of PRACs for those who were deaf, so they could quickly determine whether their PRACs were on or off.

Fourth, the Calhoun and Talladega County EMAs recognized that it was difficult for some persons with special needs (except the parents of unattended children) to pick up their protective equipment at the CSEPP training and distribution center, as was required of the general population. These EMAs authorized an aggressive individual contact procedure to maximize distribution of equipment and training to their special-needs population. Metro Services contacted all registered persons with special needs residing in Calhoun or Talladega Counties who had not picked up or requested delivery of their assigned protective
equipment. In some instances, where telephone contact could not be made with a household directly, contact was made with caregivers, relatives, and neighbors in order to reach households. A registered letter was sent to each household that could not be reached by telephone, requesting recipients to call Metro Service’s toll-free phone number if registered occupants wished to receive their assigned protective equipment.

Fifth, equipment vendors entering residences in Calhoun and Talladega Counties occupied by persons with special needs were trained to be sensitive to the residents’ concerns and to promote self-reliance when training them in equipment use. Similarly, the Corps was advised of the interpersonal issues its contractors might face when entering the homes of the special-needs population and how to accommodate them.

Sixth, because of high turnover in the special-needs database and the importance of consistent, correct information dissemination to this population, the Alabama CSEPP community determined that a single expert point of contact was needed for the entire special-needs population rather than dispersing these interactions among the six county EMAs. Metro Services assumed this responsibility. The agency interacted daily with the special-needs population through its toll-free telephone line and a TDD (telecommunications device for the deaf and hard of hearing), daily fielding approximately 20 to 25 incoming and 50 to 75 outgoing calls related to changes in personal data, receipt of assigned equipment, equipment delivery requirements, equipment operation, physical improvements to safe rooms, transportation issues, protective actions, personal situations, and requests for hazard information. Each telephone contact required creating rapport with the person, an understanding of local etiquette, and a proper combination of deference, patience, and authority.

For example, the PAZ counties used the contact opportunity to enhance awareness among persons with special needs about the importance of obtaining SIP kits. Whereas the general population residing in the PAZ was sent postcards informing them that they would receive a SIP kit pending a reply, Metro Services took the extra step of telephoning each non-responding person with special needs to explain the importance of the kits and to accept requests by telephone.

Seventh, Metro Services performed a check on the status of TARs in the special-needs residences during calls. Approximately 20 percent of the contacted households reported they had not received a TAR or that it was not functioning. (This was in contrast to the 5 percent of general population households in the IRZ reporting that they did not have a TAR.) TAR installers followed up with visits to the special-needs households who reported malfunctioning TARs and found they were working in most cases but had been unplugged at some point or had not been reset after one of the monthly tests conducted by the county EMAs.

Eighth, in addition to ongoing public outreach activities geared to the general population, the Alabama CSEPP community provided persons with special needs and their caregivers with specific information on coping with emergency situations given their unique circumstances. Research has shown that, for outreach efforts to special-needs populations to be effective, disaster checklists and other training materials must be aggressively distributed through a variety of avenues, including social networks, community-based service organizations, healthcare providers, and friends and family. Further, preparing persons with special needs, especially those with developmental disabilities, must include instructions, rehearsals, external reinforcement, and self-reinforcement.

County EMAs have actively sponsored training for professional caregivers from public agencies and informal caregivers from volunteer organizations to convey and reinforce the preparedness message. Local caregivers and the target population helped in the development of the Emergency Preparedness Resource Guide for Persons with Special Needs, a collaborative publication that recognizes the distinctiveness of local cultures, personal situations, and the socioeconomics of the area. The Alabama CSEPP community also publishes a quarterly newsletter targeted specifically to the special-needs population. A 15-minute instructional video, “Alabama Caregivers Training: Emergency Preparedness for People with
“Special Needs,” has been produced in English, Spanish, and American Sign Language with participation from members of the special-needs and caregiver communities. Outreach has also included placement of information booths at senior health fairs and illustrated talks at senior centers and other locations frequented by persons with special needs. Finally, as part of the annual SPP data-gathering effort discussed earlier, persons with special needs are reminded via letters and print media advertisements to be prepared to take protective actions.

Finally, as of this writing, the community has begun working to create a “help network” for its special-needs population, recruiting public and private service-based organizations and agencies to enhance the abilities of persons with special needs to assume more responsibility for their emergency protection. Community support systems may enhance the ability of all persons with special needs to prepare for and respond to an emergency. Since the 1999 survey data suggested that many persons with special needs maintain a relationship with area religious organizations, one initiative is to recruit religious, social, and fraternal organizations to assist in training and support efforts.3

RESULTS OF THE SPECIAL-NEEDS CAMPAIGN

Although only an actual emergency would reveal the effectiveness of the Alabama CSEPP special-needs outreach effort, it is possible to measure the distribution rate of protective action enhancements. Table 5 lists the outcomes of the effort to place protective equipment in the residences of persons registered as having special needs. As a result of the program, 84 percent of this population residing in the IRZ received its county-offered protective equipment. In comparison, only about 50 percent of the general population picked up the protective equipment they were offered. Also shown in Table 5, about 50 percent of the special-needs population was able to get protective equipment by picking it up, while outreach measures and equipment delivery services resulted in placement with an additional 30 percent of this population.

The success of the initiative in getting SIP kits to the special-needs population is shown in Table 6. Whereas the general population in the four PAZ counties was notified of the SIP kit offer through postcards that had to be returned before SIP kits would be mailed back or through other public outreach activities, Metro Services took additional steps, attempting to telephone each special-needs household in the PAZ counties to make sure that occupants understood the value of making a request. Metro also accepted SIP kit requests from special-needs households by phone. The effectiveness of this more personal contact strategy is demonstrated by the fact that some 60 percent of the persons with special needs in the PAZ areas requested SIP kits, but only 29 percent of the general population did so.

Table 7 reveals some substantial differences in the percentage of people receiving protective equipment among subgroups of persons with special needs in the IRZ. While 84 percent of all registered persons with special needs received equipment, the rates were lower for those with mental disabilities and for

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Table 5. Outcomes of efforts to place protective equipment in immediate response zone (IRZ) households of persons with special needs, February 2005

<table>
<thead>
<tr>
<th>Action</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picked up equipment</td>
<td>1,180</td>
<td>53</td>
</tr>
<tr>
<td>Equipment delivered</td>
<td>704</td>
<td>31</td>
</tr>
<tr>
<td>Received equipment</td>
<td>1,884</td>
<td>84</td>
</tr>
<tr>
<td>Unable to reach</td>
<td>269</td>
<td>12</td>
</tr>
<tr>
<td>Refused equipment</td>
<td>86</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,239</td>
<td>100</td>
</tr>
</tbody>
</table>
children who might be alone during an emergency. Only 79 percent of the mentally disabled and 56 percent of households with unsupervised children received the protective equipment. In the case of the mentally disabled, the primary reason for not receiving equipment appears to have been their inability to be reached by telephone. (About 17 percent of registered households with a mentally disabled person could not be reached by phone; the rate was 11 percent for adults with other special needs.) Households with unattended children received the same number of follow-up calls (five, if needed) as individuals with other disabilities, but the program did not offer to deliver protective equipment to the families of unattended children because mobility was not an issue. Instead, they were asked to pick up their equipment in the same manner as the general population. This additional responsibility was associated with a reduced rate of protective equipment receipt among these families.

Few of those who registered with special needs refused the protective equipment that was offered. The reasons for refusal, in order of frequency, were that they (or their caregiver) did not feel they would be able to use the equipment; that the equipment was a nuisance; or that the equipment would be ineffective if an accident were to occur at ANAD. In addition, 9 percent of registrants asked to be taken out of the SPP database during the 2002 update because they reported no longer needing assistance. During the January 2004 update, 17 percent asked to be removed, as they considered themselves to be self-sufficient (either on their own or with a support network) after receiving their protective equipment and instructions in 2003.

The campaign to provide maximum protection to registered persons with special needs in the Anniston area has yielded a substantially higher level of protective equipment distribution to them than to the general population. A major part of the success of this effort can be traced to the personal attention these residents received to sensitize them to the value of requesting this equipment. However, the difficulty of communicating meaningfully with those burdened by mental disabilities and the requirement for parents of children who are unattended at times to pick up their

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**Table 6. Effect of enhanced awareness among protective action zone (PAZ) special-needs households on shelter-in-place (SIP) kit requests**

<table>
<thead>
<tr>
<th>County</th>
<th>Number of general population households</th>
<th>SIP kit requests by general population</th>
<th>Number of households with special needs</th>
<th>SIP kit requests by households of special-needs persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Clay</td>
<td>5,449</td>
<td>942</td>
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<td>67</td>
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<tr>
<td>Cleburne</td>
<td>3,523</td>
<td>1,208</td>
<td>34</td>
<td>80</td>
</tr>
<tr>
<td>St. Clair</td>
<td>26,765</td>
<td>7,084</td>
<td>26</td>
<td>495</td>
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<tr>
<td>Talladega</td>
<td>11,186</td>
<td>4,225</td>
<td>38</td>
<td>476</td>
</tr>
<tr>
<td>Total</td>
<td>46,923</td>
<td>13,459</td>
<td>29</td>
<td>1,118</td>
</tr>
</tbody>
</table>

*Calhoun and Etowah County PAZ residents were also offered SIP kits. In Calhoun County, the distribution method differed sufficiently from the others that the results could not be compared. SIP kit request data were not available for Etowah County, although approximately 5,000 SIP kits were distributed to Etowah County residents.*
Table 7. Percentage of registered persons in the immediate response zone (IRZ) receiving equipment, by general disability category

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<th>Population category</th>
<th>Number receiving equipment (percent)*</th>
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<tr>
<td>Total registered persons with special needs</td>
<td>2,239 (84)</td>
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<tr>
<td>Unable to walk well</td>
<td>1,214 (87)</td>
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<tr>
<td>Cannot drive</td>
<td>1,096 (86)</td>
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<tr>
<td>Mentally disabled</td>
<td>228 (79)</td>
</tr>
<tr>
<td>Child alone</td>
<td>78 (56)</td>
</tr>
</tbody>
</table>

*Persons with special needs may have multiple disabilities.

protective equipment may have reduced the program’s success with these groups.

CONCLUSION

The Alabama EMA and the six-county community surrounding ANAD in northeastern Alabama have worked since 1997 to implement an extensive outreach program for their special-needs population in order to provide them “maximum protection” if confronted with a CWA emergency or other hazard. Part of a larger federal program to protect the entire area population, the goal of the endeavor was to make it possible for persons either to evacuate or to shelter in place in time to avoid contact with a dangerous vapor plume. This required a substantial effort to identify persons with special needs, to determine how to assist them, and to provide such assistance.

The strategy for supporting this population has been to recognize the personal difficulties they face and to enhance their capability to take protective actions themselves or with the assistance of a support network. The northeastern Alabama emergency management community developed an aggressive program to distribute nine varieties of protective equipment, structural enhancements, training, and outreach activities beyond what was being provided to the general population.

The process for registering persons with special needs continues to be a challenge. Although the total number of persons who have registered to be included in the program has stabilized somewhat over time, annual updates of the database still indicate a turnover of nearly a third of the registrants. Consequently, continuing efforts to maintain close contact between emergency managers and the special-needs population have been a key focus of the program.

Distribution rates for some of these enhancements are one way to measure programmatic success. While both the general population and the persons with special needs have been offered some of the same protective equipment, a higher rate of receipt success was achieved among persons with special needs by employing a personal, empathetic contact approach. By beginning to reach out to religious, social, and fraternal organizations, emergency planners anticipate that many help networks will be developed to assist persons with special needs prepare for emergencies.

The resources the United States is devoting to emergency preparedness continue to grow. Inclusion of persons with disabilities and other special needs in national, state, and local planning activities can be expected to occupy a more central focus in the future. The experience of this northeastern Alabama community offers some important lessons in how to make emergency planning efforts for this group more successful.

ACKNOWLEDGMENTS

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REFERENCES


5. Pub. L. No. 99-145, § 1412(c)(1)(A), 50 USC. § 1521(c)(1)(A). Applicable CSEPP guidance also states that emergency response plans are to provide “adequate protection” for persons with special needs but neither defines that term nor states to what extent “adequate protection” may differ from “maximum protection.” See also, CSEPP Guidance, Special Population Checklist. § 8.9.1. In view of the absence of any rationale in the guidance for planning a lower level of protection for the special-needs population, as well as the risk that planning to provide less protection to persons with disabilities might violate the Americans with Disabilities Act, Pub. L. No. 101-336, 42 USC. § 12111 et seq., it is assumed that CSEPP planning for persons with special needs should be for the same level of protection, i.e., “maximum protection,” as for the general population. See Shirey v. City of Alexandria School Board, 229 F.3d 1143 (4th Cir. 2000), 2000 US App. LEXIS 21236 [per curiam].


INTRODUCTION

At the June 2004 Emergency Management Higher Education Conference, several professors who teach emergency management (EM) in colleges and universities throughout the United States examined a fundamental question: Is there a recognized and widely accepted theory of EM? Their conclusion was an emphatic “no!” This conclusion was reflected in all four of the conference’s “kick off” papers. However, these same papers also expressed the view that other disciplines provided concepts, frameworks, and perspectives helpful to EM practitioners. Pine articulated this best: “Emergency management clearly includes theoretical contributions from the sciences, engineering, and the social sciences—psychology, sociology, geography and anthropology” (p. 3). Among the illustrations he provided were organizational culture theory, systems theory, sustainable development theory, and rational choice theory. Clearly, each of these theoretical frameworks provides emergency managers with food for thought. But equally apparent is that none of them alone constitutes a true theory of EM.

Other researchers pursue a similar vein. Sylves illustrated how principal-agent theory and several analyses of bureaucracy by political scientists could sharpen the analytical skills of emergency managers. McEntire argued persuasively that a concept of vulnerability might provide a framework for emergency managers whereby they could integrate observations from numerous disciplines ranging from geography and sociology to meteorology and engineering. He defined theory in terms ranging from “ideal or preferred conditions” to “typologies” to “an explanation of causal relationships.” In contrast, Sylves cautioned that, although theory is the engine of knowledge creation, “developing and testing theories and deciding what constitutes knowledge may well be determined by the authorities and interests that win accrediting and certification powers” (p. 28). Most sociologists, however, would agree with Kreps and associates, who define theory as “that [which] isolates core concepts, establishes laws of interaction among them, and specifies logical and empirical boundaries for these concepts and laws” (p. 19) (See also Stinchcombe and Dubin).

Why is theory important to any profession, including EM? According to Sylves, “Abstract reasoning produces measurable, generalizable knowledge that can be validated in many contexts.” In other words, emergency managers are required to draw upon concepts from several disciplines to practice their profession. In doing so, they should keep in mind several distinctions, one of which is that a theory of EM differs from theories relevant to EM. Similarly, a theory of disaster responses may overlap with, but is not the same as, a theory of EM or a theory of homeland security. The range of behaviors that are the objects of study differ.

NORMATIVE THEORIES

There are a number of normative theories that are useful to emergency managers. These theories are designed to specify actions that emergency managers ought to take. It is assumed that effectiveness will be enhanced if they are followed. Most important among these is the collection of ideas commonly referred to as comprehensive EM. Through a series of common managerial functions—i.e., mitigation, preparedness, response, and recovery—emergency
managers can organize their programs into an all-hazard approach by implementing a series of broad strategies and specific tactics.\textsuperscript{10,11} Multiyear planning can be guided by the “integrated EM” framework proposed by McLoughlin\textsuperscript{12} and numerous other guidance documents prepared by the Federal Emergency Management Agency (FEMA) over the years.\textsuperscript{13} Specific steps in building community-risk reduction programs have been formulated, as have tactical management models such as the incident command system (ICS) and the National Incident Management System (NIMS).\textsuperscript{14,15} Other components and strategies have been implemented specifically for emergency operations centers (EOCs). Each of these normative theories is relevant to EM and provides emergency managers with important theoretical foundations.

**BROAD THEORIES**

Within the social sciences, there are numerous broad perspectives that contribute to substantive theory; i.e., theory formulated to explain and predict human behavior. Among those most useful to emergency managers are the ideas of such scholars as Stallings\textsuperscript{16} (social constructionism used to interpret the “manufacturing” of earthquake threats); Jenkins\textsuperscript{17} (social constructionism used to interpret the “manufacturing” of terrorist threats); Dynes\textsuperscript{18} (application of structural-functional theory to interpret community responses to disaster events); Quarantelli\textsuperscript{19} (application of symbolic interactionism to interpretations of disaster images held by the public); Aguirre et al.\textsuperscript{20} (a test of aspects of emergent norm theory using the 1993 terrorist bombing of the World Trade Center); Barton\textsuperscript{21} (interpretation of the rise of the postdisaster altruistic community using collective stress theory); Denis\textsuperscript{22} (applications of organizational theory in disaster response agencies); Arata et al.\textsuperscript{23} (predictions of the psychological impact of the Exxon Valdez oil spill, i.e., the “Conservation of Resources” stress model); Mileti\textsuperscript{24} (sustainability perspective); and Enarson et al.\textsuperscript{25} (social vulnerability approach to the root causes of disaster within existing social structures). Many other examples could be cited, of course, but this partial list illustrates two points. First, there is an abundance of broad theoretical orientations to aid researchers in framing research questions, to link together aspects of diverse disciplines, and to provide important and useful insights about human behavior to emergency managers.\textsuperscript{26} Second, selected aspects of
these broad perspectives may provide the basis for “true” theories of EM and disaster response. Collectively, they offer a foundation; but the house, so to speak, has yet to be built.

MICROTHEORIES
Past research in selected areas has provided useful microtheories wherein numerous specific concepts have been organized into multivariate theoretical models that appear to have relatively good predictive power for very narrow ranges of behavior. Although several examples might be cited, two of the best developed pertain to risk communication and disaster warning responses. Thus, we have a pretty good handle on the range of social factors that guide sectors of the public in differential, but predictable, ways when they encounter risk information.27 Similarly, when disaster warnings are issued, the social factors that cause some people to respond in one way while others behave differently have been documented carefully during hurricanes,28 floods,29 and a variety of other types of disasters.30 Each of these microtheories can be useful to emergency managers. Eventually, they may be blended together to provide a comprehensive view of human response to disaster within its full life cycle. But again, none of these comprises a specific theory of EM.

EMBRYONIC THEORIES
Early comparative analyses of disasters underscored the central role of emergent systems in disaster response. Drabek and McEntire31 summarized additional studies completed over the past decade, highlighting the relevance of key findings to emergency managers. They noted that one set of investigations had resulted in a preliminary model of disaster response. Focusing on the Disaster Research Center (DRC) at the University of Delaware’s typology of groups responding to disasters, Kreps et al.6 reanalyzed extensive interview data collected after numerous disasters by DRC staff. They conceptualized disaster response systems by identifying four elements of social structure, hypothesizing that domains and tasks are the structural ends of organizations while resources and activities are the structural means. Their analysis indicated that combinations of these four elements—domains, resources, activities, and tasks (DRAT)—could be used successfully to identify different types of emergent systems. They concluded their work with the specification of an expanded theory of disaster, organization, and role.6 In their framework, pre- and postdisaster processes are interrelated so that individual and structural outcomes can be explained and predicted. They included such exogenous factors as event and community characteristics and attributes of both the enacting unit (i.e., the emergency system) and the individual participants. While very sketchy at present, the basic thrust of this approach and the type of goal envisioned clearly point toward a significant research agenda.

I followed the work of Kreps and his team for several years and tried to relate it to my own field experiences and efforts to conceptualize postdisaster emergent multiorganizational networks (EMONS).32 Most recently, I integrated interviews with 62 local emergency managers following their dates with disaster.33 These events occurred between the end of 1999 and the first two months of 2001. After documenting 26 coordination strategies described by these emergency managers, I created a series of multivariate models to document the social factors that most constrained response effectiveness. These analyses influenced my eventual conceptualization of a theoretical model of disaster response effectiveness.

While complex, this model links the various social forces impacting the intergovernmental systems that emerge following a disaster. Thus, federal EM policies reflect extrasocietal social trends such as population shifts, extra-societal disaster events such as the 2004 tsunami, intrasocietal social trends ranging from the aging US population to the increase in single-parent households, and extra-community events like the attacks on September 11, 2001. Federal policies, like the outer layers of skin on an onion, establish a powerful network of constraints for state and local EM policy. It is within this context that local emergency managers seek to implement strategies to nurture agency integrity and build interagency relationships. These efforts, of course, are constrained further by local community social trends and recent
local disaster events. These social forces define the vulnerabilities and preparedness capacities of predisaster EM networks within any local community. When threatened with disaster, local emergency managers seek to implement, with varying degrees of awareness and success, a series of strategies to guide the multiorganizational networks that form to accomplish such activities as warning, evacuation, response, restoration, and recovery.

This model is not a theory of EM. Rather, its goal is less ambitious—to explain and predict the alternative multiorganizational networks that form after a disaster occurs. By expanding the model in a variety of ways, such as including the activity sets that reflect mitigation and preparedness actions, a more general theory of EM might be obtained. Although I focused only on natural disasters, terrorist attacks, like other conflict-based events, could be added easily as the agencies that comprise the emergent networks change. This “big picture” look at the changing patterns of constraint within which emergency managers operate may appear to be complex at first glance; however, I am convinced that it can provide a useful starting point in developing a comprehensive strategy of EM.

CONCLUSION

In conclusion, I offer five observations. First, the goal of constructing a general theory of EM should be a top priority within the disaster research community. We are not there yet, although many promising leads have been identified. In the meantime, there are numerous streams of theory, both normative and substantive, both macro and micro, that can assist emergency managers in the practice of their profession.

Second, variety in approach and perspective should be encouraged. We need to listen to wise men like Quarantelli,34 who urge us to confront fundamental questions such as what constitutes a disaster. Such matters are of real importance as we seek to understand the social processes whereby some events are defined as disasters and others are not. Progress will best be made through expanded dialog and focused work. Temptation for premature closure must be resisted.

Third, we should seek to expand our horizons beyond the provincialism of the past. The EM community wisely renamed its association several years ago to reflect a new vision—i.e., the International Association of Emergency Managers. Dynes35 emphasized this theme recently when he pointed out that most disaster events (depending, of course, on your definition of disaster) have not been focused on by the research community. “The existing research tradition is predominantly Western, community-based, urban, and deals with sudden onset agents from ‘natural’ causes” (p. 2). My model reflects this criticism, and, hence, it may have limited utility in places where most humans are dying or being displaced. Places like Somalia, Rwanda, Afghanistan, and Iraq must be brought within our boundary of discourse in addition to domestic disasters.

Fourth, we must be very careful not to oversimplify our analyses. For example, in his plea to illustrate the centrality and usefulness of the concept of vulnerability, a position with which I am in full agreement, McEntire36 proposed that, from a homeland security standpoint, “vulnerability is due to cultural misunderstandings, permeable borders, fragile infrastructure, and weak disaster management institutions” (p. 12). However, he then proposed that the implicit recommendations include correcting domestic and foreign policy mistakes. About such matters, I suggest there may be dissent as to which actions were mistakes and what would constitute correction.

Finally, social criticism must be differentiated from empirical tests of theory. At times, this boundary is problematic. Since its origins, especially within the United States, sociologists have offered critiques of structures they viewed as failing. Racial, economic, and gender-related injustices have been highlighted as has the greed and ignorance that nurture the social systems perpetuating these hurtful realities. Various types of “observations” have also been offered by those who study disasters.36 The first book published by the Disaster Research Center, for example, pinpointed “operational problems” stemming from inadequate interorganizational coordination and communication.37 Repeatedly, Dynes and others38-40 have critiqued the planning and preparedness actions
practiced by many who continue to fail because their top-down approach is fundamentally flawed—rooted in assumptions rather than research results. Most recently, Aguirre prepared a hard-hitting critique of the newest EM tool: “The current Homeland Security Advisory System (HSAS) does not draw from years of social science study and does not benefit the nation. It is not a warning system. At best, HSAS is a mitigation and anticipatory public relations tool” (p. 15).

Emergency managers will always work within arenas of conflict and disagreement. Their contributions reflect their skill in negotiating consensus so that portions of the public can be safer in a world of increased risk and instability. Greed, economic injustice, ethnic hatred, and other such conditions will not suddenly disappear despite the best efforts of the best emergency managers. Vulnerability and risk must be broadly conceptualized as must proposed ameliorative actions.

Furthermore, all such actions must be evaluated within the context of other social problems confronting communities. Protecting children from an assumed earthquake risk at the expense of the quality of their schools is self-defeating in the long run, both for the public and the EM profession. As Dynes put it, “The lack of research attention to disaster events that result in enormous human costs in developing countries perhaps make our current research an example of trivial pursuits” (p. 2). Surely, the 2004 tsunami that brought so much destruction to Indonesia, Sri Lanka, Thailand, and elsewhere accented his plea. Let us not continue the pursuit of the trivial. On the other hand, let us remember also that we must walk before we can run. We are just now taking our first steps toward a long-term but worthwhile goal.

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REFERENCES

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