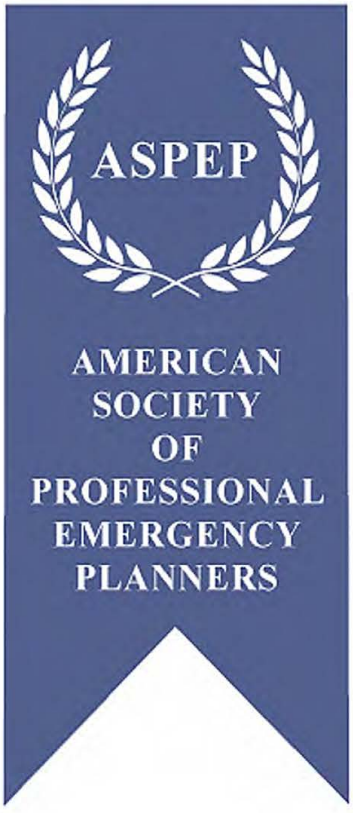
The ASPEP Journal 1994

Visions of the Future



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FOREWORD

The American Society of Professional Emergency Planners (ASPEP) is pleased to publish the first edition of The ASPEP Journal. Established in 1972 as an honorary society, ASPEP strives to promote professionalism and continuing education in emergency management within the government, military, and private sector. The organization is made up of emergency management professionals who have completed the highest levels of training and excellence in the field. Starting this year, 1994, new members must be certified by the National Coordinating Council on Emergency Management (NCCEM) in the Certified Emergency Manager (CEM) program. In keeping with ASPEP's goals and objectives, the 1994 Call for Papers is representative of the diversity of the emergency management function, program, and related disciplines. The Officers of the American Society of Professional Emergency Planners sincerely thank the authors who made this first effort so successful and worthwhile.

Avagene Moore, CEM ASPEP President 1994

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Centella D. Tucker, CEM
ASPEP Secretary-Treasurer
Journal Editor
November 1994

THE FUTURE OF EMERGENCY MANAGEMENT: WHAT SHALL WE BE?

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This paper is based on work performed under contract number DE-AC05-760R00033 between the U.S. Department of Energy and Oak Ridge Associated Universities.

Communities, nations, and the world are drawn closer together through television and other media which provide instant information, communication, and technology transfer. The various populations of the planet can see and understand, as never before, that they have much in common and that there is much to be learned from each other. The common threat of various types of disasters has helped the concept of emergency management spread throughout the world. As the profession continues to grow and share lessons learned, expertise, and technology, emergency management directly impacts the welfare and safety of all nations.

In the United States, emergency management goes back some 50 years. Because of its history and many changes over the years, the identities of the program and the program manager are sometimes unclear, particularly at the local government level. This is not true of the local emergency manager's present-day counterpart in the industrial, business, and military sectors. This can be credited to the fact that these programs originated recently and do not carry the historical baggage of 50 years.

The broad emergency management community shares many familiar problems today due to societal trends, as well as similar program elements and emergency preparedness goals. Tighter budgets, declines and shifts in populations, and the need for better information management and utilization of higher technology are but a few of the trends or problems driving change in the emergency management profession.

The growth of and interest in emergency management in the last few years has also created a great deal of speculation about its future. Where are the emergency management program and profession going? How can emergency management accomplish its goals more effectively and expediently? What if emergency management were structured, funded, and managed in some other way? What will the educational and training requirements be for anyone entering the profession? What does the current emergency management professional need to maintain his or her status in the field?

Although no one can say for certain what the role and function of emergency management will be in 10 to 20 years, it is fair to say the program will be significantly different in many ways. This paper will suggest a few possibilities for the future, in light of current trends and problems, as predictions of what we may be doing tomorrow to meet emergency management needs in our communities.

The emergency management function in terms of organization, funding, and authorities within federal, state and local programs pose some very interesting questions and problems. One only has to watch television news programs to get a glimpse of the difficulties of considering changes at the federal level, regardless of the program or agency. Numbers of congressional representatives, federal agency personnel, and interested parties have testified, written, and suggested changes in the emergency management structure. It is an uphill battle all the way. If we speculate on the future of the emergency management program in light of the recent scrutiny, we may conclude the present approach to the program may be its own worst enemy. The program may need to be addressed from a different perspective to mature and accomplish its intended purpose.

One suggested alternative is a federally funded, state-staffed program with clusters of jurisdictions. The multijurisdictional emergency program manager would serve as a planner to address all risks and contingencies, a resource data base manager to enable access to and sharing of all multijurisdictional resources, a coordinator for the training of multidiscipline emergency services personnel, a source for the latest laws/regulations and updates on compliance requirements, and the executive-level liaison or chief of staff to the elected or appointed officials of the respective jurisdictions with which he or she works. This proposed clustering of jurisdictions is already a viable option in many, if not all, state codes. It offers many positive advantages, including a standardized job description and a means of performance evaluation, better use and accountability of resources, working plans for response and recovery that interface with appropriate personnel/resources, credible exercises and tracking of remedial actions, and established communications, technology, and information management. The most difficult obstacle to this type of organizational structure would most likely be the perceived threat to the status quo.

Another idea that is gaining momentum in larger communities is privatization of assets and services. Serious financial shortfalls and state laws that require balanced budgets are forcing many cities and states to consider privatizing or restructuring many of the services previously furnished by local or state government. Twenty-four of the nation's largest cities are presently using some form of privatization to cut costs and balance their budgets. The National Council for Public-Private Partnerships tracks government restructuring efforts and reports more than one hundred billion dollars worth of services privatized in the last ten years. Private contractors are presently used in corrections, revenue, treasury,

comptroller, and central data processing functions. Private emergency medical or ambulance services and trash collection are fairly common examples of privatization that have been around for several years. However, health care, wastewater treatment, and maintenance of buildings, roads, and highways are some of the latest privatized efforts that have been accomplished. It is easy to envision other emergency services, such as law enforcement and fire fighting under private contract. Public works could also be handled in a similar manner.

If so many of local government's various functions are workable under privatization, why not emergency management? In some quarters---specifically industry and business---contractors furnish the hazard analysis, planning, training, exercise design and implementation, critiques, and anything else required to ensure a facility or corporation's emergency preparedness status. Many of these industries and businesses are large multifacility complexes with huge inventories of resources and the same emergency services found in the local jurisdiction, including an emergency operations center. The respective numbers of these emergency services personnel are often greater than those of the adjacent community. After the appropriate planning and training, these facilities have a well-equipped and trained cadre of personnel to handle any onsite emergency or disaster with plans and implementing procedures that address hazards, notification, warnings, public information, and the interface to bring in and work with supplemental manpower, expertise, and resources.

Could this concept work for the emergency management function in local jurisdictions? The process of planning for response and recovery requires the support of everyone, including the chief elected/appointed official, other local commissioners or officials, department heads, administrative personnel, emergency responders, legal counsel, and the private sector. Someone could be contracted to orchestrate this process and pull all the players and information together. This contractor would be ideal as an interface with industry and business to ensure compatible or complementary plans. Once the planning and implementing or operational procedures are agreed to, the training, exercising, and revision plus ongoing maintenance of the plan may be handled by a private firm. In the event of a disaster, the coordination of response and recovery activities may also be turned over to a contractor and teams of highly qualified people to meet disaster-specific needs. Retainer fees and contractual agreements to respond to the community within a certain amount of time, as needed, would ensure the coordination necessary for optimum operational efficiency when disaster strikes.

This idea suggests a full-time emergency management staff may not be needed to maintain and enhance the preparedness level if the emergency management program and planning concept is fully integrated into the community, with officials, the infrastructure, and the public trained, rehearsed, and ready for their respective roles. Within these conditions, privatization could save money and meet the

emergency management needs of the jurisdiction, business, and industry, while providing a high level of professionalism, effective operations, and incident-specific expertise, as needed, for the community.

Opposition to this type of restructuring, regardless of the function privatized, is due primarily to the initial loss of jobs and can become a political and emotional issue. However, in many cases the privatized functions could employ displaced workers in similar or related operations. In the case of the emergency management function, qualified and experienced emergency managers could be hired by contractor firms to fulfill many contractual responsibilities and opportunities throughout the state, region, or country.

The option that perhaps makes the best use of emergency management professionals and addresses funding issues is a holistic approach to a community's overall preparedness status. For years, the term "comprehensive emergency management" has been thrown around. This means that the community infrastructure has bought the concept, and the public and private sectors are responsive as players in the emergency management program. The comprehensive program is embodied by the model used for establishing a jurisdiction's Local Emergency Planning Committee to meet the requirements of the Superfund Amendments and Reauthorization Act Title III and the hazardous materials threat.

Holistic emergency management is a slightly different concept. It looks at the entire community and considers all players as partners with equal responsibilities for funding, resources, and support of the program. It is not a program where emergency management and emergency services plan and train for all contingencies while encouraging the business, industrial, medical, academic, and public sectors to do their part and be responsible for themselves. In the holistic approach, the emergency management professional and staff work at the highest administrative level to ensure the compatibility of all plans for the entire community. Everything from response/recovery to public education and hazard reduction/mitigation would be structured as a building block approach for the improvement of every citizen and all property. The holistic approach would require the emergency manager to work with and understand risk management, hazard analysis and probabilities, building/land use codes, policy/decision making, environmental and worker safety laws and regulations, information management, and the latest technologies. The emergency management function would utilize emergency services as the foundation for response and recovery, as in the present program. However, the emergency management function would encompass other governmental, industrial/business, public, and private agencies and groups to address mitigation/hazard reduction and broader planning needs. Just as the holistic approach to health focuses on maintaining wellness and preventing health problems rather than healing disease and illness, the premise for holistic emergency management is a top-down approach to reduce hazards and prevent disasters

rather than react to them.

The legal authority and funding mechanism for this type of program is a possible problem, but not an insurmountable one. The overriding goal of a safer community could create a proactive mindset that would see the advantages and cost avoidance in hazard reduction and a holistic approach to the emergency management program. Whether through a special tax, fee, or other funding source at the local, state, and/or federal level, the idea of preventing or reducing re-occurring disasters is the only thing that makes sense for the safety and well-being of the citizens of the world, as well as the economy.

Whatever the structure, funding, and authorities of the emergency management program in the future, it is apparent that continued education and training will be required for the emergency management professional. The emergency manager's job is moving from an operational role to an administrative one. With this significant shift, the emergency manager will move in wider circles to interact with decision makers and impact policy for a much more proactive program. New responsibilities will require more knowledge, skills, and abilities. The certification process sponsored by the National Coordinating Council on Emergency Management will serve as the guide for future growth and maturity in the program. The Certified Emergency Manager (CEM) status will become more important for anyone who is serious about maintaining his or her status or becoming an emergency management professional. The CEM recertification process should require demonstration of continued growth as a professional based on education and training that keeps pace with the demands of the profession. Not only will this solve many of the historical problems related to the functional identity at the local level, it will serve as a means of standardizing the program among related disciplines and practitioners, and hopefully rid us of age-old turf problems. The emergency management identity will eventually encompass the government, the military, business, and industry in such a manner that plans, operations, communications, terminology, and overall goals are fully compatible and complementary in a more comprehensive or holistic approach to a prepared community.

Miniter, Richard, "Cities Privatize for Fiscal Health", INSIGHT on the News (April 4, 1994): 6-10.

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REINVENTING EMERGENCY MANAGEMENT - BACK TO THE FUTURE

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This paper presents a blueprint for reinventing emergency management. It characterizes emergency management as a safety function engaged in to greater or lesser degrees by all individuals, groups and communities. It re-interprets Comprehensive Emergency Management (CEM) as an ideal expressed in Emergency Management Plans (EMP) developed through an Integrated Emergency Management System (IEMS) . It describes how a local EMA started the "reinvention" process through strategic planning and continues it through a simplified process based on IEMS. It offers examples of the effectiveness of the process. Finally it exhorts the Federal Emergency Management Agency (FEMA) to lead the way to reinventing emergency management in the United States.

EMERGENCY MANAGEMENT REDEFINED

"Emergency management" refers to all activities taken by individuals, groups and communities to mitigate and prepare for hazards, and to respond to and recover from emergency or disaster.

Of the several definitions of emergency management reviewed for this report, only that found in the Federal Emergency Management Agency (FEMA) report *Objectives for Local Emergency Management, CPG 1-5/July 1984*, includes the words "mitigate, prepare for, respond to and recover from." None of the definitions acknowledges that people are affected by crisis as individuals, as members of groups and as citizens in communities, a fact recognized by the authors of *Coping With Catastrophe,* a report prepared for the Congress in February 1993 by the National Academy of Public Administration:

> One of the fundamental problems with discussing emergency management in America is that so many relevant actors are involved, so many systems and subsystems exist. Emergency management at the local level involves many actors, mostly in local fire and police departments. There are tens of thousands of "first responder" organizations. Individual citizens also play important roles in responding to their own needs and in helping others.

The definition of emergency management we use recognizes that we all "manage" (mitigate and prepare for) hazards every day, for ourselves and on behalf of our

families, our coworkers and our communities, to an extent determined largely by our perceptions of risk. Once hazards become crises, we "manage" (respond to and recover from) their effects to an extent determined by need and ability.

CEM, IEMS AND EMP REINTERPRETED

Comprehensive Emergency Management is an ideal state achievable by individuals, groups and communities, expressed in Emergency Management Plans developed through an Integrated Emergency Management System.

In 1979 the National Governors Association released *Comprehensive Emergency Management, A Governor's Guide,* a study which became the basis for emergency management throughout the United States. The study described CEM as the state's:

> responsibility and capability for managing all types of emergencies and disasters by coordinating the actions of numerous agencies. The "comprehensive" aspect of CEM includes all four phases of emergency, activity: mitigation, preparedness, response and recovery... (and) applies to all risks ... in a federal-state-local partnership.

In 1983, FEMA developed IEMS to implement CEM. According to FEMA's *Process Overview, CPG 1-100/September 1983:*

> The goal of (IEMS) is to develop and maintain a credible emergency management capability nationwide by integrating activities along functional lines at all levels of government and, to the fullest extent possible, across all hazards.

FEMA also developed interim guidance documents to provide instructions for performing hazard analysis, capability assessment, capability shortfall determination and multi-year development planning. The *Process Overview* and guidance documents have since been replaced by others which provide guidance for developing and reviewing state and local emergency operations plans, and by one other which provides guidance for identifying hazards and assessing capabilities.

At about the same time FEMA developed IEMS, the Emergency Management Institute (EMI), FEMA's emergency management training arm, developed its Emergency Planning course. The *Student Manual, SM-61/August 1983* and accompanying *Jobs Aid Manual, SM-61.I/August 1983* provided an emergency management planning format:

> that establishes a flexible framework in which content and detail are arranged systematically across all planning levels. This framework

> establishes a comprehensive emergency management plan that - through use of a basic plan, annexes and appendices - can be used to cover all emergencies and disaster conditions in a jurisdiction. This format can be adapted to the needs of a particular level of government bt to other public- or private-sector organizations for emergency plan development ... (The plan) incorporates a continuum of at least four identifiable phases of emergency management mitigation, preparedness, response and recovery. Each of these phases represents a dynamic set of actions flowing into the next. **Only together do they make up the full scope of a legitimate, valid system of emergency management.** [emphasiss added]

The *Student Manual* also provided guidance for developing a Hazard and Vulnerability Analysis, and included charts of general and hazard-specific actions states could take to effectively mitigate, prepare for, respond to and recover from disaster.

According to our definition, all people engage in the four phases of emergency activity. The Governors' study showed that communities can improve their ability to manage hazards and the effects of disaster by integrating emergency management activities. CEM expressed in EMPs and achieved through IEMS is the ideal, the best any individual, group or community can achieve to effectively manage hazards and the effects of disaster. Almost as a byproduct of reinvention, our EMA developed a simplified but effective version of IEMS that enables customers to develop and implement legitimate and valid systems of emergency management.

A REINVENTED LOCAL EMA

Dane County (Wisconsin) Emergency Management began to "reinvent" itself in late 1990 with strategic planning sessions that were informed by disaster research, community assessment and self examination. We knew we were a public safety agency whose focus was the major hazards confronting the county and its sixty communities. We also knew that one of our most important duties as public servants, apart from coordinating responses to major emergencies and disasters, was to support informed decision making about matters of emergency management by policy makers. As the county's smallest department we soon realized that our primary resources were expertise and time. We developed a mission statement that we thought best expressed our purpose:

> **"The mission of Dane County Emergency Management is to improve public safety by enabling individuals, groups and communities to effectively manage hazards and the effects of disaster."**

and a simplified version of the IEMS process which makes the best use of department resources:

The first step is a Hazard and Vulnerability Analysis. Hazards are analyzed for those characteristics which are known to have major implications for emergency management planning. Characteristics include predictability, frequency of occurrence, controllability, and several time and impact factors. Vulnerable areas (e.g. floodplains, zones around hazardous materials facilities) groups (e.g. the elderly, the poor) and vital facilities and systems (e.g. hospitals, utilities) are identified. Our Hazard and Vulnerability Analysis is the basis for emergency management planning for the county, its municipalities and other customers.

This information is used during **the second step** which is an analysis of the emergency management needs and capabilities of the customer, be it a community, a business, a school, etc. Our office works with customers to help them identify hazards of particular concern, discover how they may be affected by crisis, focus on vital functions and develop actions for effectively managing hazards and the effects of disaster.

The third step is to write an Emergency Management Plan using formats developed by FEMA. The plan incorporates a continuum of mitigation, preparedness, response and recovery activities, each flowing into the next. Together they make up the full scope of a legitimate, valid system of emergency management. In other words, the plan describes how the customer will achieve CEM through integrated emergency management activities. We use our resources (primarily time and expertise in EMP development) to prepare draft plans for review by customers. This not only alleviates the pressure customers can sometimes feel when asked to write a plan, it also assures interjurisdictional consistency. Draft EMPs are returned for review, comment and changes necessary to assure accuracy.

The fourth and most important step is taken by the customer with support from our office as necessary. The draft EMP must be brought before the governing body for review, comment and adoption. This is an integral part of our version of IEMS. Policy makers must know that the plan describes a course of action; it was not written to be used only during emergencies or to meet some mandate, but to be implemented. They must know that the plan results from an effective, proven system, and that it provides clear direction for achieving CEM. They must thoroughly understand the implications of the plan, particularly regarding cost. They must have the opportunity to alter the document to the extent they believe necessary and appropriate, given priorities and available resources. In short, they must be empowered to make the best-informed decisions possible about how they will manage hazards and the effects of disaster. Once that has been accomplished and the plan adopted, it can be implemented. The importance of the fourth step cannot be over-emphasized. Without formal adoption of

the plan, any actions taken to manage hazards and the effects of disaster are likely to be isolated. More importantly, plans that have not been formally adopted by the governing body cannot be valid, since they will not have resulted from the recognized policy/decision-making process.

David Osborne, one of the authors of *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*, identified several characteristics of reinvented government agencies in an article for *Leadership Abstracts* in January 1993. Such agencies were:

Catalytic - they leverage the actions of others to solve problems; they steer more than they row.

Community-Owned - they push control out of the bureaucracy and into the community; they empower others.

Mission-Driven - they define their fundamental missions, then develop systems for pursuing mission-driven goals.

Results-Oriented - they measure outcomes and reward success.

Decentralized - they allow for the most effective use of information for decision making.

Dane County Emergency Management is **catalytic** because we leverage the actions of our customers to effectively manage hazards and the effects of disaster; we steer customers toward the goal of CEM. We are **community-owned** because customers control the process; they are empowered to achieve CEM to an extent they determine. We are **mission-driven** because, having defined our fundamental mission we have developed and are implementing a process to achieve it. We are **results-oriented** because our work - the number of plans developed, implemented and supported through training, exercising and so forth - is easily quantified. Finally, we are **decentralized** because the entire process rests on the belief that policy makers are ultimately responsible for deciding the extent to which they will manage hazards and the effects of disaster, and we are responsible and uniquely qualified for assuring they have the best information possible for making that decision.

THE EFFECTIVENESS OF THE PROCESS

The effectiveness of the process is demonstrated by the Dane County At-Risk Emergency Planning Task Force. The group is made up of agencies that serve at-risk people (defined as persons whose physical, psychological, financial, emotional or other condition, or combination of conditions, renders them unable

to effectively manage hazards and the effects of disaster) . Member agencies understand they are likely to become involved should their clients be affected by crisis; indeed, for many this understanding derives from experience. With support from our office, members have developed agency EMPS, and their combined efforts form an appendix to the Human Services Annex of the county *Emergency Operations Plan*. As a direct result of recognition of the planning done by two of the member agencies, similar planning is now being done statewide. One of the agencies (the Community Action Coalition of South Central Wisconsin) was provided with funds from the state Department of Health and Social Services to develop a training program for helping other community action agencies through the process. The other agency (the Dane County Commission on Aging) will provide guidance for developing emergency management plans, including plans for senior centers, to aging units throughout the state. A third Task Force member (the Waisman Center for the Developmentally Disabled at the University of Wisconsin - Madison) will present a workshop on serving the emergency management needs of the developmentally disabled during a national conference to be held in September, 1994.

REINVENTING EMERGENCY MANAGEMENT IN THE UNITED STATES

The authors of *Coping with Catastrophe* criticized FEMA as "an institution not yet built, " lacking both a compelling vision and a mission based on that vision. EMAs throughout the country are subject to the same criticism. For this to change, FEMA must first reinvent itself. FEMA must adopt a vision of the United States as a community as safe as possible from hazards and the effects of disaster. FEMA must accept its mission to improve public safety in the United States by enabling its customers (federal agencies, ,states and their subdivisions) to effectively manage hazards and the effects of disaster. FEMA must then develop and implement an effective IEMS to accomplish the mission. Part of the process will involve working with federal agencies to develop agency EMPs and an effective Federal EMP. Part of the process will involve assisting state and local EMAs to reinvent themselves, and to provide the guidance and assistance they will need to become enabling agencies.

The last and most important part of the process will be to convince citizens and policy makers of the effectiveness of the process, and of the role EMAs play as enablers of the ideal.

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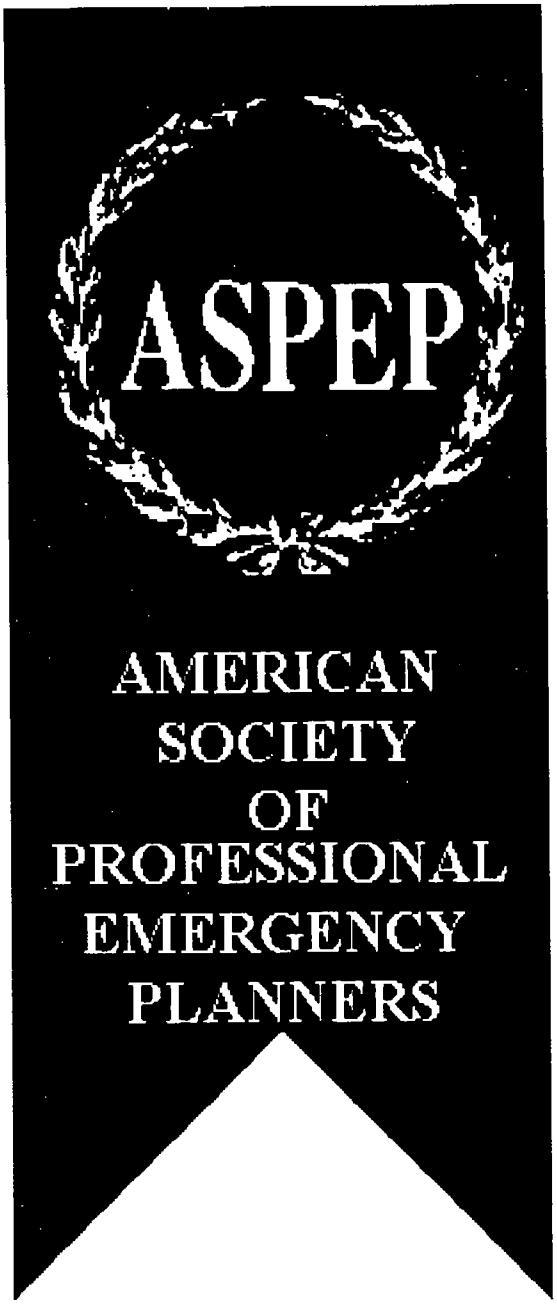

GENERAL

INTEREST

EMERGENCY MANAGEMENT - THE LONELY PROFESSION

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Ours can be a lonely profession. Even in large jurisdictions, emergency management is often relegated to either a small operation compared to other departments, or dwarfed within an existing department or branch. Typically you possess few employees - maybe only one, have to fight and scratch to build or keep your budget or even a place to hang your hat, and have no immediate support group to relate to. You may even be held in low regard for associating with those outside your jurisdiction.

Not to paint a bleak picture, we know that our profession is of utmost importance to humankind. It also has the distinction of including virtually every other element of government, private agencies and even business. We are not law enforcement, but law enforcement is essential to what we do. We are not fire authority, emergency medical, public works, or search and rescue, but we must be vitally involved in what they do, what resources they have, and how to utilize their composite skills and abilities. What we know in our hearts is that they cannot be effective in time of disaster without the knowledge and skills that *we possess.*

With this awesome responsibility we assume, how is it possible to face up to the challenges of larger, more entrenched players? How can our few voices be heard among or even above the rest? How can we influence continued support when budget axes fall around us?

Here are a few suggestions based on actual experiences and a lot of observations. Hopefully you have considered them, but if not, you may be well served by giving them a try.

Learn the job

. . . and keep learning it over and over. If you know all you need to know, get out. You're a danger to those who rely on you.

There are more free training opportunities for emergency management than any career field I can think of. whether it is formal courses taught by FEMA, state emergency management, EPA or other agencies, the training is usually good and adds to your knowledge and capabilities. You also learn from exercises, not only your own, but those of neighboring jurisdictions or from businesses. Conferences are another way to add to your knowledge and skills.

Many of the conferences are free or inexpensive, but don't overlook the value you will receive as a participant - even if it draws from your limited budget.

Communicate the importance of your job
not only to those whose decisions are critical, but also to those who really benefit - the citizens.
If they don't come looking for you, seek out those who bring together civic and community leaders. Let the service clubs and chambers of commerce know that you are willing and prepared to give talks or presentations that inform them on how your office serves to protect them in time of an emergency. Place books or pamphlets on emergency management in your local libraries and freely distribute materials made available to you by FEMA, American Red Cross, National Weather Service, etc.

Develop sound programs,
base them on each hazard and every function, and test them every chance you get.
Take a comprehensive approach, function by function, hazard by hazard, step by step. Once you think you've done it all, do it over again. Every program can benefit from a new look from time to time.

Involve all the players
including even those who resist being involved.
It's a challenge to the success of your programs to involve others. Make sure all key executives and department heads are aware of their role and importance in your plan. If they don't know why or how they relate, tell them. Don't forget the myriad of volunteer organizations. They may seem to be well organized and oriented but they need to be an integral part of your planning and exercises to be able to perform effectively in a real emergency.

Hang in there
even though there's no end to local issues, problems and seemingly insurmountable obstacles.
It's the nature of the work. Many things in government may test your patience and cause you to spend unnecessary time, but you must persevere. What seems logical to you will not necessarily be logical to others. They need to learn from you, but you also need to learn from them.

Share the wealth

Effective programs mean effective volunteers from all walks.

You will find amazing storehouses of knowledge and skills among interested citizens in any community. Volunteering gives them a chance to contribute and provides you with vital assistance. Volunteering goes both ways. Find what it is they want to contribute or gain f rom their experience, and how you can match their time or skills for what you need from them.

Be faithful

... faithful to your obligation as an emergency manager and to the community you serve.

Yours is a position not only of public trust but of great importance. Ours is a high calling. We may find few material rewards, but preventing the loss of life or property will indeed have rewards in heaven.

Have an on-going self-development program,

challenge yourself if not challenged by your boss, and always be willing to commit to improvement.

When it comes to our profession, we strive for complete knowledge, but we're never there! Certification is important, but it is not the end in the road. Just looking at the changes in technology should tell you that things are never quite the same. Populations change as do hazards, and vulnerabilities. This doesn't mean that you should forget the past, for much of our development will come from those who have gone before.

Take chances

and commit to what is needed even if it threatens your comfort zone.

If resources are missing, go find them! If a hazard threatens, find a way to mitigate it. Don't hide behind excuses that you don't have the budget or the people or the support. Others can help you overcome these deficiencies, but not if they don't know about them.

Stay aware of the big picture,

know what is discussed in Congress, your legislature and your local government, and how it relates.

When it comes to emergency management, be well read. Examine how your contemporaries have dealt with similar situations. Seek out those communities that have problems like yours and find out what remedies they have found. There are many "fixes" that you can learn from.

Develop a support group

and cultivate an association with emergency managers who understand your problems and can validate your solutions.

There are no bounds when it comes to developing a group of people sharing the same general conditions. Names and titles may be different, but the nature of the work is the same in Alabama, Alaska or Australia.

Don't get a big head

for while your job and role are vitally important, so are those of all the players.

Keep your experiences in perspective. You may be able to gain attention by playing Chicken Little, but the real effectiveness of your programs can be jeopardized or seriously limited once your credibility is questioned.

Seek media attention but shun publicity,

What is important is not you, but what you represent.

Put others in the limelight, even your volunteers. Take pleasure in seeing them get the credit. Don't overlook an opportunity to give someone else the spotlight, and you may even find that it does a better job of spreading your message.

Never give in . . .

and don't give in to what is wrong, or give up what you know is right. Your job demands endurance, integrity and courage. You will face many pressures and be tempted to back off or retreat from a challenging situation. Your commitment to the mission must keep you at the helm and growing in your effectiveness.

Emergency management is not new!

Learn from those that have gone before.

Often it will seem that none others have traveled this road before, or that only new solutions will serve the times and conditions you face. Our zeal to throw out the old and bring in the new may cause us to overlook the obvious. After all, disasters have been around since mankind itself or the invention of the proverbial wheel.

Loosen up

even in a disaster, humor is critical. Stay positive.

The many faces of disaster are horrible and deadly, but this doesn't mean that we need to confront each task or person with faces of dire concern. After all, others will look to read our faces assurance and confidence.

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Joseph R. Ashby is Emergency Preparedness Coordinator for Douglas County, Colorado and has a long and varied background in public and private contingency planning and emergency management. He was previously a Disaster Preparedness Specialist for the State of Colorado. Prior to this he spent more than 24 years with US West where he was a project manager and product developer for National Security Emergency Preparedness (NSEP) projects, eg. TSP, NETS, and essential services.

Joe is currently president of the Colorado Emergency Management Association (CEMA) and is Region VIII President for the National Coordinating Council on Emergency Management (NCCEM). He also serves on the Colorado Incident Command System Board, Wildfire Committee of the Natural Hazards Mitigation Council and various other local, regional or national organizations. He has been a frequent spokesman for the integration of public and private emergency preparedness, and has authored several articles for various journals and professional publications. He is certified as a Disaster Recovery Planner by the Disaster Recovery Institute and was honored as one of the first Certified Emergency Managers by NCCEM. Joe has taught courses for the Disaster Recovery Institute, Association of Contingency Planners, and the Colorado Office of Emergency Management, and has been an invited speaker to the various conferences and workshops.

He is a graduate of the University of Colorado with BA and MA degrees in political science. Joe is the father of three grown daughters and lives in Perry Park, Colorado with his wife Judy.

DEVELOPING A CHRONOLOGY OF STATE/COMMUNITY DISASTERS

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Introduction

Every state, county, city, and community has a unique history of disasters or other major mishaps. Unfortunately, comprehensive and well-documented chronological histories or other narrative accounts of these tragedies have rarely been compiled. Such information is interesting and useful in and of itself, but it may also be invaluable in compiling hazards assessments, emergency plans, and other such documents. Descriptions of these past events may also be used as scenarios in emergency planning, training, drills, and exercises.

This paper addresses the process of compiling such a chronological history of disasters for a state, region, or local area. It includes suggested categories of information, potential sources of data, information resource allies and assistants, and the importance of accuracy. Although considerable time and resources may be necessary to collect and record such data, be assured that such efforts will be worth while.

Categories of Information

The kinds of disasters or emergency incidents that could occur within a given geographical area are quite numerous.* Over 50 potential hazards have been identified for the state of Tennessee. Other states, or smaller geographical areas, may have more or less disaster potential. Such hazards may be categorized in a variety of ways. For example, they may be either technological (that is, anthropological or human-caused), natural, or both. Technological disasters may be further divided into categories such as civil insurrections, dam failures, hazardous materials incidents, explosions, or structure fires.

Natural disasters may be weather-related incidents, geological events, or epidemics. Weather-related disasters include flooding, tornadoes, hurricanes, or situations caused by temperature or precipitation extremes. Geological events

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* Records of events that have occurred during or as a result of wartime activities (e.g., the American Revolution or the Civil War) should probably not be included in a general disaster chronology since such events are of a different nature. They were completely eliminated from the Tennessee chronology.

may include earthquakes, subsidence (cave-ins), and earth slides. Although epidemics are biologically caused and may arise from natural events, they are generally only a problem when concentrations of people, crops, or stock are involved. Wildland fires may be of either natural (lightning-ignited) or human origin (accidental or arson-caused).
A detailed listing of specific hazards or disaster types that occur in various parts of the United States is found in Attachment A. In compiling a chronology of disasters for an area, it will be helpful to refer to this list to both identify and rule out specific events for the area under consideration. The list also contains key words that may be useful in searching data bases, as well as the tables of contents, indexes, and picture captions of books, magazines, newspapers, or other such periodicals. Key terms include *fire, flood, storm, strike, tornado, hurricane, earthquake, epidemic and hazard*. Other useful terms are *disaster, emergency, accident, and tragedy*. These key words may also be used while interviewing eye witnesses or other informants such as long-time residents, government employees, or historians.

Common sense will also play a significant role in determining the kinds of incidents that have occurred or could have occurred in a given area in the past. For example, if a river runs through an area, there is a good possibility it has caused flooding, perhaps numerous times. If the area is situated in the Mid-West or eastern United States. chances are that tornadoes have occurred there. Most areas have experienced the multiple effects of droughts. Coastal areas have hurricane or tidal flood potential, and more northerly or higher-altitude areas are subject to climatic extremes. Additionally, there is little doubt, also, that most areas of the country have been affected by hazardous materials, industrial, mining, or transportation accidents. This is particularly true of built environments, railways, roadways, and navigable waterways.

Thus, another logical method of compiling a chronology of disasters for an area would be to compile a list of probable hazards and then to search for records of such occurrences.

Sources of Data
Once the categories of disasters that could have occurred within the area have been identified, the search for data should begin. This is a labor-intensive endeavor, and the larger the area under consideration (for example, a state as compared to a county or city), the more events one will uncover. Also, the lengthier and more in-depth the searches, the more incidents and the more details one will find. The more recent or more spectacular events will be identified fairly readily. Events that are further in the past, occurred in remote areas, or were less spectacular will be harder to identify and to accurately document. Unfortunately, many significant events may be lost forever because they were never recorded in writing. This is true, for example, of tornadoes,

severe storms, and flooding before a certain time period. Some reliable accounts of the more destructive events have been recorded in newspapers and personal diaries even as early as the 1600s. On the other hand, the National Weather Service has only recently (within the last century or so) begun to keep accurate and official records. There are also events that are so shrouded in legend, myth, or misinformation that they are undecipherable.

Some potential sources of information about historic disasters are found in Attachment B. These sources should be useful, but the list is not exhaustive. In compiling a disaster chronology, one should concentrate first on simply recording events. As each new item is found, it should be entered into a master list (the chronology) along with the source of the data (including the name and date of the source, the author, and page numbers). The details of each event can be completed later. Listing events in chronological order will put them in perspective, provide a point of reference to verify each event, and eliminate duplicate occurrences. Individual events may be recorded on index cards, separate slips of paper, a word processor, or an electronic data base. The advantage of the latter two methods is ease of entry and manipulation of data. On the other hand, some people prefer the index card system for data handling. Once a date has been established for an incident, it becomes much easier to gather the details of that event by referring to old newspapers and magazines, historical texts, library vertical files, diaries, special reports, logs, official records, other narratives, or verbal accounts.

Weekly newspapers are good primary sources of information, especially for events for which only the year is known. With weeklies it is only necessary to search 52 issues, as opposed to 365, issues. Almost any event large enough to be classed as a disaster is likely to be prominent on the front page of even a weekly newspaper. Once a date is established, daily papers may be consulted for even further details. Most larger libraries, especially state or university institutions, have back issues of regional newspapers on microfilm.

An unfortunate disadvantage of newspaper accounts is that they can be misleading. In the initial hours or days of the event, accurate and detailed information is likely to be vague or lacking. To compensate for this, the media are likely to be speculative or to sensationalize the event. As time passes, news accounts will become more accurate, but also more sketchy as the initial hype fades and interests turn to other news events. Anniversary accounts (published one year, ten years, and so forth after the event) are likely to provide the most reliable information; by then, many facts have been compiled, interpreted, and verified.

Verbal or personal accounts should not be overlooked. These sources may be primary (an account told by an informant who witnessed the event), secondary

(an account told to another reliable source by a person who witnessed the event) or tertiary (a third-person account that probably needs to be verified through other reliable sources). Personal accounts may be recorded electronically, on audio- or video-tape, or written, either verbatim or summarized. Electronic recordings will eventually have to be transcribed.

Information Resource Allies and Assistants
Reference librarians, historians, media reporters, and retired law enforcement, fire, or other emergency officials may also provide a wealth of information. However, the time they can contribute to digging up details or recording data in the needed form will be limited.

Professional researchers, historians, and students may be employed or may volunteer to assist, but the bulk of the work may fall on a single compiler/researcher.

The Importance of Accuracy
The chronology compiled about the disasters in your area will be unique. It will be your work, and can be an invaluable contribution to future generations. For this reason, every attempt should be made to ensure absolute accuracy. Sources should be double-checked, and multiple references should be utilized. Discrepancies should be brought to the attention of the reader when the facts vary from one source to another--and they will. There may be discrepancies in dates, times, the number of dead or injured, and other important details. Ranges, as opposed to exact numbers, may be given, and there is nothing wrong with suggesting which account is probably the more accurate, where more than one account has been cited.

If a reader finds obvious errors, misleading information, deception, or blatant sensationalism in a historic chronology, the credibility of the entire document comes into question.

Many problems will be encountered in the search for disaster events, and researchers may become frustrated with the lack of documentation or the difficulty of gaining access to certain records. However, the finished product will be a valuable contribution to the writer(s) and readers.

ATTACHMENT A

NATURAL AND TECHNOLOGICAL HAZARDS

- Severe Weather
  - Winter Storms
    - Snow (blizzards, avalanches)
    - Icing, glazing, and freezing rain
    - Severe and extended cold
  - Thunderstorms
    - Lightning
    - Hail
  - Slow-Rise Flooding
  - Flash Flooding
  - Tornadoes
  - Hurricanes
  - Storm Surge
  - Windstorms (wind shear or straight-line winds)
  - Tsunamis (tidal waves)
  - Dust Storms
  - Fog/Smog/Smoke/Pollution
  - Severe and Extended Heat
  - Drought
    - Hydrologic
    - Agricultural
  - Geological Failures
    - Earth (rock, land, mud) slides or slumps
    - Subsidence (sinkhole, cavern, mine, or tunnel collapse)
  - Earthquakes
  - Volcanoes
  - Dam and Reservoir Failure
  - Levee and Flood Wall Failure
  - Major Fires
    - Conflagrations (urban fires)
    - Wildland Fires (forest, grasslands)
    - Mine/Underground
    - Industrial (warehouse/factory/production facility)
  - Energy Emergencies
    - Mass Utility Disruption/Failure
    - Resource Shortages
    - Labor Strikes/Production Slowdown
    - Embargoes
  - Emergency Repatriation

- Wartime Emergency
  - Conventional
  - Nuclear
  - Biological/Chemical
  - Essential Materials Shortage
    - Production
    - Protection
    - Rationing
- Civil Disturbances
  - Riots
  - Strikes
    - Government
    - Labor
    - Essential materials shortage
    - Essential services shortage
- Economic Collapse (severe recession/depression)
- Political Upheaval
  - Social Unrest
  - Insurrections
  - Corruption
  - Attempted Government Overthrow
- Terrorism
- Prison Escapes
- Radiological Incidents
  - Fixed Nuclear Facility Accidents
    - Power plants
    - Enrichment facilities
    - Processing facilities
  - Radiological Transit Accidents
  - Radiological Terrorism
- Hazardous Materials Incidents (spills, releases, explosions)
  - In-transit (road, rail, air, water)
  - Fixed (in storage, production, or use facilities)
- Epidemic/Medical (disease/environmental pollution)
  - Human
  - Agricultural
- Miscellaneous
  - Information Flow Disruption (electromagnetic pulse, computer virus, etc.)
  - Space Program Accidents
  - Meteorite/Comet Impact
  - Extraterrestrial Contact

ATTACHMENT B
Some Sources for Historical Information on Disasters

-- National histories
-- State histories
-- Regional (multi state or sub state) histories
-- County, city, or community histories
-- State/local libraries and archives
-- National, state, or local historical society journals, newsletters, and special reports
-- Historical society records (narratives, oral history recordings, and photos)
-- Topical files (disasters, emergencies, fires, floods, etc.) in libraries, archives, museums, or universities
-- Books and articles on specific topics such as disasters, floods, hurricanes, hazardous materials incidents, epidemics, and so forth
-- Logs from fire, rescue, and law enforcement agencies
-- Reports from fire, rescue, emergency medical, law enforcement, or emergency management agencies
-- Diaries (especially historical ones)
-- Interviews with reliable informants (primary, secondary, and third-person accounts)
-- State/regional/local historians
-- State/regional/local/school/academic librarians, teachers, or professors
-- Federal/state/regional/local public information offices
-- Miscellaneous correspondence (old letters and such)
-- Almanacs
-- Daily, weekly, or special-edition newspapers/magazines/ periodicals (especially ones with indexes)
-- Commemorative publications concerning events
-- Local television or radio file audio or video footage (especially if indexed)
-- Newspaper/magazine clipping service files
-- General periodical indexes
-- Disaster data bases
-- College and university departments of geology, meteorology, engineering, safety, agriculture, economics, geography, and history
-- State/regional/local historical society (presidents, secretaries, and long-time members)
-- Family histories
-- Company or agency histories or reports

-- Federal government records, investigations, reports, or interviews with employees

-- State and local government records, general files, investigations, reports, or interviews with employees
-- Regional disaster organizations or consortia (such as the Central United State Earthquake Consortium in Memphis, TN)
-- Institution/agency files, reports, and special publications
    -- Quasi-public sector (American Red Cross, Salvation Army)
        -- Institutes of incarceration
    -- Hospitals and other care facilities
    -- Schools
    -- Utility companies
    -- Private museums

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Prior to joining ORISE in January of 1991, he served seven years with the Tennessee Emergency Management Agency (TEMA) in a number of program areas including fixed nuclear facility planning, dam safety, natural hazards planning, and he served as State Hazard Mitigation Officer.

Mr. Coggins is widely published in Tennessee, as well as nationally on emergency management topics such as earthquake risk, severe weather hazards, technological threats, dam safety, disaster history, ethics, homelessness, and hazard mitigation.

For the past eight years, he has been researching disasters which have occurred in Tennessee over the past two hundred years. They include natural and man-caused disasters, as well as epidemics and civil disturbances. He is presently compiling a book to be entitled, Historic Tennessee Disasters and other Tragedies.

EMERGENCY MANAGEMENT DISCOVERIES WHILE TRAVELING FOR NCCEM

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This year I have had the privilege of traveling around our country and overseas in the United Kingdom, representing the National Coordinating Council on Emergency Management. The travel has provided me personally with quite an insight regarding our emergency management profession. My intention in writing this paper is to share some of these experiences with you, so that you might gain some of the same understanding I have.

My goal this year, as I traveled to speak to various groups and organizations within the field of emergency management has been consistent and focussed. At every opportunity I have attempted to promote the findings of the NCCEM 2010 Task Force Report to our membership. The NCCEM 2010 Task Force was appointed in November 1991 by the incoming President of NCCEM, John K. Schroeder, in his inaugural address. It was comprised of six former Presidents of NCCEM, the President Elect, the Executive Director and a Facilitator (outside consultant). Former Presidents Ellis Stanley and Avagene Moore served as Co-Chairs for the Task Force.

The report explains that the "objective of the Task Force was to formulate ideas and/or additional steps defining how the Council must respond to the forces of the year 2000 and beyond. The Task Force first attempted to project the changing needs of the public, the profession of emergency management and the NCCEM organization into the 21st century, in order to formulate a Vision. Second, the group prepared action-oriented recommendations to help guide the Council toward its Vision."

Although a presentation of the final report had been done at the Annual NCCEM Conference in Colorado Springs in November of 1992, very little other verbal efforts had been made to distribute the findings of this panel of experts on the NCCEM 2010 Task Force. For this reason, as I mentioned previously, it has become my focus and challenge, to "spread the word" this year. (As an added note, copies of the complete Task Force report, "NCCEM 2010: Leader and Catalyst" are available. If you would like a copy you need to contact NCCEM Headquarters.)

On November 30th, two weeks after I became the 1993-94 President of NCCEM, I had the opportunity to speak at Andrews Air Force Base to the Maryland Emergency Management Association (MEMA). Sharing the program

with me were Mr. David McMillion, the Director of Emergency Management for the State of Maryland who had recently been sworn in as the President of the National Emergency Management Association (NEMA) and Mr. James Lee Witt, the Director of FEMA. I must tell you, I suddenly felt as though I had been thrust into the lion's den! I was spared however, because Mr. Joseph Byrnes, the President of MEMA, could not have been a more gracious host and I was soon feeling fairly comfortable with the exceptionally friendly members of his organization. I soon discovered that the members of MEMA had very similar concerns, challenges and problems as those we face in my home state of New Jersey, as local emergency management professionals. Never enough money, available technology, equipment and resources to accomplish the job we are assigned to do.

Interestingly, in Williamsburg, Virginia, some months later, this issue was explored in some depth at a conference of the Virginia Emergency Management Association. I was asked to speak on the "Role of the Emergency Management Coordinator". It was determined that, regardless of what their title is, or who they are employed by (government at any level, the military or private industry) the emergency manager faces the same problems and challenges.

Probably one of the best analogies I ever heard to describe the role of the emergency manager came out of this meeting in Williamsburg, Virginia and it was stated by a gentleman that was attending the conference as a representative for private industry (I apologize that I can neither recall his name or the name of his company). He said that an emergency manager could be equated to an orchestra conductor. He or she doesn't need to know how to play every instrument, but he or she does need to know however, which instruments are necessary and how to make them work well and sound good together. Obviously an emergency manager cannot possibly know all of the details of every individual role that is performed within the structure of his or her emergency operation. He or she does know which resources are needed and how to coordinate this effort.

When these qualities and skills are related to the NCCEM 2010 Task Force Report and its findings which state that disasters will be more complex in the future, our profession needs to take advantage of any and all available technology. We need to work and plan more with members of government, military and the private sector, in a partnership which combines expertise, resources and equipment to share in a given disaster or emergency. At an Emergency Management Technological Seminar in San Diego, California there was a comprehensive agenda dealing with just such networking with representatives from private industry, the military and government agencies. I was fortunate to have had the opportunity to attend and speak on behalf of NCCEM.

I have been privileged to speak to a number of our international colleagues this year. I was at a luncheon in Washington, DC in May, with two representatives from Australia. LTC. Ian Stewart, from the Australian Army was in the United States to gather information regarding how the military and civilian emergency management and response is coordinated in our country. Also attending the meeting was Mr. Rhys Maggs, who is the Director of Emergency Services in the State of Victoria, Australia. He was especially interested in the NCCEM Certification Program and our increasing membership from the international community. He also was interested in, and impressed with how the NCCEM membership was attracting members from the military and private industry and not solely from government.

In July, I also had the opportunity, to travel to the United Kingdom to visit with a variety of agencies in England, Scotland and Wales. It was a relatively fast paced eight days, packed with as much as possible. Our hosts were terrific and could not have been more attentive to our every need. Don Norris, an Emergency Planning Officer from Clwyd County in Wales, planned an incredible agenda for Ellis Stanley, Chairman of the NCCEM International Membership Development Committee, and me, in Wales and Scotland. We were given a tour of his county emergency operations center and offices and given the opportunity to view some impressive response vehicles which serve as a command center, a mobile communications center and a third vehicle which transports supplies and equipment to rest centers (shelters) when necessary to activate a facility during a disaster. We also were shown a computer system which is used for emergency planning (primarily nuclear attack and response). We were especially impressed with its mapping capabilities and the quality of the maps. We were given the opportunity to meet with the county staff. They were extremely friendly and helpful in explaining their procedures and facility. Don's graciousness and generous hospitality to all of us was unsurpassed. The beautiful gifts given to us, will be treasured for a lifetime.

In addition, we had the opportunity to visit and meet with Chief Inspector Clive Swombow of the North Wales Police Department. The day before we arrived the Chief Inspector had the challenge of overseeing the security for a rather lengthy motorcade and visit by Prince Charles, who was visiting the Province in celebration of his twenty-fifth year as their Province's Monarch. With the constant terrorist threat on the Royal Family's lives, we were fascinated with the extent of the planning and security that is involved for a local police department and at their own expense. Unlike the President and his family in the United States, there is no involvement of a national law enforcement agency, such as the Secret Service. The Prince travels with only two body guards! Personally, I was very touched that the Chief Inspector even took the time to meet with us and serve us tea, at four o'clock on a Saturday afternoon, especially when I learned that Prince Charles was returning the following day

for another visit which the Chief would be overseeing. His generosity in both the time he spent with us (almost two hours) and the beautiful gifts he presented us with, will be remembered fondly.

We spent Sunday with Don and his family exploring Conwy castle (constructed in the year 1298) and riding on an old steam train through the Welsh countryside. Everywhere we went, people were friendly and eager to make our visit a memorable one.

On Monday morning we left Wales, a little reluctantly, but also eager to continue our journey to Easingwald in York, England. At the Emergency Planning College we met with our second host, Mr. Henry (Harry) Hunt Evans, the Director of Studies at the College. Ellis and I enjoyed our tour of this beautiful facility, which had originally been a private residence, and was filled with beautiful furnishings, treasures and antiques. Harry was happy to show us around the College including the adjoining buildings which included a fascinating museum filled with old civil defense equipment, uniforms and life sized models of the old fallout shelters. The amphitheater at the College was as modern and beautiful as any I've ever seen. Ellis and I had the opportunity to sit in on an interesting lecture on the emergency response to the tragic ferry accident, which capsized on the English Channel in March of 1987, carrying 450 passengers and killing 193 people.

The next morning we were off to Lockerbie, Scotland to visit with the officials of this small town (less than three thousand residents) which suffered so greatly when flight Pan Am 103 exploded and literally fell upon their community at 7:00 in the evening on December 21, 1988. Ellis and I had been told by Don Norris, while we were in Wales, that the people in Lockerbie were still very sensitive when discussing this incident. I have wondered for weeks now, how to explain what we found when we arrived in Lockerbie. As Ellis so aptly described it later, "being here and seeing this town, its just not something you can see in a video tape."

We arrived in Lockerbie around noon on Tuesday and checked into a beautiful little inn that was just charming. After lunch, we were met by two of the officials in Lockerbie, Mr. Rob Fisher, the Emergency Planning Officer from Dumfries and Galloway Regional Council and a member of the response team from the Educational Department. I think the first thing that struck me as we arrived in Lockerbie, was the beauty of the town. It is situated in the center of miles and miles of farmland and there are sheep grazing in every direction, as far as one can see. The town itself is meticulous, residential and quiet. Beautiful gardens adorn every home.

Our first afternoon in Lockerbie was spent on a tour which included the sights where so many of the major pieces of the plane rained down on this small community. The first stop was at the end of a small residential street with beautiful brick homes. These homes were relatively new and had been built to replace the twenty homes destroyed when a portion of the plane's wing hit them. Eleven people, residents of this street died, as a result of the crash. We were told of a young teenage boy, who had gone up the street to visit a friend and while he survived, his family did not. His parents and two sisters were killed.

At another site, in the back yards of two rows of apartment houses, we were shown where three of the plane's engines fell, miraculously only damaging one apartment. Mercifully no one living in this neighborhood was killed, in this area where children played just hours earlier. At both of these sights beautiful memorials have been erected to remember the deceased. As our tour progressed, Ellis and I were beginning to feel and understand the impact, both physical and emotional, that devastated this little town, at Christmas, five and one half years ago.

Eleven people, who lived in Lockerbie died, and another two hundred fifty nine passengers and crew of Pan Am 103 died in the crash, which literally fell on the town. I occasionally think it is easy for some of us, in this profession, to look at disasters in a rather a cold and hard objective manner and I know personally, I never dreamed that visiting Lockerbie could be the exception, but it was. To describe our visit and not relate our feelings would cheat you of the true lessons of our visit.

As we toured the town, the shattering of this community became apparent as it was pointed out that the Town Hall, the Skating Rink and a furniture warehouse had been used for morgues. We were shown the school where the counselors had been brought in to console the survivors and the families of the victims. This is also where Prince Charles and Princess Diana had been brought and spent an entire afternoon meeting with the victims' families individually, and offering their condolences.

Everywhere, evidence of the crash was pointed out to us, the new shingles on a roof, the discoloration on the road where patching had occurred and of course, the new construction which replaced that which had been destroyed.

The stories we were told, of the fuel from the plane that covered everything from homes, to yards and gardens, and vehicles. The stories of bodies, and parts of bodies, could only be imagined. One woman went out to her garden shed days after the crash, opened the door, and found a body had come through the roof of the shed, but had remained undiscovered until she found it.

We were taken to a small stone church, three miles out of town where a small building had been erected in Memorial to the victims of Pan Am 103. Outside the walls of the church and across the street, in a farmer's field, is where the nose of the aircraft and the fuselage had fallen. Inside the little building, there was a single room with a guest book, which included messages from the families, another book listing those who had died and still another book which included pictures and biographies of each of the victims. Truly we were struck by these personal messages, the fresh flowers placed by the families of the victims who continue to visit, and a very somber feeling as we exited the memorial.

As we headed back into town, we stopped on the hill to view the town and we were again struck by how unlikely anyone could have ever imagined an aircraft crashing on this town, with so many miles of farmland and pasture land surrounding it. Our final stop on our tour of the town, was at a cemetery where a memorial wall and garden has been built. The plaques, placed by the victims families are very personal and reflect so many of the personalities involved that we left, quite literally, near tears.

We arrived back at the inn, feeling drained and tired, and somewhat like interlopers and invaders in this town which was still trying emotionally to cope with what had occurred. We discussed this with our hosts and they explained that the people in the community fully understood officials visiting and they were very warm and receptive to the families of the victims visits. They also explained however, the resentment that the residents feel and understandably so, when they witness the increasing number of commercial tour busses arriving at the memorials!

The following day we were invited to the Dumfries and Galloway Regional Council emergency operating center and we were greeted by a number of the council staff and officials who had participated in the emergency response to the crash in Lockerbie. We were also interviewed by a number of the local media who apparently felt that it was big news that we had included Lockerbie on our visit to the United Kingdom. Apparently American officials who visit are very far and few between. The exception of course, include the federal law enforcement investigators who arrived shortly after the crash and the families of the victims. We also saw a video tape which showed the crash sites and the town during the response efforts.

The officials we met with were extremely helpful and receptive to all of our questions. (I must admit our fear was in asking a question that would be considered insensitive or inappropriate. However this, to my knowledge, did not occur.) They identified the problems, with victims who were from twenty-one different countries; the language barriers, and the challenge they

faced trying to honor, whenever possible, the burial customs of these different ethnic and religious backgrounds. They also pointed out the impact on the community of using the Town Hall and the Skating Rink as morgues and how the residents were further traumatized when they returned to these buildings later, in morenormal times.

They spoke to us regarding the desire of the citizens of the community, and in fact their need, to become involved in recovering from this disaster. They baked and did the laundry for the visiting victims' families. They wrote, printed and distributed a newsletter regarding the recovery efforts. Additionally they alone, without political influence, made all of the decisions regarding the building of the memorials and where they would be placed. The Dumfries and Galloway officials hosted a lunch for Ellis and me, provided us with beautiful mementos from their county, and gave us each a complete set of the reports written on the incident. I am sure our visit to Lockerbie is one that will be remembered by Ellis and me with sympathy, for all that this community suffered, but also with a great deal of admiration for these officials who, sometimes with tears in their eyes, so generously shared their experiences and "lessons learned" with us.

That evening we were back at the United Kingdom's Emergency Planning College where Nigel Knocker, Chairman; Roseanna Briggs, the Public Relations Officer and Don Norris, represented the United Kingdom's Emergency Planning Society, hosted a dinner in our honor and presented some very special gifts to us. We all agreed it is imperative that our organizations work more closely in the future so that more of our members can share in some of the experiences that Ellis and I had been fortunate enough to have done.

On Friday, my husband and I, and the entire Stanley family were off to explore and shop in London. I am sure we will be telling tales of our trip and sharing the memories we have for years to come.

My other trips to date, this year include the many trips to Washington, DC for FEMA Advisory Board Meetings, for meetings at FEMA Headquarters and the Old Executive Building, meetings with legislators and of course, the NEMA and NCCEM Mid Year Conferences.

We (NCCEM, NEMA and FEMA) are still attempting to impress upon our legislators the importance of funneling any available resources down to the state and local levels of government where response in a disaster is critical, more cost effective and efficient. We will, I am confident, continue to strive to accomplish this goal, in the team spirit of organizations working together as long and as often as necessary.

As I fulfill my travel commitments this year, I am confident that I will continue to grow as a professional and discover that there is much more to learn by listening to those that I visit with, than there is for me to say, as I "spread the word".

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Born in New York City, Mrs. Rosemarie Chisholm-Cohen has spent her entire life in New Jersey. She graduated from Scotch Plains-Fanwood High School in 1966. In addition, Mrs. Chisholm-Cohen has attended classes at Rutgers University and Ocean County College and intends to pursue her Bachelor of Science Degree, with concentration in Human Services and specialization in Emergency Disaster Management from Thomas A. Edison State College. She recently earned her Certification as an Emergency Manager (CEM) from the National Coordinating Council on Emergency Management.

In the past, Mrs. Chisholm-Cohen worked with law enforcement agencies in both South Toms River and Beachwood as an auxiliary police officer. For five years Mrs. Chisholm-Cohen served as President of the Fraternal Order of Police, Associate Membership, Lodge 10 in Ocean County. Past employment also includes serving as Deputy Coordinator of Emergency Management in Beachwood, New Jersey and three years as a security officer at Six Flags Great Adventure in Jackson, New Jersey.

Mrs. Chisholm-Cohen first became involved in Civil Defense-Disaster Control in Ocean County in 1971 as a volunteer. Her primary duties were in training and she served as Director of the Ocean County Auxiliary Police School until its closing in 1987. Mrs. Chisholm-Cohen completed the Career Development Program for Emergency Management Coordinators in 1982.

In 1984, Mrs. Chisholm-Cohen was hired as a full time employee of the Ocean County Department of Emergency Services to serve as Training Coordinator for emergency management, fire, first aid and law enforcement personnel.

In 1987, Mrs. Chisholm-Cohen was appointed to the position of Deputy Emergency Management Coordinator for Ocean County and she continues in that position today, with the Ocean County Sheriff's Department. She has served on the executive boards for both the American Society of Professional Emergency Planners and the National Coordinating Council on Emergency Management. In the past Mrs. Chisholm-Cohen has served as President of N.C.C.E.M., Region II for two and a half years, as Chairperson of the Training and Education Committee and as Chairperson of the Administrative Committee for the Development of Professional Standards for Emergency Management. She recently was appointed to serve on the new Federal Emergency Management Agency Advisory Board by FEMA Director, James Lee Witt. Mrs. Chisholm-Cohen became President of the National Coordinating Council on Emergency Management in November, 1993. She is also an Honorary Member of the United Kingdom Emergency Planning Society.

A YANK AT EASINGWOLD

Russell C. Coile, Ph.D., CEM
Pacific Grove Fire Department
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ABSTRACT

The British Home Office has its Emergency Planning College at Easingwold in North Yorkshire, England. I had the opportunity to visit the College and attend a course there in September 1993. I had attended a similar type of course at FEMA's Emergency Management Institute at Emmitsburg, Maryland and I thought it might be interesting to compare the two approaches. My Emmitsburg course was ***E 200 Disaster Preparedness Seminar*** and the Easingwold course was ***Seminar for Elected Members.*** The participants at Emmitsburg were teams of two people - the local government City Manager and his or her Emergency Coordinator, for example. The participants at Easingwold were "elected members" - chairmen of councils, and leaders of principal political parties.

INTRODUCTION

Years ago, Mickey Rooney starred in a movie entitled "A Yank at Oxford". I don't really remember much about the movie except that Mickey apparently did everything wrong in England on every possible occasion. Since I was born in Washington, D.C. and am as American as apple pie, I was somewhat apprehensive about going to England to participate in a seminar at the Home Office's Emergency Planning College at The Hawkhills, Easingwold, North Yorkshire. Besides, I usually read Dave Barry's articles in our Sunday paper. Dave apparently visited England some time ago and wrote a frightening account of his problems when confronted with a typical English place setting at a formal dinner which he said consisted of 27 knives, forks, and spoons. Anyhow, I decided to chance it.

The Home Office bought "The Hawkhills", a large country house at Easingwold in 1936[1] for conversion for use as an "anti-gas training school". British preparations for World War II included preparing for the use of poison gas by Germany, since there had been so many chemical warfare casualties in World War I. The house and its 350 acre estate were purchased from Joseph Love, a Durham coal magnate for only £12,500. The first civil defense course at The Hawkhills, Easingwold was in December 1937, so that the College celebrated its 50th anniversary in 1987.

The Hawkhills became the Home Office's only Civil Defence College in 1968 when the two other civil defense schools were closed. In 1989, the Home Secretary reviewed the subject of civil emergencies and decided to rename the College "The Emergency Planning College", and modified its responsibilities to address questions of peacetime disasters as well as wartime emergency civil defence planning. The Emergency Planning College has a Principal, Vice-Principal, College Secretary, three Programme Directors, ten Study Leaders, and a Librarian. The College will present about thirty different residential seminars and courses in 1994-1995 as listed in the Appendix.

After arriving in London, I took a fast train from King's Cross railway station to York. The College provided transportation to The Hawkhills which is situated ten miles north of York and about one mile south of the village of Easingwold. The original country house has been added to and modernized so that it now has residential study/bedroom accomodations for about 70 on site and conference facilities for 125 or so. In addition to a gym , weight room, croquet, etc there are two woodland jogging paths marked by red or white arrows. I saw a number of rabbits and even a fox on my walks.

SEMINAR PARTICIPANTS

The seminar at the Emergency Planning College, Easingwold that I attended was for "elected members". Apparently all elected members are eligible to attend but preference is given to chairmen (convenors) or vice chairmen of councils, leaders or deputy leaders of principal political parties ,and chairmen or vice chairmen of relevant committees. The participants at this seminar included: the Deputy Mayor, Salisbury District Council, Wiltshire; Vice Chairman, Stroud District Council, Gloucestershire; two members of the Orkney Islands Council; Deputy Mayor, Coleraine Borough Council, County Londonderry, Northern Ireland; member of City of Dundee District Council, Tayside, Scotland; etc.

When I attended the seminar at the Emergency Management Institute, Emmitsburg, Maryland, the participants came from all over the States and consisted of teams of two people - the local chief administrator (Mayor, City Manager or County Manager) and his or her Civil Defense Director, Emergency Manager, or Emergency Coordinator.

SEMINAR OBJECTIVES

The Elected Members' Seminar at Easingwold had the following learning objectives:

1. To understand the current rationale for emergency preparedness and the factors which have influenced it;
2. To be aware of the roles and responsibilities of the emergency

services, local authority services and other agencies and organizations in their response to peacetime emergencies;
3. To gain a broad understanding of radiation and an understanding of the response to nuclear-related emergencies;
4. To be aware of the responsibilities cf elected members concerning emergency preparedness and to be aware of the legislative and financial framework for emergency preparedness and current programmes and initiatives.

The E 200 Disaster Preparedness Seminar at Emmitsburg had the following objectives:

1. Identify emergency planning problems and needs in the participant's own municipality;
2. Develop a coordinated team approach to emergency planning;
3. Improve the management of and support for their emergency planning teams;
4. Understand the basic concepts of crisis management; and
5. Complete an evaluation of their local emergency preparedness program.

LEARNING APPROACH

At Easingwold, we were divided up into "syndicates" of about eight people with an assigned tutor. The tutor for our syndicate was a Police Superintendent who had been "seconded" to the college for a two year assignment to be a study leader and to give lectures. The briefings, group and plenary discussions and a discussion-based exercise were combined to give members an opportunity to discuss the problems which might confront local authorities in a range of emergencies. Some of the briefings presented to us were:

Common Elements of Crises
Local Authority's Resources Available in Emergencies
Uniformed Services' Resources Available in Emergencies
What can we Expect from the News Media
Procedures at Major Incidents
Principles of Integrated Emergency Management

The seminar ended with a case study of a recent emergency - the bombing of the PanAm aircraft at Lockerbie, Scotland. The speaker, a member of the Dumfries and Galloway Regional Council, explained his role and the actions taken by his authority.

At Emmitsburg, our seminar addressed the following functional areas with *lectures, videotapes, group and individual exercises as indicated:*

1. The nature and pervasiveness of disaster;
   Lecture and videotapes on Preparedness
2. The need for leadership in disaster planning and response;
   Introduction to Disaster Planning and Management
3. Hazard analysis;
   Local Hazard Analysis questionnaire
4. The essential elements of disaster management;
   Disaster Case Analysis
5. Securing interorganizational participation and cooperation;
   Establishing and Maintaining Interorganizational Relationships and Cooperation Disaster Case Analysis
6. The functions of the Emergency Operations Center and effective utilization of the Incident Command System;
   The EOC: Place and Process
7. Crisis decision-making techniques;
   Improving Crisis Decision-making
   How Miamisburg Averted Disaster
8. The characteristics of an effective disaster management organization;
   The Local Emergency Preparedness Team Evaluation
9. An action plan for improving disaster preparedness.
   The Local Emergency Preparedness Program Action Plan
   Meeting the Media

COMPARISON

As you can see, the British and American seminars had many aspects in common as well as some different approaches. I guess that I was surprized to hear the discussion of so many different kinds of actual disasters in England of one sort or another . I thought that we here in California had more of everything, whether it be earthquakes, tsunamis, wildland fires, drought, hazardous chemical spills, etc. even if we didn't have Hurricane Andrew, the Mississippi River floods , tornadoes or blizzards like the great Northeast Blizzard of '93.

CONCLUSION

In my opinion, FEMA and the Home Office should explore whether or not some form of occasional temporary exchange of instructors might be worthwhile between the Home Office's Emergency Planning College at Easingwold and FEMA's Emergency Management Institute at Emmitsburg. The U.S. Defense Department has apparently found some way to have British Artillery officers teach on an exchange basis at the U.S. Army's Artillery School at Fort Sill, Oklahoma and to have Royal Marine officers teach at the Marine Corps Schools

at Quantico, Virginia, while U.S. Marine Corps officers teach on exchange duty in England.

It would seem appropriate for FEMA and the Home Office to consider whether or not temporary exchanges of instructors between Emmitsburg and Easingwold might be cost-effective for both "us" and "them" to study and learn each other's different approaches for similar kinds of emergencies.

APPENDIX

Emergency Planning College Seminars and Courses [2]

The Emergency Planning College, Easingwold will offer the following seminars in 1994-95:

Aspects of Emergency Planning for National Health Service

Management of major emergencies in the NHS context with a participative program of group work and case studies of recent disasters dealing with the roles of the coroner, pathologist, casualty surgeon and voluntary organizations.

Care of People in Emergencies

Planning for care of victims including welfare, information and counselling when dealing with large numbers of people who need to be evacuated and accommodated. Seminar designed for county social services, local government emergency planners, representatives of emergency services, the National Health Service, and voluntary organizations with responsibilities in aftercare and victim support.

Civil Emergencies Adviser Seminars

Special event seminars drawing on experience of national and international experts to respond to specific developments or to support the work of the Home Office's Civil Emergencies Adviser.

Civil Military Cooperation in Emergencies

Multi-disciplinary program for armed forces officers, representatives from central and local government and relevant civilian organizations designed to cover the major areas of possible military aid to the civil community in disasters.

Crowd-Related Emergencies

Case studies for emergency preparedness for all involved in planning for crowds, including managers of major events, emergency planning officers, emergency services personnel, and members of voluntary organizations.

Counselling and Aftercare

Planning for interagency cooperation and understanding for psycho-social support after a disaster for those employed in social service departments, the National Health Service, the voluntary sector, emergency planning units, emergency services and the armed forces.

Elected Members Seminar

Local authority elected members study the roles and responsibilities of elected members and local authorities in various emergencies. Local councilors who were involved in recent disasters explain their own roles and actions taken by their authority.

Emergency Management

Senior executives from the public and private sectors consider the common elements of crisis management within the context of their wider corporate roles and compare differences in management culture between the public and private sectors.

Emergency Management for Voluntary Organizations

Providing an understanding of the integrated approach to emergency management with particular reference to coordination and cooperation and to the volunteers' relationship with the emergency services and the local authorities.

Environmental Health

Program for environmental health officers and local authority emergency planning officers to improve participants' understanding of emergency preparedness and the contribution to be made by environmental health professionals.

Hazardous Materials

Specialists cover the major areas concerned with safety of hazardous substances including risks, legal safety requirements, emergency procedures, environmental problems, and the roles and responsibilities of all associated agencies.

Inter-Agency Response to Major Disasters

Multidisciplinary composition of the seminar enables participants to identify the elements which are common to the successful management of major civil emergencies and thereby understand the importance of liaison and cooperation between all services and agencies involved in the response phase of an emergency.

Local Government Senior Management

Program to enable local authority chief executives, chief officers andother senior managers to examine the variety of problems likely to face them during and in the aftermath of a major civil emergency, and to discuss current developments in emergency preparedness.

Metropolitan Authorities

Seminar provides an opportunity for local authority chief executives, elected members and those with responsibilities for emergency response in metropolitan areas to come together with a view to improving preparedness at the local level.

Multi-Agency Nuclear Emergency Response

Overview of the inter-agency response and demonstration of the concept of integrated emergency management and the need for coordinated action in dealing with the media in a nuclear emergency for those executives with a role to play in the off-site response.

National Health Service Seminar

Principles of emergency management for relevant executive personnel of the National Health Services.

News-Media and Information

Establishing effective relationships with the news media and the successful handling of information are acknowledged to be particularly important aspects of emergency management. This seminar brings together emergency services, local government, the utilities, industry, and voluntary organizations who have an information role in emergencies.

Operational Risk Assessment

Seminar for industrialists, emergency planners and emergency services personnel to cover company management of risk throughout the life of a site, new techniques for major incident risk assessment for on-site and off-site incidents, and applying operational risk assessment in the workplace.

Pollution Aspects of Disasters

Examination of the problems of land, water and air pollution spects of disasters for local authority and emergency services personnel.

Pop Concerts Guidance

Emergency preparedness planning for all involved in planning for pop concerts, including managers, emergency planning officers, emergency services personnel, and members of voluntary organizations.

Senior Ambulance Officers' Seminar

Principles of integrated emergency management and the roles and responsibilities of senior ambulance officers.

Senior Police Officers' Seminar

Principles of integrated emergency management and the roles and responsibilities of senior police officers.

Specialists Seminar in Emergency Planning

This seminar provides an opportunity for experienced emergency planners from central and local government, the emergency services, the utilities and industry as well as representatives from the voluntary organizations to come together to exchange views and to consider current issues in emergency preparedness.

Technical Services/National Utilities

Program designed to enable managers from the technical services of local authorities and technically-oriented organizations, including the national utilities, to consider the management of a hypothetical major emergency.

The following courses will be offered in 1994-95:

Communications Course

Comprehensive update on communications policy, systems, and equipment for emergency communications planning officers and local authorities.

Introduction to Emergency Planning

Overview of emergency planning in the United Kingdom for newly

appointed emergency planners, representatives of voluntary organizations, the armed forces, emergency services, and elected members.

Management of Training and Exercise Design

Organization, management and evaluation of various emergency preparedness exercises.

Understanding Radiation

Specialists in the field provide a basic understanding of radiation for national security and nuclear incident emergency preparedness planners.

Water Course

Planning for national security and civil emergencies for water company, National Rivers Authority staff and local authority officers.

Women's Royal Voluntary Service

Emergency planning course for members of the Women's Royal Voluntary Service.

SCHEDULE OF SEMINARS AND COURSES

Dates	Event
1994	
07 Sep-28 Sep	Women's Royal Voluntary Service Seminar
28 Sep-30 Sep	Counselling and Aftercare Seminar
03 Oct-05 Oct	Hazardous Materials Seminar
06 Oct-07 Oct	Multi-Agency Nuclear Emergency Response Course
10 Oct-12 Oct	Metropolitan Authorities Seminar
12 Oct-14 Oct	Emergency Management Seminar
17 Oct-21 Oct	Communications Course
24 Oct-26 Oct	Elected Members Seminar
26 Oct-28 Oct	Emergency Planning for the National Health Service
31 Oct-04 Nov	Women's Royal Voluntary Service Seminar
14 Nov-16 Nov	Civil Emergencies Advisor's Conference
16 Nov-18 Nov	Health, Safety, and Welfare at Pop Concerts Seminar
21 Nov-23 Nov	Emergency Services Seminar - The Inter Agency Response to Disaster
23 Nov-25 Nov	News Media and Information Seminar
28 Nov-30 Nov	Pollution Aspects of Disasters Seminar
30 Nov-02 Dec	Crowd Related Emergencies Seminar
05 Dec-07 Dec	Emergency Management Seminar
07 Dec-09 Dec	Health, Safety, and Welfare at Pop Concerts Seminar
12 Dec-16 Dec	Introduction to Emergency Planning
1995	
03 Jan-05 Jan	Emergency Management Seminar for Voluntary Organizations

05 Jan-06 Jan	Multi-Agency Nuclear Emergency Response Course
09 Jam-11 Jan	Civil Emergencies Advisor's Conference
16 Jan-18 Jan	Rabies Seminar
23 Jan-25 Jan	Crowd Related Emergencies Seminar
25 Jan-27 Jan	National Health Service Seminar
30 Jan-01 Feb	News Media and Information Seminar
06 Feb-08 Feb	Metropolitan Authorities Seminar
08 Feb-10 Feb	Pollution Aspects of Disaster Seminar
13 Feb-15 Feb	Introduction to Risk Assessment
20 Feb-22 Feb	Elected Members Seminar
22 Feb-24 Feb	Emergency Planning for the National Health Service
27 Feb-01 Mar	Health, Safety, and Welfare at Pop Concerts Seminar
06 Mar-08 Mar	Counselling and Aftercare Seminar
08 Mar-10 Mar	Rest Centre Management Seminar
15 Mar-17 Mar	Hazardous Materials Seminar
20 Mar-22 Mar	Rabies Seminar
22 Mar-24 Mar	Health, Safety, and Welfare at Pop Concerts Seminar
27 Mar-29 Mar	Emergency Management Seminar
29 Mar-31 Mar	Crowd Related Emergencies Seminar
03 Apr-05 Apr	Care of People in Emergencies Seminar
10 Apr-13 Apr	Understanding Radiation Course
19 Apr-21 Apr	Water Course
24 Apr-25 Apr	Emergency Management Seminar for Voluntary Organizations
26 Apr-28 Apr	Technical Services/National Utilities Seminar
01 May-03 May	News Media and Information Seminar
03 May-05 May	Health Service Emergency Planning Conference
10 May-12 May	Rest Centre Management Seminar
15 May-19 May	Women's Royal Voluntary Service Seminar
22 May-24 May	Emergency Management Seminar
05 Jun-07 Jun	Counseling and Aftercare Seminar
07 Jun-09 Jun	Crowd Related Emergencies Seminar
12 Jun-14 Jun	Emergencies Services-Inter Agency Response to Disasters
14 Jun-16 Jun	Hazardous Materials Seminar
16 Jun-18 Jun	Institute of Civil Defense & Disaster Studies Conference
19 Jun-21 Jun	Environmental Health Seminar
21 Jun-23 Jun	Metropolitan Authorities Seminar
28 Jun-30 Jun	Management of Training and Exercise Design
05 Jul-07 Jul	Emergency Planning for the National Health Service
10 Jul-14 Jul	Introduction to Emergency Planning
17 Jul-19 Jul	Civil Emergencies Adviser's Conference
19 Jul-21 Jul	Civil Emergencies Adviser's Conference
24 Jul-26 Jul	Elected Members Seminar
26 Jul-28 Jul	Local Government Senior Management Seminar

References:

[1]*Information for Visitors*, The Emergency Planning College, Easingwold, March 1993

[2]*Emergency Planning - Course directory, conference and study facilities 1994-95,* The Emergency Planning College, Easingwold, York YO6 3EG, Tel: 0347 821406; FAX: 0347 822575

EMERGENCY MANAGERS MUTUAL AID IN CALIFORNIA

Russell C. Coile, Ph.D., CEM
Pacific Grove Fire Department
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INTRODUCTION

The Fire Departments and Police Departments of many cities in California have agreements for mutual aid in case of events which might overwhelm the local capabilities to cope with the event. Public Works departments are also taking action to sign similar mutual aid agreements. Prior to the Northridge earthquake in January, 1994, there was no statewide system for formal mutual aid for emergency managers. The State of California now has a mutual aid system for emergency managers.

The Governor of California has an Office of Emergency Services. The Governor's Office of Emergency Services in Sacramento has three regional offices - Southern, Coastal and Inland. The emergency managers of the Coastal Region were attending a quarterly meeting in San Francisco on Friday, January 21, when Richard Eisner, Coastal Region Administrator received a telephone call from Dr. Richard Andrews, Director of the Governor's Office of Emergency Services. Dr. Andrews was the State Coordinating Officer and was at the OES/FEMA Disaster Field Office in Pasadena with the Federal Coordinating Officer and James Lee Witt, FEMA Director. Dr. Andrews asked if Rich Eisner could send some Coastal Region emergency managers to Los Angeles as soon as possible to help provide mutual aid to Southern Region managers.

Henry Renteria, City of Oakland's emergency manager, and Raelene Wong, Sunnyvale's emergency manager were asked to go to Los Angeles and establish an Emergency Managers Mutual Aid (EMMA) office. Henry, Raelene and some of the others of the advance party went to Pasadena the next day, Saturday, January 22 and set up a temporary staging office in a suite at the Pasadena Hilton Hotel, across the street from the Disaster Field Office.

I drove the 350 miles from Pacific Grove to Los Angeles on Saturday, arriving in the evening. I and the others of the initial group of nine reported in to the EMMA staging office in the Pasadena Hilton on Sunday morning. We received our initial orientation briefing and our State OES photo identification badges, and then were issued a cellular telephone, pager, charger, spare battery, etc. That afternoon, EMMA was assigned office space on the fourth floor of the Disaster Field Office and we closed down the staging office and moved from the hotel to the DFO. Dr. Andrews came around to our new office about 7 p.m. to welcome us.

REGIONAL EMERGENCY OPERATIONS CENTER

On Monday morning, most of us received assignments to go out in the field. I paid my bill and checked out of the Pasadena Hilton Hotel and drove about 40 miles south to Los Alamitos, the location of the Southern Region's Emergency Operations Center. When I reported in I was assigned to the Planning Section, and more specifically to the Situation Unit. The Planning Section's Situation Unit had experienced difficulties in getting accurate and timely information as to what was happening during the first five days after the earthquake. Consequently,the incident commander had decided to use some of the unique capabilities of the California Department of Forestry and Fire Protection (CDF) there at the Regional Emergency Operations Center REOC) to get up to date information.

The 200 or so CDF personnel there were already providing all of the logistic support for the expanded REOC. They had established a Fire Camp, with kitchen trailers, tents, refueling sites, staging areas, the whole works. The CDF had taken over a Ramada motel about a mile away for sleeping accomodations. The CDF has a number of "observers". These are firefighters trained for intelligence collection who are sent out in a wildland fire, for example, to collect timely information on the accurate locations of the fire, the local weather, the local terrain, condition of the roads or trails, if any, and all the other pertinent facts so that the Planning Section can generate the best feasible plan for all operations during the next period.

It was decided to establish 13 two-person observer teams to visit the 13 different areas in the Los Angeles with severe earthquake damage to gather information each day to help the Planning Section prepare its plan that night for the following day's operations. I was assigned to a different observer team each day for the next four days. I sent a report of my activities each day to the Emergency Manager Mutual Aid office at the Disaster Field Office each day. Extracts from my log for a typical day, 28 January (11 days after the quake) are as follows:

0700 Attended daily morning briefing at Regional Emergency Operations Center, Los Alamitos, Assigned to CDF Observer team #1. Faxed Coile memo "Errors in January 24,1994 Summary Report of DAC Managers' Report" to EMMA office at DFO, Pasadena.
0815 Departed Los Alamitos
0945 Arrived Disaster Application Center #1, Northridge (50 miles). Met DAC manager and obtained a copy of DAC #1 Manager's Report.
1205 Visited Salvation Army Tent Shelter, Lanark Park and Mobile DAC #4.
1315 Visited Red Cross Service Center, Epiphany Luthern Church,

Canoga Park.

1340 Visited Salvation Army Tent Shelter, Canoga Park.

1600 Observer team noticed damaged trailers while driving by trailer park. Stopped to investigate. President of Homeowners Association reported that they had conducted their own preliminary damage assessment and found that 136 of 190 trailers had been knocked off foundation supports. They had turned the gas off so that there were no fires. (Two other nearby trailer parks had numerous fires.) Homeowners had pooled food, organized communal cooking, and had bought water. They expressed a need for six porta-potties for some elderly folks who had trouble walking to their neighbors' trailers.

1830 Arrived back at Regional EOC in time for debriefing of observer teams (1800-1900).

1900 Attended night briefing at REOC.

I felt that my assignment had been an educational one for me. I was glad that I was able to provide a small amount of assistance with the collection of statistical data.

EMERGENCY MANAGERS MUTUAL AID

The manager of the first Emergency Managers Mutual Aid group, Henry Renteria, prepared this mission statement and objectives for us:

Mission Statement

To provide professional Emergency Management services at the request of State Office of Emergency Services in the form of Mutual Aid to the impacted area and support Disaster Operations and Recovery.

Objectives

- Provide Emergency Managers to work in Disaster Application Center management positions
- Provide Emergency Managers to support Disaster Field Office operations
- Provide Emergency Managers to support local Emergency Operations Center operations
- Coordinate reception, assignment, and training of assigned personnel
- Manage Emergency Managers Mutual Aid
- Develop Emergency Managers Mutual Aid Procedures

A total of 107 emergency managers were eventually assigned to assist the OES Southern Region's managers, usually on 7 day assignments. The mutual aid managers were given a variety of assignments, and the overall evaluation was that these assignments had been worthwhile and cost-effective. The Regional EOC has several other ways to augment its core staff during disasters, including bringing back reservists and arranging for temporary hires.

Steps have already been taken by the Governor's Office of Emergency Services to formalize this mutual aid system for emergency management (See Appendix). The details of mutual aid are spelled out, such as the provision that each individual's salary and benefits continued to be paid by his or her local government while disaster assignment expenses such as travel, per diem, and overtime beyond 40 hours per week will be reimbursed by the emergency activity to which the person is temporarily assigned.

APPENDIX

Assistance Agreement for all Federal Fiscal Year 1994 Emergency Management Assistance Program Applicants

(Letter dated March 9,1994, State of California,
Office of Emergency Services, 2800 Meadowview Road,
Sacramento, California 95832)

Article VIII Emergency Use of Resources

A. In accordance with the objectives of this Agreement, and in order to enhance state and local emergency management, including emergency response capability, any personnel, supplies, equipment, and facilities funded in whole or in part within this Agreement may be employed in emergency operations in connection with natural or technological disasters, without change in funding among programs, subject the following conditions:

1. Such use shall not detract from, nor be allowed to prevent, accomplishment of the objectives set forth in the statement of work for the program activity under which these resources are funded.
2. The primary use of any resources funded under this Agreement shall be to accomplish the objectives of the program activity under which it is funded.
3. The temporary reassignment of personnel otherwise authorized by this Agreement must be justifiable because of an urgent need for stafff or due to the occurence of a natural disaster as defined in

Section 3 (Definitions) of the Federal Civil Defense Act of 1950, as amended.

4. Expenses above the ordinary salary or normal program expense to support the resource (e.g. travel, per diem, etc.) must be paid by the emergency activity to which the resource is temporarily assigned.
5. No individual shall be hired or other resource acquired under this Agreement for the sole or principal purpose of use in this emergency or disaster.
6. Personnel supported under the Act in whole or in part through contributions may be assigned to emergency response operations for up to 30 consecutive days at the discretion of state officials, with extensions to longer periods upon request.
   a. The FEMA Regional Director may grant an extension up to 90 consecutive days.
   b. The FEMA Associate Director for State and Local Programs and Support may grant an extension of longer than 90 days (to the end of the fiscal year).
   c. Disaster response work during such an extension period should be documented by amendment to the CCA as contributing to the comprehensive emergency management state of preparedness.
   d. For programs whose personnel are supported in whole under the Act, when work or objectives are altered due to such extension, the FEMA and State Signatory officials may decrease the scope of work by amendment to the CCA.
7. An accounting audit trail must be maintained for any such use of resources.
8. In the event the recipient fails to comply with paragraphs 1 through 7, the FEMA Regional Director shall have the right to require that use of those resources be compensated by non-FEMA sources or to disallow such use of funds.

B. Personnel funded through the Comprehensive Cooperative Agreement (CCA) may be used as part of interstate support in disaster operations.

1. The Federal Emergency Management Agency (FEMA) endorses the concept that state and local emergency management personnel funded through programs included in the State's Comprehensive Cooperative Agreement (CCA) may work in disaster operations for up to 30 consecutive days in another state where a Presidential Disaster Declaration has been issued.
2. This support may be initiated when the affected state requests disaster operations help and the donor state offers support in accordance with pre-arranged agreements. Work assignments for

donor state personnel should contribute to their home state's expertise to contend with a large-scale disaster of its own.

3. Salaries and benefits paid in whole or in part will continue to be paid through the CCA, with per diem, overtime, transportation, and other extraordinary expenses to be paid through the recipient state's administrative allowance for the Public Assistance and/or Individual and Family Grant programs.

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Mr Coile has been the Disaster Coordinator for Pacific Grove Fire Department, Pacific Grove, California since 1990. Earlier he was involved with research experience on earthquakes, training exercises, chemical and nuclear preparedness, design of emergency operations centers, and radio propagation in the ionosphere. He is a Colonel, USAF (Ret).; Registered Professional Engineer: District of Columbia and Pennsylvania. Education: S.B., S.M., E.E., Ph.D.

EMERGENCY PLANNING: INTEGRATING LESSONS LEARNED

Randall C. Duncan, CEM
Director, Department of Public Safety
City of Ponca City, Oklahoma

A disaster strikes. As Emergency Program Manager for your jurisdiction, you begin coordination of the response and short-term recovery actions quickly. You don't consult directly the thick book containing your jurisdiction's all-hazard Local Emergency Operations Plan (LEOP), because you are already familiar with the details from your aggressive exercise program. Some of the actions you and other emergency responders take during responding to and recovering from the emergency depart from the recommendations and guidelines contained in the LEOP, due to the circumstances of this particular occurrence of the disaster. When the smoke has cleared (figuratively or literally) you and the other members of emergency services meet to discuss what went well during the response to the emergency and what could have been improved.

This is when you discuss the details of the collision.

What collision? The one that occurs between reality and the emergency planning process, when actual events in the emergency supersede pre-planned responses and adjustments are made to compensate. The remedy for the calamity caused by this collision is simple. You must integrate "lessons learned" from the disaster into the formal emergency planning process for your jurisdiction.

The basic LEOP starts with an outline of the responsibilities of those in government, volunteer agencies and private enterprise. It sets forth, in general terms, the actions and policies common to all emergencies and unique to attack. These elements of the basic plan are found in Federal Emergency Management Agency (FEMA) Publication Civil Preparedness Guide 1-8, and its companion publication, Civil Preparedness Guide 1-8A. The first publication suggests the elements that should be present in a LEOP. The second is a crosswalk to determine if all the elements required by FEMA are contained within it. Most of the information or "boiler plate" contained in the basic plan in relatively unchanging, although it is important to reexamine it after each occurrence of a disaster to apply the "reality check." What is the "reality check" It's simple. You look at the provisions of the basic plan and ask, "Did it really happen this way, and, if so, was it the right thing at the right time?"

From there, the plan proceeds to more specific information in the annexes and appendices, and finally to specific lists of actions by individuals and agencies -- usually referred to as Standard Operating Procedures (SOPs) or Standard

Operating Guidelines (SOGs). The key to this process is the realization that no matter how good the plan is when it's first written, exposure to the reality of a disaster will make clear the need for change. That change happens as a result of the discussions about the real events of the disaster, and whether its outcome was positive. Integrating those lessons learned from the occurrence of the disaster then becomes a process of communication and revision.

This is a dynamic process, in which communication takes place between all the members of the emergency response community, elected officials, the media and through them, the general public. This communication will help you gauge what level of performance is the standard for your jurisdiction, and whether you and the other responders achieved this. It also assists you in determining whether community education efforts are necessary to provide baseline knowledge from which the pubic will form expectation of for emergency services performance levels.

Once you have assembled the pieces of the process, the remaining task is to construct the revised plan. Most jurisdictions are required to revise their plan annually, with a major revision occurring once within the four year cycle -- especially if covered by funding from the Emergency Management Assistance (EMA) program. This process is normally adequate to catch the changes in procedures caused by acquisition of equipment or personnel or other changes in technology and its application to the emergency services area.

The occurrence of an actual disaster also marks an excellent opportunity to re-visit the details of the plan and examine them for needed revisions. The approach to these revisions should be straight forward and relatively simple. Understand, first, what really happened in the response. Compare that to the suggestions and guidelines contained in the framework of the LEOP, and find out where the two differ. Updating and revising the plan, then, is based in the reality of what happened in the disaster, and couched in terms of the applicable federal guidance for the plan revision.

In conclusion, and to review the process, you should:

1. React to the necessities of the disaster as it occurs.
2. Meet with the other emergency responders after the event to review what went right, and what could be improved.
3. Communicate with responders, elected officials, members of the press and public.
4. Understand where reality modified what was originally stated in the LEOP.
5. Don't be afraid to change the language within the LEOP to reflect the reality of the situation.

Plans are living, dynamic documents. They change as our ability to respond to disasters and emergencies changes. They change as the technology we apply to those emergencies and disasters changes. They change as we change, and as our understanding of those disasters and emergencies changed, too.
As in life, the only constant in emergency planning is change.

SIDEBAR: A CASE STUDY FROM COWLEY COUNTY, KS

Randall C. Duncan, CEM
Director, Department of Public Safety
City of Ponca City, Oklahoma

In April 1991, a killer tornado touched down to the Southwest of Cowley County (KS) at about 6:30 p.m. Moving slowly northeast, it destroyed over 100 homes, killed one person and caused more than $6 million in property damage.

The county communications system was instantly at full capacity. Police, Fire, EMS, the Kansas Highway Patrol and Civil Defense personnel were using every available channel nearly non-stop. As the tornado moved northeast of Winfield, the county seat, it took out the main communication tower the site for repeaters for the Cowley County Sheriff, the Winfield Fire Department, several Volunteer Fire Departments, and Civil Defense. Because our communications assets (repeaters) were scattered across the county, their loss caused only minimal interruption in services. The Civil Defense agency has another repeater at another location with auxiliary power and a radio-operated two-tone sequential decoder to bring it into operation. Other agencies were instructed to change channels and operate on still functional repeaters.

Communications, however, were both a bright spot and a negative in the critique of the incident. While radio voice communications were considered adequate, the use of paging was virtually halted because frequencies were used to the maximum by higher priority voice traffic. In discussions among agency heads, it became obvious we needed to address paging needs. At the same time, a Cowley County Enhanced 911 committee was taking steps to take us from 911 to Enhanced 911. The committee was also struggling with the question of notifying responders -- especially volunteer fire departments in distant portions of the county with no full-time personnel.

The needs of these two situations were satisfied with a single solution, relatively easily implements, that also netted some unexpected benefits. Committee members suggested that alphanumeric paging be explored as a solution to our notification problems. This would assist us in an emergency, because the paging would occur on a frequency not used for voice communication in the midst of an emergency. Invited to submit proposals, several local firms responded with unique and innovative packages. Besides working with prospective providers of the service, the E-911 committee worked with the public to explain the new emergency phone system, and its notification component -- the proposed paging system.

The successful package was from a local vendor -- Digi-Page, Oxford, KS -- who proposed to put together a simulcast network of paging sites around the county, linked by microwave, with auxiliary power. The system would provide paging notification throughout Cowley County and the five surrounding counties. It would utilize Motorola Advisor alphanumeric pagers. We were concerned, however, that this system would also be available to commercial users. The system operator informed us that the proposed paging terminal would allow emergency service paging to be encoded with a special priority header allowing the message to automatically "step to the head of the line" and be broadcast.

Funding for the system was provided by legislation that allowed a portion of the fee collected for the operation of the E-911 telephone system to be used to buy ancillary communications equipment. The system because operational within a short time after the tornado and in the ensuing three years has proved to be a valuable asset to the emergency operations of Cowley County.

In May 1993, I was responsible for administration of my third Presidential Declaration of Disaster (OK-991-DR), and we implemented the same system for paging. We began with a few pagers to notify department head of timely information, and have since expanded the system to nearly 100 pagers citywide.
The pagers have met with great success and acceptance. Most department heads and others using the system compare it to wireless E-mail, and appreciate the ability to send a great deal of information (up to 250 characters) directly to a pager with minimal effort.

Randall C. Duncan, CEM

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Randall C. Duncan has been Director of Public Safety for the City of Ponca City, Oklahoma since 1992. In that capacity, he is responsible for Emergency Management, Municipal Central Communications and E-911. Duncan is a N.C.C.E.M. Certified Emergency Manager, a Kansas Certified Emergency Manager and an Oklahoma Certified Emergency Manager. In addition, Duncan chairs the Oklahoma Emergency Management Association's Certified Emergency Manager Program Committee. He has served as a member of adjunct faculty numerous times at the Emergency Management Institute, National Emergency Training Center, Emmitsburg, Maryland. He also sits on a newly developed Federal Emergency Management Agency/National Weather Service committee. This committee is responsible for the creation of workshops to assist local Emergency Program Managers in dealing with new information and data from the modernization program of the Weather Service. Duncan served as Civil Defense Coordinator for Cowley County KS from 1986 to 1992.

TIME/LOSS ANALYSIS IN THE DEVELOPMENT AND EVALUATION OF EMERGENCY RESPONSE PROCEDURES

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Introduction

Time/Loss Analysis (T/LA) provides a standard for conducting technically consistent and objective evaluations of emergency response planning and procedures. T/LA is also a sound tool for evaluating the performance of safeguards and procedures.

Concept

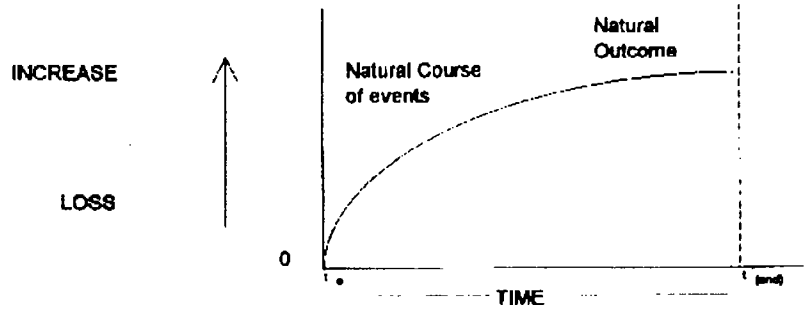
There are two elements present in every emergency. These elements are "time" and "loss." Time is uniform, measurable, and always present. Every emergency has some finite duration. It begins and it ends. The duration of an emergency can be measured with customary time measurements. For analytical purposes, the beginning of an emergency should be identified with the beginning of the accident or incident which created the emergency. It should not be identified with the arrival at the scene of the first responding emergency response personnel.

For this discussion, call the beginning of an emergency "time zero" (t_0) and the end of the emergency "time end" $t(_{end})$. A second ingredient present in all emergencies is "loss." If viewed as the full-range of injury to people or other animated objects, and damage to property or inanimate objects, plus the economic consequences of system disruption, loss also appears to be quantifiable. Direct losses and costs are often reported, but indirect costs of losses are not customarily collected or reported. To illustrate the evaluation method, use numbers to count fatal or other injuries, and use monetary units to count property loss.

During an emergency, losses change with time. Sometimes losses increase and sometimes they are reduced with time. For example, as a fire continues to burn, cumulative losses increase with time. As firefighters gain control of the fire, the rate of increase declines; and when the fire has been extinguished, the direct fire losses stop increasing. On the other hand, as injured persons recover from injuries, the ultimate loss level from the emergency may actually decrease with time.

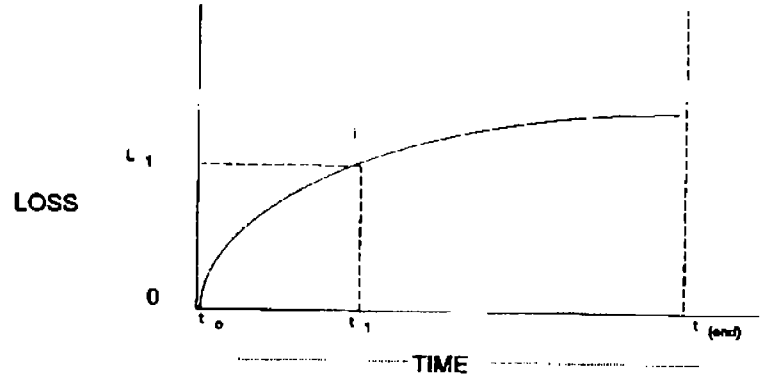
The following time loss plot helps to visualize these outcomes. Loss during an emergency begins at or after t_0 and typically increases in some manner as time passes during an emergency. At the end of the emergency, some total loss will have occurred. This total loss is the outcome of the emergency. Every emergency will eventually run its course and come to an end, even without intervention by emergency responders. Fire consumes all accessible combustibles, and goes out. Gas is released from a container, mingles with the air, and drifts into the atmosphere. Dust and debris are carried aloft temporarily but then settle to earth after an explosion. When no one intervenes, this natural course of events will have produced loss.

Time/Loss Analysis Plot



When someone intervenes in an emergency, the normal course of events might be changed. Intervenors rarely arrive until after t_o. This can be shown as follows:

Emergency Time/Loss Analysis Plot: Intervenor Arrives

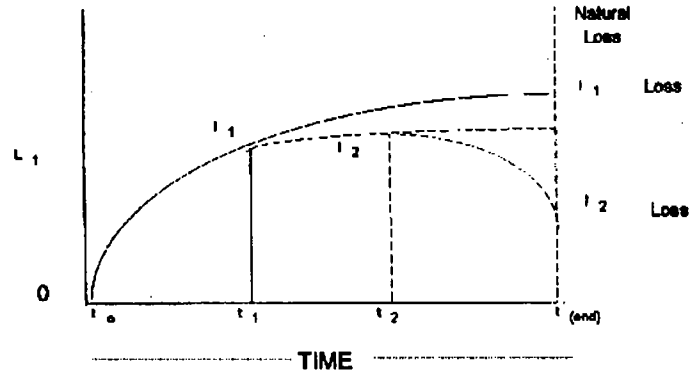


The first-arriving responder is faced with loss that has already occurred by time t_1. The only losses that can be controlled after arrival are those which have not yet occurred. Intervention should change the course of events and natural outcome. Ideally, intervention will reduce the losses that would have occurred naturally, and each intervenor will contribute some net reduction in the loss.

The desired relationships are shown in the following figure. The solid line represents the net losses that would have occurred without any intervention. By intervening in that course of events at time t_1, intervenor I_1 reduced the

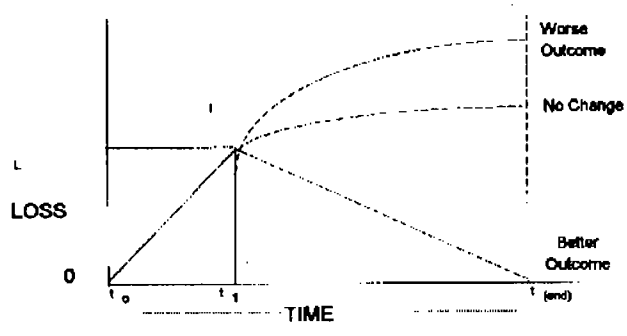
losses in this illustration. The change in losses over time is shown by the dashed line beginning at I_1. If a second unit subsequently intervenes, say at time t^2, that intervention should further reduce the already reduced harm expected to occur as shown by the lower dashed line beginning at I_2.

Emergency Time/Loss Analysis Plot With Intervention



The point of intervention by each intervenor constitutes a "triple point." The slope of the "natural" time/loss analysis curve can be increased, unchanged, or decreased following the interventions as seen below.

Time/Loss Analysis Plot - Triple Point



If the response aggravates the net losses, as when responding personnel are injured without offsetting gains, the response must be judged ineffective. When the loss curve remains unchanged after the intervention, it must be

judged indifferent. When the loss curve declines after intervention below the "natural" curve, the response must be judged successful. The amounts of change in loss measure the degree of success or additional loss produced by intervention.

The T/LA method will influence planning in two ways. First it leads planners toward the time/loss relationships during emergencies. This forces their plans to focus on the outcomes of the emergencies. This orientation requires planners to project outcomes from either the natural course of events, or the planned actions to change those events. Likewise, this approach demands a predictive capability for projecting the loss effects of both natural and intervening events with time. Such a capability may require development. However, without it, planning for control of emergencies by responding personnel will rely more on luck than reason.

The second influence on planning relates to the division of planned task assignments among intervening personnel, i.e., Medical, Fire Protection, etc. Only those who can contribute to the control of the emergency should respond. The potential contribution to improving the course of events constitutes a test for each planned task. This test consists of measuring the contribution versus time involved. Thus, a practical tool for task planning becomes available for use by planners. A way now exists to judge the value of each person's presence on scene by the specific contribution of each to the net reduction in losses at successive time intervals.

If one makes no contribution, one should not respond. If one plans a contribution, that contribution can serve as an objective during a real response.

Training can also be influenced by this T/LA evaluation method. The method suggests that intervenors should be able to predict (1) the remaining natural course of events and their effects on the expected losses versus time, and (2) the effects of intervenor's action on those events. Both predictions are needed before intervenors can make an informed decision to intervene or not to intervene. When likened to the first principle, -if you can't contribute, don't intervene- the need for predictive study of time/loss behavior of dangerous materials in transportation emergencies becomes very evident. The training of emergency response personnel in these predictive and diagnostic skills becomes an imperative aspect of their curriculum.

The evaluation method can influence operations during emergencies too. The potential value of the intervention of each successive intervenor should be evaluated by the reduction in losses achieved by that intervenor. If the official in charge of the emergency operation determines that a person or organization can make no contribution, their presence serves no immediate purpose and their

involvement should be carefully reconsidered. Emergency operations are sufficiently stressful on those performing response tasks that extraneous persons who might detract from these tasks should not be allowed to become involved.

During the emergency, each intervenor's goal should be to reduce the losses or time duration of the emergency. If intervenors do not change the "natural" course of events, or if they increase the net losses, intervention practices or assumptions, safeguards, and procedures must be re-examined to find ways to improve the operational effectiveness and emergency outcomes.

T/LA can also be used to evaluate the performance of safeguards and procedures. Control of the course of events before arrival of the first responders is dependent on two things. First the safeguards and procedures designed and built into the system or existing in the system at the time of an accident, and secondly the adaptive reactions of exposed persons to the threats posed by the accident.

In the first instance, a pressure relief device or installation on a tank may delay a violent rupture and allow responders to take successful preventive action. In the second case, adaptive reactions based on proper procedures and training might enable an operator, driver, etc., to slow or prevent a major consequence of an incident.

Conclusion

As an emergency response procedure development and evaluation tool T/LA suggests that response procedures provide for the dispatch of only those resources that will contribute to the control of an emergency. A next morning response to the site of an airplane crash lost from radar and presumed down the event before will not be the same as for a crash of a similar airplane at the end of the runway on takeoff right now. In the first instance, T/LA tells us that what is going to burn has burned, etc. This is not to say that a strong medical response would not be in order, but crash and fire trucks would not be needed.

A near real-time measured response, commensurate with the need is consistent with the precepts of the Incident Command System of the National Interagency Incident Management System.

In addition to building flexibility into response procedures, T/LA also stresses an equal measure of movement and operational latitude by the Incident Commander (IC) on the incident scene. This freedom should enable the IC to redeploy available units, order in additional resources and/or release unnecessary units based upon the real-time situation.

From a training aspect, T/LA requires that intervenors be subjected to the discipline of organized study to enhance an ability to use solid qualitative techniques to "size-up" an incident and not a "best guess" or non-fitting canned approach.

T/LA is also useful to evaluate the safeguards and procedures built into a system to prevent or mitigate an emergency incident. The relationship of time and loss determined through an analysis of design features and other provisions is equally important as elements of an emergency preparedness program.

Finally, T/LA is an iterative process where time and loss values are varied in relation to equally dynamic incident parameters to ensure that decisions are the result of a calculated assessment of the situation.

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Today Art has emergency management responsibility for two radioactive waste management sites, and a hazardous materials accumulation site. He is a DOE Certified Accident Investigator, and a State of Nevada Certified Firefighter. Art has taught in the University of Nevada Community College System, and is a safety and emergency preparedness merit badge counselor for the Boy Scouts of America. He is a member of the Southern Nevada C.A.R.E. Group and an active supporter of the Clark County Local Emergency Planning Committee.

THE INCIDENT COMMAND SYSTEM: SOME MODERN APPLICATIONS IN PLANNING, RESPONSE, RECOVERY

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The National Interagency Incident Management System (NIIMS) Incident Command System (ICS) was developed by a multi-agency group of fire management professionals in an attempt to identify and resolve operational problems that surfaced during a series of wildland fires in California in the early 1970's. Although it was developed as an all-risk management structure, until recently ICS was seen as a fire management tool.

Under SARA Title III, local communities are required to develop plans that define the response and recovery strategies that will be implemented by a particular local jurisdiction in the event of a hazardous material incident; one of the required response strategies is that the entities shall respond using an ICS. More recently, The Oil Pollution Act of 1990 required the President, and by his delegation the EPA, to propose revisions to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which will require the use of an ICS in oil and hazardous substance pollution response.

This paper is about taking ICS beyond fire response and into the trenches of modern day emergency planning and response for all hazard incidents. It will include a brief history of ICS, an overview of basic ICS principles, a discussion on how ICS can complement the interaction of local, state and federal emergency responders, and how ICS has been used by a regional government in Alaska to successfully meet legal emergency planning and response requirements.

A Brief History of the Incident Command System

The Incident Command System (ICS) was developed as a result of wild fires experienced in southern California in 1970. During 13 days in the fall of that year, 442 fires burned 580,000 acres, destroyed 772 structures, killed 16 people, and cost $233,000,000. Because of those fires in southern California, agencies saw the need to document a system that would allow them to work together toward a common goal in an effective and efficient manner.

The California Department of Forestry and Fire Protection through the United States Forest Service, and the Federal Emergency Management Agency (FEMA) working in cooperation with the California State Fire Marshall's office, the California Office of Emergency Services, and the Fire Fighting Resources of California Organized for Potential Emergencies (FIRESCOPE) Task Force, worked to develop a system to identify procedures for controlling personnel, facilities, equipment, and communications. Central to their mission was a recognition of the need to develop a mechanism for inter-agency and inter-jurisdictional goal and objective setting to effectively use resources.

The National Interagency Incident Command System (NIIMS) Incident Command System (ICS) was the result of the work by these agencies. The ICS is designed to begin developing from the time an incident occurs until the requirement for emergency operations management no longer exists. The structure of the ICS allows for quick establishment and easy expansion depending upon the changing conditions of any particular incidence.

Operating with Components of the ICS

The ICS has five major functional areas.

1. **Command.** Responsible for directing the overall response, the command section is led by the Incident Commander. The command position might be filled by more than one Incident Commander at the command level in a configuration referred to as Unified Command. In the event of multi-jurisdiction response to a particular incident, the Incident Commander or Unified Commanders can then set the objectives and priorities of the incident response based on a consensus reached after considering issues related to each jurisdiction with a duty to respond to the incident.

2. **Operations.** Operations include those activities employed to accomplish the objectives set by Command. Operations may include a number of different tasks including fire suppression, staging of response resources, mass casualty response and evacuation. The operations section can be organized around tasks (i.e., fire response, rescue, evacuation) or geographic lines (i.e., north, south zones). Operations deal primarily with implementing tactics for achieving the intended response strategies (objectives of the Incident Action Plan for the particular operational period).

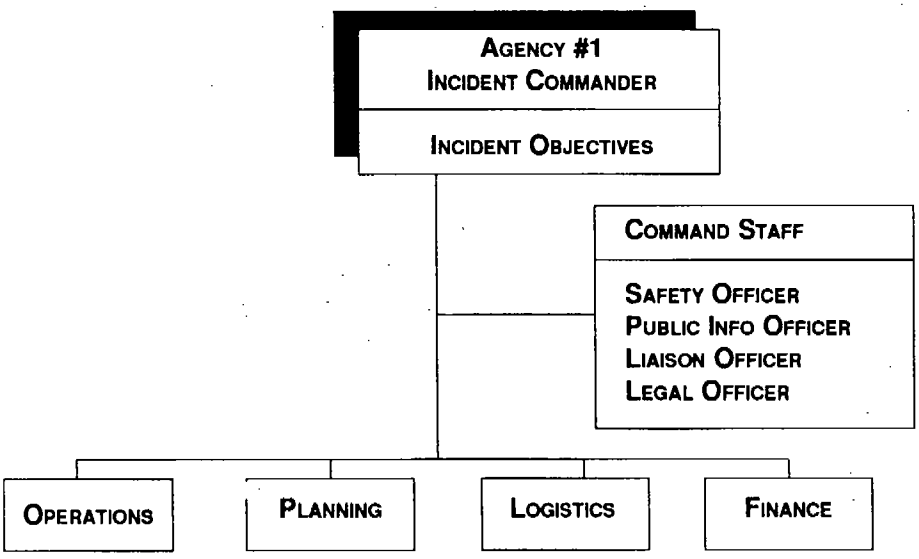
3. **Planning.** The Planning Section is responsible for tracking resources assigned to the incident and collecting and processing information so that the command post (Emergency Operations Center) has a greater understanding of what is happening in the field. As a result, planning for the next operational

period can be directed by personnel informed about issues confronting the entire response effort. The planning section uses technical specialists to help assess events in the field and decide a strategy for how to best plan to direct future operations in the field.

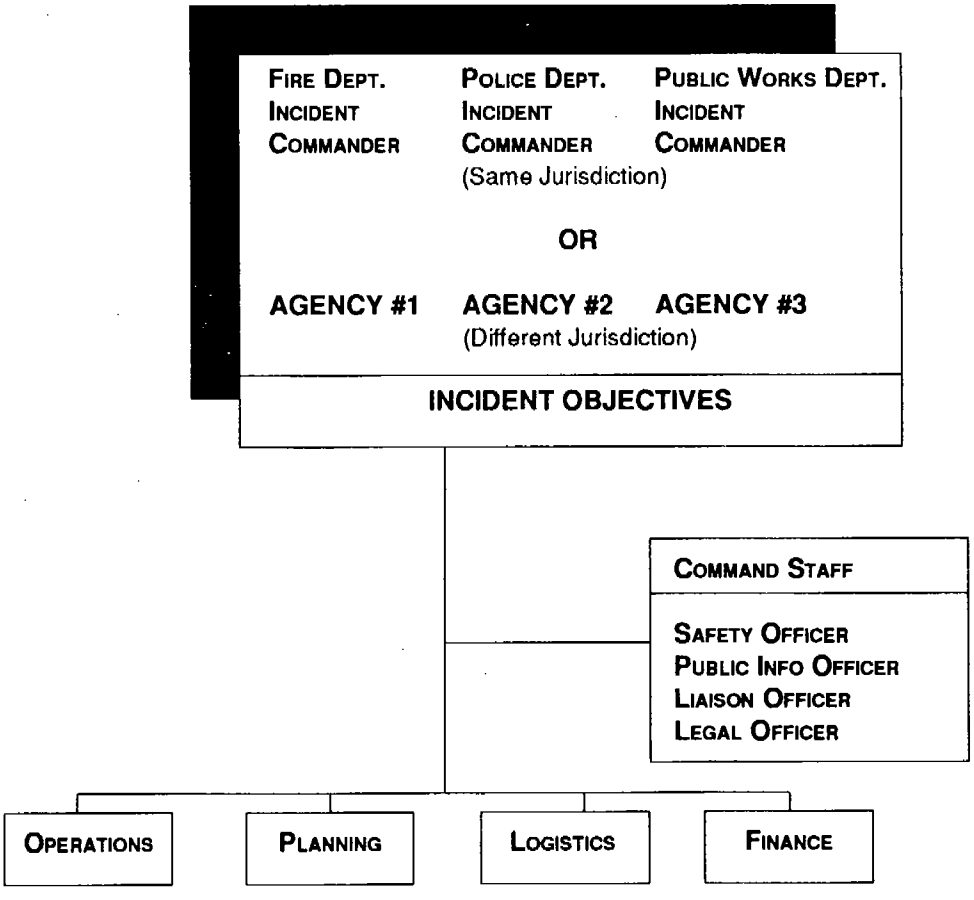
4. **Logistics.** Logistics is responsible for coordinating support services and supply needs that support the overall response operations from the command post to task forces. Logistics works closely with Planning as an operational plan (Incident Action Plan) is developed for the next operational period to identify additional resources required to support incident operations.

5. **Finance.** The Finance Section is charged with tracking and projecting costs related to the incident response. Issues related to contracting, cost recovery, and cost projections are addressed by the Finance Section as they become aware of additional resources ordered and required by other sections (Command, Operations, Logistics and Planning) to support the overall emergency operations.

SINGLE COMMAND



UNIFIED COMMAND



Command, Operations and Planning Requirements

There are several basic design and operating requirements needed by local and regional emergency response planners. The Incident Command System effectively allows planners and response managers to meet these requirements in the following ways:

1. An organizational structure that is easily adaptable to any emergency incident no matter how small or complex.
2. A response organization that can expand in a logical manner from initial response to long term response operations.
3. A system that is applicable and acceptable to a variety of emergency responders throughout the country.
4. A system that is readily adaptable to new technology.
5. A system that uses basic organizational elements, terminology, and procedures that allow for the maximum application and use of already qualified personnel, and that promotes effective integration of multi-agency responders.

Since state and national emergency response personnel frequently respond to local emergencies, it is very important for local and regional emergency response planners and managers to have a system that is simple, standardized between levels of government, and incurs low operational maintenance costs. The Incident Command System has been developed through fire support and educational services which mean there is no need to "re-create a new system" to support all-hazard emergency response.

Laws and Standards[1]

Local emergency response personnel must have a support system to handle the inevitable chaos that arises at any incident no matter how small or large. In addition to a growing call by the public that demands an effective response by emergency managers, several laws and standards now require a system to manage emergencies.

Federal

The Super Fund Amendment and the Authorization Act of 1986 (SARA) -- in particular, Title III of SARA -- requires communities in which hazardous materials are present to provide a community-based plan to help coordinate and manage incidents that result from hazardous material accidents. Regulations

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[1] It is important for emergency planners to work with legal counsel who is familiar with state and federal law which address emergency response requirements.

promulgated subject to SARA Title III required communities to develop an emergency response plan that includes an Incident Command System.

Occupational Safety and Health Administration (OSHA) Rules and Regulations state "the ICS shall be established by those employers for the incident that will be under their control and shall be interfaced with other organizations or agencies who may respond to such an incident." Non-OSHA states are required under EPA rules to use an ICS at hazardous material incidents.

NFPA 1600 draft "Standard on Disaster Management" would establish minimum criteria for disaster management programs in a very broad sense. In the attempt to integrate other federal regulatory requirements, NFPA 1600 may rely heavily on the use of the Incident Command System in response and management of small and large scale disaster response.

The Oil Pollution Act of 1990 (OPA '90) is a federal statute passed in response to the Exxon Valdez oil spill. OPA '90 calls for EPA to review and promulgate a new national contingency plan published in the Federal Register.[2] The draft National Contingency Plan relies heavily on the use of the Incident Command System. In addition, owners and operators of oil and tank barges as well as facilities which store crude and refined oil products are required to file contingency plans that use an incident command structure to manage a response to any non-permitted discharge of their product.

State Laws

Many state laws address the general public policy of state and local government response to emergency incidents on behalf of the public to protect the health and welfare of citizens. The Incident Command System has been adopted by some states. In many cases, since state requirements are often subject to federal mandates, particularly with respect to receiving federal funds, the ICS has been adopted as a planning and response standard in a growing number of states.

Application of the Incident Command Structure at the Kenai Peninsula Borough in Planning, Response and Recovery

The Kenai Peninsula Borough is located in southcentral Alaska and covers an area of 26,000 square miles (approximately the same size as Massachusetts, Vermont, and New Hampshire combined or about one half the size of the State of Washington). The Kenai Peninsula Borough Office of Emergency

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[2] Federal Register, Vol. 58, No. 203, Pages 54704 and 54709.

Management (KPB-OEM) is tasked with developing and, in case of an emergency, implementing a regional emergency response plan.

The Kenai Peninsula Borough lies south/southwest of Anchorage, the state's principal population center. Cook Inlet divides the borough into two land areas. The west side of Cook Inlet is sparsely populated. There are five first class cities on the Peninsula. These include the twin cities of Kenai and Soldotna in the Central Peninsula. Homer, along with Seldovia, is the center for services and commerce on the Southern Peninsula, while Seward is the focus of the Eastern Peninsula. A fairly well developed road system connects the major towns. Winter population of the Borough is approximately 44,000 people and it can exceed 100,000 during the summer months.

Cook Inlet is dotted by 15 offshore oil/gas drilling platforms. In addition, Tesoro Alaska Oil Refinery produces approximately 100,000 gallons per day of various types of fuels transported to points throughout the state. Unocal Chemical, the second largest ammonia producing plant in the world, and Phillips Petroleum, which is the only Liquid Natural Gas (LNG) producing plant in North America are both located along the shores of Cook Inlet. Cook Inlet Pipe Line operates a 100 million gallon crude oil tank farm on the West side of Cook Inlet. Approximately 350 oil tankers go in and out of Cook Inlet yearly. Besides significant oil and gas fields within the Kenai National Wildlife Refuge there is commercial fishing and processing combined with tourism, recreation, timber, agriculture and mining which makes up a diverse economy that is particularly vulnerable to man-caused disasters. Although oil spills are infrequent the Exxon Valdez oil spill, the nations largest oil spill, illustrated the impact on the regional and local economy. The potential for natural disaster exists from volcanic eruptions[3], earthquake[4], tsunami, flood, wildland fire, major avalanches and weather extremes.

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[3] The Kenai Peninsula Borough is home to the start of the "Pacific Rim of Fire". Six volcanos are located along the west side of Cook Inlet that can impact the Borough: Mt. Hayes, Mt. Spurr, Mt. Redoubt, Mt. Iliamna, Mt. Augustine, and Mt. Douglas. Three of these have been active and eruptive in the last five years.

[4] The greatest threat to the Kenai Peninsula Borough is earthquake. Approximately 11 percent of the world's earthquakes occur in Alaska. Of the ten largest earthquakes in the world since 1904, three occurred in Alaska. The Kenai Peninsula experiences frequent earthquakes below the 6.0 level. Since 1899, 82 earthquakes of Richter magnitude 6.0 or greater have been recorded in the Cook Inlet area.

Implementation of ICS in Planning and Response

Like most emergency planning and response managers, the KPB Emergency Management Coordinator has wrestled with the interface of federal EOC planning requirements and application of ICS response management issues. When the Borough saw how the Exxon Valdez oil spill completely overwhelmed the state and federal governments and the oil industry in their ability to respond in an effective manner, we realized we needed to put together a system that would help us cope better with the next disaster.

In the city of Valdez, Alaska, during the response to the Exxon Valdez oil spill, most of the agency personnel involved did not have the training or work experience necessary to prepare them to manage their response in an organized and efficient manner. Their operations, planning and logistics were in most cases emotionally driven instead of logically organized, and just added to the general chaos. In contrast, a few hundred miles away in the city of Seward, within the Kenai Peninsula Borough, a Type 1 Interagency Fire Management Team[5] was brought in and within hours this team was set up and operational. The team using the ICS was able to respond to multiple agency objectives, mobilize resources, set up communications and meet the demands of a "media event." As a result of the operation in Seward it became apparent to the borough that the ICS should be the standard by which we would attempt to organize personnel in the EOC for future incidents.

Goals of the KPB's Emergency Response Plan

Like many regional governments, the KPB-OEM is confronted with the issue of responding to incidents that are large or become large after a particular operational period. In addition, the challenges of organizing agencies and cities with conflicting jurisdiction requirements and cost management issues presented a need for a uniform approach to a regional emergency response plan.

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[5] The primary sponsor of Type 1 Interagency Fire Management Teams is the federal government, with some team members from state government. Although they specialize in wildfire response, they have been used in response to other types of man-caused and natural disasters. Sixteen management teams are located throughout the United States, and are supported by large interagency caches of equipment that are also located throughout the United States.

In meeting its federally mandated planning requirements[6], the KPB-OEM had to overcome the following challenges:

1. Develop a plan that used common organizational structure that allowed for management of an emergency operation over a large area.
2. Provide a system approach to facilitate an efficient "ramping up" of response resources to an incident that starts small and grows beyond a particular jurisdiction within the KPB.
3. Develop a system with predesignated response duties to insure an effective and timely mobilization.
4. Identify an organization that could effectively establish goals and objectives for the response and allocate resources among different operational areas.
5. Establish a mechanism agreed to before an emergency response, which allows for timely goal and objective setting between policy makers within different jurisdictions located within the borough.

An outline for disaster planning and response was developed which would provide for the cooperative efforts of the various agencies, cities, and borough government in the development of coordinated response and recovery plans. The borough assembly approved this outline for disaster planning and response within the borough through the designation of four geographic zones for which individual plans would be developed providing for a coordinated response by borough, city and other agency resources.[7]

In adopting the four incident management zones we felt that no one agency or jurisdiction would have all the resources available to respond in time of a major disaster. The zone concept will allow for better coordination and management of the response and will help in coordination with the state and federal government. We wanted a plan that would meet the needs of what we call the "patchwork quilt of government" within the borough. We cover 26,000 square miles, we have five cities, nine borough service areas, many villages, and lots of "wide spots" in the road that are unincorporated. There are no borough wide fire or EMS.

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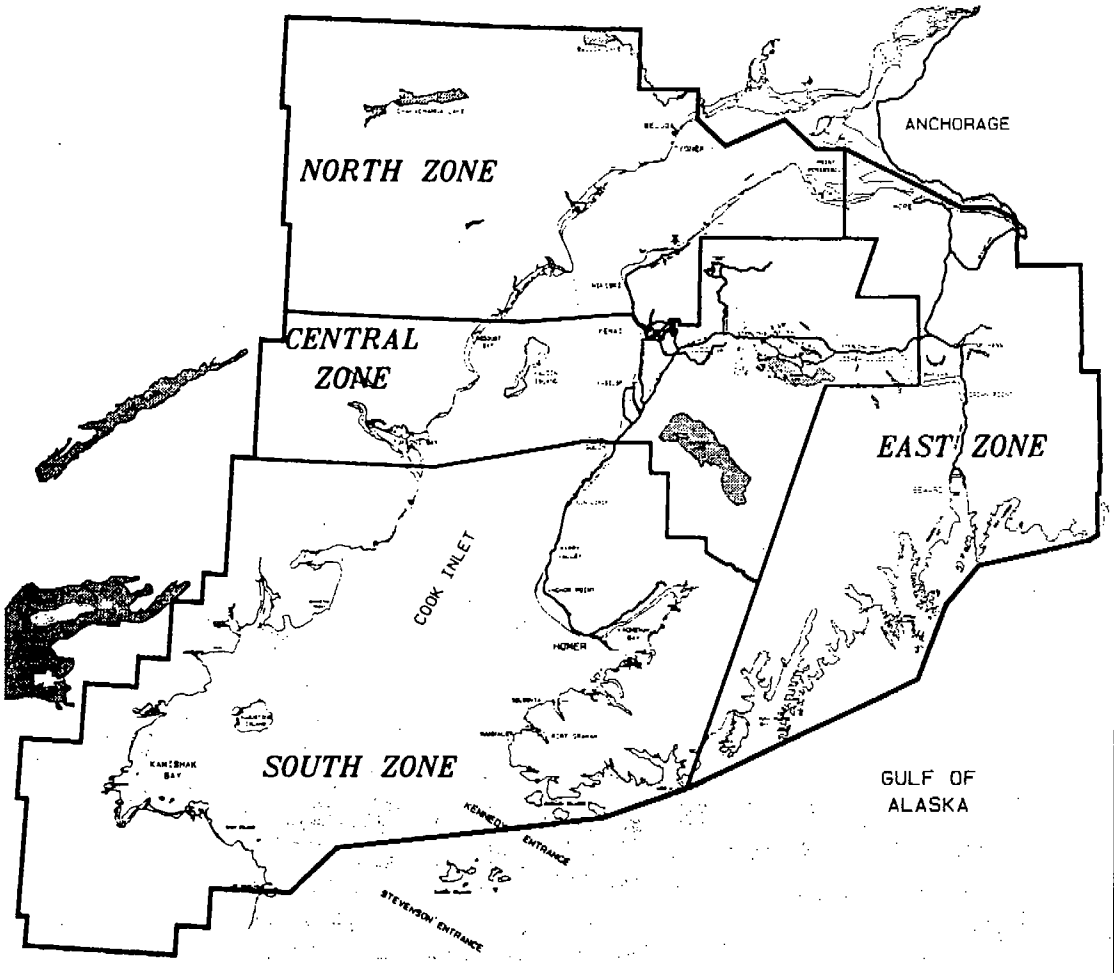
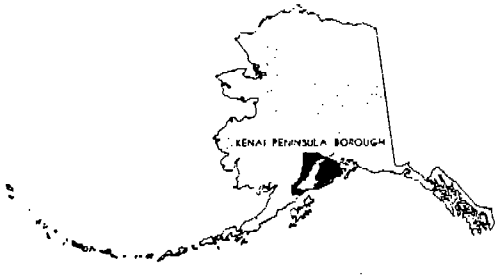
[6] It should be noted that while developing their LEPC, the KPB-OEM was also managing the local response to the Exxon Valdez oil spill from 1989 to 1990. The KPB was also tasked with managing a response to several eruptions of the Mt. Redoubt volcano which left ash, power outages, and threats to oil storage facilities in its wake in late 1989 and early 1990.

[7] The Kenai Peninsula Borough has divided the Borough into the South, East, Central and North Incident Management Zones.





REVISION BLOCK		NORTH	KENAI PENINSULA BOROUGH GIS DIVISION
			KENAI PENINSULA BOROUGH INCIDENT MANAGEMENT ZONES
			SCALE: 1:920,000 DATE: APRIL 1, 1994

To have an effective emergency response plan you must meet the needs of your first responders who are the basis for any disaster response -- fire, EMS, police and public works personnel. You have to plan from the bottom up. For the borough that meant another reason for going to the zone concept. We are not writing specific plans for the cities, but have developed plans so that in the event of a disaster we will have an incident management organization for the **interjurisdictional coordination** that is necessary during a disaster.

In developing our plan we identified five things that frequently can cause a response to a disaster to fail. We addressed these issues in our planning effort:

1. Ambiguity of authority -- how many times have we heard someone say, "Who was in charge of this mess?"
2. Communications, either problems with or lack of -- "No como, no command."
3. Surprise at the convergence of volunteers.
4. Poor use of specialized resources.
5. Unplanned media relationships.

In addition we wanted to follow three primary objectives in our planning:

1. We wanted the plan to be centered around a common management system -- learn the ICS and you can manage any type of disaster. This establishes common training and trained individuals who could work in any zone. It is a way of qualifying individuals to work in an Emergency Operations Center.
2. We wanted the plan to be simple and easy to use, and firmly resolve the issue of interjurisdictional coordination.
3. We didn't want to reinvent the wheel. We looked at as many successful plans as possible and incorporated these into the planning effort.

Briefly about the Zone Emergency Response Plan itself; the plan is divided into four volumes:

Volume 1: Administrative Overview - contains the administrative overview and hazard vulnerability analysis for that particular zone. It also describes legal foundation and authority to engage in emergency response.

Volume 2: Emergency Operations Guide - contains the emergency operations portion of the plan. This portion is a series of checklists that relate to the hazards identified in the hazard analysis. Also included are sections dealing with alert & warnings, public information, evacuation, communications, disaster declaration and reporting, incident management, a telephone call list, and a glossary.

Volume 3: Emergency Operations Center Guide - this is intended to simplify the initial phases of the emergency operations center and incident management team operations. It is a guide to set up an EOC if one is not already designated and equipped. It also contains ICS position descriptions and duty checklists, as well as copies of the ICS Forms required by an Incident Management Team (IMT). Information about the planning process necessary to compile a written Incident Action Plan, conduct briefings, and complete resource ordering is contained within this volume.

Volume 4: Resource Manual - contains information on facilities and resources available in the particular zone[8].

In the event of a regional disaster (such as an earthquake) that could affect the entire borough, each zone would activate an Incident Management Team (IMT) that would be responsible for the management of that particular zone. Any requests for services or resources would go through the IMT at the Zone Emergency Operations Center which has been established in each zone. The Kenai Peninsula Borough, if requested or when multiple events exceed the ability of the local IMT's to manage, would establish an Area Command Authority (ACA) at the borough's EOC.

The ACA would rarely get involved in the specific tactical phase of the operation and would for the most part, allow the zone incident management teams to do their job with minimal interference. Generally the ACA established at the Borough EOC would be responsible for setting objectives and to direct the strategy and logistics of major incidents according to resource objectives, values at risk and policy as established by the Multiagency Coordinating Group (MAC). The MAC is a pre-established policy group comprised of the Borough Mayor and the five city managers or their delegated representatives. Other agencies or departments can be added or omitted as members of the MAC as needed.

Planning, Response and Recovery

The emergency planning phase at the Kenai Peninsula Borough included development of response zones, establishment of inter-jurisdictional cooperation agreements, and training programs. The adoption of ICS has allowed the KPB-OEM to use existing ICS training materials. The use of ICS has therefore resulted in reduced planning costs for the KPB-OEM.

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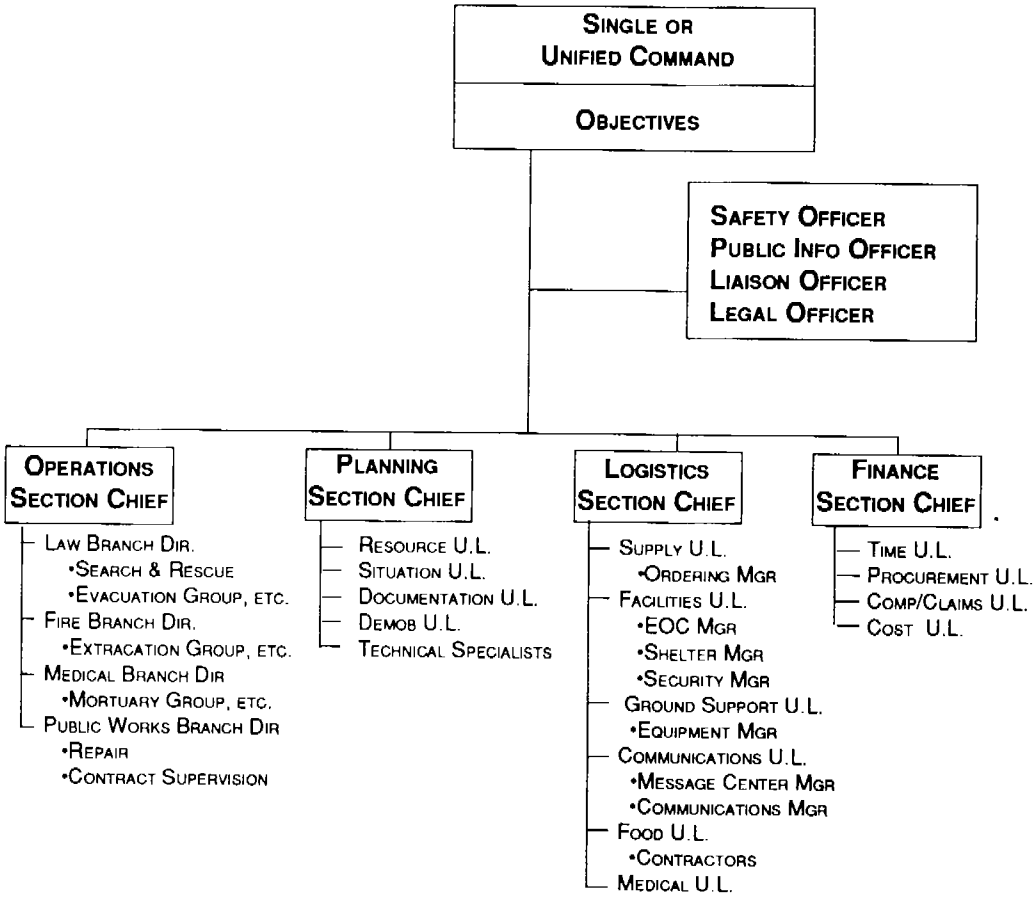
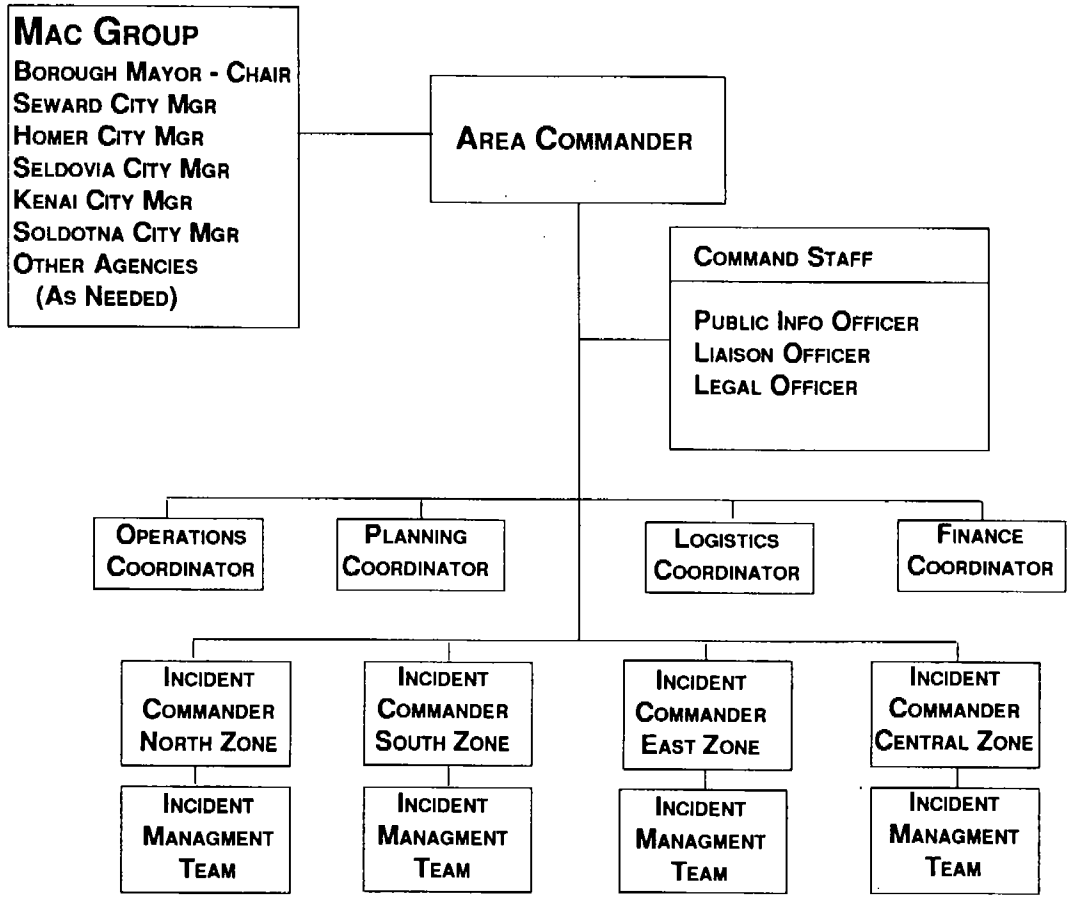
[8] The emergency operations guide and the emergency operations center (EOC) guide are generic. Only the administrative overview and resource manual change for each zone.

INCIDENT MANAGEMENT ORGANIZATION
ZONE



INCIDENT MANAGEMENT ORGANIZATION
AREA COMMAND AUTHORITY
AND FOUR INCIDENT MANAGEMENT ZONES



Response

In the event of a response, the Borough can provide Incident Command Post/EOC support for an incident that occurs within the boundaries of a city located within the Borough. In the event an incident migrates or occurs across a municipality's boundaries, then a pre-agreed zone plan is activated where resources located in the zone are made available to respond to the incident.[9]

In the event of a large incident that occurs between zones, each zone establishes a zone specific EOC and the KPB-EOC activates an Area Command Authority (ACA) which allows the managers at the ACA to help establish priorities and allocate resources between the particular zones.

Recovery

The recovery phase of an incident can be short, or, in some cases, can be quite long. The KPB Zone Emergency Response Plan allows easy transition to the recovery phase since response operations can easily transition to recovery operations based on efficient incident action planning on short term and long term basis.

Conclusion

The KPB-OEM has been confronted with meeting emergency response planning requirements in a way that allows for efficient transition, and application to actual emergency response operations for both simple and complex emergency responses. By adopting ICS throughout the planning, response and recovery phases, the KPB-OEM has met this challenge in an efficient and cost-effective manner.

The KPB-OEM has resolved the interface problems associated with an independent EOC system and ICS system by recognizing that the continuation of two independent systems for an emergency response cannot meet the training and response requirements of a small emergency management office with large planning and response responsibilities.

An emergency response with two different systems can lead to failure. By admitting the inefficiencies and duplication of operations support and coordination, disaster analysis and planning, and resource logistics and finance along with policy group issues in the EOC model; and by integrating those requirements and improving the ICS model, the KPB has eliminated an administrative layer that often bogs down an effective emergency response.

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[9] KPB-OEM has found it critical to have pre-approved MOU's between jurisdictions that will be called on to share resources in the event a zone plan is activated.

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He was a special assistant for Oil Spill Response to the Kenai Peninsula Borough mayor from 1989-90; delegate, the Kenai Peninsula Borough; and charter member of the Prince William and Cook Inlet Regional Citizens' Advisory Councils, 1989-90.

He is presently a member of the Washington State Bar Association, the Alaska Bar Association, and the American Bar Association. He is a member of the National Coordinating Council on Emergency Management and sits on the Government Information Committee, 1994. Mr. Butler has authored the following articles: "Stormy Seas? Analysis of New Oil Pollution Laws of the West Coast States," Santa Clara University, School of Law, *Law Review*, publication due Summer 1994; and the "The Incident Command System: Some Modern Applications in Planning, Response and Recovery," American Society of Professional Emergency Planners, paper to be presented at the National Coordinating Council of Emergency Management Annual Conference in Chicago during October 1994.

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Mr. Heavilin presently serves as NCCEM Treasurer. Bob is past president of ASPEP and a past president of NCCEM Region X. In 1993 he was chair of the Council's Government Information Committee. He is a member of the Kenai Peninsula Borough Emergency Planning Committee and serves on the Board of Directors for the South Central Alaska Chapter of the American Red Cross.

Before his appointment as coordinator, Mr. Heavilin worked five years for the borough mayor's office, and seventeen years with the U.S. Forest Service and Bureau of Land Management in wildland fire management in Alaska and the "lower 48". Mr. Heavilin is a graduate of Central Washington University in Ellensburg, Washington.

FAMILY PREPAREDNESS

J. Robert Johnson, CEM/PEM
City of Sterling Heights
Sterling Heights, Michigan

INTRODUCTION

Ask your self the following questions:

* Have your government or business staff been presented a Family Preparedness Program?

* Is your family prepared for any hazard that may impact your community?

* Have you stored food and supplies in case of an emergency which may keep you separated for up to five days?

* Have you supplied your vehicle with emergency supplies?

* Have you practiced a fire drill and other types of drill which may occur in your community in the past six months?

* Do you know the emergency plans where you work, where your children go to school?

If you can not answer YES to a majority of these questions, you need a Family Preparedness Program experience.

Each time I see the word preparedness, I am reminded of this story.

> A young person had graduated from college and purchased a prime piece of real estate in this beautiful valley. The house of dreams. While sitting in the home one afternoon, the television interrupted with an "Emergency Broadcast System" message. The words escalated attempts to warn the public that a flood was coming and all should move to high ground. The young person continued to watch the television when a voice outside of the home directed the evacuation because of the flood. This young person went to the window and shouted to the people in the boat that he was aware of the flood, had faith in God, and they could leave. Within a couple of hours, a marine patrol boat appeared just outside the bedroom window on the second

floor. The water had risen to that level and the young resident made known to the rescue personnel that he was aware of the flood and they could leave. Now, the young survivor is on the roof peak with a rescue helicopter appearing in the distance. As the rescue craft stops above the young resident, the words from the pilot are heard, "Grab the line and we will pull you aboard because of the flood." The young person is now somewhat moved, but determined, and tells the pilot to leave and save someone who needs it, and is heard, again to say. "I am aware of the situation and God will take care of me." Well, the flood did come washing the young person to his death. In heaven the victim, determined, looks impatiently for God to announce the dissatisfaction for not caring when his need was so great. When God was found, the young victim loudly professed how upset he was that God had not responded to his need. God looked the young person in the eye and softly spoke these words. "My young friend, I would never turn my back on you. I did respond to your needs." The young person looked in bewilderment and responded by asking, "How did you respond to my needs?" God said. " I sent you a row boat, a marine patrol boat, and a helicopter, and you didn't respond to any of the gifts I sent you!"

OUR GIFT

One gift we can give to all of our residents is the Family Protection Program. Our young victim in the story was aware, but not prepared, and did not respond to available resources. We can no longer witness the increase in deaths and injuries in this country without attempting to change the resident's lack of preparedness. We have to make the move from awareness to preparedness with this action taking place soon.

As emergency program managers, we are forced to look at those systems that bring the biggest bang for the buck. This is the name of the game, whether we like it or not. I believe people will respond to preparedness measures outlined as follows: When presented the right material, in the right format, at the right time, the resident will respond to our requests. Our residents have been advised of assorted material for years in how to respond to different situations or hazards. The problem has been, each agency has presented somewhat different interpretations for the same type incident. The message must be presented in the same format from whatever agency is directing the public to take warning.

We can not ask people, who have little to no food for themselves to create an emergency kit to store food. We can, however, look to the needs in their community and work with the people toward the goals we set.

PERCEPTION

There are three topics, which I believe, will guide us through the process to bring our people to the preparedness mode. The first topic involves perception. It is said, perception is reality. We know many times what people perceive, will happen. If our perception is that the Family Protection Program won't work, it probably won't. On the other hand, a positive approached usually brings positive results. A positive perception first begins in the emergency program manager's mind.

Even though, the resident will need to buy into the program, the program manager must maintain a positive outlook for it to get off the ground. What is your perception of the program? Do you believe it will work? Do you think you can make it work in your community? These questions need to be addressed before embarking on a large project.

What is the perception in your community regarding emergency management? Do the residents and government workers understand the concept, and are they open to this process? They can not just be aware that it exists. The process of indulging in the activity must take place. The emergency program manager may have to ask hard questions to their residents. Direct the questions to whether their babysitters would know what to do, and, who to call if something happened while the parent was away. Ask the resident if they know what to do when returning home to find the neighborhood closed-off because of an evacuation. Ask, where they would meet their family members when separated. Inquire, as to whether their valuable papers are protected from fire in a fire-proofed box or safety deposit box. It really begins with a perception of what the person wants to believe.

BELIEF

The second step is belief. The program manager must have a belief in their program and themselves. If the program is a believable program, most people will already have faith in what it is you are doing. I have found a large number of people have no idea what an emergency manager's duties represent.

I offered a survey to assorted city departments when I first arrived in the position five years ago. Questions were presented to employees asking them to address specific areas within the emergency management program. Many of the questions are outlined within the Family Protection Program from F.E.M.A.. These dealt with home and family hazards and whether they were prepared. A second group of questions involved responses indicating the residents ability to recognize the warning signals in the city. The most interesting question was: Do you understand what the Office of Emergency Management's responsibilities are for the city? Answers to each question resulted in a very low per cent in (yes) responses. The same questions were presented several years later with a much higher per cent of (yes) answers.

We really need to market our product to our public. The Family Protection Program is a marketable product. Is your Family Protection Program believable in the eyes of the resident and business community?

Do residents think a disaster will not happen to them? Do they believe a disaster is to enormous for them to do anything? Belief will be a large factor in bringing an awareness level to a preparedness level. This will not be an easy task.

Belief will come from residents utilizing their sight, hearing, and feel if they are blind. Bring the right information to the right people in the right format. This will cause belief, and the resident will relate to what you are saying.

This process will include making the presentation local. Utilize people from your community who have experienced disaster. We have to "walk the talk" to be believable. If the resident sees you on television in a snow storm, without hat and gloves, they are not going to believe you when you ask them to prepare for winter weather.

Belief in anything takes time. Providing the same material over, over, and over again may be the only means of establishing the belief in your program.

Providing your material to the residents continuously, may take the help of volunteers. Don't be mislead that volunteers can't assist you in your program. Selection may be time consuming at first, but the end result will be worthwhile.

The Federal Emergency Management Agency has purposely kept their control out of the Family Protection Program to bring innovative ideas from the local level. This allows for continued effort at the local level to get the point to the resident.

Remember, people do not always believe devastation shown on videos will affect them. Even when this is their community. Usually, this is to overwhelming for them to comprehend. In addition, the American people don't want to face the fact, they don't know what to do to protect their families. The Family Protection Program brings the information to the resident in a very positive way. Learning the hazards in the community and then continuing with how the resident can respond to those hazards. This is a different approach then most emergency managers have experienced.

We have become insurance prone, however, we know insurance can't stop the disaster from occurring. People need to be informed in a practical way for them to become a prepared society. The Family Protection Program provides the base to accomplish this.

ACTION

Action must take place at all levels for a positive end result. When the program manager has a positive perception of what needs to be done, and a belief to follow through with the project, the action can begin.

In this downsizing, cost containment, apathetic society, the Emergency Program Manager will have to empower their program by what I call "power-sizing". Power-sizing empowers the Emergency Program Manager to do those

things they are capable of doing with the resources available, while attaining a quality outcome.

The Emergency Program Manager can no longer deny change. Change needs to take place. Do we think, "I don't have to change, I've done it this way for many years". Change is primary in the stress process, and one thing we don't need is additional negative stress in our lives. There will be times when frustration will become part of the daily routine, but always remember your perception and belief. This is where belief in yourself will shine through.

The action taken will cause the resident to move from a stagnant awareness position, to one of "action" (preparedness). The program manager will need to involve all of the knowledge they have gained to make this move possible. There will have to be change! Providing the right information, to the right audience, in the right format, will be helpful in this transition. This process must be delivered over and over again as was stated earlier. People will not respond to change readily. Denial will be present. Overcoming our own denial of not succeeding will be the first step. Once we move from this denial, action to achieve our goal will begin.

The process must be practiced and repeated until the resident has the same perception and belief that the program manager does. When action does not take place, the disaster victim ends up like our young friend in the story of the flood.

CONCLUSION

The emergency program manager is the ambassador for emergency management nation-wide. As ambassadors, we need to lead with action to show the resident what needs to be done. With the resident understanding what it takes to survive the violent experiences this nation experiences each year, the first move occurs.

Remember, we are not looking just at the disasters that make national headlines. We are focusing our attention toward those incidents that occur everyday, in every type of community throughout the United States.

People will only respond when they understand what they are to do, and how they are to do it. By not informing our residents of the hazards in their community, and providing them with protective measures, we become part of the problem instead of the solution.

I like to think of Emergency Program Managers as "informers" rather then educators. We really only provide information to the public. Presenting information to the resident will continue until you have reached your goal; knowing the resident understands what it is we are saying. The Family Protection Program will bring this understanding to our people. With this understanding, the process will be concluded and we can begin all over again.

My perception leads me to this belief: with proper action taken, the American people will no longer be aware of disaster; the American people will be <u>prepared</u> for disaster.

EMERGENCY MANAGEMENT "MAKE IT SIMPLE"

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INTRODUCTION

Emergency Management is still in its infancy. Does this mean that the emergency management system has not provided quality programs to the public; absolutely not! Emergency management has provided, and continues to provide, the most meaningful protection with regard to disaster planning throughout the United States. If the system has failed at all, it's been the inability to change the apathy of the American people--a task, probably unreasonable, for any group of individuals.

Over the past forty years many transitions have taken place. One of the most fascinating was the escalation from a "civil defense" form of thinking, to the present technical-professional process of an "all hazards approach."

The program manager plays the role of facilitator in the process to get the action to take place. We often hear reports that emergency management is in flux. If this is true, the up and down motion may be just what the emergency manager needs. Even though, change is the hardest concept to accept, when change is accepted, implementing it into a program takes great skill on the part of the Emergency Program Manager. "Adapting to change" is a prerequisite for any person entering this profession, plus it will simplify the overall process.

Emergency management heads into the year 2000 with a greater sense of urgency then ever before. Emergency management is the only system which transcends local, state and federal lines of authority in the emergency services field. Yet, the smallest number of people represented in emergency services, are the emergency managers. This is a small, but influential group. The lessons of recent disasters all preface the same call for change for the program manager: better management of resources and more accurate assessment methods of damaged property.

An additional area needs to be included within this group: more in-depth education for the residents before they become victims. All of these fall clearly within the emergency manager's mandate. How we address these issues within the process, and what form of action we take to bring about this call for change, is the key. As the leaders in this on-going battle, we can never turn our backs on the most powerful means of protection to the people of this United States: the emergency management system. I do believe, however, we have to make the process "simple."

THE EMERGENCY PROGRAM MANAGER

One key to success as an emergency manager, is to understand and accept the authority given, and take responsibility for the actions. Serving thirty years in the emergency services field, I encountered many roadblocks that needed to be addressed. When looking at these roadblocks, challenges were created to help me push forward and eventually reach the goals that had been set.

We enter this profession because we love what we do, plus, we gain personal satisfaction from providing that service to our communities. Look at your position as an "entrepreneur". Make the program, "your" business. A business brings with it a certain amount of chance. Whether part-time or full time, what we exert in the form of energy to accomplish our goals, the final product will reflect the action taken in our effort. Just like running our own business.

We have to understand that the disasters we become involved with are not "our" disasters, but belong to those we serve. As victims, the residents understand better, in most cases, what their needs are. We need to jump out of those chairs behind our desks and find out what those needs are.

The residents are the real owners of our community. Who is it that we really service when disaster strikes? We don't want to be mislead that the resident doesn't want to get involved.

Creating an urgency for the residents, and within ourselves, must be initiated. Creating this urgency immediately is important. We are the people who can make things happen in this profession, and the time has come to do just that!

A community of 2,000 people or 1,000,000 requires a person, or group of people, dedicated to the mitigation, preparedness, response and recovery process, distinctly known as the emergency management system. The successful public service agencies, fire, police, and emergency medical service, derive their positive exposure from the residents. Emergency management should be no different. The time has come to lighten our load. We may need to become more self-centered when it comes to our needs of providing emergency management. A simple procedure is prioritizing three main "hazards", or challenges. When we prioritize the challenges we face in our position, we begin to simplify our emergency management program. After determining the challenges, make a priority list and begin to look closer at each one. Now, begin to work on each challenge in priority fashion from the most important to the least. When one of the three has been completed, replace it with a new one.

There is a repeating chant from emergency managers, "I am overwhelmed by the work assignments". If we can accept the fact that emergency management is on-going, we are on our way to a more successful program. When we "make it simple" our challenges no longer create frustration.

Program managers are drawn from a crossection of society. A large assortment of personalities are aligned with the Emergency Program Manager's positions throughout the country. Endless information has been written on how the Emergency Program Manager can retrieve data reflecting disasters. Not much

has been written on how to be a good manager. I believe we need to make the process more simple. A successful program should not be dependent on a large number of the characteristics many authors list. Again, make it simple, prioritize the information required to be known by your audience. Get the right information, to the right audience, in the right format. This allows for more time to do the important functions in our programs.

Managers have been heard to say, "I don't want people to think I am manipulating them to get the job done". In fact, we manipulate people everyday of our lives to one degree or another. Our persuadability is a crucial force to create a convincing program.

The position of Emergency Program Manager empowers us with a high rank in the chain of command within emergency services. If we do not believe this, our presence in the emergency management field may require reevaluation. Look at the responsibility our rank brings to a jurisdiction. By virtue of the mandate to perform the four phases of the emergency management, we are placed in a superior ranking. It is time to "Power-size" the emergency management position. By doing so, we empower the position by completing our tasks with the available resources, in the least amount of time and effort, creating a positive end result.

The ranking will be supported by how we present ourselves to others. This can be the way we dress, conduct our business, lead a committee, or live our lives. The people we serve look to us as a protector of their lives and property.

We may not realize it, but there are people who would like our jobs. Think of it this way. Someone will always have their eyes on us to take over our position. This is especially true with good existing programs. What this does is keep us aware of the need to conduct business in a very appropriate manner.

The emergency manager is being challenged to become more professionalized through certification and degree programs. If we want to be recognized, and receive salary reimbursements at a desired level, we need to present ourselves to our superiors in a fashion they will respond favorably. First impressions are important, and so are future ones.

We need to keep our ears open to what our residents need. A program manager recently said to me: "There is to much work to get done, listening to what everyone else would like doesn't fit into my work plan!" When I heard this, I thought to myself, no wonder this person is having a problem with their program. This kind of thinking can not make for a successful end result. Listening to others, not only is required in our program, it must be near the top of our priorities to "make it simple".

Another important element is the elimination of the enormous paper work plummeted upon us. A great deal of programs have limited clerical support which increases the program manager's need to better handle paper flow. By handling a piece of paper no more then twice, we have significantly decreased the paper flow challenge. By limiting the number of long documents required for distribution to our emergency management membership, we increase our time spent with real emergency management issues. I believe we will begin to hear from our friends

at the Federal and State levels regarding grass root services: street services with a decrease in paper documentation.

Classes designed for the emergency program manager represent a good crossection of the emergency management process. I certainly favor what is offered, and encourage all program managers to get involved with the training. The State of Michigan, Department of State Police Emergency Management Division, offers an Emergency Manager's Professional Certificate Program. The program was developed around the Professional Development Series (PDS) within the Federal Emergency Management Agency's educational network. The National Coordinating Council on Emergency Management also offers a certification program directed at the emergency program manager. There are different programs of formal education offered throughout the country, however, the number is small. This type of formal training appears to be growing.

I would favor training to facilitate a stronger understanding of how the process can work for us. A second, would be aimed toward program development (how to develop programs). With increased demands on jurisdictions to become better prepared for disaster, this training will be welcomed. This would also contribute to good program development. We can expect many new challenges in our profession within the next few years.

Technology can no longer be pushed aside because we choose not to get involved. The emergency manager is faced with new challenges on the next horizon which will revolutionize the meaning of emergency management as we know it today. The program manager will need to be more prepared for the next disaster when it strikes. Program mangers must gain whatever education and technical support available to survive what lies ahead. We have to begin now! "Becoming relaxed in what we do, comes from not relaxing in how to do it."

I believe resource management prior to and during the disaster, with a diversified approach to the overall emergency management process, will be the norm in the future. Emergency management can only become more important in the public's eye. We need to form a new openness with a vision directed toward "making it simple."

I WILL SERVE THE PUBLIC WITH HONESTY AND INTEGRITY AND MAKE THE GOLDEN RULE MY BASIC PRINCIPLE. I WILL ALWAYS ENDEAVOR TO "DO UNTO OTHERS AS I WOULD HAVE THEM DO UNTO ME."

From American Society of Professional Emergency Planners Code of Ethics.

THE EMERGENCY OPERATION PLAN

The "Emergency Operation Plan" is considered the bible for the emergency program manager. If in fact, we compare the plan to a religious document, the Emergency Operations Plan needs to be explained to the novice reader, our emergency representatives. We must make ourselves available for answers to any question that may be posed, just as the theologians interpret the religious writings. Now, we place the document in the hands of a lay person and tell them to read and understand the material during their spare time. Impossible? Well, at least very challenging.

I have chosen not to send the completed plan to all members. Portions of the plan are compiled and distributed to those members making a contribution to the emergency management process. The plan is first written in the office and then sent to department heads for corrections then returned to be finalized. I have found this saves a great amount of time. The State Police District Coordinator receives a complete plan, and one is maintained in the Emergency Coordinating Center. I have actually changed the name of Emergency Operation Plan to The Emergency Action Plan.

Along side the Emergency Action Plan, is the document describing the response to Major Emergencies and Disasters. This document is a four page standard operating guide, and outlines step-by-step approaches for the Department of Public Services (Works), Police and Fire Departments. With this document in place, training takes less time. The document describes those emergencies assigned to each department. The City of Sterling Heights' emergency service departments each operate under the Incident Command System, consisting of Police, Fire and Public Services. (Example: Police Department shall be responsible for all law enforcement functions such as special police operations, security of all scenes, crowd control, traffic control, protection of emergency workers, etc.). The City's Emergency Action Plan is consistent with the State Plan and all other plans developed within the city. Each additional plan or document becomes an off-shoot of the original "Emergency Action Plan" (E.A.P.).

Michigan has a very professional planning section within the Michigan State Police Emergency Management Division. Michigan emergency program managers are spoiled with print material available. Standard operating procedures (SOP's) shape policy for the Emergency Coordinating Center. You may want to think about changing SOP's to "Guides" which now becomes a guide rather then a strict standard or procedure.

A plan developed for the small business, which allows for filling in the blanks, determines the needs for the particular facility. This we titled, the "Business Emergency Action Plan" (B.E.A.P.). A second plan was developed for the Administrative Officers of the city and was titled, the "Personal Emergency Action Plan" (P.E.A.P.). A third document for the citizens was developed and would have been called the Citizens Emergency Action Plan or CEAP. This didn't sound right so we named it the "Family Emergency Action Plan" (F.E.A.P.). Each

of these are a down-sized version of the Emergency Action Plan.

Providing training information to our membership was accomplished through the training letter developed within the office and distributed monthly. A favorable presentation I highly suggest is a Public Officials Conference. We assemble key elected and appointed officials for an information gathering session. The State Police supply an Emergency Management Coordinator from their department to discuss the emergency management process and the elected and appointed officials role. Several tabletop exercises complete the local training schedule. A disaster planning group made up of local participants and city departments meet each month with an emergency management topic presented over 1 ½ hours.

We can not overlook any means to achieve our goals. As important as plan writing is, we can not place the priority above our contacts with people. The plans are not the first thing I need during an emergency, but support personnel are.

I utilize a three step formula to assist when confronted with major emergencies or disaster situations which follows:

* Determine worst case scenario.
* What are the tools I require immediately to bring my portion of the incident back to normal?
* Who are the people I need, at this moment, to assist in the process?

I have found the most rewarding area of emergency management is becoming involved with the community. I have also found this to be the most challenging. We all face an apathetic society. Making it simple, when it comes to getting the attention of the community, may take innovative programing. Such as; announcing local hazards during radio and television public safety messages. The resident just needs to be reminded on how they can prepare the resources.

We don't want to forget the employees who work around us, if we plan to call upon these people during major emergency and disaster. The local hazards, along with a guide on how to respond to these hazards, will become an asset when the emergency work force is called upon for duty in our communities.

FAMILY PREPAREDNESS

One of the greatest resource in any community are the residents. Organizing groups to assist in times of need is not an overwhelming project. If the people we are called upon to serve are the residents, I believe they deserve the greatest attention. Not all program managers may agree with
me! The resident will be called upon and will respond prior to any emergency service department. Depending on the severity of the incident, many residents may not have emergency assistance for some time.

I encourage civilian involvement to supplement the duties of the emergency program manager. If we are going to make the process more simplified, we need to involve and train individuals to perform their duties properly.

I believe many more lives could be saved if the Family Protection Program

was practiced throughout the country. The most difficult component of the Family Protection Program is initiating a need on the part of the residents to respond. An urgency must be created in the minds of the resident to secure positive results. Community hazards must be presented to the them, as well as, the business community.

Even though, our mobility has expanded into outer space, we don't seem to be concerned with our neighbors, whether in another country, or next door. What has driven the American people for years is the "response to" disaster, not the "preparedness for" disaster. To prove this statement, take a survey of your community. Does the business community know what to expect in the form of major emergency or disaster? Is industry prepared to handle an incident of major proportions at their administrative level? Are your government buildings furnished with an all-hazard approach plan determined for your community? When the people we work with can not appropriately respond to disaster, how can we expect others in the community to believe what we are trying to tell them. Emergency management begins in our own home; in our own office.

I really have to listen to my community to understand the needs of my residents. The second generation is now beginning with no knowledge of a disaster experience. Apathetic as they are, critics of the process continue to exist. This reminds me of an old story with a new twist.

> There was an intelligent, and wise emergency program manager who was very well liked in the community. This program manager was able to lead the people making them respond to the needs of the emergency management program. Two critics tried for a long time to create a distrust in what was being done to inform the residents. The first critic said to a friend, "I have a plan to make the people of this community doubt what the emergency program manager is telling them." The critic continued to tell the friend of the plan. The two of them go to the next meeting where the program manager was explaining what needed to be done to protect themselves before a disaster struck. The one critic would confront the program manager with the following question: "Is the butterfly cupped in my hand, dead or alive?" If the program manager said it was alive, the critic would squeeze life out of it, or, if the program manager said it was dead, the hand would open and the butterfly would fly away. Whatever the answer, the program manager would be proved unbelievable. The day came and the presentation began. Disrupting loudly, the critic posed the question to the emergency manager. "Many of us in this town don't believe what you have been telling the people of this community, and to prove it, we want you to answer this question." The critic held up the hand with the butterfly cupped inside; asked the program manager to tell everyone if the butterfly inside was alive or dead. The wise program manager, without

> hesitation, looked the critic right in the eye and stated, "The answer to that question is very simple. You hold the answer in your hand,... the choice is up to you."

The answer to a successful emergency management program rests in each of our hands. We make the choice to gain the strengths needed to breathe life into our programs, or, we choose to squeeze life out, eventually, allowing our programs to die.

Butterflies are a sign of friendship. The emergency program manager must also be a sign of friendship in the community. There will always be critics of what we do. Making life more simple for ourselves will come when we perceive what we do as positive; believe what we do as right; take the action that is life giving for all, and, "Make It Simple".

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Robert Johnson's involvement with emergency services began in 1962. Experience includes Law Enforcement, Emergency Medical Services, and Emergency Management. He has worked both in the private and public sector. Bob has spoken in Michigan, Canada, and at the Federal Emergency Management Institute in Emmittsburg, Maryland. His background includes cost effective and innovative programs involving emergency services.

Bob's education includes Interpersonal Dynamics, Theology, and a Emergency Management Curriculum. He is employed with the City of Sterling Heights' Office of Emergency Management and coordinates all major emergency and disaster activity. Bob is a member of the International Critical Incident Stress Foundation, National Coordinating Council on Emergency Management (Chairing the Family Preparedness Task Force), Michigan Emergency Managers Association, and an invited member of the American Society of Professional Emergency Planners. Bob is a nationally recognized Certified Emergency Manager and earned Professional Emergency Manager status through the Michigan State Police Professional Emergency Manager's Program.

The Family Emergency Action Plan is recognized throughout the United States and was selected to be the example for emergency management personnel around Michigan.

INTEGRATION OF EMERGENCY MANAGEMENT INTO OTHER AREAS OF LOCAL GOVERNMENT

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Emergency management is often looked upon as a separate local government entity needed only in large-scale emergencies or disasters but one with little or no place in the everyday business of government. Worse yet, some see emergency management as unnecessary; a sort of mandated albatross, or a governmental "fifth wheel". There is hardly a local emergency management coordinator alive who hasn't experienced what it feels like to be an organizational orphan and to know the frustration of not being listened to or, at best, being given "over-the-nose" consideration.

Making the situation worse are the ever-present growing demands on the local government official's time and greater stress on department budgets. Also, many local government departments don't feel particularly vulnerable to situations that, on one hand, would be beyond their capabilities to handle, and yet feel that if confronted by disaster that they will "survive somehow", on the other hand. The roll of the emergency manager must overcome these and many other obstacles to developing an effective emergency response capability. But how? Like many things, this requires going back to some basics.

Knowing our job of coordinating the myriad resources required in an emergency situation requires the "bringing into proper order or relation" of those resources into "harmonious action" (thanks, Webster!). Sounds simple enough but, as anyone in an Emergency Management position will tell you, it's a lot simpler sounding than it is to do. However, with the simple application of some basic organizational insight and practices we can help avoid many of the pitfalls of working with other's resources.

It is vitally important to understand that your role as an Emergency Manager can be summed up in two aspects: planning and coordinating. Planning encompasses all pre-emergency activities. Coordinating covers the emergency and post-emergency (recovery) activities necessary to respond to and recover from the situation.

In your planning and coordinating activities you'll be required to demonstrate many skills; as a diplomat in carrying your emergency preparedness message forward; a negotiator in helping local government departments and agencies work together; a government relations specialist in convincing elected and appointed officials of

the efficacy of emergency management in the day-to-day business of government; and as a public relations specialist in getting the public to understand and accept emergency management in their daily lives without over-reacting to real or perceived threats.

This brings me to a word of caution to heed in all your activities as an emergency management professional: avoid over-blown rhetoric when discussing the need for emergency preparedness. In discussing potential man-made or natural threats to your community, nothing can be more disturbing than having the feeling of being in imminent peril. One of the following reactions is possible. First, over-reaction can cause hysteria and lead to fear and planning paralysis. Second, the reverse reaction is also possible which is rejection, e.g., the "it can't happen to us" or "we're defenseless, so why do anything" syndromes. Your words have power and power has consequences, so choose your words cautiously and wisely.

We've all heard someone say, "You've got to look at the big picture." But, consider what the big picture is through the eyes of who is looking at it. As an example, fire departments plan extensively to deal with situations in which a fire can't be controlled, and overwhelms the individual departments' resource capabilities, through mutual aid agreements. Those mutual aid structures expand to provide resources (firefighters and equipment) to meet the challenge of the fire or other related situation within the scope of the fire service. Without going into the details of the fire department's plans, it's very easy to see that the fire service has gone to great lengths and extraordinary effort to address the concerns as they see them in "the big picture". But, what about the impacts of a major hurricane or earthquake, have they considered what to do when the resources of a wide area, i.e., the area served by the entire mutual aid network, have been devastated? The question is not to infer that the fire service can't see a yet larger picture but, instead, simply serves to demonstrate that the big picture is usually limited to the area of our responsibility. Furthermore, the pressure of the ever-increasing demands of our day-to-day responsibilities causes us to further limit our "big picture" perspective to be consistent with the resources available to us. Keeping this in mind, the emergency manager must be extremely careful to not interfere with the mission of the department nor add to the pressures already on it.

For the emergency manager to be successful, the other government departments and agencies must see the activities of emergency preparedness to have real benefit, or validity. Similarly, those activities must be perceived to have a value-added contribution to the routine mission of the department or agency. If, in preparing for large-scale disaster, a department can find benefit through either increasing its overall capability (and confidence), can sense a greater depth of ability, or can be seen to provide the taxpayer with "more bang for the tax buck", they will most likely be less resistant to the disaster planning and preparation process.

Something we all seem to be saddled with at one time or another are the effects of our predecessor(s). Occasionally, we're lucky in having to walk in the footsteps of an insightful, hard-working professional respected by local government officials and the community at large. But, sadly, in emergency management this is not often the case. On the contrary, because emergency management has gone through so many changes in recent years and has been charged to those without knowledge or conviction, plans have been developed which are devoid of substance, money has been ill-spent, and countless hours have been wasted trying to achieve undefined or unspecified goals. No wonder emergency management is sometimes viewed in a bad light. But, with the advent of a "new awakening" to the value of emergency preparedness in the wake of an active disaster period in recent years, the increase of influence of NCCEM and the introduction of professional standards through its CEM program, ASPEP, and a host of other national, state and local emergency management organizations, the worst may finally be behind us.

Many times the elected or appointed local official is maligned. The Mayor of a municipality, for example, is responsible for ensuring the welfare of his/her community and that a coordinated and effective emergency management response and recovery plan is maintained. And, while the duties are often vested in the province of a volunteer organization, funds must be budgeted and expended for certain equipment (communications, operating costs, etc.), supplies and activities (such as public awareness and training). Yet, when competing interests vie for the taxpayer's dollar, the constituency will often demand other more immediately rewarding or more visible public services or programs, further reducing the Mayor's ability to provide necessary emergency preparedness to the municipality. The Mayor is then unfairly forced into the position of choosing between meeting his/her responsibilities to protect the constituency or to meet their more immediate demands. Add to this his/her worries on how to deal with unfunded state and federal mandates and it becomes easier to understand why some elected and appointed officials behave as they do. Incidentally, don't for a minute assume that the smaller the municipality, the smaller the headaches. At least not until you've had the opportunity to try to secure resources in a municipality that lacks tax ratables beyond the individual homeowner, and in which the Mayor is likely to also serve as the Police Chief, Fire Chief, Chairman of the Planning Board, Chairman of the Health Department, and...well, you get the picture! So, what do we do about it and how can we be responsive as emergency managers and department heads and effectively meet our responsibilities?

To begin with, it is important to not interfere with the routine activities of local government departments and agencies, as mentioned above, yet we must work with the numerous disciplines called upon in an emergency to coalesce our activities effectively. Remember, coordinating is the harmonizing of resources regardless of description. So it is imperative, as a first step, to develop close

working relationships with the heads of government and department or agency heads. In the following discussion of some of the typical and non-typically considered interfaces, the methods of developing those working relationships will become evident. However, the methods you will actually use will depend on the personalities of those you interact with, the form of government you must operate within, the resources available, and most of all, you and your attitude and conviction towards teamwork.

In most discussions in emergency management the focus is usually on the inter-relationships and activities involving the police, fire and emergency medical (first aid/EMS/EMT) disciplines and you, the professional emergency manager, have probably read about all there is to read about their respective roles in a disaster, so I won't go into that here. But, no discussion can really proceed without some discussion of areas of responsibility and our sensitivity to them, whether paid government employees or volunteers serving their community. You know, what we otherwise call our "turf". That's right, turf. We protect it with all our might, and for good reason. Turf, otherwise known as our primary responsibility and jurisdiction, is our organizational reason for being. It represents the commitment, conviction and dedication we've made to our responsibilities (our jobs) and deserves to be protected by us and respected by others. And turf protection is not limited to the police, fire and emergency medical professions, not at all! Recognizing this, and allowing for the pride the turf also represents, will go far in helping us to gain the confidence of others in order to further our emergency preparedness goals.

An area that has really gained the attention and respect of emergency workers and emergency management professionals is Public Works. Typically, public works can provide vital personnel resources and heavy equipment drastically needed in the aftermath of disaster to save lives and promote faster, more effective clean up and recovery. Beyond personnel, materials and equipment availability, public works often has the potable water distribution facilities, roadway maintenance, sanitary sewers, and storm water systems within its jurisdiction. Some larger communities may even include operation or oversight of some utilities such as electric, gas, and so on. But, with this large area of responsibility goes greater day-to-day demands and pressures. Public works managers don't have time to waste so it is imperative that the emergency manager be specific as to what the Public Works Department's role will be in a disaster. With that, the public works manager can determine what personnel, equipment and other resources at his/her command will be necessary to accomplish that mission. Likewise, he/she will also be able to identify what the public works department's limitations are likely to be. This is where the mutual relationship comes into play. Now the emergency manager knows what to look for and find to support the public works department. Most likely, if that potential need is met effectively, greater validity will be accorded emergency management and closer professional relationships will be developed between the two disciplines.

Another area for coordination is in land use planning and zoning activities. For example, Heads of Planning and/or Zoning Boards, when updating the community's land use master plans and zoning plans, can find the emergency management perspective invaluable when considering population densities and circulation plans, for example, when discussed in relation to the hazards an area may be in proximity to. To further this example, consider an area downstream of a dam or other retention-type structure located in another municipal jurisdiction but which poses a threat to the municipality under review. While it may appear obvious to the reader that the Planners should be aware of the threat of the dam, the records of disasters are replete with examples of Planners who overlooked the obvious. By providing the emergency management perspective in a respectful, non-overbearing manner will not only develop greater municipal confidence but will effectively serve to promote the integration of emergency management in its collective thinking/planning processes.

Quite similarly, local building and construction codes also play a heavy role in emergency management through requiring that certain demonstrably effective building practices be implemented. The emergency manager can make significant contributions in this area through making available the many publications and guidelines on wind-resistant, floodproof, or earthquake-resistant building and mobile home modification or construction practices published by FEMA, National Flood Insurance Program (NFIP), the Central United States Earthquake Consortium (CUSEC), or other emergency management related organizations. Although offered to a wide-ranging audience, the direct access of these publications to emergency managers for distribution can ensure that "the word gets out" to those most needing this information. Again, don't assume that because someone is supposed to be aware that they really are. Sometimes, in spite of our best efforts, the most obvious items slip by us.

An appropriate example of just this fact has to do with a northeastern county which decided to invest millions of dollars to expand its government administration offices into a full-service complex which would not only provide room for all of its key services, but would address all the standards required to be available in public facilities these days. The planning process was extensive, with public and private meetings almost too numerous to mention, in order to consider every conceivable concern which could be raised and in order to miss nothing. Likewise, members of every government department would discuss and identify items for consideration, and a selected member of every affected department, including the Department of Health and Human Services' Handicapped Commission and Advisory Council, met with the architect, engineers and anyone else involved with the design and construction of the proposed new facility. Indeed, the County officials were confident that absolutely no stone was left unturned. However, after construction was completed and the offices were moved into it was discovered that every door in the building was two inches too narrow to allow for

handicapped accessibility (according to the Americans with Disabilities Act [ADA] which is a primary guiding document for public building construction). This is probably the most obvious necessity for handicap conveyance yet it was overlooked because it was assumed that it was known and addressed. It wasn't, so this oversight cost more than fifty thousand dollars to correct. What would be the cost to correct a similar type oversight in an earthquake or hurricane damaged area? In responsible emergency management practices, contributions such as the provision of helpful information can have profound effects both on the safety and well-being of the jurisdiction served as well as providing an increased sense of confidence on the part of the government leaders we serve with.

One of the areas not typically interacted with directly by emergency managers is the engineering department. Too often in the rush to recover from disaster, certain standards may either be sacrificed to the "need to return to the usual routine", or certain license to "bend the rules" after a disaster may be invoked. The problem with this perspective is that quite often we only have to go back at some time to correct or redo those things we may have "winged it" on. Quite often by having professional input in planning recovery operations and, most certainly, during actual recovery operations, the guidance and insight of the professional engineer serving the local government can save effort, money and, quite possibly, lives in ensuring structural or other related infrastructure standards are included in restoration work.

Additionally, the engineering department, regardless of size, is a fountain of information to the emergency manager and can provide a vast array of pertinent information on much of the municipality's infrastructure and services ranging from transportation and road systems, water supply system, waste treatment systems, and other utilities, as well as environmental concerns such as wetlands or floodplain management, and may be an effective source of funding information not normally considered by the emergency manager. Most engineering departments will gladly provide their professional insights to emergency managers in return for the assuredness of involvement in recovery and restoration operations and the application of professional engineering standards in those operations.

Another area which unfortunately is glossed over by many emergency managers involves the interface local government has with civic and philanthropic service organizations, including religious organizations. The particular benefit these types of organizations have is their grassroots base which not only helps to identify the specific needs of a constituency but is usually comprised of the "movers and shakers" of a political unit. Those who run such organizations are typically the decision-makers of the community as well as in business and, as such, wield great influence in public acceptance of government programs such as emergency management. And since confidence is built upon knowledge and familiarity, there are few better ways to develop awareness than directly to the people through the

organizations they trust and support. Through developing and maintaining strong relationships with these organizations, i.e., the populace, emergency management can help promote community cohesion found otherwise difficult by our elected officials.

While the purpose of this paper is not to be a treatise or complete listing of every area in which emergency preparedness may find beneficial relationships, the astute emergency management professional can use the above towards getting the "creative juices flowing" in identifying the many other areas in which emergency management can coordinate its pre- and post-disaster planning activities with to enhance overall local government and help develop a more symbiotic relationship with emergency management.

One thing any emergency manager must avoid is the temptation to re-invent the wheel. Don't get caught in this trap. Use other information available through your coordinating activities when dealing with other government departments. As stated or inferred above, the managers of other government departments have wide ranging information resources available to them, and in various forms, e.g., print, video, broadcast, and by way of computer interfaces of growing variety. Couple that information with that which is available to you from federal and state emergency management agencies such as FEMA or by way of your State's Office of Emergency Management; from national organizations such as NCCEM, ASPEP, or NEMA; and, from other state and/or county emergency management associations. And, on this last point, if you are not involved in your local emergency management associations you are doing yourself and your profession a disservice. Nothing you do can compare with the information, support and feedback you receive from your peers. In this writer's opinion, if you are going it alone now without association, you are doomed to go it alone later; perhaps at a time when you can least afford to!

In CIVIL ENGINEERING FOR THE COMMUNITY, author Dennis Randolph discusses ten characteristics an engineer, or anybody else for that matter, should adopt to improve effectiveness in local government. Because I believe so strongly in their efficacy as a sound logical approach, I would like to discuss them, briefly, in the context of the emergency manager. Incidentally, although these are really the basic tenets of any good manager, the author credits an article which appeared in a 1987 issue of PERSONNEL JOURNAL (author unidentified) for his information. Therefore, you need:

1. The ability to find and use information -- As mentioned earlier, it isn't necessary to redevelop information but it is absolutely necessary to first, know where to find all sorts of information as it pertains to the various functions of government activities you'll be involved with in your role as coordinator, and second you must develop the ability to

apply that information not only to your specific activity, but also in a fashion that other's can understand and use it.

2. People handling skills -- If you can't relate to people and their needs, regardless whether as victims or as service providers, you can not hope to be an effective or responsible emergency manager.

3. Marketing skills -- Any program is only good if people buy into it; you need to "sell" your ideas to get the job done. Obviously, if your emergency preparedness program is unknown to those it must either serve or who are supposed to have a role in it, you have no right to expect your desired results. But, on the other hand, you have the responsibility to produce results, both legally and morally.

4. The ability to manage change -- It certainly is no surprise to any emergency manager that emergency preparedness is undergoing massive changes not only in structure, but in thinking as well as the result of almost continual disaster impacts over the past several years here in our Country. Yet many managers shrink from the changes, many of which are healthy and are reflective of today's society's needs versus the former "attack" mentality which has driven most of us for so many years. Accepting change and developing the ability to flex our thinking and our planning to be consistent with current demands not only makes our job easier but, most importantly, more effective as well.

5. Time management -- The ability to spread our attention effectively amongst the myriad activities involved in disaster response and recovery demands that we develop the ability to manage our time effectively in order to give each area or segment, i.e., resource, sufficient attention in order to bring it into its proper order for efficient, harmonious action. If you even question your time management skills, you would be well advised to look into developing or improving that skill.

6. Team player -- The one thing emergency management is, above all else, is teamwork based. Without every member willing to work harmoniously with every other person or department, there really can be no such thing as emergency preparedness because no one has all the skills, knowledge, abilities or resources to go it alone, and nowhere does this become apparent than in a disaster. You are the key element to bringing the team together and harmonizing its efforts.

7. Knowing when to act and when to respond -- I particularly like this point as knowing the difference between "acting" and "responding" usually spells the difference between being perceived as someone who is in touch with what's going on or as someone who over-reacts. "Acting" may simply be listening, while "responding" usually infers a more physical action such as physically going to a scene or making things happen. Granted, the difference is subtle and some may find argument with my words. Still, to respond in the physical sense when a simple act, or action, was all that was necessary may define the difference between credibility and the lack of it.

8. Knowing how to become involved -- As discussed above, sensitivity to the priorities and pressures on other departments is important. Coupled with that sensitivity is the ability to know the "language" of the discipline you must work within as well as the "culture" that exists within it. You must coordinate your needs to fit within the pressures and demands of their position, and it must be done in a manner they can relate to.

9. Computer literacy -- In today's high-tech world, it simply defies logic to avoid developing the capability to use computers and understand basic computer language. The increasingly poor excuse that we can "get someone who understands that stuff" is not viable! Computers today are every bit as essential to individual capability as the telephone is and it doesn't take a fertile imagination to think how ineffective and inefficient our business lives would be without a telephone. Now this doesn't mean that each of us has to become a technical wizard, but we must develop a sense of understanding and comfort in using this highly valuable resource.

10. A sense of personal accountability -- This is an internal philosophy or ethic in which you accept your responsibility and, to the best of your ability, will make every effort to accomplish those goals vital to successfully meeting those responsibilities vested in you, without exception...and without excuses! Be proud of what you do as an emergency manager; the job you do is vital to the safety and well-being of your community.

The role of the emergency manager is often misunderstood. Mounting pressures on government department heads and the decline of financial and physical resources makes it increasingly difficult for the emergency manager to enlist those department leaders to become involved in and take on the important task of emergency preparedness within their respective departments. While keeping an eye focused squarely on our mission to develop effective disaster response and

recovery plans, the emergency manager can develop sensitivity to the day-to-day routines of other government leaders and develop the skills necessary to win their trust and confidence. The skills necessary are the basic elements of ability of every manager and must be integrated into the emergency manager's conduct and way of thinking.

Emergency management is essentially a young profession and, as with all things relatively new or young, there are development problems experienced along the way to professional maturity. But, with the total commitment of the individual towards the professional standards of emergency management and the development of some simple basic skills, not only can we stand tall as a profession but we have it within our hands to protect the health and welfare of those we serve, and help promote the quality of life and sense of security in our communities.

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Stephen Kempf, Jr. is an experienced emergency management and disaster recovery professional with over 20 years experience, and is the former Region II Director for FEMA. Prior to that, he served in the Breton Woods (NJ) Fire Company since 1971, during which time he earned the rank of Lieutenant. Mr. Kempf also served as an elected Fire Commissioner, Divemaster of the Fire District One Underwater Search and Recovery Team, and as Captain of the Light and Heavy Rescue Team. In January, 1976, Kempf was injured in the line of duty and spent several years undergoing extensive physical and vocational rehabilitation.

Upon returning to work after his accident and rehabilitation, Mr. Kempf joined General Public Utilities Nuclear Corp., where he was assigned to the Oyster Creek Nuclear Generating Station in Forked River, NJ where he rose through GPU's ranks to the position of Lead Offsite Emergency Planner.

Known for his significant contributions to emergency management, Mr. Kempf was appointed to the position of FEMA Regional Director. During his tenure in that position, Mr. Kempf distinguished himself in, amongst other things, Presidentially declared disasters including the "Three Kings Day" floods in Puerto Rico, the Louisiana Hurricane Andrew response, the December '92 Nor'easter which severely affected the northeast coastal regions, and the World Trade Center Bombing. He has earned critical public and media acclaim for his activities, as well as numerous gubernatorial, State Senate, General Assembly and community commendations, and the Federal Meritorious Service Award.

Currently, Mr. Kempf is Vice President of Killam Associates, NJ, and is responsible for the Company's Coastal Resource Division and its Risk Assessment Division. Mr. Kempf is also Vice President of the (New) Jersey Shore Partnership, Inc. a non-profit public and private alliance active in coastal management.

Mr. Kempf earned his Master of Science degree in Human Resource Management and Organizational Development at Upsala Graduate School, East Orange, NJ. He is a member of NCCEM, which conferred the designation as Certified Emergency Manager (CEM).

EMERGENCY SERVICES EXPLORERS

R. John Schmidt
Fontana Police Department
Fontana, California

One of the most overlooked resources during an emergency or disaster situation is the use of teenagers during the event. Trained youth with adult supervision can be a valuable asset to the local emergency management organization. The youth, trained beforehand, can augment the local emergency responders and, coupled with their boundless energy, can really make a dramatic difference in how the emergency is managed.

History of the Post

In 1986, the state of California, through the Office of Criminal Justice Planning, Juvenile Justice Program, offered local agencies grants for a youth subvention program. Being a small, innovative police department, Fontana Police Department's Administrative Unit developed the idea to use teenagers to assist the Emergency Services Office. Using the successful Grant Writing Team of the police department, Fontana was able to secure funding to start an Explorer Post whose primary function was emergency preparedness.

The police department had already in place a law enforcement Explorer Post. Police Chief Ben Abernathy wanted a similar program for "at-risk youth". Working with the Fontana Unified School District, the Grant Writing Team and the school district developed the concept of the Emergency Services Explorer Post.

The police department contacted the local Boy Scout office about an Emergency Services post. The local council, which is the Old Baldy Council of the Boy Scouts of America, didn't have any information on how to start an Emergency Services post. Old Baldy Council liked the idea and assisted the police department in the start-up of the post.

Getting Started

The police department developed the goals and objectives of the Explorer post. The primary objective was to provide assistance to the Emergency Services Office and the second was to provide a positive role model for the "at-risk youth". The police department found out later that their objectives were greatly exceeded.

The post is limited to 15 youth because of need to provide sufficient supervision. The post has two males and one female advisor with a standing committee made

up of the command staff of the police department. Fontana Unified School District and the San Bernardino County Probation Department provided the first group of youth for the Explorer post. The referrals were of both males and females between 14 and 18 years of age who the agencies felt could benefit from some positive intervention from the police department. A local service club provided funding for uniforms and work T-shirts. For one of the new Explorers, the uniform was the **first new** set of clothes he ever owned.

Setting Goals

Getting the Explorers together for their Wednesday afternoon meeting was definitely an experience. The department wanted a policy manual and training program for the post. The advisors sat down with the Explorers to develop the Explorer Program. For the first two years, the Explorers wanted the grade point requirement waived so that they could bring their grade point averages up to department standards. The Explorers wanted strict standards in regards to criminal history and meeting attendance. Using material from the Boy Scouts of America, the Explorers developed the training requirements of the post. The Boy Scouts have materials called "Program Helps" which the post used to develop the program. Using materials from the law enforcement, fire service, and search & rescue, "Program Helps", a training program was developed and put into effect.

The police department networked with local businesses to provide tutors for the Explorers so that the Explorers can have a source of assistance to help with their studies.

Training

The Explorers have a broad range of training areas. The Explorers are trained in First Aid and CPR. The local fire department, many years before it was popular, developed a light search & rescue class which teaches the Explorers how to rescue people with simple tools. The Explorers also play the parts of victims in some classes. Because Fontana is near the San Andreas and San Jacinto Faults, the Explorers are trained in how to present earthquake preparedness information. Teenagers usually don't like to speak in public, so public speaking classes are offered.

Working with the local Red Cross office, the Explorers are taught damage assessment, mass care, and shelter management. The Red Cross uses the Explorers to fill-in on the Disaster Action Team (DAT) when they are short-handed.

The local HAM radio operators also give a HAM radio class for the Explorers each year. Many of the Explorers now are HAM radio operators who assist with communications for the local RACES Program.

Because the Explorers are part of the police department, the Explorers are trained in traffic control; both day and night operations. The Explorers learn crowd control measures and how to assist detectives in crime scene searches. The police department has a search & rescue dog and the Explorers are assigned to assist the handler while on missions.

Because of budget cutbacks, due to the recession in Southern California, the Explorers are also trained in office procedures; filing, typing, phone answering, and computer operations.

School District Support

The Explorers are always on call. The Explorers each have an emergency kit at his/her home for emergency response. The local school districts are aware of the Explorers status and the police department has pulled the Explorers out of school to respond to calls for assistance. The school district also relies on the Explorers in their Emergency Plan to assist the district in disaster operations. The Explorers take part in local and regional disaster drills; as both victims and responders.

Emergency Service Response

As you can see, the Explorers receive a lot of training. They are also used by the city of Fontana during actual responses. Chief Stout (who headed the police department after Chief Abernathy retired) wanted to use volunteers and Explorers even more than in the past. The Explorers have been used to staff shelters during two major evacuations due to hazardous material spills. The Explorers have been used during three major earthquakes for Emergency Operations Center (EOC) operations and damage assessment. During the past three winters, the Explorers have been used to sandbag homes to protect them from flood waters. The Explorers have done traffic control and crowd control for major accidents and a plan crash.

Recognition

The Explorers are a vital part of the police department and the community. Through hard work on the part of the Explorers, the mayor and city council have recognized the importance of the Explorer Program. The Explorers can be eligible for police department awards and honors. During a crime scene search at a triple homicide, the Explorers were mis-identified as police officers even though their uniforms are distinctly different and the Explorer patches plainly visible. The newscaster, when told of his mistake, said he couldn't believe how professional the Explorers were and assumed the Explorers were police officers.

Take the Bad with the Good

Make no mistake, a successful Explorer post does take a lot of input and support from the advisors and the staff of the police department. Because of the area Fontana is located, there is a constant turnover of Explorers. This requires a lot of training and retraining. Because of the tremendous need to have something positive for young people to be involved with, there is a waiting list for the Explorer post. The Emergency Services Office fields ten inquiries about the post each week. It is a very popular program with the public and the department has to be very careful not to over commit the Explorers. That could lead to burnout.

You will have an occasional Explorer who gets into trouble. Using department guidelines, you will have to discipline the Explorer accordingly. The Explorers expect it.

Besides providing an excellent resource for Emergency Services, the Explorer post provides an opportunity for the youth to challenge themselves to improve their skills; both mentally and physically. The post has an all-around positive influence in the community.

Because of the popularity of the post, the department rarely recruits for openings. The school districts still make referrals to the post, but the prospective Explorers must meet the minimum requirements set by the first group of Explorers.

We have Explorers who have raised their grade point averages up so they can graduate from high school. We have Explorers who are now in the military and we have Explorers away in college. During the Christmas season, the former Explorers come by to drop off toys and clothes for the needy and show-off their own kids. What is really satisfying is seeing how exploring has made a positive influence in their lives.

A Real Success Story

In closing, I want to highlight one special Explorer, Linda. Linda is 16 years old, a junior in high school, and has an almost 4.0 grade point average. Linda's mother is Chinese and her father is German. Linda's parents are divorced. Linda is the youngest of three children and both of Linda's sisters were Explorers with the post. One is married with three children and the other sister is in the Air Force. Linda lives with her mother and Linda's mother is very strict and has very high standards. To take part in the Explorer post, Linda had to maintain a certain grade point average or she remained at home to do homework during Explorer meetings. The department assisted Linda with homework problems and the typical mother/daughter disagreements. Linda wanted to attend a special law enforcement academy for Explorers. Not being a law enforcement Explorer, the

department tutored Linda with the homework. Her first year in the academy she did very well. On her second year at the academy, she scored 104%. Better than perfect because she did extra projects. Nobody can do better than Linda; only tie. Linda is now the Emergency Services Post Captain. With recommendation from our present Chief, Sam Scott, Linda was awarded Explorer of the Year from the Old Baldy Boy Scouts Council. During a newspaper interview, she told the reporter she wanted an advanced degree in business so she could become an FBI agent. Linda is what the Explorer Program is all about. We hope to have many more success stories in the future from the post.

How to Get Started

Contact your local Boy Scout Office for the administrative process to get started. Contact the local junior high and high schools for referrals for possible Explorers. Advertise on the local cable TV and local radio for announcements of the Explorer post. Gather support from command staff to be on the Explorer Advisory Board. Remember that to have a successful post, the advisor must like teenagers and must be able to devote time to make the post work. After the start-up phase, the Explorers run the post and set goals and objectives. The Explorers are a real asset. Have adequate supervision and let the Explorers go at it. You will be amazed at the results. Feel free to contact the Emergency Services Office for assistance.

Background

Fontana, California, is approximately 60 miles east of Los Angeles and 10 miles west of San Bernardino. Fontana is 45 square miles in size and has a population of approximately 110,000. The police department has 160 employees and approximately 150 volunteers (Crime Prevention, Explorers, Reserve Officers, and HAM radio operators). Fontana is crossed by the San Jacinto Fault and is within five miles of the San Andreas Fault. The city has two major freeways and has a large railroad yard on its border. Four major gas lines cross the city and Fontana is in the landing and approach pattern of four airports. The possibility of disaster scenarios is endless.

References

Chief Ben Abernathy	Fontana Police Department 1981 - 1989
Chief Sam Scott	Fontana Police Department 1994
Chief Edward Stout	Fontana Police Department 1989 - 1993

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Robert John Schmidt, CEM
Fontana Police Department
Fontana, California

Robert John Schmidt has served as Emergency Services Coordinator for the City of Fontana, California for ten years. His emergency management experiences expand across a wide range of functions: Chief paramedic for an EMS agency in Los Angeles County; planning committee for EMS coverage for 1984 Los Angeles Olympics; HAM radio operator (KB6NTS); Red Cross volunteer (20 years), Fontana Disaster Action Team; Red Cross CPR and First Aid instructor; Red Cross Communicable Disease instructor for Emergency Responders; and Red Cross Disaster Course instructor.

Mr. Schmidt graduated from the EIB Institute in New York in 1992. He received recognition as a Certified Emergency Manager by NCCEM in 1993. He was honored with a Certificate of Achievement by FEMA in 1994. Mr. Schmidt received an American Red Cross Commendation for California Fire Response in 1988. And he has served as an Explorer Advisor for the Boy Scouts of America since 1982 to the present.

MAXIMIZE YOUR COMMUNICATION CAPABILITY

Bill Singer
City of Hayward Fire Department
Office of Emergency Services
Hayward, CA

The concept is fundamental. Make the maximum use of an existing resource. This concept can be applied to cellular telephones. The City of Hayward, California, working with the Alameda County Fire Chiefs Association, developed a cellular telephone system within Alameda County, for use by the Fire Departments to solve two problems. Problem #1. How do you identify all the fire equipment within Alameda County without duplication of numbers? Problem #2. How can you use the numbering system to your best or maximum advantage.

The numbering system works best within a specific geographic area such as a County, Parish, or Borough. Begin by identifying zones within your area. These zones may number as many as nine, (This is the first number). Next, identify Cities or other political sub-divisions within the zones, (This is the second number). Identification of personnel or equipment are the third and fourth numbers. An example would be: Hayward is in Zone #3 and is City #6. All Hayward Fire Department personnel and equipment are identified with the numbers (36__). Chiefs are designated from 00 - 19, Staff Personnel are 20 - 29, Fire Prevention Staff are 30 - 39, Engine Companies are 40's - 50's & 60's, Truck Companies are 70's, Wildland Firefighting Equipment are 80's and Special call equipment such as Hazardous Materials Response Vehicles or Power and Light Units are 90's. A Staff Captain in the Hayward Fire Department, would have an identifying number of 3620. A Staff Captain in a neighboring jurisdiction would be 3420.

We learned from the Loma Prieta Earthquake that the hard wire telephone system will fail for a few hours due to overload. Cellular telephones in use from the same cell phone provider (Cellular One or other vendor) can be used without having to go through the hard wire system. We asked our cellular telephone provider to assign us an exclusive prefix for all of Alameda County Fire Department cellular telephones. Once the common prefix was installed, we were able to use four digit dialing. The Fire Chief in Hayward who is identified as 3600, can now call the Fire Chief in Oakland identified as 2500, by simply dialing 2500 on his cellular telephone. The system is the same for all so there is no need to develop an extensive or complex telephone directory. It is only necessary to remember the first two numbers of the City you want to contact. The system is very effective when it is necessary to communicate with Fire

Companies from several jurisdictions at the same time. A conference call can be set up with the Strike Team Leader and as many as five different pieces of equipment. This is especially helpful when there is a multi-jurisdictional response as a Strike Team. Finally, the best part of the system is that it is inexpensive and offers an organized communication option utilizing an existing resource.

DEVELOP AN EMERGENCY PLAN THAT WILL ENHANCE YOUR FIELD OPERATION

Bill Singer
City of Hayward Fire Department
Office of Emergency Services
Hayward, CA

A review of most Emergency Plans will show that there has been little new or original thought put into written emergency planning for a very long time. Much of the language is 1950's boiler plate. The fundamental problem with the existing plans is that they provide little specific direction or control. Emergency response staff rarely refer to their emergency plan when they activate their Emergency Operations Center. The primary purpose of an Emergency Operations Center is to support the field operation.

Most modern Fire & Police Field Operations are based on the Incident Command System. Immediately following the fire in the Oakland Berkeley hills in California, legislation was passed (SB 1841) that requires all emergency planning to be based on the Incident Command System. This type of planning encourages a reflection of the field operation in the Emergency Operation Center. As an example, when there is a major disaster, the Fire Department is engaged in the incident in the field, there is a Fire Department staff representative in the Emergency Operations Center to receive resource requests. Law Enforcement has a Law representative in the E.O.C. Likewise, Public Works has a Public Works representative. Having an identified trained staff makes E.O.C. operations flow much smoother. Each E.O.C. representative has and identified work space, an example of duties, a specific responsibility and a list of action items that need to be accomplished.

The Incident Command System is based on the premise that it can be expanded to fit the incident. Some large incidents would require all functions to be activated while other times less serious incidents may require only three or four functions. Using the same system make it possible for local jurisdictions to assist each other when there is a local emergency. The advantage is that there is no need to learn a new system.

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Bill Singer began his career in Emergency Management in June of 1985 when he was handed the Hayward Emergency Plan and told "Have this edited by October." He finished the job on October 15th, 1989, just two days before the Loma Prieta Earthquake.

Since 1985 Mr. Singer has completed the Professional Development Series and various management and emergency management training courses He is a candidate for Certified Emergency Manager through NCCEM. He received both and Outstanding Services Certificate and a Certificate of Merit from the California Governor's Office of Emergency Services. He is currently editor to the "California Emergency Manager", the newsletter of the California Emergency Services Association.

Mr. Singer spends some of his time volunteering and is working on a plan to organize the membership of all the Lions Clubs of California and Nevada for disasters. The program has three parts: 1) Individual and family preparedness so Lions will be survivors, not victims; 2) Lions providing support to American Red Cross as Shelter Managers and Resource Managers; and 3) Lions working with local emergency management on the distribution of donated goods. He is also working with his church on the development of an emergency plan.

REFLECTIONS
FROM THE NORTHRIDGE EARTHQUAKE RECOVERY

J.R. Stafford
Mountain View Fire Department
Mountain View, CA

J.R. Stafford served a four week assignment with the Governor's Office of Emergency Services (OES) at the Northridge Earthquake Disaster Field Office (DFO) in Pasadena, CA. He was one of many who initially worked in the Emergency Mangement Mutual Aid (EMMA) system piloted in the Northridge response. J.R.'s "stint" gave him experience with Disaster Application Centers (DAC's) both as a Mobile DAC Coordinator and as a Deputy DAC Coordinator. When not working in the DFO in Pasadena, J.R. worked as DAC Manager at the Winnettka Recreation Center in Northridge and assisted with the closure of the Glendale Civic Center DAC. These are his Reflections on the experience.

I flew into Burbank airport on Saturday morning January 29th with my fire gear, my Ham radio and "72 hour disaster pack" expecting the worst and hoping just for some "creature comforts" during my tour of duty. The emergency response phase of operations was over and I was in Southern California to assist with the recovery phase 12 days after the initial quake. I would not, however, have been surprised if I'd had to live on my emergency rations for a while as aftershocks continued to rock the area and food and water were rumored in short supply. I was also determined to play my part in the recovery process and not become one of the thousands of quake *victims* I'd seen on television.

I rented a car at the airport, (the special earthquake rate, naturally) threw my gear in the trunk and headed for the six story, First Interstate Bank Building in Pasadena and the unknown. Several floors of the bank building and surrounding buildings were considered the Disaster Field Office (DFO) which is located out of the immediate disaster area but, close enough to render support. After a nice 30 minute drive on "usable" freeways, I arrived about 9:00 AM and checked in with the Emergency Managers Mutual Aid (EMMA) office.

When I arrived I checked in with OES Assistant Coordinator, John Fetz of the Mountain View Fire Department and Raelene Wong, Sunnyvale Department of Public Safety OES Director. They, along with several other Northern California Emergency Managers, had started the EMMA Office in the DFO the week before and were now ready to turn over the "keys" to their reliefs. *(Memo to file: Although the assignment has been long and difficult, the initial EMMA Crew looks okay... Nothing that about 96 hours of sleep wouldn't cure.)*

There would be many men and women from all over the state working with EMMA during the next several weeks. Each of us bringing various skills and experience to help with the recovery. I hoped for an assignment in damage assessment or inspections in the Northridge quake area because of my fire investigation and inspection background. It was in the EMMA office where I was assigned to Disaster Application Center Coordination, "DAC Coordination." So much for working in something I know something about.

So began a series of twelve to sixteen hour days filled with small triumphs and big frustrations in Mother Nature's latest assault on California. The fire storms, the mud slides, and the riots (excuse me but, I still can't bring myself to say "civil unrest"... It was RIOTS... and they were LOOTERS, not, "nontraditional shoppers!") were just warm-ups for the Northridge earthquake on January 17th.

Work in the DFO was hectic for everybody. Most of us were thrown to the "wolves" as soon as we got there. "Find a job or need and fill it was the order of the day. To big a "Title" to type, make phone calls, file, organize, plan or go for coffee? Get lost! Go home! We can't use you! Quite frankly, we'd prefer you take your "Title" and your "attitude" back where you came from. Fortunately, there weren't many with that attitude. They were also the ones who missed out on the triumphs. *(MEMO TO FILE: REMEMBER TO LEAVE YOUR EGO AT THE DOOR AND BE PREPARED TO DO JUST ABOUT ANYTHING TO HELP.)*

Early on, I joked that the only thing I knew about "DAC's" was that they flew south in the winter. I've since learned that Disaster Application Centers (DAC's) are the heart of any disaster recovery. DAC's are opened early in temporary locations and provide a place where disaster victims go to file for aid and assistance and to begin putting their lives back together. DAC's in the Northridge area were in operation within 96 hours of the quake and began servicing thousands of displaced people. By early February a total of 20 fixed DAC's and 12 Mobile DAC's were operating 7 days a week in the affected areas. DAC's are staffed by California Office of Emergency Services (OES) employees, Federal Emergency Management Agency (FEMA) workers and "local hires", all thrown into the breech and all doing their best to dispense information and register victims for disaster assistance.

Services in DAC's include Small Business Administration (SBA) loans for businesses and individuals; Disaster Housing Assistance Programs (408A) for renters and home owners; Disaster Mortgage and Rental Assistance Programs (408B) for rent and mortgage payments; Grants to Individuals and Families; Low Interest Deferred Payment Loans; Housing and Urban Development (HUD Section 8) Programs; Social Security Assistance; Income Tax Advise & Assistance; Crisis Counseling; DMV assistance and much more. This assistance is sometimes not enough. When I left Pasadena in late February there had been several threats to personnel working in DAC's from disgruntled victims frustrated by the "system." I spoke with one DAC Manager who said her life was threatened on several occasions. The longer the recovery process

takes, the shorter tempers of victims in the DAC's get. Frustrations abound on both sides of the interview table.

My job in Pasadena was to support the 20 fixed location DAC's throughout the quake area from Santa Monica to Fillmore to Santa Clarita to Glendale and areas in between. DAC Coordination also supported a series of "Mobile DAC Teams" who went to different locations every day or so and registered applicants who were unable to get to a "fixed" DAC location. Mobile DAC business was often conducted on folding tables set up outside the team's motor home. Mobile DAC Teams also used school sites or community centers for a day or two then moved on to other areas or segments of the community in need of "special" assistance. I also learned that efforts to open, close, or relocate any DAC for just about any reason will turn up more politicians and special interest groups than most people see in a lifetime! Overt and covert pressure to open a DAC in "this" geographic area -vs- "that" geographic area was... interesting.

My counterparts with Los Angeles City & County and FEMA and I would sit and marvel at the ways our "group" was approached by special interests to provide a Mobile DAC team in some location or area. Promises made to voters or constituents by various politicians and staff were sometimes made without adequate resources or ample warning to those who were to carry out the "promise." Campaign promises or not, we always tried to get teams to areas and locations with the most need regardless of the political "heat.". An EMMA coworker working in Mobile DAC coordination when I got there was Kelly Purdom, the OES Director for Yuba County. Kelly is a master of resource allocation and political pressure doesn't phase him. Like the rest of us, Kelly was thrown to the wolves but he handled Mobile DAC Coordination like he'd been doing it all his life. *(MEMO TO FILE: NEVER PLAY POKER WITH KELLY PURDOM OR THE LA CITY & COUNTY MOBILE DAC LADIES! THEY DON'T BLINK AND THEY DON'T BLUFF...)*

Many of us in Pasadena were new to State OES policies and procedures, and frustration was sometimes the order of the day. Sometimes it seemed we were reinventing the wheel while our FEMA counterparts, were often working on the next problem they knew was going to arise. The FEMA folks were quite often seasoned veterans of other disasters such as hurricanes and the midwest floods and knew what needed to happen and what was going to happen next. Depending on the need, these disaster workers do this kind of recovery work for a living for months at a time in various areas of the country. It's "normal" for them to be away from home for 18 out of 24 months. The hours are long and the lifestyle is far different from being at home.

FEMA Folks wear hats, jackets and tee-shirts showing the various disasters they've worked and the dates they were there. HUGO, ANDREW, INIKI, MIDWEST FLOODS, and LOMA PRIETA, "(I've) been there. Done that...and got the tee-shirt!" Next time I'll be prepared for the fashions I found when I got to the DFO. The term "Disaster Junkie" comes from places like the

Pasadena DFO. I met a few while I was there. I could turn into one... *(MEMO TO FILE: DON'T LOSE MY OES TEE-SHIRT OR MY EMMA/OES BALL CAP. THEY TELL EVERYONE I'VE BEEN THERE AND DONE THAT! ...TASTEFULLY, OF COURSE.)*

The DFO was overcrowded the entire time I was in Pasadena. Twenty seven hundred folks worked there during the first month of the recovery. During my first week in the building, it was not uncommon to step over people sitting on the floor in the hall (main fire corridor) conducting interviews or making cell-phone calls. Why the corridor? Because the corridor was semi-private and one of the quietest offices in the building! The overall noise level in the building was incredible. At times you could hardly hear yourself think because you were competing with radio traffic, pagers, conversations, and ringing telephones. Exposure to this elevated noise level was often enough to give you an "Excedrin" headache. *(MEMO TO FILE: "TAKE TWO ASPIRIN AND CALL ME IN THE MORNING" USUALLY DOESN'T WORK HERE. IT'S, "TAKE TWO DAYS OFF AND GET SOME SLEEP...", THAT WORKS!)*

Once assigned, I found some very dedicated people working in the most difficult of circumstances. Initially, I shared a 10' x 10' office with 6 other people! The seven of us shared the three desks and three telephones in the same space. One had to be very creative and tactful when using any of the desk space or telephones least you disturb someone else's "pile" of papers or telephone notes. Within days of my arrival, I was moved to a new work station and some of my immediate neighbors were also moved and things got a bit better. (The Pasadena Fire Prevention Bureau was still working with GSA Facilities trying to allocate sufficient work space for everyone when I left on February 26th.!)

The GSA phone people finally gave up trying to run new phone lines over the top of ceiling tiles in the building and just hung the new lines below the tiles to save time and energy. The electricians, too, had a terrific time trying to power all the printers, copy machines, computers, plotters and cell phone bases. Over 4,800 cell phones and 800 pagers were issued to responders during the recovery.

Along with phones and computers, copy machines were also premium appliances. Copy machines went "down" because their drums burned out from the strain of continuous use! We knew where those "available" copiers were and usually identified them as our "primary" copy machine. We also had to have a second machine to use if the first was "down" and you "knew" someone to get you to a third, "back-up." Staff and machines were really stressed when I first got to the DFO. *(MEMO TO FILE: WHEN THE DFO FOR THE NEXT BIG DISASTER IS ACTIVATED, [WHEREVER THAT MAY BE] IT TOO, WILL BE A FACILITIES NIGHTMARE...)*

As the building was already overcrowded, organizations had no more room to branch out. They tried anyway. Some divisions were cast off the floor and out of the building just as soon as space elsewhere in the city became available. Today's office or floor neighbors often became tomorrow's memory

and then were forgotten like last week's newspaper. "...Who were those folks? What agency were they with? Did they leave anything we can use?..." Not very often.

As space in the DFO was at a premium and the few conference rooms in the building always "booked", DAC staff meetings were sometimes conducted in the cafeteria. Quite literally, two tables in the cafeteria within shouting distance of each other were just about the only place to conduct business with a large group. Diners all around didn't stop the meetings and paid no attention to us for the most part. *(MEMO TO FILE: THE 10:00 AM MEETING AND BREAKFAST BURRITO AND GAZILLIANTH CUP OF COFFEE ARE GREAT BUT, MY 2:00PM MEETING SUFFERS...HOLD THE PEPPERS ON THE BURRITO.)*

I recall many very late dinners and returning to my hotel room and falling into bed feeling mentally and physically exhausted. Invariably I'd get about 4 hours of solid sleep and then my mind would wake up as if someone turned on a "switch." My body wasn't ready to move but my mind was racing at 3:30AM or 4:00 AM. I hated it. I couldn't turn my mind off once awake and I'd lay there going over the events of the previous day and planning for what the following day would bring. When the alarm went off at 5:45 AM I was usually awake and moving, although at far from lightning speed. The Stress Management folks kept telling us to get plenty of rest but my mind wouldn't cooperate. *(MEMO TO FILE: DON'T DRINK THAT "GAZILLIANTH CUP OF COFFEE!" AND CUT BACK ON THE LATE MEXICAN DINNERS.)*

One evening as I left the DFO for my motel room after about 16 hours, I called for a "down" elevator and entered the empty car and it didn't move! I was standing there wondering if the elevator was stuck when it went "UP." (Someone on an upper floor had called for the elevator.) It was then I remembered you must push the "button" when you get "in" the elevator car if you expect to go anywhere! (I knew that! I just forgot. Yea, that's it. I forgot!) Lack of sleep didn't add to our efficiency but we got the job done in spite of ourselves!

Long time friend and fire academy classmate, Mickey McDonald of the Palo Alto Fire Department came to Pasadena with EMMA in mid February to work with the Plans Division in the DFO. We reminisced over dinner one evening how (in our younger days) we used to close the bars and now [how] it was difficult to stay awake long enough just close the restaurants! *(MEMO TO FILE: DON'T YAWN SO MUCH WHEN DINING WITH MICKEY. CAN'T LET HIM THINK I'M GETTING AS OLD AS I FEEL...)* Tired or not, when I received my assignment to DAC Coordination I found people who were working hard trying to fulfill the needs of field personnel who were (in turn) directly assisting earthquake victims in the DACs. The long lines of victims shown on television standing outside the various DACs continued long into February and were only part of what was so overwhelming about the whole Northridge earthquake event. At one point I noted the completion of 65,000 building inspections with an additional 188,000 scheduled! If each inspection affected a family of four, imagine how

many people were affected!

Unfortunately, as buildings were inspected and granted habitability status, they had to be reinspected after some of the powerful aftershocks hit the area. Authorities evacuated portions of the UCLA Medical Center due to the aftershocks several weeks after the initial quake. The strain on inspectors and engineers was incredible. I chatted with one LA City Building Inspector in the Winnettka DAC one day. He said he usually spoke with 100 and 150 victims everyday (seven days a week) explaining how the red, yellow and green tag damage system worked, how to pick a reputable contractor and outlining how the recovery process worked. The Inspector was meeting the public in the DAC in addition to keeping track of two Army Corps of Engineers Inspectors assigned to daily inspections in a designated area. Needless to say, he was just one of many Inspectors doing the same thing all over the L.A. quake area.

I was lucky enough to see first hand some of the various buildings used as DAC's and the differences in the communities they served. In mid February I was asked to help close the Glendale DAC which was located in the Glendale Civic Center. The Civic Center is a beautiful big building and the DAC was well laid out inside on the ground floor. The facility was well maintained as the Civic Center Staff assisted with upkeep. We closed Glendale one evening and the city used the building for a coin and gun show the very next day. Life goes on in the area but it won't be "normal" for some time.

The Northridge DAC in the Winnettka Recreation Center was much more cramped and the flow of "humanity" much less controlled than in Glendale. This DAC remained open until February 26th and transitioned into an Earthquake Service Center in a more permanent commercial building located few blocks away. The Fillmore DAC in Ventura County farm country was located in the parish hall of the local Catholic Church and, although smaller than either Winnettka or Glendale, still provided all the same services. Tents, shelters and sandbags too, provided the backdrop for some of these locations as the American Red Cross and various charitable organizations and medical assistance groups continued operation in Fillmore through February. The other side of the scale was the DAC located in the Ronald Reagan Library in Simi Valley which was always referred to as the "Gucci DAC." It closed along with the Glendale DAC in mid February. *(MEMO TO FILE: IF CALLED BACK TO NORTHRIDGE, TRY AND GET ASSIGNED TO THE GUCCI DAC... TELL THEM YOU KNOW SOMEONE WHO KNOWS RUSH LIMBAUGH PERSONALLY...)*

While in the quake area I also saw much of the destruction depicted on television during early hours of Monday, January 17th. I saw the ill fated apartment complex which collapsed in Northridge and took the lives of some of the tenants. I saw the interior of the Bullock's Department Store in the Northridge Mall where all three interior floors collapsed into the basement. The sight of either of these buildings or the damage at the California State University campus at Northridge and the famous parking garage all made me remember damage just like this could happen here in northern Santa Clara

County. Like Northridge, we have our apartment rows, our shopping centers, our mobile home parks, our schools, universities and hospitals. Are we prepared ? I think not.

Fifty seven people died in the Northridge quake. Nineteen of them were attributed to heart attacks and 9,158 people were seriously injured. These totals would have been much higher if the quake had occurred on a busy shopping day with the parking lots full at the mall and the campus full of students and the freeways filled with commuters. Will the "big one" hit Santa Clara County at the same fortunate time of day?

What sort of numbers are generated in a quake of this magnitude in a populated area? As of the end of March, there were approximately 34,500 damaged and vacated dwelling units in the city of Los Angeles. Approximately 32,500 were apartments and condominiums and 2,000 were single family dwellings. Many improperly braced mobile homes were shaken off their pedestal foundations in the quake area. Damage ranging from fires and ruptured gas lines to fallen coaches occurred in 95 mobile home parks in the quake area. In Santa Clarita alone, 1,500 of 3,000 mobile homes were severely damaged.

Fifty four major hospitals were damaged in the LA area, thirty seven Red Cross Shelters were in operation serving millions of meals, and twenty one Disaster Applications Centers opened to serve hundreds of thousands of people affected by the quake. Fifty five thousand structures were damaged and thirty five thousand folks left homeless. Over six hundred thousand applications for assistance were filed. These are not the numbers or the lessons those of us in the south bay area learned from the Loma Prieta quake of 1989. For most of us who experienced "Loma Prieta", the quake was a wild, few second, ride which caused the A's -vs- Giant's World Series delay, closed some East Bay freeways and the Bay Bridge and affected people in Santa Cruz and Watsonville. *(MEMO TO FILE: I KNOW WE'RE NOT PREPARED FOR WHAT'S COMING!)*

Relatively few bay area residents were left homeless after the Loma Prieta quake. Here in the South Bay we didn't go without electricity and water for more that a few hours, if at all. (The Santa Cruz mountain folks were without water for months but few people know about it.) Not many of us needed anything that we couldn't get within hours. In short, life here in the south bay after Loma Prieta wasn't really much different for many of us than it was before. The story is far different for the victims in the Northridge quake. The sheer magnitude of the damage to structures and lives is overwhelming and the number of people affected by the Northridge earthquake is staggering. Can it happen here in Santa Clara County? It's predicted and it's a question of, when it will happen, and are we prepared?

As you read this, do you have your earthquake survival plan in place? Is your neighborhood ready to share responsibilities for shelter and security? Are your resources identified and available to your neighbors if you're gone? Who's responsible for your children if you're at work when the quake hits? Do you

have food and water to last for a MINIMUM of three days? Will your "stash" be crushed in the collapse of your garage? What's in the trunk of your car you might use if you are thirty miles from home and the freeway falls around you?

If you don't have the answers, call...Disaster Preparedness classes begin soon.

(MEMO TO FILE: THE CLOCK IS TICKING.....)

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"RISKY BUSINESS"

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"If we are to be our own governors", as James Madison said, "we must have access to the powers that knowledge gives."

The risk of a hazard causing damage to persons, property, structures and/or the environment arises in some form or another in virtually every sphere of life. It is therefore important that we keep risk in its proper perspective recognizing that it should not be ignored but at the same time acknowledging that it should not be feared. It forms part of every-day life.

We talk and hear about many terms in the profession of emergency management as we engage in the effort of comprehensive planning. Terms such as 'risk assessment', hazard vulnerability, hazard analysis, risk communications, etc. Before we go too far it is important to define some of these terms:[1]

Hazard: Any situation which has the potential for causing damage to life, property and/or the environment.

Risk: The probability that damage to life, property and/or the environment or any severe interruption to normal life will occur if the hazard manifests its perceived potential.

Vulnerability: The susceptibility of people, property and/or the environment to injury, loss of life, damage or disruption.

Risk Analysis: analysis by the community of likelihood and the expected consequences should something occur. Evaluation of the probability and severity of potential risks.

Hazard Analysis: Identifies potential hazards, estimates how serious they are, and establishes planning priorities. Provides a factual basis for planning and the necessary documentation for planning and response efforts.

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[1]IG 305.3 Emergency Management Institure, Federal Emergency Management Agency; Risk Analysis, 1990.

Risk assessment combines information on a physical hazard (e.g., frequency, intensity, location) with information on vulnerability (e.g., exposed population, structures, critical facilities, natural resources) to determine the likely impacts of a hazardous event. It provides estimates of deaths and injuries, property damage, and economic losses that are likely to result. Knowing the nature of natural hazards and assessing their probable impacts are the first steps towards undertaking mitigation, preparedness, and warning strategies that can reduce that risk. The assessment of the risk that individual structures, communities, and regions face must be updated regularly since prudent investment in mitigation and prevention require information about the evolving risks due to natural hazards.

As professional emergency planners wrestle with this knowledge the inevitable question is one of risk communication. How do we communicate to the "powers to be" this information with the power to influence change? How do we communicate that with vulnerabilities changing, past disasters are poor predictors of future ones? If hazard vulnerability assessment is to be used as a method of emergency forecasting centered around the identification of hazards which have the potential to occur, then how do we develop a proactive approach?

Understanding what hazard vulnerability assessment provides could help. Knowing that it will provide the emergency planner with the basis for a planned response to all problems which may stem from an eventual incident and form the foundation for;[2]

a. Providing information upon which strategies for mitigating potential hazards can be determined (if considered appropriate).
b. Providing a base for planning and preparedness activities
c. Providing guidance on initial response requirements.
d. Aiding recovery and subsequent restoration of normality.
e. Establishing contingency plans for continuation of services where possible.

Equally important is how a hazard vulnerability assessment will enable the emergency planners to:

a. Achieve realistic planning.
b. Identify emergency resource requirements.
c. Provide a tool for raising awareness of officers who have a role to play in responding to an emergency.
d. Provide a focal point around which the emergency planning team

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[2]IG 305.3 Emergency Management Institute, Federal Emergency Management Agency; Risk Analysis, 1990.

can set priorities commensurate with local need.

e. Provide the planner with an indication of those who should be involved in the plan development process.

f. Establish/develop liaison with other agencies.

Window of Opportunity

A unique opportunity presents itself at this moment in history. With the end of the Cold War, with the trend shifting more and more to professional emergency planners, with this decade experiencing more and more disasters, with advancements in the environmental technology industry..... we have a chance to rethink the institutions and policies that focused our science and technology on military objectives. We can now pursue a wider range of long-term social, economic, and environmental objectives. A portion of the financial and human resources budget--can be shifted to the development of environmentally critical technologies. We as emergency planners can began to implement the lessons of the past with hope of reaching listening ears.

This window of opportunity opens onto a world in flux. Technological change is being continually affected by the globalization of industry, the increasing scale and magnitude of disasters, and the fluid nature of collaboration. We can use these social and political transformations to our advantage if we develop a responsive, flexible, and far-sighted policy and planning framework.

Vulnerabilities are changing and it is essential to understand and address them as best we can. The United States is likely to face more and worse disasters in the future:[3] losses may be greater from new kinds and increasing numbers of technological accidents that can be triggered in disasters (e.g., chemical leaks due to earthquakes); technological advances can add complexity to old threats (e.g., fire prevention measures in high-rise buildings that retard fires but create toxicity risks); and new versions of past dangers emerge (e.g., urban droughts stemming from lifeline infrastructure collapses). We also have new sources of vulnerability such as our dependency on advanced technologies like computers which could have profound repercussions if they fail in a disaster. Finally, many experts believe that we are now at greater risk from catastrophic disasters than we were 50 years ago, owing to the concentration of development and population in vulnerable megacities such as Los Angeles and New York.

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[3]Facing the Challenge, The US National Report, National Research Council, p.8, 1994.

Our capability to model natural hazards has advanced over the past 20 years, and better data are now available from monitoring systems and post-disaster investigations. At present, deterministic and probabilistic maps of potential disaster agents are being constructed at national, regional, urban, and site-specific scales for various scenarios and/or exposure times. There are new technologies being designed for the future. The environment is one area that is gaining much attention in technology development.

Technology is applied in countless ways to achieve environmental quality and a high standard of living. We as emergency planners must find ways of integrating technology needs.[4] Given the interwoven nature of environmental problems, systems approaches are essential if we are to attain sustainable development. Currently, our government--like most governments--is structured to meet economic, social, and national security needs through discipline-by-discipline and single-agency approaches. The transition to a systems approach will be an evolutionary process of integration.

There are many analytical tools and institutional approaches that will facilitate understanding of environmental and economic relationships. These tools can substantially improve the quality of environmental and technological decisions made by government and industry.[5]

Cost-Benefit Analysis

Decision about technology and the environment often involve tradeoffs and complementary among environmental, social, and economic goals. Cost-benefit analysis facilitates the comparison of alternatives and contributes to sound decision making in public policy. Its usefulness as a tool is strengthened, in turn, by improved scientific understanding of risk, more effective methods for ecological valuation, and a better understanding of the relationships among industrial processes.

Life Cycle Analysis

Life cycle analysis can help us understand the full cost, potential, and impact of new products and their associated technologies. As a system approach, life cycle analysis examines the entire set of environmental consequences of a product, including those that result from its manufacture, use, and disposal. Because the relationships among

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[4]Technology For A Sustainable Future, A Framework for Action; The National Science and Technology Council; p. 110, 1994.

[5]Technology For A Sustainable Future, A Framework for Action; The National Science and Technology Council; p. 112, 1994.

industrial processes are complex, life cycle analysis requires sophisticated understanding of material flows, resource reuse, and product substitution. Shifting to an approach that considers all resources, products, and waste as an interdependent system will take time, but government can facilitate the shift by encouraging the transition to a systems approach.

Risk Assessment

Risk assessment facilitates technological and policy decisions. In evaluating new technologies or questionable old ones, risks to the environment and public health are estimated and compared in order to determine the environmental consequences of the situations, substances, or processes under evaluation. Risk assessment is used to minimize risk in the same manner as cost assessments are used to define and minimize economic impacts.

An environmental technology is a technology that advances sustainable development by reducing risk, enhancing cost effectiveness, improving process efficiency, and creating products and processes that are environmentally beneficial or benign. The word "technology" is intended to include hardware, software, systems, and services.

Environmental technologies can be divided into four major categories:[6] avoidance, monitoring and assessment, control, and remediation and restoration. **Avoidance** technologies are those that avoid the production of environmentally hazardous substances or alter human activities in ways that minimize damage to the environment. The phrase "avoidance technologies" is used rather than "pollution avoidance technologies" to indicate that additional forms of environmental degradation are intended other than pollution. Avoidance technologies might encompass product substitution or the redesign of an entire production process, rather than simply the use of new pieces of equipment. **Monitoring and assessment** technologies are used to establish and monitor the condition of the environment, including releases of pollutants and other natural or materials of a harmful nature. **Control** technologies render hazardous substances harmless before they enter the environment. **Remediation** technologies render harmful or hazardous substances harmless after they enter the environment. **Restoration** technologies embody methods designed to *improve* ecosystems that have declined due to naturally induced effects.

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[6]Technology For A Sustainable Future, A Framework for Action; The National Science and Technology Council; p. 114, 1994.

Technology Needs for Natural Disaster Reduction

Floods, droughts, hurricanes, tornadoes, earthquakes, volcanic eruptions, landslides, and wildfires result in the loss of thousands of lives and cost billions of dollars in property damage. The number of casualties has declined as a result of improvements in construction technology and warning and evacuation systems. Economic losses, on the other hand, have increased almost exponentially due to growth in urban populations, construction in hazard-prone areas, and the increased complexity, value, and vulnerability of the physical, economic, and social infrastructures of urban sites.

Natural disasters can alter the landscape, either permanently or temporarily. Actual impacts depend on the physical, biological, geological, ecological, and chemical conditions of the affected site. For example, a flood occurring in a river basin not altered by human intervention has very different consequences than the same flood in a system that has been altered by dams or urban development. Recent flooding of the Mississippi and Missouri rivers and well as Georgia resulted in the destruction of levees, bridges, and other lifeline systems, as well as the dispersion of biological contaminants and chemical toxic materials due to the inundation of municipal sewage treatment plants, industrial sites, and disposal facilities constructed in the floodplain. The ecological consequences of these floods are still being determined.

The nature, extent, and dimension of environmental changes profoundly influence the recovery process. Conversely, hazard mitigation procedures and prevention measures may reduce the magnitude of losses. Understanding and evaluating the risks of locating industrial and other structures such as housing, roads, and bridges in hazard-prone areas can lead to better land-use planning. Determining the response of buildings to different types of stresses, e.g., wind or seismic loads, and examining the behavior of various architectural materials under extreme conditions may lead to development of construction techniques, standards, and codes that improve the survivability of buildings and deduce damage.

Four stages occur during the course of a natural disaster, and technology can play a substantive role at each stage:

- Predisaster prevention and mitigation to alleviate the impact of a potential hazardous event through risk assessment and adoption of improved building codes;
- Preparedness plans for minimizing impact shortly before a disaster, including warning and evacuation systems, plus design and designation of shelters;
- Disaster response actions taken during and shortly after a disaster,

such as rescue, distribution of food, and provision of shelter; and
- Post-disaster recovery including cleanup, long-term reconstruction, land management, structural measures, and repairing and retrofitting.

Communication, automation, integration, evaluation, and validation systems for the four stages of mitigation of natural hazards are in need of development and improvement. Knowledge gathered for mitigation and reduction of physical, biological, social, economical, structural, and other impacts resulting from natural hazard occurrences is transferable to mitigation of technological hazards. The result is a more resilient and sustainable human and ecological system.

Research by federal agencies has enhanced capabilities for forecasting hurricanes and floods, as well as improving survival of structures and buildings in earthquake and hurricane-prone areas. Beneficiaries of this research are the insurance and construction industries, local and state administrators, planners and land managers, financial institutions, and researchers in the private sector.

Avoidance Examples

The environmental impacts of many disasters could be significantly minimized by the development and improvement of new materials and containment technologies. Some examples might include:[7]

- Develop new and improved design, construction, and siting technologies for buildings, facilities, and structures.

- Test and use new materials in structural, roofing, and glazing systems.

- Develop new permanent and temporary protective systems, e.g., inflatable levees for use as waste disposal site during floods, geomaterials for landslides.

- Develop codes and standards for structural elements, mechanical systems and materials.

- Develop land-use and resources management and nonstructural preventive measures.

- Develop and use biodegradable products.

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[7]Technology For A Sustainable Futute, A Framework for Action; The National Science and Technology Council; p. 131, 1994.

Monitoring and Assessment Examples

Both the minimization and remediation of disaster impacts depend on reliable, timely, and accurate monitoring and assessment capabilities. These technology needs encompass geological, climatological, biological, chemical, and geographical systems, where these systems can be analyzed comprehensively, disaster response will greatly improve.

- Develop natural hazard forecasting and prediction systems for impact reduction, remedy, and avoidance for geological hazards.

- Improve natural hazard forecasting and prediction systems for impact reduction, remedy, and avoidance for weather-related hazards.

- Develop methodologies for forecasting the path and spread of pollutants released in disasters.

- Improve models, mapping techniques, the use of remote sensing data, and geographical information systems to assess the natural and technological risks attached to given sites, e.g., urban or rural, inland or coastal.

- Develop new and improved warning systems and control automation.

Remediation and Restoration Examples

The impact of natural disasters often must be remedied quickly to prevent more serious long-term damage. The systems affected are complex, and remediation efforts are hampered by information gaps regarding scope, nature, and impacts of the disaster.

- Develop structural and nonstructural recovery and reconstruction measures applicable to various types of disasters.

- Develop new and improved control and treatment of dispersed toxic and pathogenic material in soil and water.

- Enhance, develop, and couple disaster models that can be used for damage estimations, risk assessments, and response planning and actions.

Issues in Risk Assessment

An important and difficult task in risk assessment is the translation of scientific understanding into practice. The difficulties arise because of fundamental disagreements about what constitutes an appropriate technique for managing natural disasters. Some people dislike what they see as "government interference" in their ability to decide where to locate, what structures to build, and which activities to pursue, even when these choices conflict with scientific findings on how to save lives and lessen damage. Similarly, many people feel that they should not be required to purchase flood or earthquake insurance, or even to evacuate in advance of a hurricane or wildfire.

Many of the issues associated with risk assessment revolve around two questions: How can better data or understanding of disaster risk lower future deaths and property loss from natural disasters? What is likely to be the most cost-effective way to save lives and lower property damage?

Conclusion

As Professional Emergency Planners we will be charged with the responsibility of inserting in the main body of our emergency plans the combined information that makes up the hazard vulnerability analysis. It must provide a source of confidence to the plan user that is designed to meet the needs of realistic threats.

This combined knowledge is of interest to both small and large jurisdictions. While some of the changes will be difficult or even impossible to avoid, there is no doubt that it is in our interest to adhere to a sustainable development paradigm in order to minimize the impact of these new hazards. There must also be strong commitment to obtain and maintain accurate databases of information, something which does not occur presently. Only from detailed studies and models based on actual events will we learn how to mitigate the damage from future events.

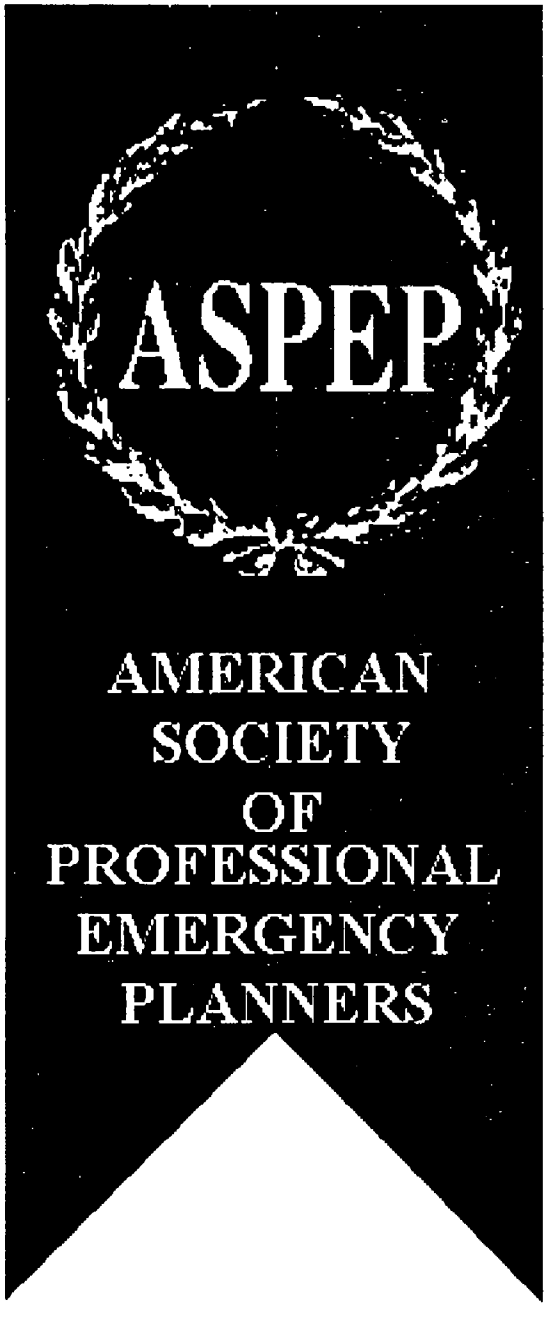
We've probably learned over the past three years that the risks from natural hazards are often affected by human actions or even inactions in many cases, such as building dams and levees, paving large areas, and storing toxic materials. Many of the affects of such actions take place gradually, with no one being aware that their actions have any effect of risks, until one day a stream floods, or a wildfire devastates on area. Thus, it's important that emergency planners actively participate in the process of planning for the future. The challenges that we face today are among the greatest in history. However, we have entered an era that offers immense promise for finding solutions. Promising signs can be found in industry, military and government in

the selection of Certified Emergency Managers (CEM) as the core of the emergency planning program. Breakthroughs in medicine emerge on an almost daily basis; computer technology has benefited every scientific discipline; and remote sensing by satellite has permitted us to view our home in a wholly new way and gather raw information at a dizzying rate.

After all is said and done it is left to the emergency planners to mitigate, plan and prepare for, respond to and recover from the consequences of emergencies and disasters. Therefore we *must* be prepare to accept the challenge for after all this is *a "Risky Business".*

Ellis M. Stanley, Sr., CEM

Since 1975 Ellis Stanley has been a Director of an Emergency Management Agency, currently the Atlanta-Fulton County Emergency Management Agency. He has served on the Board of Visitors of the National Emergency Training Center's Emergency Management Institute. He is also a past president of the National Coordinating Council on Emergency Management and currently chairs NCCEM's International Development Committee and their Certification Commission. He is also President-Elect of the American Society of Professional Emergency Planners (ASPEP). He serves on the Advisory Board of the National Institute for Urban Search and Rescue, the National Weather Services' Modernization Transition Committee, the NRC's Board on Natural Disaster, and many other local and national/boards and organizations. Mr. Stanley is a graduate of the University of North Carolina at Chapel Hill and also serves as an adjunct instructor a the Emergency Management Institute.



HUMAN RESOURCES AND DIVERSITY ISSUES

"CRITICAL INCIDENT STRESS: WHAT TO LOOK FOR AND WHAT TO DO"

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Introduction

Each year, communities throughout the world experience a variety of natural and man-made disasters such as earthquakes, fires, floods, tornados, transportation accidents, and hazardous materials. Although there can be great harm to the physical environment, the primary affect is on the people. When lives are lost, people injured, homes destroyed, and families separated or displaced, there is a profound psychological affect on the young and old alike. This affect is called critical incident stress.

A critical incident is any significant emotional event that has the power to cause unusual psychological distress in a normal, healthy person. Researchers generally agree that individuals who have gone through a critical incident, such as a disaster, will experience a range of predictable physical and emotional responses. Parents, teachers, and friends often wonder what is going on in the life of a victim and how to help that person after the event. This paper will describe the symptoms most often displayed in pre-school children, school-age children, teenagers, adults, seniors, and disaster workers after a significant event, and suggest healing techniques that will lesson the affects of the physical and emotional responses.

Given the wide range of individuality that exists in our society, the feelings and reactions that will be described are normal and natural, even though they may seem unusual. People will respond in their own way and as a reflection of their age and intellectual growth. It is important, therefore, to relate to the victim as essentially normal, but experiencing an event that causes a great deal of stress.

Everyone will move through the stages of a crisis and healing at their own pace. For some people, there may be on-going problems. For those that were part of the event, responding to the event, or vicariously experiencing the event through the media, the memory will always be part of the individual's life.

Preschool: Ages 1-5

Children in this age group are particularly vulnerable to the changes in their routines and the disruption of their previously secure environments. Because they generally lack the verbal and conceptual skills necessary to effectively cope with sudden stress by themselves, they are particularly dependent on family members for comfort. There may be a major fear of abandonment. In some cases they might be affected as much, or more by the reactions of parents and other family

members as they are by the disaster. Responses might be geared toward re-establishing comforting routines, providing opportunity for non-verbal as well as verbal expression of the child's feelings, and lots of reassurance. Children this age will tend to return to younger behavior such as resumption of bedwetting, thumbsucking, fear of darkness, fear of animals, fear of "monsters", and fear of strangers.

The physiological reactions for these preschool children may be inconsolable crying, the loss of appetite, overacting, indigestion, vomiting, bowel or bladder problems, sleep disorders and nightmares. The emotional and behavioral reactions could include anxiety about the separation from parents, shorter attention span, aggressive and angry behavior, nervousness, irritability, disobedience, hyperactivity, tics, speech difficulties, exaggeration or distortion of the disaster experience, and repetitive talking about the experiences. They may see the consequences as absolute and irreversible.

Caregivers can help these children by giving additional verbal reassurance and ample physical comfort like holding and caressing. Giving warm milk and providing comforting bedtime routines, as well as permitting the child to sleep in a parent's bed temporarily may give the child a sense of security. Finally, by providing opportunities for play activities and artistic projects that will permit the child to safely express emotions, the child will work through his reactions to the event and heal quicker.

School Age: 5-13

Regressive reactions are especially common in the younger bracket of this age group. Children may become more withdrawn and/or more regressive. They might be particularly affected by the loss of prized objects or pets. Verbalization and play enactment of their experiences should be encouraged. In fact, many children this age may have fantasies of playing the rescuer. While routine expectations may be temporarily relaxed, the goal should be to resume normal functioning as soon as possible.

For those who are older, peer reactions are often very important. The children need acceptance from their friends. They need to know that their feelings and fears are normal. Anxiety and tension may appear in a number of ways including aggression, rebellion, withdrawal or attention seeking behavior. "Survivor's Guilt" might also emerge. Group discussion with peers and adults is effective in reducing the sense of isolation and in normalizing the child's feelings. Resumption of group activities, routines, and involvement in physical activity might also help.

There is an increased competition with younger siblings for parent's attention and excessive clinging, crying and whimpering may be present. The child may want to be fed or dressed and may engage in habits they had previously given up. They may fail to perform chores and normal responsibilities.

The physiological reactions include headaches, complaints of visual or

hearing problems, nightmares, skin disorders, nausea, bowel problems, hyperactivity, assorted aches and pains. The emotional or behavioral reactions may include aggressive behavior toward friends or siblings, repetitive talking about the experience, sadness over losses, antisocial behavior, fear of going to school, withdrawal from playgroups, disobedience, fear of wind, rain, sounds, and the inability to concentrate in school.

To help this age child, give additional attention and physical comfort. This is the time to lessen the requirements for optimum performance in school and home activities. Chores should remain structured, but not demanding. Physical activity should be encouraged. Empower the child with information about safety measures and practice these lessons. The child needs to see and accept that disaster is a part of life's experiences, so encourage the child to verbalize their feelings of loss by grieving and participating in the home and community recovery efforts.

Adolescent: Ages 13-18

Most of the activities and interests of the adolescent are focused on the peer group. This age group may fear that their feelings or reactions to the disaster are unusual or unacceptable. This might push the teen towards withdrawal or depression. Psychosomatic reactions are common. The teen might tend to resent the disruption of social activities and contacts. They may become frustrated by the lack of full adult control. Frustrations, anger or guilt might manifest themselves as irresponsible and/or delinquent behavior. Some youth may even engage in dangerous, or risk-taking behaviors.

Adolescents should be encouraged to maintain contacts with friends and to resume athletic and social activities. Group discussions are helpful in understanding their feelings. They should also be encouraged to participate in community rehabilitation efforts.

As a reaction of the disastrous event, the teen may resume earlier behaviors and attitudes including a decline in previous responsible behaviors. There may also be less interest in social activities. The adolescent may not struggle as much under parental control, preferring the comfort of secure patterns of order and home.

The physiological reactions include bowel and bladder complaints, headaches, sleep disorders, skin rash, indigestion and vague physical complaints. For young ladies, painful periods or cessation of menstruation may occur.

The emotional and behavioral reactions may include depression, increased or decreased physical activities, feelings of helplessness, delinquent behavior and isolation and withdrawal from family and peers. Difficulty in concentration may lead to a drop in grades at school.

Parents, teachers, and significant others should discuss the disaster experience with the teen. To help in the healing process, participation in the rehabilitation and recovery efforts in the community should be encouraged. The

adolescent should resume social activities and athletics as soon as possible. Practice preparedness measures to gain a feeling of security for future events.

Adults

It may seem that adults would not have specific problems after a disaster. However, when put into stressful conditions, adults may exhibit some of the symptoms described below. It is important to watch for these symptoms both immediately following a disaster, as well as in the weeks and months after. An uncertain future, including losing a home or job, many times destroys hopes and dreams. It sometimes takes time for these difficulties to wear down the survivors and cause psychosomatic problems, relationship difficulties, and occupational dissatisfaction. Many so-called strong adults may work from a conviction that they "should know how to deal with this", and project a false sense of confidence, not even admitting to themselves their feelings of fear, inadequacy, and confusion.

The adult's psychosomatic reactions to the disaster may result in physical problems including ulcers, diabetes, and heart trouble. Anger is common and may be directed to loved ones through increased verbal, physical, and sexual abuse. Withdrawal, suspicion, irritability, apathy, loss of appetite, sleep problems, and loss of interest in everyday activities are other possible symptoms. In adults with existing behavior problems, symptoms may be exaggerated.

To help an adult, it may be necessary to arrange for medical care for the physical symptoms. This may include helping to find financial for the care. Talking to a family physician, clergyman, friend, or professional will speed the course of recovery. Family members need to express their frustrations, as well as love during these stressful times. The entire family needs to watch for signs of depression that may indicate a need for professional counseling. Sharing hotline numbers with adults gives them a way to reach out for help.

Senior Citizens

Older adults are a varied group of people. Some are active, while others are confined to their living environments. Many seniors spend a majority of their time with others of similar age and circumstances. When familiar routines are disrupted by a disaster, and when residential loss and relocation occur, senior citizens could exhibit symptoms such a the ones below. In particular, seniors may despair over the thought of having to rebuild their lives after years of saving resources for a comfortable retirement. Seniors are likely to mourn the loss of sentimental possessions that have ties to the past.

Some of the symptoms experienced by seniors include depression, withdrawal, apathy, agitation, anger, irritability, suspicion, disorientation, confusion, and despair.

Seniors need strong and persistent verbal reassurance. Because of physical limitations, they may need assistance in the recovery of physical possessions.

They enjoy frequent visits, or arrangements for companions. If they need to be relocated, special attention should be made for a suitable location with familiar surroundings, possessions, and acquaintances. They may need help in reestablishing financial and social contacts, as well as obtaining medical help. Respond to practical physical needs such as eyeglasses, nutrition, and prostheses. Prescriptions may need to be reordered and a regular regime begun anew. Escorts and transportation may also be a way to help this age group.

Disaster Workers

Those who respond to disasters need to especially take care of themselves so they do not become victims of critical incident stress. It is important that the workers eat healthy foods, not overloading on caffeine and sugar. Taking breaks away from the direct disaster is as important as trying to limit the shift to six hours. It is helpful to stop occasionally to breathe deeply and take note of body functions including respiration rate, heart rate, sweating and chills. Ask the worker if he/she is running on an adrenaline rush. If so, stop them and regroup. Encourage them to act as a team player, not a hero. If after discussion, the worker is overextending themselves, have them lower their sights for the sake of self-preservation and pacing.

After the shift is over, have them relax and rest. Suggest that they contact family and loved ones. Include everyone in stress debriefings. There with fellow disaster workers, a mental health professional can conduct the debriefing. This gives the disaster worker the opportunity to review what they have experienced, what they did, and how they feel about what happened. If it is necessary, more professional help can be suggested.

It is important to prepare the disaster worker for later emotional, physical, and mental reactions. Emotional reactions may include being anxious and irritable, and overreactive. There may be a feeling of letdown, depression, apathy, and isolation. Physical reactions include tremors, sweating, and chills. Headaches and upset stomachs are common. A feeling of fatigue may permeate the body. Mentally, confusion, poor concentration, and lack of alertness may be present. It is not uncommon to be forgetful and have difficulty in making decisions. The worker may find it hard to express clear thoughts. Ongoing debriefing sessions may be helpful in defusing some of these reactions.

Critical Incident Stress Debriefings

There are many methods of dealing with critical incident stress. One of the most effective methods is through a Critical Incident Stress Debriefing (CISD). The CISD is an organized approach. It entails either an individual or group meeting between the rescue worker or victim and a caring individual (facilitator) who is able to help the person talk about her/his feelings and reactions to the event.

The basic components of debriefings include ventilation of feelings to the

facilitator and an evaluation of the intensity of the stress response, support and reassurance from the facilitator, and a closure stage where resources are provided and a plan for further action is devised.

A formal Critical Incident Stress Debriefing is typically led by a qualified mental health practitioner within 48 hours of a critical incident and includes the following phases:

1. Introductory Phase - facilitator introduces her/himself
2. The Fact Phase - participants introduce themselves
3. The Feeling Phase - participants express feelings about the critical incident
4. The Symptom Phase - participants analyze their own stress response symptoms
5. The Teaching Phase - the facilitator teaches participants about symptoms to look for in self-evaluation and evaluation of others
6. The Re-entry Phase - final assurances and a plan of action are discussed

Summary

Although there are many feelings and reactions that people share in common, special attention should be given to the age groups described in this paper. All people have concern for basic survival, as well as grief over the loss of loved ones and prized possessions. Through critical incident stress debriefings, symptoms can be identified and discussed and the healing process can begin.

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TOWARDS 2010: DIVERSITY IN EMERGENCY MANAGEMENT

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INTRODUCTION

During my tenure, as the Deputy Coordinator of an emergency management organization, I have participated in federal, state, county, and local conferences, meetings, and forums on emergency management, and have observed that persons of color, women, and persons with disabilities are under-represented in the emergency management profession.

By the year 2010, 80% of the net growth in the workforce will be minorities: women, persons of color, immigrants, and persons with disabilities. This increase in the workforce, a decline in the labor market, and an increase in the demand for highly skilled workers will present a challenge for emergency management in the United States of America. The National Coordinating Council on Emergency Management's NCCEM 2010: Leader and Catalyst Report (1992) points out that "Population diversity is resulting in new challenges for emergency management...," which includes "Changing demographics...," as well as "Changing economy..." in the United States (p. 8). McBride-Jones (1993) informs that, "It will be the challenge of leadership and management to recognize, examine, discuss, promote, and evaluate this new diversity. Performing these difficult tasks well, will create an organizational climate that fosters participation and understanding." (p. 4).

How well federal, state, county, and local governments; industry; educational institutions; military; private, non-profit, and volunteer organizations prepare for this demographic and economic shift, will greatly depend upon the role of equal employment opportunities among present and prospective emergency managers.

PURPOSE

This report examines the field of emergency management from an African American and female experience. My strategy was to undertake this exploratory report in its historical and social contexts, and to gain knowledge and understanding of emergency management issues from an African American and female perspective.

This report supports the field of emergency management by providing the reader with acquired knowledge, about the role of equal employment opportunities, relative to African Americans and females in managing emergencies.

This report will focus on equal employment opportunities and African Americans in the emergency management profession, including the role of education to advance their status. The question examined in this report stimulated four specific objectives.

* Ascertain the key employment opportunities that will advance the status of minorities in the emergency management profession.
* Identify the number of African Americans in the emergency

management profession.

* Document personal experiences as an African American and female.
* Recommend to the Federal Emergency Management Agency activities to advance the status of African Americans in the emergency management profession.

The results of this report will be useful to federal, state, county, and municipal officials; emergency managers; and educators in that it will heighten the awareness of the lack of African Americans in the emergency management profession. This report may also be of interest to the Equal Employment Opportunity Commission, colleges and universities, the National Coordinating Council on Emergency Management, and the American Society of Public Administration; since it may encourage the recruitment of African Americans in the emergency management profession, and develop educational and training programs.

This report is limited to emergency managers in Atlantic County, New Jersey, the State of New Jersey, and members of the National Coordinating Council on Emergency Management (NCCEM). This report will not seek to address why there is an under-representation of African Americans in the emergency management profession. However, this report will highlight recommendations, for the inclusion of African Americans, in the emergency management field of study and profession.

This report is also limited due to changes in the number of African American emergency managers, identified in this report.

THE NEED FOR THE REPORT

As a discipline, emergency management has generally neglected to involve the role of the minority emergency manager, in general and the African American emergency manager in particular, within the mainstream of its historical or curriculum perspectives. Social scientists, Coale, Hart-Nibbrig, and Travis, articulate the same lack of understanding about the African American manager. According to Coale, Hart-Nibbrig, and Travis' (1989) article on African American managers, "...we do not know very much about this important and growing phenomenon..." and that "...there is a relative paucity of the literature devoted to blacks and minorities as public servants, between 1969 and 1989." (p. 24). Certainly there are several factors which affect the representation of African Americans as emergency managers, in public management professions. In support of this observation, Coale, Hart-Nibbrig, and Travis also observe that most of the literature, on African Americans in management, suggests that those factors are, but are not to be limited to:

1) Social, political, institutional, and ideological factors that affect the recruiting, hiring, promoting, and mobility of African Americans into the emergency management environment; and

2) the absence of data in order to make assertions about the past, present, and future status of the African American in the management field of study, education, or profession.

The influx of African American managers to urban areas, and the increased numbers of elective offices held by African Americans, have had a direct impact on the employment opportunities available to this population. It has also heightened the awareness of and encouraged management's commitment to ensure equal employment opportunities and representation.

EQUAL EMPLOYMENT OPPORTUNITIES

Equal employment demands that all persons are afforded the same rights, privileges, treatment, and equal access to resources, pay, equipment, training and education; that other persons are granted in the same, similar, or comparable positions and rank. In 1989, the city manager for the City of Atlantic City, refused to sign a negotiated settlement agreement between the City and a female emergency manager. This negotiated agreement was prepared by the Equal Employment Opportunity Commission, to "Ensure that the Charging Party is granted all rights and privileges, with access to resources, equipment and treatment, comparable to that provided to any other employee in the City of Atlantic City and specifically those employees in similar and/or comparable positions of responsibility and authority." (12/89).

Persons of color, women, and persons with disabilities desire jobs with equitable opportunities for hiring, advancement, promotions and wages; which will ultimately allow them to become economically self-sufficient. Peres (1979) suggests that, "Women have historically been placed into clerical jobs and other positions where there are few opportunities for advancement." (p. 9).

Equal opportunities in employment must be granted to all persons, regardless of race, gender, ethnicity, values, class, national origin, gender, disability, religion, weight, sexual orientation, personal appearance, age, political affiliation, marital status, income, education, values, labor relations, and geographic location.

Equal opportunities cover a variety of employment issues. The ten main areas are recruiting, hiring, advancing, training, and discharging, terms and conditions of employment, education, job assignment, benefits, and wages. In the late 1989, the deputy coordinator for the City of Atlantic City, New Jersey, reported pay inequities; based upon wages that are less than her subordinates, who had less training, education, and seniority. In 1994, a review of this practice was conducted, and the same pay inequity still exists.

Research, conducted as a dissertation, revealed an under-representation of women, and in particular women and men of color. McBride-Jones' (1992) research informs that 62% of emergency managers surveyed were European Americans, 11% were other, 5% were African Americans, 4% were American Indians, and 1% were Spanish/Hispanics. The other category of emergency

managers were German American, German, Irish, Arab American, Syrian, French Irish, and European American/American Indian. This study also reported that the majority of emergency managers, participating in this survey, were males: 86% were males, 11% were females, and 3% did not respond.

ANALYSIS

Personal Information

Emergency managers, in New Jersey, are called municipal and county emergency management coordinators and deputy emergency management coordinators.

A cursory review of the county deputy emergency management coordinators, in New Jersey, revealed that there are no African Americans or females. In 1993, there were four female deputy emergency management coordinators, in all county governments, in New Jersey: Gloucester, Essex, Ocean, and Passaic. In 1989, the New Jersey State Department of Personnel informed the Deputy Municipal Emergency Management Coordinator, of Atlantic City, that she was the only female in the position of Deputy Municipal Emergency Management Coordinator, in all of the jurisdictions in New Jersey, who are under Civil Service laws, rules, and regulations. In 1989, there were only three African American deputy municipal emergency management coordinators, in all county governments, in New Jersey: Atlantic City, Camden, and Newark. This reporter observed the following characteristics of emergency managers in New Jersey in relationship to the gender and ethnic background.

Table 1 indicates the gender of emergency managers, as county emergency management coordinators, in New Jersey.

Emergency Managers

Gender	No.	%
Female	0	0
Male	21	100
Total	21	

The majority of emergency managers, as county emergency management coordinators in New Jersey, in this report, are males. The researcher finds that 100% of the emergency managers identified in the 21 counties of New Jersey are males and 0% are females.

Table 2 indicates the ethnic background of emergency managers, as county emergency management coordinators, in New Jersey.

	Emergency Managers	
Ethnic Heritage	No.	%
African American	0	0
European American	21	100
Total	21	

The majority of emergency managers, as county emergency management coordinators, in New Jersey, in this report are European Americans. The researcher finds that 100% of the emergency managers identified in the 21 counties, of New Jersey, are European Americans and 0% are African Americans.

Table 3 indicates the gender of emergency managers, as municipal emergency management coordinators in Atlantic County, New Jersey.

	Emergency Managers	
Gender	No.	%
Female	1	4
Male	22	96
Total	23	

The majority of emergency managers, as municipal emergency management coordinators in Atlantic County, New Jersey, in this report are males. The researcher finds that 96% of the emergency managers identified in the 23 municipalities of Atlantic County, New Jersey, are males and 4% are females.

Table 4 indicates the ethnic background of emergency managers, as municipal emergency management coordinators, in Atlantic County, New Jersey.

	Emergency Managers	
Ethnic Heritage	No.	%
African American	0	0
European American	23	100
Total	23	

The majority of emergency managers, as municipal emergency management coordinators in Atlantic County, New Jersey, in this report are European Americans. The researcher finds that 100% of the emergency managers identified in the 23 municipalities in Atlantic County, New Jersey, are European Americans and 0% are African Americans.

Table 5 indicates the gender of emergency managers, as deputy municipal emergency management coordinators in Atlantic County, New Jersey.

	Emergency Managers	
Gender	No.	%
Female	3	13
Male	20	87
Total	23	

The majority of emergency managers, as deputy municipal emergency management coordinators in Atlantic County, New Jersey, in this report are males. The researcher finds that 87% of the emergency managers identified in the 23 municipalities of Atlantic County, New Jersey, are males and 13% are females.

Table 6 indicates the ethnic background of emergency managers, as deputy municipal emergency management coordinators in Atlantic County, New Jersey.

	Emergency Managers	
Ethnic Heritage	No.	%
African American	1	4
European American	22	96
Total	23	

The majority of emergency managers, as deputy municipal emergency management coordinators in New Jersey, in this report, are European Americans. The researcher finds that 96% of the emergency managers identified in the 23 municipalities of Atlantic County, New Jersey, are European Americans and 4% are African Americans.

The findings revealed that there are no African American emergency management coordinators in all 21 counties of New Jersey. There is only one (1) female emergency management coordinator in all 21 counties of New Jersey. There are no African American deputy emergency management coordinators in all 21 counties of New Jersey. There are only 4 female deputy emergency management coordinators in all 21 counties of New Jersey. There is only one (1) African American deputy municipal emergency management coordinator in all 23 municipalities of Atlantic County, New Jersey. There are only three (3) female deputy municipal emergency management coordinators in all 23 municipalities in Atlantic County, New Jersey.

These findings support the literature which informs that African Americans are under-represented in the emergency management profession. The representation of African Americans, in the emergency management profession, is important to the study of equal employment opportunities among emergency managers.

RECOMMENDATIONS

The author recommends that the Federal Emergency Management Agency (FEMA) establishes an Emergency Management Diversity Innovation Program, which seeks to promote the representation of persons of color, women, and persons with disabilities; by examining and establishing equal employment opportunities in the emergency management profession. These recommendations are consistent with and based upon the National Association of Schools and Public Affairs and Administration's (1993) efforts to promote diversity in public

management.

I propose and encourage FEMA to take the following action steps toward this goal:

1. To conduct a symposium that would bring together practitioners and scholars who are highly knowledgeable of emergency management and diversity, from African American, male and female perspectives; and who will develop strategies for equal employment opportunities.
2. To sponsor a two (2) day national conference, with workshops on creating and managing diversity in federal, state, county, and local governments; industry and commercial businesses; educational institutions; military; private, non-profit, and volunteer organizations.
3. To recruit and train a cadre of qualified African American students, to existing emergency management programs, at colleges and universities. To encourage colleges and universities to add at least ten, seasoned African American emergency managers to the corps of adjunct, full-time and part-time faculty; who teach in the emergency management programs; giving all emergency management students the opportunity to study under a more diverse faculty.
4. To develop a program which will assist in recruiting and supporting African American candidates, in emergency management programs, in historically black colleges and universities.
5. To develop and implement a series of activities which will attract African American students, into the emergency management programs, at all colleges and universities:
   a. on site recruiting visits to colleges and universities
   b. on campus visits for potential applicants to meet state, county, and local emergency managers, and current students;
   c. grant-in-aid for African American applicants enrolled in emergency management programs at colleges and universities; and
   d. a summer meeting in Emmitsburg, Maryland, to bring together all the interns and emergency management mentors, during mid-term break. The goal of the meeting will be to reflect on problems and challenges of emergency management.
6. To recruit African American, junior and senior high school, students into emergency management programs. Activities may include bringing these students, for two days, during the Summer, to the Emergency Management Institute (EMI), Emmitsburg, Maryland. Two additional sessions will be held during the first semester at EMI.
7. To develop and support internship programs for emergency managers at federal, state, county, and local governments; industry; educational institutions; military; private, non-profit, and volunteer organizations.
8. To evaluate the importance of expanding this program which will

include women, persons with disabilities, and persons of color.

9. To encourage further research in studies and collect data aimed at conducting structured interviews with emergency managers.

CONCLUSION

McBride-Jones (1992) strongly "...advocate that personnel search committees, public officials, and organizations seek to ensure the representation of women, and in particular people of color in the field of emergency management, as managers."

Emergencies have no boundaries with regard to race or gender. Emergencies affect all people. The Jet magazine (1993) reported that the fires that destroyed 500 homes and thousands of acres across southern California, destroyed "...more than 100 homes in the racially-mixed community of Altadena..." (p. 12).

Mitigating the effects of, preparing for, responding to, and recovering from emergencies and disasters require the talents of all qualified emergency personnel. Therefore, it is incumbent upon government to develop and implement strategies, which ensure that all Americans are afforded the opportunity and adequate resources to protect and serve; regardless of race, gender, ethnicity, values, class, national origin, gender, disability, religion, weight, sexual orientation, personal appearance, age, political affiliation; material status, income, education, values, labor relations, and geographic location.

It is the responsibility of federal, state, county, and local governments; industry, educational institutions; military; private, non-profit, and volunteer organizations to ensure that persons of color, women, and persons with disabilities are represented in the emergency management programs. I call upon the Federal Emergency Management Agency to provide the necessary leadership required to advance the status of African Americans in the emergency management profession; thereby exemplifying a nation that is equal and just for all.

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Dr. Jacqueline McBride-Jones grew up in southern New Jersey where she was very active in volunteer services. Dr. McBride-Jones earned a Bachelors of Science degree in 1972 from Howard University, Washington, DC and a Masters of Arts degree in 1976 from Fairleigh Dickinson University. She has actively pursued and has numerous Public Administration, Management, and Leadership courses towards her Doctor of Philosophy degree. She has received extensive emergency management training from the Federal Emergency Management Agency and the New Jersey State Office of Emergency Management. A Doctoral graduate of The Union Institute, Dr. McBride-Jones has had extensive involvement in numerous educational endeavors, particularly in public policy and public administration at the University of Michigan, American University, Rutgers University, and the University of Delaware. Dr. McBride-Jones is a Certified Emergency Manager, a New Jersey State Certified Public Manager, and also has received certification in Volunteer Administration from the University of Delaware.

In her position as the Deputy Coordinator of Emergency Management, she assists in planning, organizing, directing, and coordinating varied emergency management and civil defense operations with the City of Atlantic City and the County of Atlantic . Dr. McBride-Jones, under New Jersey law, as the Deputy, assists the Coordinator of Emergency Management in the direction and control of all municipal resources during periods of emergencies and Dr. McBride-Jones has had to perform those responsibilities numerous times since her appointment. Dr. McBride-Jones' responsibilities included preparation, response, and recovery from these three major storms that resulted in major Presidential Disaster Declarations. Dr. McBride-Jones has been a catalyst in the successful integration of the casinos/hotels and nursing homes in the emergency management system.

HUMAN RESOURCES DEVELOPMENT IN DISASTER RESPONSE: LESSONS LEARNED IN THE NORTHRIDGE EARTHQUAKE 1994

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INTRODUCTION

In recent years while working on Presidentially declared disasters, I frequently encountered seasoned veterans with exceptional skills who were afraid to speak out regarding human rights issues, implement outstanding ideas to improve procedures and working conditions of their work site, or to make managerial or personnel decisions. An employer must ensure that both the potential employee and supervisor/manager are well versed in the personnel policies and procedures of the organization and that the procedures are updated and in accordance with current law. This paper will address four scenarios regarding managing personnel during disaster response. These scenarios occurred during the recent Northridge Earthquake (names and places changed to protect privacy). A common thread exists between Sheila, Barbara, Rusty and Service Center 2001 - failure to communicate.

I. Sheila - Sheila is astute but supervises from the "Good Ole Boy" technique. She is totally unaware of her style.

Sheila's roots are in the South. She is on the cusp between middle age and her senior years. She has many years experience working in disasters and knows emergency management. Because of her training, Sheila knows that all work must be perfect so she strives to achieve that level. Sheila has little patience with people she perceives as incompetent. Unfortunately, the majority of those she believes incompetent just happen to be minorities with heavy language accents.

Sheila is working in the Los Angeles basin of diverse cultures in an environment where she (Caucasian female) is the minority. When transferred into this environment, Sheila was not given an orientation to California or its diverse population. Sheila was accustomed to being the majority. Her approach to her subordinates is harsh, demeaning, belittling and lacks respect or patience.

With this perspective, Sheila has addressed many people problems in her short tenure. Sheila was devastated by the accusations and having to defend her supervisory style. Management ran scared by the repeated problems. Instead of discussing with Sheila proper techniques of supervision and offering her sensitivity training, they sent her home.

Sheila is a supervisor trained in the "Good Ole Boys" school and learned by intimidation and fared well since she was Caucasian. Her realm of experience

coupled with her tenure at Northridge has left her without an indication of the inadequacies of her management style, her failure to suppress personal biases, to recognize cultural variances and poor understanding of her style of communication skills. By sending Sheila home we lost her valuable expertise and she lost an opportunity to enhance her life by experiencing and being tolerant of other cultures.

Emergency Management Disaster Response has begun changes in its cultural views, staffing patterns, recognition of human rights in this environment. Yet, remains a long distance away from achieving minimal parity goals. The hierarchy remains staunchly entrenched in the "Good Ole Boys" style, displaying an hypocrisy of advancement and change.

LESSONS:

A. Develop and implement supervisory/management skills orientation procedures; begin training at top management level.

B. Develop and implement mandatory cultural sensitivity training for all personnel.

C. Develop communications skills training for all personnel.

D. Develop and implement short term follow up training regarding A., B. and C.

II. **Barbara - Barbara has to release some of her staff. She released an employee (African-American female) who was punctual, reliable and worked adequately in her assigned duties. Barbara retained the employee (Caucasian male) who took extended lunch hours, was rarely punctual, frequently visited other work areas not in his assigned duties and delegated his assignments to other staff members. Barbara is unaware of problems with her staff.**

Barbara is also experienced in Emergency Management Disaster Response. Barbara recognizes she was given an important assignment to supervise a staff. She feels she has traveled the correct circles and jumped through the right hoops in previous disasters to get this position. While Barbara has never been a supervisor, she feels that things will work in her favor with support from her staff. Her plans are to continue to position herself in the correct management arenas in order to advance.

Barbara just received word to reduce her staff. Since she has repeatedly had complaints from an African American woman (Terry) regarding a Caucasian male (Mickey), she feels she should release Terry. This would resolve the complaint process, which she never really understood, and restore peace. Following her plan of action, Barbara released Terry. Barbara was astounded to

learn Terry had filed a formal complaint charging her with disparate treatment, gender discrimination and harassment.

In Barbara's zeal to posture herself in all the right places, she failed to learn and understand the responsibilities of her job and possible ramifications. Barbara's failure to understand and initiate proper procedures resulted in excessive documentation and personnel anguish to finally resolve the issue. Fortunately it was resolved at the lowest level. In the final analysis Terry was rehired, to another unit, and Mickey was reprimanded and put on notice regarding his failure to work within the proper parameters.

This problem could have escalated and required substantial expenditure of legal fees. Fortunately, staff handling of the complaint resolved the issues by maintaining open lines of communication.

LESSONS:

A. Initiate proper orientation of supervisory skills to new supervisors.
B. Develop supervisors handbook and orient new supervisors to laws and procedures required to perform their duties.
C. Train new supervisors in good communication skills.
D. Develop short term follow up training.

III. **Rusty - Rusty is a new service center manager and hasn't a clue what Emergency Management or disaster means. Rusty was given specialized training, one-on-one, to assist him in his new role. The instructor reported to Rusty's managers that Rusty was unable to comprehend the assignment. Rusty's managers decided to retain him to give him an opportunity.**

Rusty is brand new to Emergency Management Disaster Response. Rusty is Italian short in stature. Rusty expresses the feeling that women should be at home taking care of families.

Rusty's orientation was provided by a permanent employee, Jim. Rusty has not grasped the concepts of his orientation to the job. His lack of understanding was so great that Jim suggested to management they either find another position for Rusty or terminate him. Management felt Jim was hasty in his assessment and wanted to give Rusty and opportunity to prove himself.

Rusty's assignment was in coordination with a female manager, Marsha (African American and tall). Marsha immediately began to have problems with Rusty. Rusty would set his own hours of work, take extended lunch breaks and leave prior to quitting time, reflecting a full day worked on his time sheet, without notifying anyone. Marsha was admonished to allow Rusty more time to acclimate himself to the job. Rusty would make presentations providing erroneous information. When Marsha corrected him, Rusty reported that this woman

intimidated him so much that he was unable to perform his duties properly as co-manager. Staff reported numerous times to Marsha the misinformation Rusty had given the applicants. When Marsha reported the repeated offenses she was told he just needed more time. Marsha, of course, was very dissatisfied with the double standards management appeared to invoke. She knew that if she continued to complain management would remove her, so she and her staff suffered in silence.

As luck would have it, a permanent employee Bob (Caucasian male) came by the center for a special community presentation. Marsha and Rusty also presented material. After numerous interruptions by Bob to correct vital information, it became necessary for Bob to interrupt and take over Rusty's presentation. When Bob returned to his office he reported the serious discrepancies with Rusty's presentation and negative attitude regarding Bob's corrections. Through Bob's reporting of the incident, management took immediate and permanent action by releasing Rusty.

Several months elapsed of addressing issues to management by Marsha and her staff regarding Rusty's incompetencies and no action was taken. It took one complaint by Bob and management took swift action in removing Rusty. The perception is until a Caucasian male complains, problems do not exist.

This scenario is difficult. Rather than address lessons learned, we will ask the following **questions**:

A. Were there underlining circumstances that caused slow action from management? Was it an embarrassment that they hired a poor candidate?

B. Perception has merit; was Bob's review supportive of Marsha and staffs' complaints so much so that it compelled management to act, or did Bob's word actually carry authority?

C. What were Rusty's capabilities? Has he ever supervised staff? Did his perception of women have any bearing on his actions? Was he hoping to discredit Marsha and have her removed?

IV. Service Center 2001 employees perceive their managers are inadequate. The staff wants new managers and cross training in the various operational areas within the center.

Service Center 2001 employees believe their managers are not capable of supervising. The employees are experienced and came from three different Disaster Application Centers merging as Service Center 2001. The DAC managers

were either reassigned to other service centers, to the Disaster Field Office in new positions or were released from service. The new managers are Caucasian males. More than ninety percent (90% +) of the service center employees are minorities.

The employees know that operations will eventually down size and only the most qualified staff will be retained. The primary motivation to cross-train to as many positions in the center as possible, is to remain competitive in the final retention decisions.

Because the previous DAC managers were minorities, the newly consolidated staff perceives there were intentional efforts to ignore the capabilities and expertise of minorities in managerial positions. State and Federal managerial staff came together to address SC 2001's concerns. Being upfront and open regarding the changes and answering their additional questions ended the discord. Management also promised to initiate additional training in other operational areas whenever feasible.

LESSONS:

A. Keep communications open. Keep staff in the communications loop with a memo or staff meeting announcement regarding future changes affecting their work place.
B. Be honest and sincere.
C. Resolve concerns and problems expediently.
D. Don't be afraid to say "I don't know, but I will get an answer for you". Make sure you follow up with the answer in a relative short time frame.
E. Use common sense.

CONCLUSION

We recognize and accept our emergency management/disaster response mission. We serve unrelentingly. While we do so, we must recognize the world has changed around us. Today's society has made personnel management techniques and human rights issues of extreme importance to managing personnel. During the stress of disaster response these issues cannot be ignored.

It becomes even more difficult to cope with these issues in the context of disaster related stress -- long hours, difficult and unfamiliar working conditions, critical time factors and the challenges of meeting the needs of the disaster victims. Agencies must be certain to protect employer/employee rights. People in all spectrums of the workforce have become more cognizant of human rights and so should we.

Management by intimidation must cease; management using personal prejudices must cease. These styles create a dangerous liability. Employees must be willing to take the risk, make a stand and speak out to engender change. We sit on a time bomb with the fuse unguarded and rolling through gasoline. How much would it take to create a devastating spark? We have had numerous warnings--We must review all complaints on human rights violations and seriously consider each as a potential spark. We who serve as managers during disasters have an unending task with severe consequences if we too, fail to address each issue individually and make the necessary changes/recommendations.

FIVE STEPS TO PROGRESSIVE DISASTER RESPONSE PERSONNEL MANAGEMENT

1. Implement changes from lessons learned.

2. Recognize cultural diversity, biases and stereotypes based on gender, race, religion, age, culture, disability and lifestyle.

3. Make attitude and behavioral changes that are conducive to effective working relations with others.

4. Recognize verbal and nonverbal aspects of communication and how it may enhance or impede working relations.

5. Develop solutions to diversity problems in the work place.

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Mattie Shepherd has the distinction of being a pioneer by holding several "First Woman" positions during her career: Installer, Western Electric Western (five state) Region; Health Physicist Program Manager, Arizona Atomic Energy Commission; California State Radiological Training Officer, Radiological Coordinator and Radiological Officer.

ISSUES IN CULTURAL DIVERSITY FOR EMERGENCY MANAGERS

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INTRODUCTION

Community members in the United States include people from many cultures throughout the world. Many of them have experienced events in the country where they spent their earlier lives that effect the way they respond to events that occur in the United States. Expectations, cultural definitions and taboos also effect their ability to follow the cultural norms of American society, including expected personal reactions to disasters.

Emergency managers need to plan for the responses of community residents that fall outside the culturally expected norms of their communities. Tools include pre-planning with community leaders, community education, and self-education in the norms of other cultures. The Northridge Earthquake experience offers the opportunity to review anecdotal information that highlights some of the challenges to emergency management that are rooted in issues of cultural diversity. A heightened awareness of the importance of cultural norms and experiences will assist emergency managers in being more effective in serving their communities.

"I'VE BEEN THROUGH THIS BEFORE"

Natural disasters in the United States have seldom been catastrophic. Although floods, tornadoes and hurricanes have wrecked billion dollar losses on the nation's economy, relatively few lives have been lost due to the planning and mitigation efforts undertaken by all levels of government. People are evacuated as early as possible to safe locations, where basic needs are met by voluntary and governmental organizations until the disaster passes. Grants and loans from the federal government assist individuals in rebuilding their lives, and restarting their businesses. While no one anticipates a natural disaster with pleasure, American citizens have a level of security in the knowledge that professional public safety officials and emergency managers will do everything possible to lessen the impact on individuals and communities. As we watch the disaster unfold on television, we also see the American Red Cross, Salvation Army and other voluntary organizations assisting the victims. We see neighbors helping rescue people from the windows of collapsed apartments, or public safety officials rapidly putting out gas fires, as in the Loma Prieta Earthquake. The image of disaster in America is an unfortunate event that is managed by the government. While the media criticize the details of disaster management, the contrast between the loss of life and community disruption in the United States and in many other countries demonstrates that the United States does a good job in the face of nature's violence.

In other countries the disaster experience has been quite different. In some countries the cost of planning for and mitigation of disasters is more than the economy can bear. Instead of aggressive building code enforcement, and land use regulations forbidding construction in flood plains, we see villages built of local natural materials being swept off the beach, as in Bangladesh. We see mountainsides collapse on villages, as after the 1976 Guatemala earthquake; and engineered skyscrapers fail in earthquakes due to poor construction and inspection practices, as in Armenia. We read of over 10,000 people killed in central India because their homes were constructed by the occupants of hand made bricks, essentially unreinforced masonry.

People who have lived in these other countries have often had the experience of devastating natural disasters. These memories, often personally traumatic, remain with them when they emigrate to America. Psychologists call this phenomenon the "echo effect."[1] It effects anyone who has once experienced a traumatic event. In a subsequent traumatic event, the person experiences not just the new disaster, but all the old feelings and pain of the earlier event, as well, making it more stressful for this person than for someone experiencing a trauma for the first time.

In the Northridge neighborhood where the earthquake did extensive damage there were many people from Central America. Many of them had come from areas that had experienced significant natural disasters. Others had been through wars. In either case their earlier lives had left them with "trauma baggage" when they settled in their new community. On January 17, 1994 the thrust faults under the San Fernando Valley ruptured, causing an earthquake that damaged large numbers of residential structures in the valley area.

After an earthquake the American Red Cross opens shelters in high schools and other public facilities. They provide a place to sleep, hot meals, family reunification services, and medical evaluations for the residents of the disaster area. All their shelters are organized in buildings because they are enabled to provide better security. However, many of the residents of Northridge had experienced earthquakes in other countries, and they were reluctant, based on these past experiences, to go into a building for services. They preferred to remain outdoors in parks, creating lean-to shelters against the side of their cars, or using sheets and blankets over ropes for protection from the elements. Thousands of people created their own tent refuges in public parks and athletic fields throughout

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[1] "Predicting the Range of Adjustment to Earthquake Trauma in Santa Cruz," by Francis R. Abueg, Ph.D., Terrence M. Keane, Ph.D., Jessica Wolfe, Ph.D., Rock Pfotenhauer, and Robert Agrella, Ph.D., a paper presented to the International Society for Traumatic Stress Studies, New Orleans, 1990, quoted in "Cultural Diversity: Communities Have Many Faces," by Frances E. Winslow, Issues in Earthquake Education, Buffalo, New York: National Center for Earthquake Engineering Research, 1992, page 1-4.

the San Fernando Valley area.

As a member of the Seismic Safety Commission I was sent to the disaster area to evaluate the effectiveness of programs sponsored over the years by the Commission. I was also tasked with collecting data regarding the health and human services delivery, and its effectiveness in this area. On January 21, the Friday after the earthquake, I visited several of the tent refuges to discuss with the residents what their needs were, and how we might better plan for serving them.

I had the opportunity to converse with a woman from Guatemala. She was a 48 year old grandmother, living in the park with her family, including several grandchildren under 10 years of age. When I visited with her the parents of the children were away trying to obtain disaster assistance, and she had the children in her care. I asked her whether she knew that there was a Red Cross shelter just a few blocks away at the high school. She said that she knew about it, but she did not want to go there. I asked her if her home was livable. She stated that it was littered with dislodged belongings, but had no apparent major structural damage. It had not been tagged when she left it, and she had not gone back to check. I suggested that since it was predicted to rain on Saturday, she and her grandchildren might be more comfortable in their own home, or in the shelter, where the children would have a place to play out of the rain. She said that she would prefer to stay in the park. She had selected this spot because she felt it was the safest place for her. I told her that I was very interested to know why she had made that decision.

She told me, "I have been through this before, so I know what to do." This lady had been a young woman in 1976 when a major earthquake struck Guatemala. At that time she was living in a small town. She said, "When the earthquake came, about half of the homes in my town collapsed, killing the people inside. In a few hours another earthquake knocked down all the rest of the houses. My family and I had been outdoors, so we were safe, but most of my neighbors were killed. Those of us who had survived the earthquake were searching through the damaged homes for the living when another earthquake shook the area. The dam in the mountains above our town was damaged, and a wall of mud and water inundated our whole community, killing many more people. So, I have come to this park, because when the dam breaks, I know what to do. I will be able to put my babies in the trees."

This conversation was a turning point for me in my understanding of emergency management. It made the echo effect clear to me. In reality, there was no dam in the immediate earthquake area. Pacoima Dam, the closest dam, did have some cracking, but it was located many miles away from the Northridge neighborhood where this lady and her family lived. In addition, the spill way of that dam was in a different direction from this area. In no case would mud flow into her neighborhood, or water inundate her community. However, she was not experiencing just the Northridge earthquake. As she told me, "I have been through this before, so I know what to do."

Now I can say, with her, I have been through this, and I know what to do. My community has taken steps to plan for outdoor shelter areas, so that people who are more comfortable outdoors can fulfill that need, and still have access to sanitation, drinking water, and tent shelters. I also know that it is important for me to work with the people in my community who have come from areas where disasters are devastating. I need to develop pre-disaster educational programs to assist them in understanding the topography of the area where they live, the actual threats that they face, and the mitigation measures that have been undertaken to try to assure their safety. "I have been through this," and I know that I have to reach out with information and caring to segments of my community that are experiencing the echo effect, along with the immediate event.

WHAT'S A BARGAIN?

Everybody likes a bargain. The proliferation of outlet stores, and the frequencies of "sales," reinforces the belief that people like to think they are getting "a good deal" on the things that they buy. In the United States we are accustomed to doing most of our shopping in places were the price of the item is clearly marked. Except at swap meets or garage sales, we expect to pay the retail price for an item, a price that is often part of the "fair trading" regulations, or part of a manufacturer's pricing structure. While we understand the concept of "supply and demand," the effect of this economic reality on the prices of goods occurs at the national or regional level, not generally from store to store in the same community.

In other countries commodities have no absolute price. Bargaining is an integral part of the culture. The shop keeper names a price, and the customer names another price, and eventually they either agree on a price, or the customer goes somewhere else. There is no concept of absolute value or "fair trading" regulations. People from cultures without absolute pricing structures may establish businesses in the United States, and may conduct their business either on the American plan, or on the bargaining plan of their country of birth. Americans accept bargaining for anything at swap meets. Certain items, like art works, hand made rugs, and jewelry, are often subject to considerable negotiation before a final sales price is set. Anyone who has purchased an American automobile has some idea of how bargaining can effect price, while operating within the "American system."

On January 17 the earthquake in the Northridge area temporarily changed the sales and pricing structure of goods, especially essential goods, within that community. Some businesses from surrounding areas went to the tent refuges and to the parks around the Disaster Application Centers (DACs) and gave away very valuable items that they would normally have sold. O'Neal Surfwear gave away shirts and sweat shirts to the people who had left their homes after the earthquake. Doctors from Olive View Hospital donated their time and talent to care for the people in the parks. Drinking water companies donated bottles of water. Gerber Baby Food Company cooperated with Vons Grocery Stores to donate and

deliver pallet loads of baby food, juice, and cereal.

Longs Drug Stores was a victim of the earthquake. In their Tarzana store they had ceiling system damage, and disruption from the shaking of merchandise onto the floor. However, they had a stack of water bottles in cartons with a placard, "One free gallon to each of our customers." This 89 cent item was being given away to anyone who walked into the Long's Drug Store and picked one up. (More were for sale at the regular price.) As I went through the check out stand with my film and batteries, I told the clerk that I was very impressed that they were giving water away. "Well," he said, "This is our community, and we are all victims. It is the least we can do."

The Sportmart near the Northridge Fashion Plaza (where Bullocks had collapsed) was holding a major parking lot sale. "25% off all earthquake supplies, " their banner read. I walked through the aisles of merchandise, and saw camping gear, warm jackets, sweat pants and shirts, warm gloves and coolers. I located the manager and told him that I was interested in how he had this sale scheduled in the winter months. (Even though it is warm in Southern California in January, I still associate camping goods with spring and summer months.) He told me that there was no scheduled sale, he just declared one. He said, "This is my community. These people are hurting now, so I will help them out. Next summer I'll just skip one of the corporation sales on swim wear or boating gear. If I help these people out now, they'll remember me when they want water ski's next summer."

These deviations from the normal American pricing structure and "fair trading" practices were quite acceptable to the Northridge community. In fact, most people praised the merchants who reached out to those needing goods. The merchants were not entirely altruistic in their activities. The donated goods were a tax write-off, and the promotions were good advertising in the community, helping to develop good will that would benefit the businesses later.

After the earthquake some holders of 7/11 franchises stepped outside of the American system of absolute price, too, but they reverted to the concept of "supply and demand." Since water was in short supply, gallon bottles that had been 89 cents were offered for sale at several dollars, or more. Batteries, candles and similar emergency supplies were also sold at whatever price the market would bear. I met one woman who said that she had paid $11 for a lantern battery that had cost her $4.95 the last time she had bought a replacement. As I rode around Northridge on Saturday, January 22 I heard a news story that the Southland Corporation, owners of the 7/11 chain name, had sent undercover shoppers to determine if price gouging was going on in any of their franchises. By the time of the 2:00 pm newscast, the radio was reporting that several franchises had been pulled from owners who were charging high prices for goods.[2] In addition, the Los Angeles Police Department was undertaking enforcement of the anti-gouging

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[2]KWIZ, All News Radio, 980 AM, January 22, 1994, 2:00 pm newscast; LA Times, January 23, 1994, page B-1.

legislation, fining people who charged more than 10% over the January 16 price of an item.[3]

Here is another example of a cultural norm that is different in the United States and the home countries of some of these 7/11 franchise holders. They apparently viewed their pricing as responsive to the small supply they had on hand and the large number of people who wanted the goods. They saw it as simply the reverse of a sale. One 7/11 clerk said to me, "If I have an item I cannot sell, I put it out marked "half price" to get rid of it, and no one bothers me. Now I have goods that everyone wants, but when I double the price I get a fine." It was obvious from his explanation that he simply did not understand why the police and the Southland Corporation executives were punishing him.

As a community we would want to support the concept of reaching out a hand of aid to those in the disaster area. Doubling the price of disaster goods would not be acceptable within our cultural norms. However, when our communities are confronted with such problems, we should be careful not to judge those who are charging high prices as "greedy," as happened in Northridge. Rather than a major enforcement campaign, perhaps it would be better community relations to start with an educational visit to offending businesses, telling them about the American law against price gouging, and the cultural norm for helping others in time of need. The shop keepers were also victims of the earthquake, and had suffered loss of perishable and fragile goods. Their higher prices on water and batteries would not begin to make up for their earthquake losses. In their own eyes they were simply responding to the situation as good business people, trying to make up for their losses on the goods they could still sell. Information about Small Business Administration loans and community assistance programs, coupled with a review of the law and the intention to enforce it, could lead to the desired result of fair prices, while assisting people from other backgrounds to understand the government's position.

TUESDAY AT 3:45

Appointments are an integral part of American life. We get appointments to see the doctor and the auto mechanic, the hairdresser and the housecleaner. Because we are always concerned with spending our time wisely, we like appointments rather than joining long lines and waiting. In other cultures, waiting in line, especially for governmental aid, is a cultural norm. Also, in other cultures, often there is a finite supply of disaster aid available. The people who want help go to the point where aid will be given and patiently wait in line until their turn comes.

On January 21 the Federal Emergency Management Agency opened a Disaster Application Center at the Winnetka Community Center. FEMA announced this plan several days in advance, and urged victims of the earthquake to phone

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[3]Los Angeles Times, January 23, 1994, p. A-3.

an 800 number to get an appointment. Announcements in English, Spanish and other community languages were broadcast over the radio. Most of the victims followed the instruction, got their appointment from the FEMA operator in Texas, and showed up at the Winnetka DAC at a few minutes before their appointment time. A sergeant from the Los Angeles Police Department greeted them, checked that they had an appointment, and let them in at their appointed time, as interview teams became available.

The problem was that hundreds of people, most of whom were originally from Central America, were living in the park around the Winnetka Center. After the earthquake, they had put everything they owned in their cars, and set up small shelters for their families in the open field. Most had neither radio nor telephone in the park. When they heard from city employees that the center was being prepared as a DAC, they began to line up. One man told me he got in line on Thursday evening about 8:00 pm, and he was about 60 people from the front. These people stood or sat in line for over twelve hours, waiting for the DAC to open. When it opened, they watched people arrive, wait a few minutes in front of the police officer, then go into the DAC. They simply continued to wait. When the DAC first opened two bilingual police officers walked down the line and told people that they needed to go call to get an appointment, that help was by appointment only. However, as one man told me, "I have waited for a long time. Now they want me to give up my place in the line to walk four blocks and get in another line to use a phone. I don't know what they are talking about, so I am just staying here."

Unfortunately, people got impatient, and misunderstood the reason why some people were walking right in for service, while they continued to wait. Several of the people from the line confronted the police officer. She was finally able to get the DAC manager to take one of the "by appointment" interview teams and divert them to serving the people in line. This resulted in only a few people per hour from the line being served, and it also backed up the people with appointments. While it was certainly the right decision at the time, given the constraints on resources and the number of disgruntled victims in the line, future DAC's should anticipate that the appointment system may not be understood by everyone equally well in all communities.

Finally, a Spanish-speaking pastor with a megaphone showed up as a volunteer to help at the park. When he realized that there was unrest growing in the line he got information from the police officer and shared it with the crowed. He reassured them that they would be able to get help, even if they were not seen for several days. He told them that no one was getting any direct aid at the DAC, so they should follow the officer's advice, make their phone call, then get their dinner from one of the voluntary agencies that was serving in the park. His personal intervention was successful because he understood the cultural norms from which the people in line were operating. He was able to get information to speak to their specific concerns, and present it in a way that was culturally acceptable to those who were waiting.

In future, bi-lingual individuals who understand the culture of the impacted community should be given an orientation to the system being used by the local disaster management agency. They should then be asked to assist in sharing the information with the victims in a way that is culturally acceptable, and that speaks to the special concerns of the particular group of victims. In addition, DAC's should be set up with some teams for walk-in service for those waiting in line at the site, as well as the appointment system that suits most people. A trailer of pay phones should be brought right to the DAC so that those without appointments could phone for appointments on the spot. If the people had not had to leave their place in line and walk four blocks, some of them might have been willing to try the appointment system, perhaps creating a trend.

THE GREAT AMERICAN SALAD BOWL

In the past the United States was called the "melting pot," where people came from all over the world and blended into the one, unique American culture. Today, the United States is more like a salad bowl, where many cultures are represented. Each culture keeps some of its unique "flavor" and "color," contributing "zest" to our national life. However, as emergency managers we need to be sensitive to this cultural diversity, and be sure that our community plans consider special needs of cultural groups. Recruitment of bi-lingual resource people, pre-disaster public education in other languages, and investigation of cultural norms that may be important in disaster management are all activities that are important components of disaster planning.

Few American communities are homogeneous today. Many community members bring cultural issues with them, which must be addressed in order to adequately serve their post-disaster needs. Some of the challenges for emergency managers are rooted in the cultural diversity of our communities. Through self-education, coordination with cultural groups, and pre-planning, these challenges can be managed for the benefit of the whole community that we serve.

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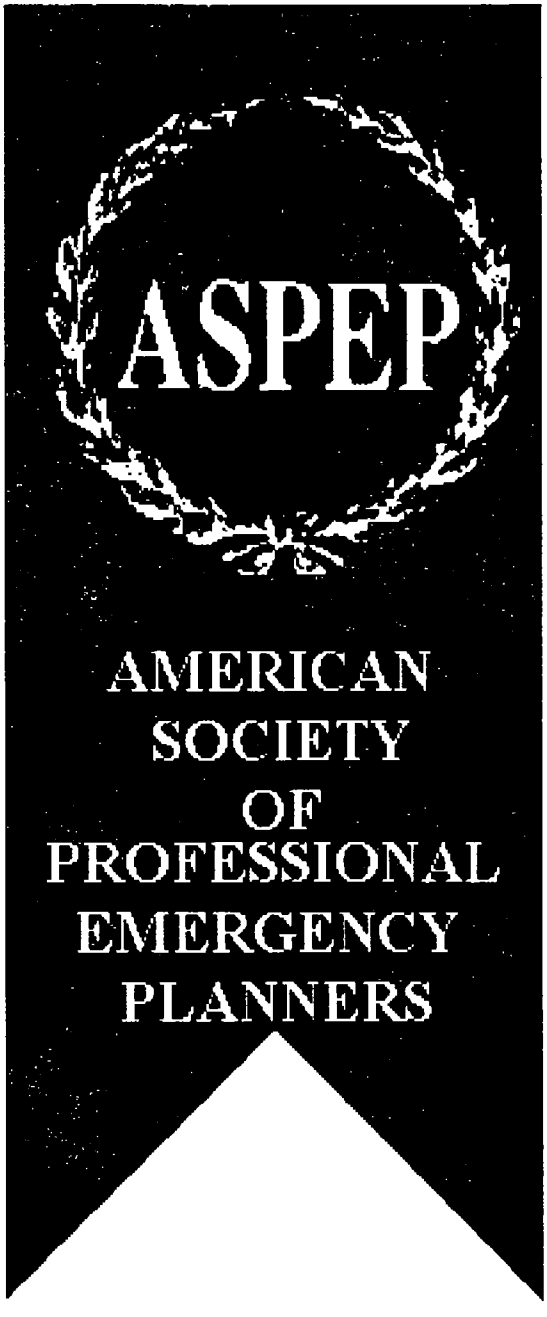
Dr. Winslow is also a Commissioner on the California Seismic Safety Commission, and a member of the Hospital Building Safety Board. On behalf of the Seismic Safety Commission she did four days of field investigations at Northridge Earthquake sites, and participated in a series of hearings held by the Commission with officials of emergency response agencies in the disaster area.

Dr. Winslow has a Master of Urban Planning and Ph.D. in Public Administration from New York University, and a Certificate in Hazardous Materials Management from University of California, Irvine. She has written a chapter in a text/casebook on emergency management, and articles for a variety of professional publications. She has taught public administration and emergency management classes for Kean College of New Jersey, National University in Los Angeles and Orange County, and was a founding faculty member of the Emergency Management Certificate program at UC Irvine Extension. She has been a faculty member of CSTI and FEMA courses.



NEW

TECHNOLOGY

ALTERNATIVES FOR INFORMATION MANAGEMENT IN THE EOC

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In the 90's computers have become an almost fundamental part of our office environments. We rely on them for word processing, accounting, scheduling, and a wide variety of other applications. In essence, in our modern workplace, computers have become indispensable.

The same should be true in an Emergency Operations Center. Interestingly enough in this age of computers everywhere, many jurisdictions take little or no advantage of available technology. Some of the reasons for this lack of computerization include a funding issues, a lack of "High Tech" expertise and finally, a lack of knowledge of available options. The intent of this article is to provide some ideas for those of you who wish to take greater advantage of computers during emergency operations.

This of course begs the question, what kinds of things would I be doing with computers in the EOC? The first thing that most people think of is Word Processing. While this is an important function which you will use extensively during disaster operations, there is also a good chance that you will probably want to track the progress and costs associated with the event which caused you to open the EOC. Maintaining incident logs and tracking the resources assigned, will of course be necessary to determine costs. You may need to process payrolls, or purchase good and services. Tracking these expenses will be important if you expect any reimbursement resulting from a disaster declaration. Maintenance of lists of resources, telephone call out lists, special populations lists, and so forth, can be helpful in mounting an organized response.

The alternatives for computerized data processing in the EOC which will be discussed in this article fall into one of five general categories. These are:

1. Make your regular data processing operation available in the EOC.
2. Develop a specialized system for the EOC.
3. Purchase a commercially available software system for the EOC.
4. Obtain software from bulletin board systems, or other jurisdictions, and finally,
5. Make use of other non-emergency related software.

All of these alternatives have advantages and disadvantages. There are also some questions which you will want definite answers to before you try to implement any computer system. This is not to say however that there are not other ways to

accomplish the same goals. My observations however, are that most jurisdictions select some variation or combination of these options. Another important point to remember is that these options are not mutually exclusive. If you are really ambitious, you might combine several, or even all five of the options.

Option 1 Making your regular data processing operation available in the EOC

This option involves making your regular computer applications (such as Accounting, Payroll, Dispatch, etc.) available to the staff in your EOC during disaster operations. This presumes of course that your jurisdiction is relatively satisfied with their existing computer systems. Another major prerequisite for this option is that the computer and all of it's supporting hardware can be expected to be up and running after the disaster.

Option 1 has several inherent advantages. Depending on what kind of system you have and where it is located, this option can be relatively inexpensive to implement. If your jurisdiction is already heavily computerized, many of your vital records can be immediately accessed, normal payroll can be processed, and so forth. Also, the people who will staff your EOC will probably know how to use the system (since they presumably do so on a day to day basis). This point cannot be underemphasized. Most software systems require a significant level of training among the user community, and having to learn a new system during a disaster is a great way to increase your stress levels. Some of the disadvantages are that many computer installations are not robust enough to survive a disaster, and if the computer survives, the communications to it may still be compromised. This issue of survivability is equally applicable to Local Area Network (LAN) installations, as well as mini and mainframe installations.
Questions you might want to ask yourself before considering this option are:

> Will the computer system or network have power after the event?
> Are the data communications facilities robust enough to survive the disaster?
> If you have a minicomputer or mainframe, will the air conditioning and other vital support services in the computer room survive?
> If you have a local area network, does your software licensing include the system(s) in the EOC?

Option 2 Develop a Specialized System for the EOC

This option involves developing a software system specifically for the EOC. The advantages inherent in this approach are that you will hopefully end up with a system which is tailored to what you want to do. Also, if you are trying to put together a system, and have found that nobody produces software commercially that will run on your hardware, this may be your only real option. Among the

disadvantages to this option are the fact that typically, software development is an expensive undertaking. If you have an in-house data processing staff, (usually overworked, and under loved) they may not be able to develop custom software unless the priority is very high. (When was the last time you saw any emergency management projects with high priorities?) Another disadvantage with custom software is training. If the people who will be using the system only see the thing once a year during the disaster drill, their level of training on the software is likely to be low. (I have in fact seen one system which is either under used, or not used at all because no one can remember how to run it.) Some things to think about before considering a software development project include making a complete system design. It is vitally important that you make sure that both you and the software development staff have a clear picture of what the software needs to do. It is an all to frequent occurrence in the software business to have a programming staff labor diligently for several months, only to present you with what they thought you wanted. If you are contracting the development out, make sure that your contractor provides you with a schedule, and sticks to it. Don't agree to payment up front. Payments can be based upon completion of milestones in the schedule. Finally, make sure that you get a good users manual for the system. This will be extremely important in setting up a training program.

A variant on options 1 and 2 is to develop a software system that uses custom software to integrate the regular data processing systems with a custom database. This variation of theme preserves some of the advantages of having regular data processing systems available, while going a long way toward providing the "exactly what you wanted" system. The City of Milpitas, CA has picked this variation for their new EOC. Cecil Williams, the Milpitas OES Coordinator found that there was no commercially available software for the Macintosh that did what he wanted to do. The disadvantages of the custom system option still apply, with the addition that whoever develops the software must now be familiar with more than one type of computer, or more than one contractor will need to be involved with the development project.

Option 3 Purchase a commercially available software system for the EOC

Believe it or not, there are systems commercially available for emergency management. Products like Emergency Information System, (EIS) or Softrisk are designed as EOC information management systems. I will include CAMEO among this group, although the CAMEO software is heavily oriented around hazardous materials incidents, and requires a measure of user cleverness in order to be effective in multi-hazard management. The advantages for Option 3 are that these systems pretty much do all of the important stuff in disaster management. These systems are fairly intuitive and easy to use, even for novice or occasional users (or at least the most recent Windows versions are). I recently had the opportunity to test drive EIS in San Jose, CA I found that within just a few minutes, I was able

to navigate through the system and begin using it with a good comfort level. The disadvantages are that depending on the size of your installation, the cost can be significant. Of even greater impact is the amount of data entry necessary to set up and maintain these systems. The City of San Jose, CA has been forced by it's size to make an internal decision at to which portions of it's response database to maintain. A city the size of San Jose (3rd largest in California) has much more data to enter, than staff to enter and maintain it. Things to consider before selecting this option include your jurisdiction's ability to maintain the databases, as well as what kinds of computer hardware will be necessary to run the programs. Paul Garrett of San Jose, CA OES plans to use the EIS system stand alone, although I must point out that these products will still be useful even if your regular data processing is still in place. Paul has a high degree of confidence in EIS, as well he should considering he is also the Vice-President of the Bay Area EIS Users Group.

Option 4 Obtain software from bulletin board systems or other jurisdictions

This option involves obtaining an existing software package from a bulletin board or from another jurisdiction. This option has the advantage of being inexpensive. Additionally, there is a good likelihood that if a neighboring jurisdiction is using the package, you could pool data processing resources. The disadvantages are that technical support may not be as good as with a purchased product, since the people who developed it may be busy doing other things. This option will also require you or your staff to have a greater level of technical expertise, since the burden of installation and evaluation will be yours. Things to think about when considering this option include making sure you scan any software downloaded from a bulletin board for computer viruses. Additionally, it is wise to spend time up front to thoroughly test the software. You will need to determine for yourself whether the software meets your needs, and what it's strengths and weaknesses are. For the past several years, the State of Hawaii Department of Civil Defense runs a system called IEMIS or Integrated Emergency Management Information System which they got free from FEMA. This system runs on a DEC minicomputer, and performs a variety of functions such as incident tracking, mapping, and other response functions. I spoke with Roy Price at Hawaii Civil Defense, and he was very enthusiastic about the system. IEMIS can perform mapping functions, and the Data Processing staff have added a number of "Bells and Whistles" to the system which make it quite nice. Another source of software and technical assistance that I ran across is called SALEMDUG. This stands for the "State and Local Emergency Managers Data User Group. SALEMDUG operates a free bulletin board system (BBS) which provides both software systems such as ATC-20 damage assessment or Donations Management, and a forum for discussion of both technical and general Emergency Management issues. There are a vast number of electronic conferences on subjects of interest to emergency program managers. After talking to Bill Lent, the President of SALEMDUG, I logged onto the BBS. What I found was a wealth of information which ranges from desktop publishing

and Networks to Dam Safety and Urban Search and Rescue. Even if you are not currently concerned with information management topics, I would recommend looking into this BBS anyway. For questions about the SALEMDUG bulletin board, Bill Lent can be contacted at (301) 499-8053. The BBS dial up number is (202) 646-2887. Bill tells me that the BBS will handle almost any type of modem configuration. You may also want to cruise around some of the public bulletin boards such as Compuserve or Prodigy for useful software. Compuserve for example has a Public Safety interest group that you can access by entering GO SAFETY. Again, when dealing with these BBS systems, be careful of computer viruses.

So lets say that Option 1 is no good because the mainframe won't survive the disaster, and you don't have the money for Option 2. Option 3 is out because you don't have the staff time to do the initial data entry, and Option 4 doesn't work because you can't find software you like. What then?

Option 5 Make use of other non-emergency management related software

The advantages to this option are that frequently you have such software within your jurisdiction. If you don't have the software, it is easily available locally. The disadvantages are that you may need to be a little creative in using the software in an EOC environment. For Example:

Let's say that you need to maintain notification lists. You may also need to maintain resource or special population lists. If these lists are not too huge, you could use the Rolodex program built into Microsoft Windows. If you are not a Windows user, there are tons of inexpensive Rolodex or mailing list programs available for less than $50.00.

For tracking expenses, programs like Quicken will do the trick. They are fairly easy to use, and again sell for less than $50.00. Another alternative is to set up a spreadsheet using whatever software you already use in your jurisdiction. Spreadsheets can also be used for assembling preliminary damage assessment data.

If you need to process payrolls, there are a variety of commercial packages which can be purchased at a reasonable price. You will however need to use a little creativity to adapt the system to the unique aspects of government payroll calculations.

For tracking resources applied to incidents, and the associated costs, you might consider using a project management package like Microsoft Project. Most project management software packages include the creation of a list of resources, their associated costs, (usually hourly or daily costs in dollars) and the application of these resources over time. Another advantage in

project management software is that given a list of projects, (incidents) you can estimate what an incident will cost when various resources are applied. Many of the Windows based systems have the advantage of being fairly easy to use, although ease of use and price for the software vary greatly between packages. The cost for a project management system can range from $125.00 to over $500.00, although you can find such things on public BBS's like Compuserve.

In a related vein, there are commercially available packages which construction contractors use to estimate construction costs. These packages are more difficult to find, and I don't have a lot of information on how well they work.
At this point I will mention our old friend CAMEO again. As stated earlier, it's primary focus is hazardous materials incidents, but a little ingenuity can make it a viable multi-hazard response tool.

Throughout this article, I have purposefully avoided talking about Data Base Management Systems, (DBMS) such as DBASEIII or Paradox. The reason I did so is that what may start out as a simple project, but in most cases will end up becoming Option 2 in a relatively short period of time.

Hopefully, this article has given you some ideas on ways of streamlining disaster operations through the use of computers. If however after reading this you are thinking to yourself "to heck with all this application of technology stuff, I'll just use a pencil...". I might point out as a parting thought that even a pencil works better if you apply a little technology to it, in the form of a pencil sharpener.

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George Berry has almost 12 years experience in the computer field, with almost 5 years as a designer and project manager for public safety software systems (Fire and Police Records). Four years ago George became interested in disaster management, and became a volunteer for the City of San Mateo OES. Two years ago George became a Communications Specialist for one of FEMA's Urban Search and Rescue task forces (California Task Force 3) based in Menlo Park, CA. Currently George is attempting to make a career change into Disaster Management.

EMERGENCY MANAGEMENT AND GLOBAL INFORMATION INFRASTRUCTURE COORDINATION (EMAGIIC): A PATHWAY FOR PREPAREDNESS

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Washington, DC

Executive Summary

The proliferation of client-server based information systems has made possible the emergence of "on-line enterprises" which serve as applications networks for specific communities of interest. Such systems are emerging in the global environmental change research and sustainable development communities. These powerful system resources are the building blocks of what Vice President Al Gore, Jr. has referred to as the "Global Information Infrastructure", or GII.

This paper examines the development heritage and the correlation of such infrastructure developments to the operational and research needs of the emergency management community. Specifically, it addresses the components which could be rapidly implemented to provide a global emergency management information network. Special attention is directed toward Internet-based applications of the US-based Consortium for International Earth Science Information Network (CIESIN) and the nascent International Emergency Reduction, Readiness, and Response Information System (IERRRIS), proposed by the United Nations, Department of Humanitarian Affairs.

The paper provides recommendations for action which would mobilize disaster reduction researchers and emergency management practitioners in a community-wide Information Cooperative to provide field operations, the EOCs, and the under girding research community with a common user system. The proposed system provides a new depth of data resources and analysis services and is incrementally achievable in a phased approach. The framework identified in this paper is built upon a working prototype institution which draws from international partnerships and US Federal Agency scientific data and policy information resources. It is suggested that execution of the recommended actions is responsive to:

- o US commitments to the IDNDR;
- o identified needs in national, state, and local emergency management and multilateral humanitarian assistance domains; and,
- o the expressed research and applications objectives of the

US National Research Council and the recently activated National Science & Technology Council.

The Emergency Management and Global Information Infrastructure Coordination initiative, or EMAGIIC, is a call to action for the professional emergency management leadership to mobilize existing infrastructure and resources and participate in a global Information Cooperative.

1. Understanding the Need

Current estimates place the cost of natural disasters to the U.S taxpayer at nearly $100 billion per year. These funds are forcibly and aperiodically diverted from other public good missions, including public safety, education and training, research, and infrastructure enhancement. Economic impacts of natural disasters as well as an emerging sequence of man-made disasters and humanitarian assistance actions that require U.S. intervention (e.g., Rwanda, Somalia, Haiti) are increasing at an alarming rate.[1]

The Clinton-Gore Administration is committed to improve our capabilities to anticipate risk, not merely react to disasters; to building in mitigation in the earliest planning stages; and, to implementing a comprehensive natural disaster reduction policy. Such an "improved policy" would be sensitive to how natural disasters jeopardize sustainable development, impact or are induced by global environmental change, resulting in damage to both the built- and natural environments. The President's National Science and Technology Council (NSTC) has stated that "inaction today regarding natural hazards compromises the future: the safety, economic growth, and environmental quality in store for generations to come."[2]

The NSTC has recommended that research is needed to enable the successful transition to a comprehensive disaster reduction program. The NSTC's Committee on Environment & Natural Resources (CENR) cited the research and applications program proposed by the Subcommittee on Natural Disaster Reduction in 1992 as a framework for reducing the impacts of natural disasters.[3]

While the NSTC has moved to promulgate a "Strategy for Natural Disaster Reduction" events around the world continue to intensify the demands placed upon the U.S. humanitarian assistance, disaster relief, and emergency management communities. A comprehensive approach to these escalating demands must recognize the research, response, and resource depth constraints under which all actors are operating.

This brief serves to identify many of the principal actors, and several new entries on scene, who are developing and have implemented essential information infrastructure resources. This infrastructure is responsive to the needs of a

comprehensive reduction research, readiness, response, and recovery program as envisaged by the Clinton Administration, the leadership of the EM community, and thoughtful public servants around the world. This, then, is a brief excursion into what is referred to as an Emergency Management And Global Information Infrastructure Coordination, or *EMAGIIC* , inititative.

EMAGIIC (pronounced "e-magic"), is a community call for coordination of standards, technology, and interoperability to implement a client-server based, distributed data and information network. This is an applications network, not a dedicated physical communications network. It provides global access to an electronic catalog service which provides metadata, or descriptive data about data, and a variety of access, retrieval, clearinghouse, referral, and analysis services for the emergency management practitioner and researcher alike.

EMAGIIC leverages U.S.-funded infrastructure and advanced Internet-based search and retrieval software, extending an existing governmental, non-governmental organization (NGO), and multilateral partnership known as the Information Cooperative. EMAGIIC would provide an organizing framework for the requisite information management dialogue which must take place among multilateral programs in humanitarian and refugee assistance and disaster relief; and those U.S. Federal, State, and local practitioners and researchers who seek to enhance *information readiness* and advance the *dissemination and utilization of research* and lessons learned.

Overview of Federal Research & Applications Priorities

Preceding the recently activated NSTC, the Committee on Earth and Environmental Sciences (CEES) of the Federal Coordinating Council on Science, Engineering, and Technology (FCCSET) served in a similar mission, chartered by Executive Order. The FCCSET provided the structure housing several key interagency committees formed in response to cross-cutting national programs of such scope and duration as to demand the integrated resources of the entire Federal Government. One of the more active among the CEES components, and now an element of the CENR, is the Subcommittee on Natural Disaster Reduction (SNDR).

The SNDR issued a report in May 1992, titled "*Reducing the Impacts of Natural Hazards: A Strategy for the Nation*". The goal presented in that report is to reduce fatalities, human suffering, environmental damage, and economic losses caused by natural hazards. The SNDR report presented a proposed Federal strategy for reducing the impacts of natural hazards. It provided a strategic framework that identified opportunities for domestic and international cooperation and describes Federal activities and expenditures to reduce the effects of natural disasters. The Federal strategy, as proposed by the CEES, calls for efforts in three key areas:

o Research

Using science and technology to:

a. understand the physical and biological nature of natural hazards

b. improve engineering and managed environmental systems

c. advance knowledge from the social and health sciences to reduce societal impacts of disasters

o Applications

Accelerating the transfer of science and technology into operational practice, thereby improving ability to take effective action before, during, and after natural hazards strike

o Domestic and International Cooperation

Domestically (with Federal, State, and local governments and the private sector) and internationally (with other governments and NGOs). developing the partnership to support knowledge sharing, information networking, and special cooperative projects.

The Strategic Framework of the SNDR is described in terms of three organizing themes:

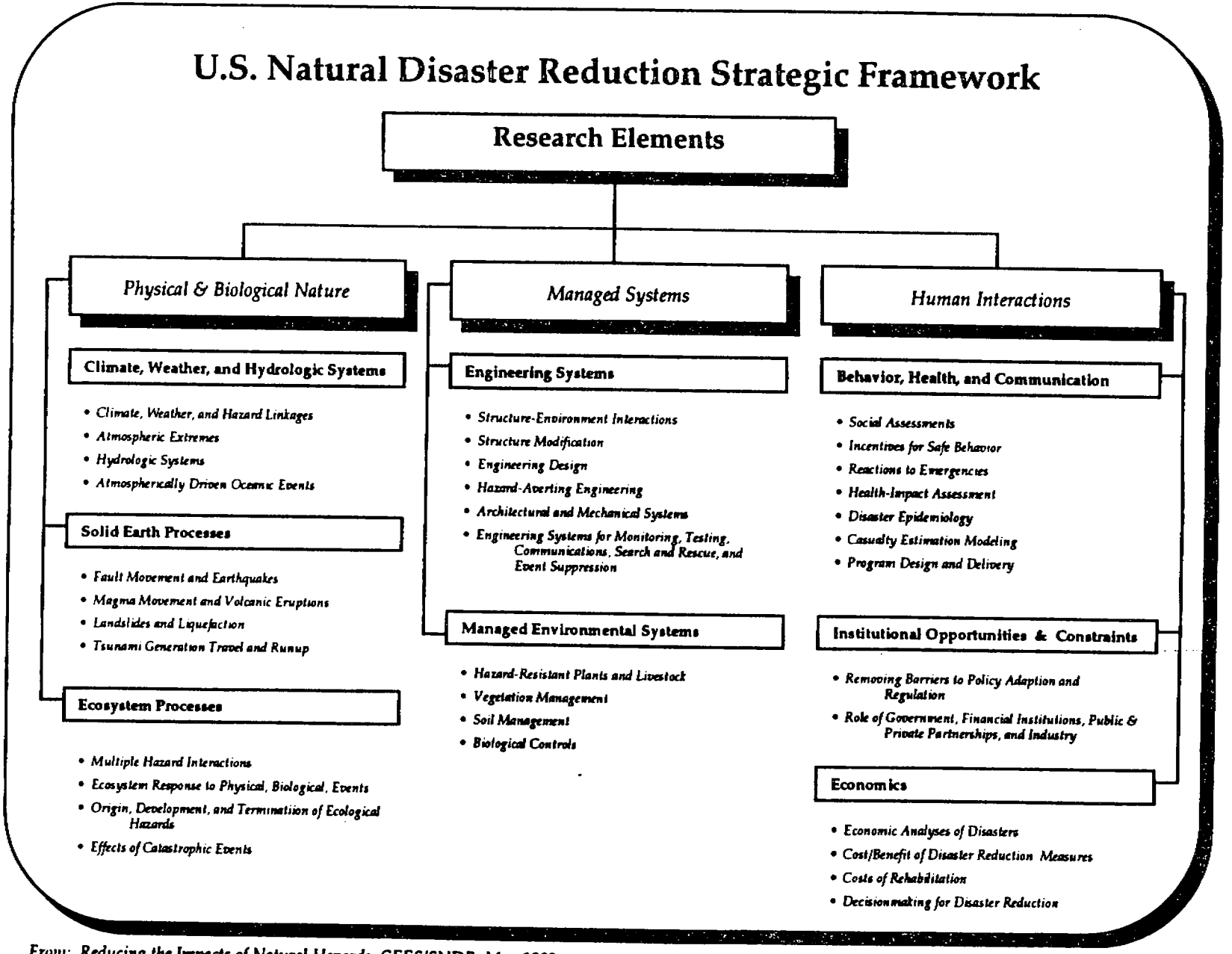
- o Strategic Priorities
- o Integrating Priorities
- o Research and Applications Elements.

Strategic priorities define an overall philosophy and programmatic approach, while also serving as metrics against which proposed activities/projects can be evaluated. Integrating priorities define generic steps needed to mitigate natural hazards. **Figures 1 and 2** illustrate the hierarchy of the research and applications elements of the U.S. Natural Disaster Reduction Strategic Framework. These research and applications elements are the implementation-level steps directed toward:

a) advancing the need to improve predictions of the time, severity, and intensity of natural hazards by understanding the underlying physical and biological processes;

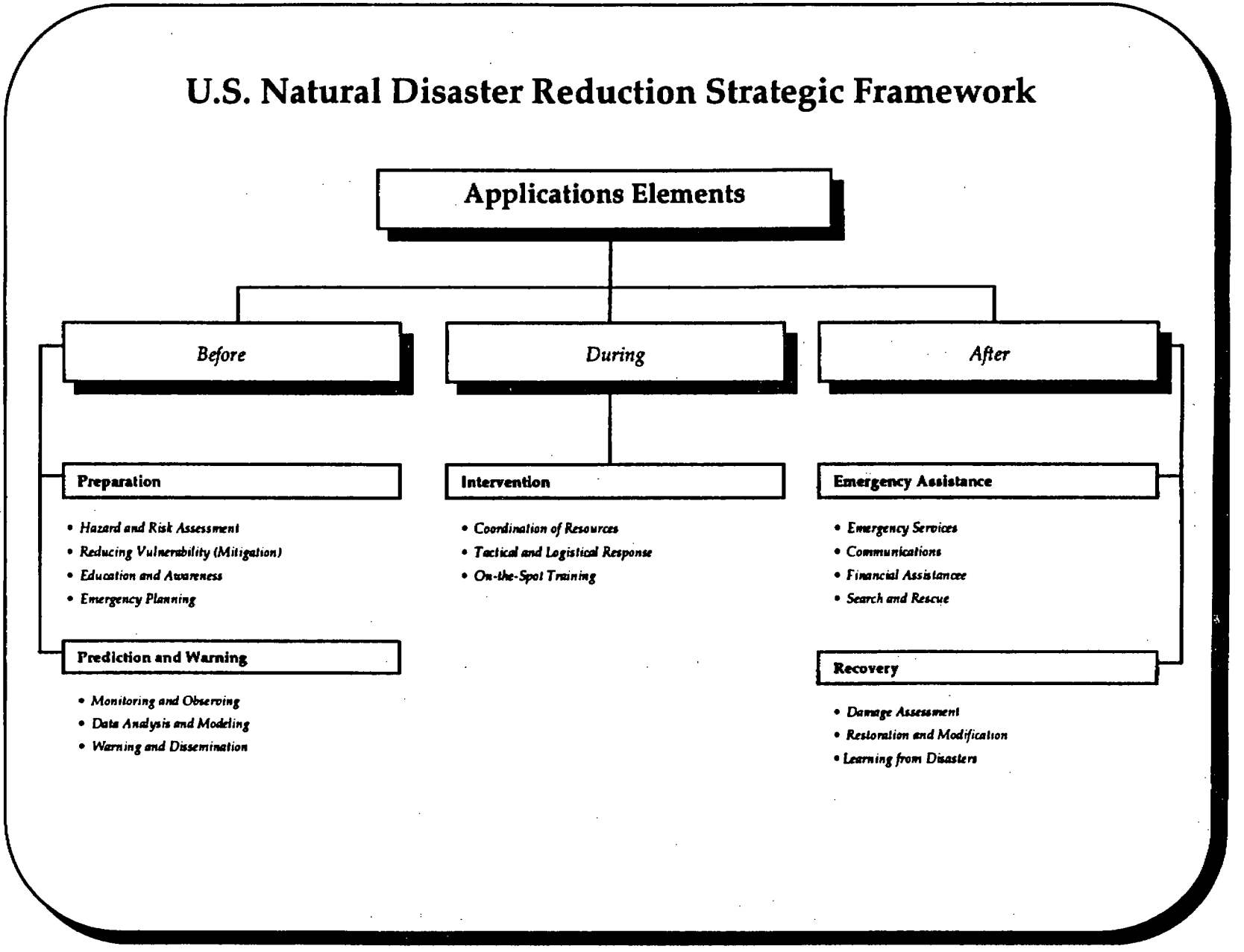
b) developing the technological capability and knowledge to manage impacts, and the study of human interactions to improve understanding of the social, health, institutional, and economic processes affecting the impacts of disasters on society;

c) disseminating research results -- translating what we know of hazards and their mitigation into operational practice.



From: Reducing the Impacts of Natural Hazards, CEES/SNDR, May 1992

Figure 1



From: Reducing the Impacts of Natural Hazards, CEES/SNDR, May 1992

Figure 2

NRC Notes the Importance of Information Transfer

The National Research Council, Advisory Committee on the International Decade for Natural Hazard Reduction, reported that a policy of inaction by Federal, State, and local governments with regard to natural hazard management is not, according to sociologists, because people do not fear the threat of disaster. Rather, both citizens and public officials become naturally preoccupied with more immediate concerns. Despite the public indifference, studies show that when given accurate and understandable information on the risks of natural hazards, citizens -- and their governments -- will act. Information transfer concerning the nature of natural hazard threats and what can be done to minimize them is, therefore, a key to reducing the impact of natural hazards on society.

Cooperative Partnerships are Essential

The NRC also reported that even though much of the authority for disaster response and hazard reduction lies with various levels of government, the expertise to effect these tasks is often scattered among many other organizations. Universities, for example, provide a diversity of skills and resources, from the theoretical to the applied, in the physical sciences and engineering, and in the social sciences and public health disciplines. Similarly, the private sector -- especially civil engineering and architectural firms -- have invaluable practical experience in the application of mitigation strategies. For example, the private sector has tremendous influence upon shaping policy devices such as construction standards and land-use policies. Professional societies represent the principal industry standard-setting groups.

As an example, the NRC recommended that the insurance industry should work as a prime participant in the U.S. natural disaster reduction program., with a view toward reducing its own exposure in hazard-prone areas. Indeed, a study conducted by the All-Industry Research Advisory Council (AIRAC) demonstrated that the insurance industry has definite limits in its ability to tolerate loss. For example, the AIRAC study found that a single $14 billion insured loss, such as might be caused by a major earthquake, would be much more damaging to insurers than two successive $7 billion losses, since many more companies would exhaust their reinsurance coverage.[4]

Having noted these concerns, faced then with a $100 billion loss -- the maximum property loss predicted for a major earthquake in southern California -- the industry's capacity for compensating loss would be quickly exhausted. A comprehensive emergency information system for research and applications should encompass principal industry research institutes and centers, such as those supporting the AIRAC study, as well as the pre-eminent professional societies including ASPEP, NCCEM, and NEMA.

2. Navigating the Global Information Infrastructure (GII)

The evolution of information infrastructure lexicon has been rapid and unforgiving. From America On-Line to CompuServe, from cyberspace to digital libraries, it is prudent and reasonable to ask if these are assets of relevance to the emergency management community, or merely microbursts in the turbulent atmosphere of information services and telecommunications. In this regard, as we assimilate concepts including the "National Performance Review" and organizational "reengineering", Vice President Al Gore delivered keynote remarks before the World Telecommunications Development Conference in Buenos Aires (March 1994).[x] The Vice President introduced one more operative word in the cyberspeak when he called for the implementation of a Global Information Infrastructure (GII).

What then is this so-called GII? The GII can be described as an essential prerequisite to sustainable development, a network of networks or networks of distributed intelligence, an assemblage of local, national, and regional networks dedicated to ensuring that every school and public library can be connected to the Internet in order to create a Global Digital Library.[5]

The Vice President cited the need for the GII to support the flow of information from US government agencies to the public and partners across the globe, he underscored the need for public health agencies to participate in the knowledge sharing, and he called upon multilateral institutions, particularly the World Bank to help nations finance the building of the GII.

So then, where is the GII? It is under development, however there are advanced offerings that match the call of the Vice President. One organization has the information technology in place, the knowledge sharing partnership of nearly fifty institutions, the standards and interoperability issues under control, and specific agreements with the principal multilateral institutions, including the United Nations (UNDP, UNEP, and the World Health Organization), the World Bank, and the Organization of American States. This organization is CIESIN.

Relevance to Emergency Management

How is the GII relevant to the emergency management and disaster reduction communities? Two urgent areas come to mind. First, the International Decade for Natural Disaster Reduction (IDNDR) was a call to action which has the full endorsement of the US Government through congressional action. Second, there is little doubt regarding the escalating demand for disaster relief and humanitarian assistance in several stress points across the planet.

As the World Conference on Natural Disaster Reduction, convened by the General

Assembly of the United Nations in Yokohama, Japan, in May of this year reminded us, the IDNDR is at mid-term. The IDNDR was launched by the UN General Assembly by Resolution 44/236 in December 1989, with the objective of reducing through concerted international action, especially in developing countries, the loss of life, property damage, and economic and social disruption caused by natural disasters.[6] It remains an assumption of this investigator that the IDNDR commitments remain a priority in the professional emergency management community.

Examining an Active GII Demonstration Project

One such GII Demonstration Project is well underway. The Consortium for International Earth Science Information Network (CIESIN) has successfully engendered global participation in a participatory information sharing system. CIESIN, through the Information Cooperative, has managed to link the major archives of data and information pertaining to the study of human interactions with the environment and sustainable development. A geographically disparate, heterogeneous federation of data systems and data bases are now interoperable. These "Information Cooperative Partners" form a seamless digital library, replete with interactive analysis and communications services.

CIESIN has forged a long-term planning relationship with the United Nations Development Programme, Sustainable Development Network, or SDN. Together, CIESIN and UNDP are establishing "Country Nodes" around the world, particularly in high-risk developing nations and those with economies in transition. Today, CIESIN node development sites include China, Taiwan, Japan, Russia, Ukraine, Estonia, Latvia, Lithuania, Poland, Singapore, Thailand, Mexico, Canada, Rwanda, Kenya, and elsewhere.

While each institutional partner in the Cooperative contributes data and metadata for all other partner institutions to access, some nodes have more robust and comprehensive data development, integration, and analysis programs underway. CIESIN's Socioeconomic Data and Applications Center (SEDAC) is supporting the development of a family of on-line scientific analysis tools that enable interactive exploitation of US census and other population data sets, World Bank and US economic and public health data, and geographic visualization, geographic information systems (GIS), and decision support tools. With SEDAC as the prime node on CIESIN's Information Cooperative, it supports long-term data resource development activities that result in the generation of new time-series, global and regional georeferenced data sets for researchers and practitioners.

3. Information Cooperative

In 1989, the United States Congress directed a study of existing and planned government-wide Earth monitoring systems to examine the adequacy of these systems to meet the needs of policy analysts, decision makers, educators, and the general public as each sought to grapple with emerging issues of global environmental change and sustainable development. In the Public Law (P.L. 101-144), Congress directed the Consortium for International Earth Science Information Network to execute this study. The study (1990) was rapidly transformed into a series of pilot projects (1991), thereafter maturing toward the design and development of an affiliated data center (1992), and most recently, into an active archive (1993-94) integral to NASA's Earth Observing System (EOS), the keystone of the space agency's "Mission to Planet Earth".

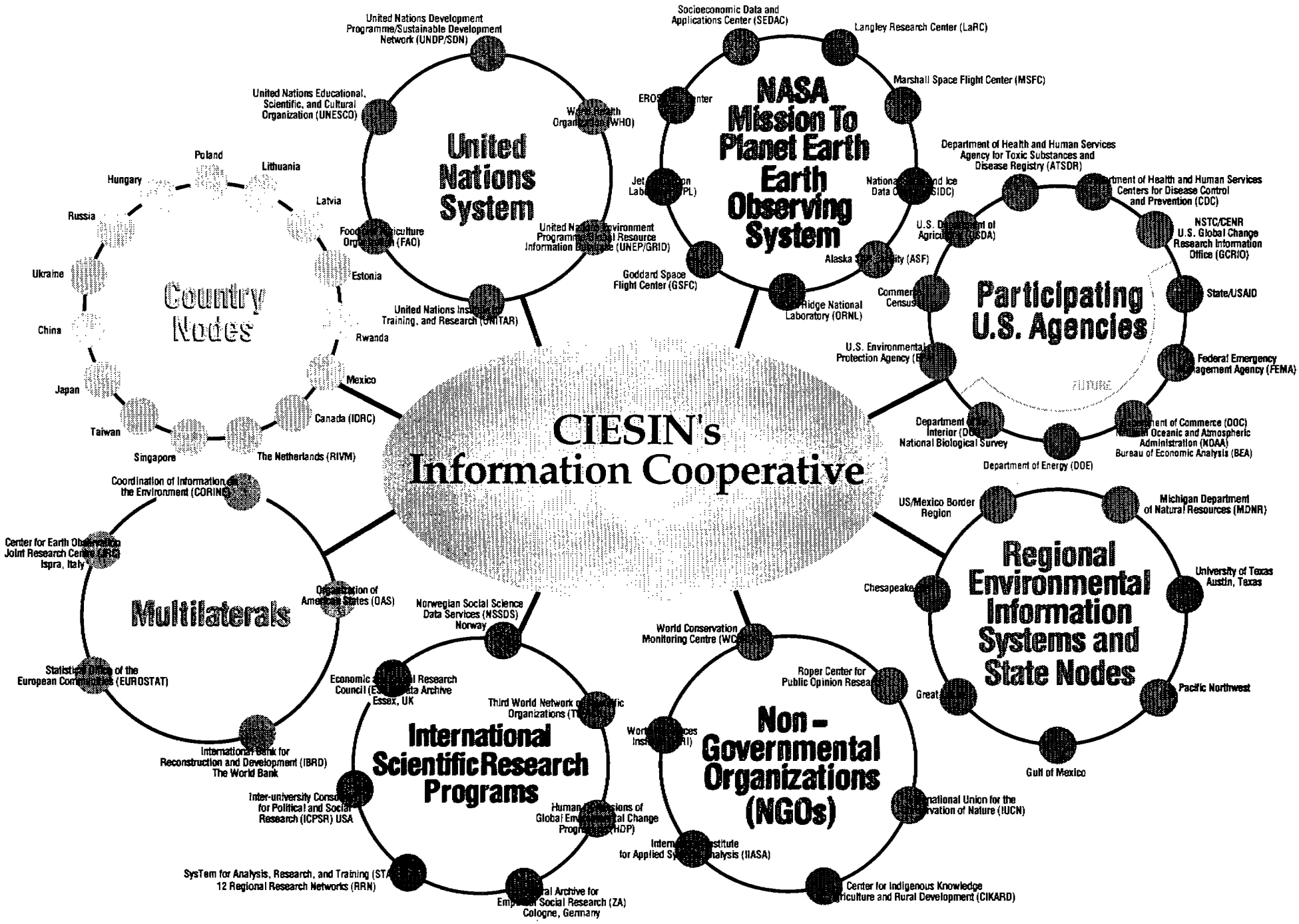
CIESIN is a not-for-profit organization, drawing from member universities and research institutes, with United Nations NGO accreditation, serving the mission to provide access to and enhance the use of information worldwide, advancing understanding of human interactions in the environment and serving the needs of science, and public and private decision making.

The Information Cooperative was created and is currently maintained by CIESIN to: identify major collections of socioeconomic and public health data relevant to environmental change (sudden onset and long-onset) and impacts assessment; to provide mechanisms to easily access and retrieve these data and information resources, as well as natural sciences data; and, to create a vehicle to mobilize interdisciplinary research and collaboration in the service of informing policy and supporting decision makers.

The Information Cooperative is relevant to the proposed EMAGIIC project because it represents a worldwide deployment of information technology, data and metadata structures and standards, and interoperability, forming an applications network directly applicable to the needs of the emergency management community. It is incrementally expandable and therefore provides a unique framework in which the key disaster research and emergency management operations centers can tap into the developing Internet and Global Information Infrastructure. Partner institutions in the Information Cooperative are depicted at

Figure 3.

There are many approaches to identifying the priority nodes one would seek to implement on an emergency management information network. For purposes of illustration, several US centers that would be logical Information


CIESIN's
Information Cooperative
United Nations System
United Nations Development Programme/Sustainable Development Network (UNDP/SDN)
United Nations Educational, Scientific, and Cultural Organization (UNESCO)
Food and Agriculture Organization (FAO)
United Nations Environment Programme/Global Resource Information Database (UNEP/GRID)
United Nations Institute for Training, and Research (UNITAR)
NASA Mission To Planet Earth
Earth Observing System
Socioeconomic Data and Applications Center (SEDAC)
Langley Research Center (LaRC)
Marshall Space Flight Center (MSFC)
Goddard Space Flight Center (GSFC)
Oak Ridge National Laboratory (ORNL)
Alaska SAR Facility (ASF)
Participating U.S. Agencies
Department of Health and Human Services Agency for Toxic Substances and Disease Registry (ATSDR)
Department of Health and Human Services Centers for Disease Control and Prevention (CDC)
NSTC/CENR U.S. Global Change Research Information Office (GCRIO)
State/USAID
Federal Emergency Management Agency (FEMA)
Department of Commerce (DOC) National Oceanic and Atmospheric Administration (NOAA)
Bureau of Economic Analysis (BEA)
Department of Energy (DOE)
Department of the Interior (DOI) National Biological Survey
U.S. Environmental Protection Agency (EPA)
Country Nodes
Poland
Lithuania
Latvia
Estonia
Rwanda
Mexico
Canada (IDRC)
The Netherlands (RIVM)
Singapore
Taiwan
Japan
China
Ukraine
Russia
Hungary
Regional Environmental Information Systems and State Nodes
US/Mexico Border Region
Michigan Department of Natural Resources (MDNR)
University of Texas Austin, Texas
Pacific Northwest
Gulf of Mexico
Great Lakes
Chesapeake
Multilaterals
Coordination of Information on the Environment (CORINE)
Center for Earth Observation Joint Research Center (JRC) Ispra, Italy
Organization of American States (OAS)
Statistical Office of the European Communities (EUROSTAT)
International Bank for Reconstruction and Development (IBRD) The World Bank
International Scientific Research Programs
Norwegian Social Science Data Services (NSSDS) Norway
Economic and Social Research Council (ESRC) Data Archive Essex, UK
Third World Network of Scientific Organizations (TWNSO)
Inter-university Consortium for Political and Social Research (ICPSR) USA
Human Dimensions of Global Environmental Change Programme (IHDP)
SysTem for Analysis, Research, and Training (START) 12 Regional Research Networks (RRN)
Central Archive for Empirical Social Research (ZA) Cologne, Germany
Non-Governmental Organizations (NGOs)
World Conservation Monitoring Centre (WCMC)
Roper Center for Public Opinion Research
World Resources Institute (WRI)
International Union for the Conservation of Nature (IUCN)
International Institute for Applied Systems Analysis (IIASA)
Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD)

Cooperative partners in an EMAGIIC Demonstration Project are identified **Table 1**. This listing is merely *representative* and should not be construed as a *comprehensive* listing.

What is the appropriate linkage with international emergency management, disaster relief, and humanitarian assistance initiative of like requirements? Perhaps, one of the more comprehensive and timely efforts in this regard is the International Emergency Reduction, Readiness, and Response Information System (IERRRIS), as proposed by the Department of Humanitarian Affairs, United Nations.

The IERRRIS Project is described by the UN Department of Humanitarian Affairs (DHA) as an inter-actor (UN agencies, governments, inter-governmental and non-governmental organizations, academic and specialized institutions, and the media) emergency and disaster-related information management initiative. The project is intended to adopt information management procedures that are of common benefit to work with common and/or compatible information management standards and technologies; to collaborate in the development of new information systems and procedures so as to meet information needs that are not met by existing systems and procedures; and to share and exchange suitable emergency-related information collected for respective institutional needs.[7]

IERRRIS has been characterized as a reference and referral source for information on emergency information management, concepts, procedures, and resources; it has been described as "user-driven" rather than "information-driven". IERRRIS project leadership is seeking to establish a so-called Disaster Reduction Information Exchange (DRIX) to serve the IDNDR worldwide community on the Internet, the establishment of an inventory of major emergency information systems relevant to international warning of and response to emergencies; and the development of a standard software and methodology for the compilation and international dissemination of map-based information in support of operational coordination.[8]

Clearly, IERRRIS is both a candidate for participation in the CIESIN Information Cooperative framework as well as a viable GII Demonstration Project. EMAGIIC would serve to advance that logic through definition and implementation of an operational testbed for the deployment of initial IERRRIS operational capability.

Table 1. US Research & Applications Centers Relevant to EMAGIIC

CIESIN Socioeconomic Data & Applications Center, MI	Human interactions with natural and built environment
NASA Goddard Space Flight Center, MD	Climate, meteorology, oceans, geophysics
NASA Langley Research Center, VA	Clouds, radiation, tropospheric chemistry
USGS EROS Data Center, Sioux Falls, SD	Land Processes
University of Alaska, Fairbanks, AK	SAR facility, ice, snow, seas surface data
National Snow & Ice Data Center, Boulder, CO	Polar oceans and ice
NASA Jet Propulsion Laboratory, Pasadena, CA	Physical oceanography
NASA Marshall Space Flight Center, Huntsville, AL	Hydrologic cycle
Oak Ridge National Laboratory, Oak Ridge, TN	Trace gas fluxes
NOAA National Climatic Data Center, Asheville, NC	Climate and meteorology
NOAA Climate Analysis Center, Suitland, MD	Climate history & trends
NOAA National Oceanographic Data Center, Washington, DC	Oceanographic and atmospheric data
US Centers for Disease Control, Atlanta, GA	Epidemiology and control
US Agency for Toxic Substances & Disease Registry, Atlanta, GA	Human health assessments
Defense Mapping Agency, Falls Church & Reston, VA	topographic, geodetic, meteorological data
Naval Oceanographic Command, Stennis Space Center, MS	oceanographic and climate history
Air Force Environmental Technical Applications Center	atmospheric constituents & solar influences
US Army Cold Regions Research & Engineering Center, NH	high-latitude data resources
US Army Waterways Experiment Station, MS	rqmts. on systems; impacts on flood controls
FEMA Nation Emergency Coordination Center, Washington, DC	monitoring, direction, warning, & control
USDA, Soil Conservation Service, Technology Information System, Fort Collins, CO	soils, plants, animal species, fate & transport; National Resources Inventory (NRI)
Boise Interagency Fire Center, Boise, ID	fire response & monitoring
US Department of Agriculture, US Forest Service	forest resources & distribution
US Census Bureau, Upper Marlboro and Suitland, MD	population data resources
US Army Topographic Engineering Center, Ft. Belvoir, VA	mapping & geodesy; imagery
Midwestern Climate Center, Champaign, IL	regional climate prediction & analysis
National Center for Supercomputing Analysis, Champaign-Urbana, IL	modeling and analysis tools and computing facilities for remote teleprocessing
Federal Highway Administration, Federal Aviation Administration & Other Agencies, Dept. of Transportation	transportation infrastructure data for GIS application; roads, railways, airways
National Photographic Interpretation Center, Washington, DC	imagery archives

Natural Hazards Research & Applications Information Center, Boulder, CO	natural hazards; research and risk assessments
Cooperating Universities, e.g., Disaster Research Center, University of Delaware, Newark	research; human attitudes & preference
Nuclear Regulatory Commission, EOP, Bethesda, MD	public safety & warning
NOAA National Geophysical Data Center, Boulder, CO	solid Earth processes
USGS National Earthquake Information Center, Golden,CO	earthquake monitoring
NOAA Tsunami Warning Centers	Anchorage, AK & Honolulu, HI
NOAA National Hurricane Center, Coral Gables, FL	monitoring, assessment, and warning
NOAA Severe Storms Center, Norman, OK	severe storm tracking
ARPA Center for Seismic Studies, Arlington, VA	geophysical event monitoring
US National Biological Survey, Department of the Interior	habitat/ecosystems monitoring & assessment
National Center for Atmospheric Research, Boulder, CO	integrated modeling & assessment
Department of Energy, Washington DC & Germantown, MD	utilities vulnerability
Dept. of Health & Human Services/OASA & SSA	medical and welfare support services
HHS/Public Health Service (Centers for Disease Control and Agency for Toxic Substances & Disease Registry)	Emergency Response Coordination Group
Department of the Treasury	Treasury Financial Communications System
National Interagency Fire Coordination Center, USDA/FS	fire monitoring, DC&W support
Department of Housing & Urban Development (HUD)	housing stock
US Environmental Protection Agency, Emergency Response Notification System (ERNS), Washington, DC	archive of information on releases of oil and hazardous substances into the environment
American Red Cross	NVOAD response & resource coordination
Joint Information Center (JIC) & State/Regional Emerg. Ops Center (ROC)	Federal and State EOCs/DFOs
State and Regional Monitoring & Assessment Centers	i.e., California Earthquake Center
Listing is Representative - Not Comprehensive	*Position in Table Does Not Reflect Priority*

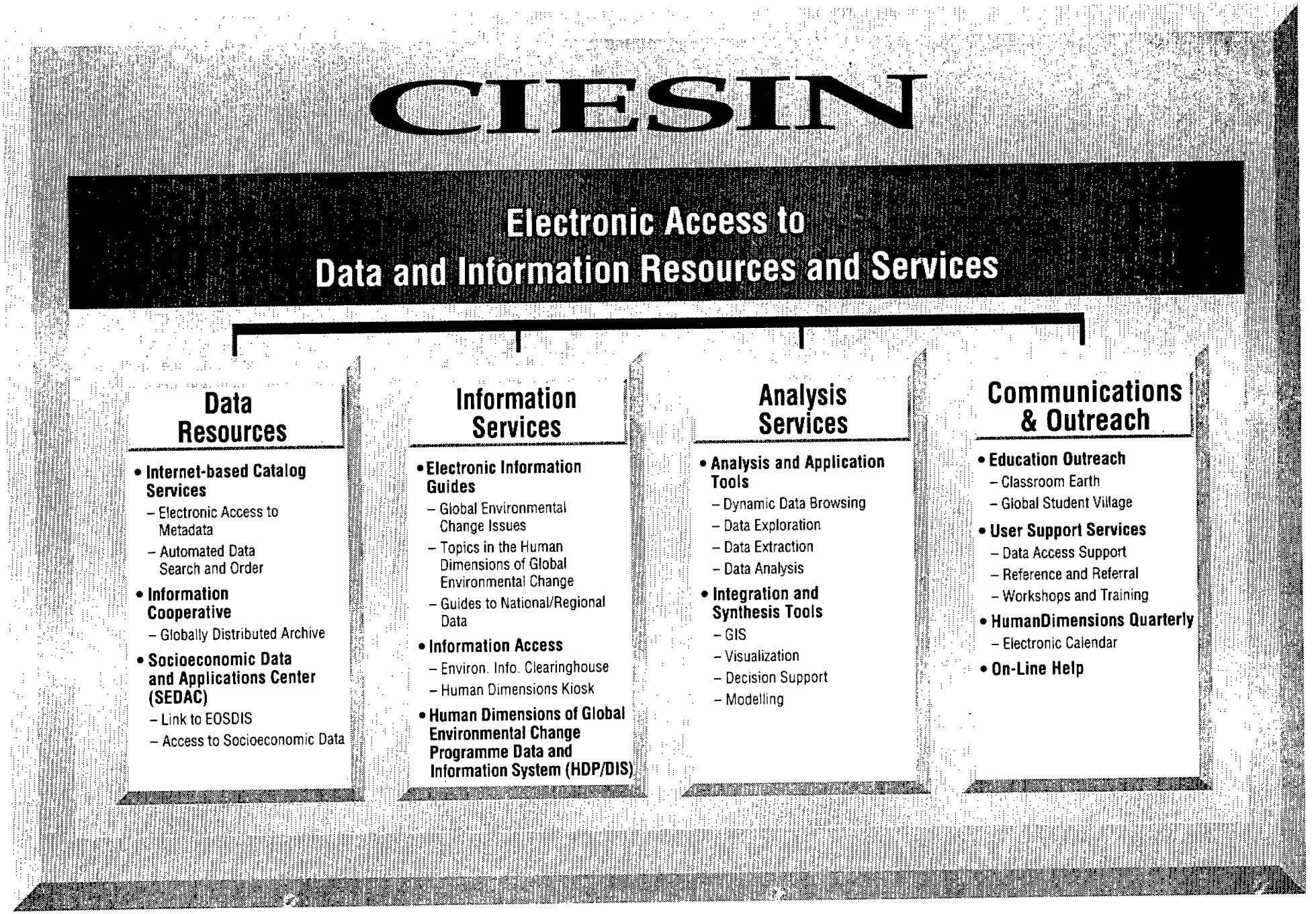
Drawing from existing resources and cooperative programs, it is feasible for the emergency management community to rapidly establish a globally distributed data system. Such a system, exploiting the worldwide Internet as a primary physical backbone, would deploy an applications network providing seamless user access to scores of interoperable data and information archives, research universities, government and multilateral agencies, and emergency operations centers.

Figure 4 depicts the electronic services rendered by the CIESIN program for an analogous diversity of users and information providers. CIESIN has implemented an integrated set of services, ranging from a World Wide Web (WWW) Internet server which exploits the NCSA Mosaic viewer technology and extensive use of HyperText Markup Language (HTML) enabling custom document linkages across the network. Unique to CIESIN, however, is a powerful electronic catalog service for worldwide search and retrieval of scientific metadata and data, both by a structured search vocabulary and by free-text search mechanisms. An additional unique implementation by CIESIN has been the context-sensitive linkage of HTML guides to the structured query engine of Catalog Services. This reduces the complexity of navigation for users as they traverse the GII via intelligent links established by CIESIN's designers.

CIESIN Catalog Service

The CIESIN catalog is a collection of descriptions of data resources focused on human interactions in the environment. Target users of the catalog include researchers, scientists, decision makers, policy analysts, engineers, educators, resource managers, the media, and the general public.

Information in the catalog addresses data that are of interest to both natural and social scientists as well as those that more traditionally serve the unique research interests of social scientists. The Catalog focuses on data resources in these areas: Land and Fresh Water Resources; Industry and Energy; Agriculture and Food Security; Population Dynamics; Economic Activity; Human Attitudes, Preferences, and Behavior; Policy and Institutions; and Human and Environmental Health. These categories reflect priority topics that have been identified by the National Academy of Sciences and the National Academy of Engineering; the National Science and Technology Council/Committee on the Environment and Natural Resources, and its predecessor, the Committee on Earth and Environmental Sciences; the International Social Science Council, and others. CIESIN defined these categories to provide clear avenues of access for the expected users of its catalog, recognizing that some degree of overlap is unavoidable with any categorization or data classification. Clearly, these data are highly correlated with



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the identified data requirements set forth in the US Natural Disaster Reduction Program and associated research programs, such as those investigating earthquake hazards.

The CIESIN catalog employs the ANSI Z39.50 standard and is compatible with recognized data interchange formats, including the Directory Interchange Format, and current development plans include compatibility with other standards, especially with the library community's Machine Readable Cataloging (MARC) standard. Information is stored in the catalog at three levels: directory, guide, and inventory.

Directory

Directory entries describe major data sets or collections of data sets. At the directory level, the catalog gives overview information that will enable the user to determine whether (s)he is interested in more information about a particular data resource. The information stored in the directory includes: title, summary, access, quality, contacts, data center, references, keywords, and temporal and spatial referencing. Currently, directory items are in various stages of development in the CIESIN catalog, including but not limited to the following domains:

- o Land and Fresh Water Resources
- o Industry and Energy
- o Agriculture and Food Security
- o Population Dynamics
- o Economic Activity
- o Human Attitudes, Preferences, and Behavior
- o Policy and Institutions
- o Human and Environmental Health

Guide

Guide entries are more detailed descriptions of data resources, organizations, people, and issue-oriented, cross-cutting themes. At the guide level, the catalog provides extensive information about a data resource; supplementary information about the data center that holds the data resource; and information regarding key personnel. Information includes: abstract, summary, archival, access, variables, data acquisition/collection summary, related data sets, contacts, references, and keywords. CIESIN currently characterizes four classes of Information Guide:

- o Thematic Guides;
  - issue-oriented, peer-reviewed narratives on key issues.

- o Dataset Guides;
  - providing comprehensive description of each data set.

- o Organizational Guides;
  - providing overviews of organizational structure, mission, roles and responsibilities, and pointers to data and information systems/inventories.

- o Country Guides.
  - describing the Information Cooperative Country Node Steering Committee, core data sets available at the country node, and overview of participating governmental, NGO, and academic institutional partners.

Inventory

Inventory entries are data descriptions of "granules," which are the smallest parts of a data resource that are independently managed in a data archive. At the inventory level, the catalog enables the user to determine if (s)he wishes to order the data. Information at this level includes a description of the granule, media, format, cost, access, and physical location.

Metadata development standards and procedures have been advanced by CIESIN, in concert with international and interagency coordinating bodies, and efforts are ongoing, to migrate descriptive data about holdings that are globally distributed into the Catalog Service. Partner institutions such as the Agency for Toxic Substances & Disease Registry, the World Health Organization, the US EPA, USDA, and Census Bureau are actively engaged with CIESIN in metadata development, data base population, and improving public access and use of their key data holdings (via guide and inventory access).

The CIESIN Catalog Service is now in beta test phase and interested organizations with missions supporting environmental change research, policy development and planning; emergency management and disaster relief; and sustainable development are eligible to participate in the test and evaluation of the catalog service without charge. The client software can be downloaded via FTP access on the Internet and installed on a host workstation or platform at the home institution/agency. The client-server architecture provides the only available parallel (simultaneous query) Internet server search and retrieval engine designed for scientific and engineering data and information systems and data structures.

5. Recommendations for EMAGIIC Activation

There is a unique opportunity for the leadership of the US emergency management community to make a major contribution of both national and international significance. Such action would serve to:

- o advance the access and use of information for decision-making in planning, readiness, response, recovery, and research.

- o provide demonstrable information and technology transfers in consonance with the IDNDR goals recently highlighted in Yokohama.

- o exploit the emergent Global Information Infrastructure and the Internet-based tools and resources on which it is being built.

- o contribute to management efficiencies and cost savings across a spectrum of local, regional, and international disasters and emergencies, including humanitarian assistance actions, which are competing for scarce federal funding

It is recommended that the National Coordinating Council on Emergency Management (NCCEM) and the Association of Professional Emergency Planners (ASPEP) jointly take the leadership role in the establishment of an *ad hoc* Advisory Working Group for an Emergency Management and GII Coordination initiative, recommended herein as the **EMAGIIC Project.**

EMAGIIC would serve in furtherance of the identified needs of integrated, interagency emergency information management, particularly those which can be met with adoption of existing infrastructure and applications (that are readily accessible and incrementally activated). These include core distributed data systems developed under U.S. Government funding, augmented by subject matter expertise to guide development of content and prioritization of node implementation.

It is recommended that:

- o An EMAGIIC Advisory Working Group be established; membership could be drawn from NCCEM, ASPEP, FEMA, S&L EMAs, UN, Red Cross and Red Crescent Societies, US DoD, and other principals;

- o this Advisory Working Group establishes liaison with the United

Nations, Department of Humanitarian Affairs, IERRRIS Project;

o identify key data resources, cooperating data and research centers, universities, and primary operational test and evaluation nodes be identified for participation within the Information Cooperative framework;

o metadata development (directory/catalog population); access, discovery, and retrieval systems training proceed; and Thematic Guide issues be identified and in-kind work assignments be made, until such time as core program funding can be secured.

Perhaps, a closing contextual statement will contribute to understanding the long-term value of the EMAGIIC initiative, as well as the importance of framing it within the broader sustainable development and human interactions milieu of CIESIN. Olavi Elo, Director of the IDNDR Secretariat, recently said the following in consideration of the IDNDR mid-term review in Yokohama (emphasis added):[9]

> *Today the IDNDR places more emphasis than before in two areas: first, helping developing countries and regions build their capacities to cope with disasters; second, promoting disaster reduction at a macroeconomic and political level with legislators, key environmentalists and economists, development planners, relief managers, and relief and development aid officials. They, in turn, can persuade, mandate, fund, and* ***mobilize their networks*** *to undertake disaster mitigation, prevention, and preparedness.*
>
> *Most national committees are not functional, or have only marginal policy-making status in their countries. Unless these committees be made more effective, we will need to develop* ***new channels for country-level action.***
>
> *Using* ***humanitarian relief operations*** *as a starting point for disaster mitigation is only one side of the coin. Integrating disaster mitigation into* ***socioeconomic planning and development*** *is the other. Disaster mitigation is the most effective way to* ***link disasters and development.*** *Disaster reduction measures need to become part of the process of protecting our investment in* ***sustainable development,*** *not simply an additional cost. Making disaster reduction a priority in public policy is essential if we want a safer, healthier, and more productive world in the 21st century.*

The distinction between domestic policy and foreign policy is increasingly viewed as an artificial boundary. This is appropriate to consider in the context of emergency management and disaster relief. There are profound social, economic, and national security implications in any major disaster whether on American soil or elsewhere in the family of nations. The professional emergency management community should move to acknowledge this and take a leadership role in advancing a new standard of international cooperation. The building blocks for EMAGIIC are in reach, the timing is critical, the payoff incalculable.

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Mr. Coullahan has over eighteen years experience in systems engineering, integration, and analysis, and security management, directed toward integration of national and international data systems and networks in support of emergency management, environmental, defense and national security missions. The past seven years have been focused on requirements definition, systems architecture development, integration of data systems and networks, and the analysis of alternative data management strategies in support of the US Global Change Research Program (USGCRP), US Natural Disaster Research Program, the US National Sustainable Development initiative, and information initiatives of multilateral institutions, particularly the United Nations Development Programme and the World Bank. Current responsibilities include coordination of global information infrastructure (GII) development activities with international partners, in the public service of humanitarian assistance, environmental research, disaster relief and emergency communications and management requirements.

Currently, Mr. Coullahan is the Director of Government and International Programs, CIESIN. In this capacity, he leads a team of scientists, engineers, and project managers in support of NASA, US EPA, USDA, OSTP, DoD and multilateral project activities. Each of these core projects support Congressionally-directed studies and interagency information infrastructure development projects designed to optimize the use of national and international data assets for global environmental change research and applications, disaster reduction research and applications, and sustainable development programs. Mr. Coullahan leads the user needs analysis, requirements identification and definition, project design and execution for government and international programs with the United Nations, the World Bank, the Organization of American States, and other intergovernmental and multilateral institutions.

Mr. Coullahan also oversees the CIESIN Information Cooperative, a partnership of nearly fifty institutions dedicated to implementation of a global applications network for researchers, practitioners, educators, and policy analysts engaged in environmental, socioeconomic, public health, and disaster reduction research and applications. This assignment requires close coordination with the US State Department and other overseas missions to effect activation of Country Nodes in countries such as Russia, Ukraine, Estonia, Latvia, Lithuania, Poland, China, Japan, Kenya, Iceland, Mexico, Rwanda, Taiwan, Lebanon, among others.

During the period 1988-1989, Mr. Coullahan, conducted an independent research project under the auspices of the Forensic Sciences Dept., George Washington University. The project investigated plans and programs for technical interoperability among national, state, and local telecommunications and data systems to support the Federal Emergency Management Agency.

THE INFANT AGE OF THROW AWAY COMPUTERS TECHNOLOGY AND HOW IT WILL EFFECT THE EMERGENCY MANAGEMENT FIELD

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Over the years computers have enhanced the Emergency Field by supplying real-time information to Emergency Operation Center (EOC) and the Emergency Manager, which assists them in making vital decisions.

The Emergency Manager relies on the their ability and field information to make decisions. Despite diverse backgrounds, Emergency Managers have a oneness of purpose. The emergency management profession places its highest values on the protection of life and property, improvement of quality of life, protection of the environment, responsiveness to disaster victims, responder's inner as well as physical needs, responsiveness to the special needs of society's diverse populations, promotion of justice and equity, provision of mutual assistance and support and proactiveness in approaching problem solving[1]. An Emergency Manager needs to possess political, technical and administrative skills. The ability to share this expertise with public, fellow emergency responders and appointed officials is a must. The Emergency Manager relies on others to paint a picture image of the situation. These are some of the traits that exist in most Emergency Managers.

The introduction of computers into the Emergency Management Field did not happen until early 1980's when word processors replaced typewriters. These word processor's were the first attempt to automate some of the message logging aspect of reports from the field. The word processor's were at best glorified typewriters with very limited memory capacity, expensive and limited to the planning aspect of emergency management (i.e. plans, manuals, reports, etc.). The systems were bulky and not compatible with other systems. Portability wasn't an issue for they were not. The computers effect in helping the Emergency Manager in decision making was that they played no significant active role.

In the years from 1982 to 1986 there was an explosion in the computer industry. IBM introduced their line of personal desktop computers. Apple introduced their easy to use computers for school use. The emergency management field started to see computers move from planing areas to the operational areas of the field. The technology was in its infancy, rather costly and untested. Computerized management software was starting to be

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1 Anderson, William A. & Mattingly, Shirley. Emergency Management: Principles and Practice for Local Government Chapter 12, pg. 321

developed by some vendors, but many aspects of these software programs were limited. The range the software had to cover was broad and ever changing. Some managers did utilize parts of them for some resource tracking and message log keeping. The majority of mangers relied on the tried and true grease boards, white boards, paper maps, clipboards and index cards with resource names and locations on them. Many people were not convinced that computers would ever be able to do the job in the emergency management field because it has been traditionally a hands on type of environment. There was no easy way computers would ever be able to replace the human interface that was needed. There seemed to no way that you could use a computer when doing field work in a disaster type environment. There was also a power source concern. Computers require that users know or be free to learn how to operate them. The cost at this time was still prohibitive. Many agencies just starting to explore this avenue could not afford the financial or personnel costs. The commitment was one that had to be substantial and in agreement by all parties concerned from management down to the end users. There was still no clear cut system compatibility among the different brands of computers and their operating systems. In emergency situations critical information had to be shared quickly and accurately to ensure that everyone makes decisions based on the same information.

In the next few years the computer industry broke new ground in system affordably, power. Speed and storage capability increased significantly with the introduction of larger hard drives for the desktop PC's. As the hardware development advanced by leaps and bounds so did the computer software industry with new advancements in the development of emergency management database software, communications software and mapping software. Newer graphical operating systems were making computers user friendly. This made people more receptive to the more powerful tools. With the advent of the smaller sized desktop units, portable computers were born. Now field personnel could take their computers with them and compile reports and data from the field to assist their Emergency Manager. Some of these portable computers however, weighed in at a hefty 10 to 25 lbs. making them a chore to carry around.

During the 1989 Loma Prieta Earthquake in California, computers were used in the management of resources, tracking assets, message sending, writing situation reports, map imaging, message logging, weather switching and briefings. Portable computers were used extensively in field operations by front-line personnel. Computers with longer battery life than ever before increased the productivity of information gathering. Computer systems were becoming more uniform and compatible with each other. Sharing information was becoming a reality. The Emergency Manager could have been easily overwhelmed by the increased flow of information made available to them. Decisions that were made in the past with incomplete information were now being made with more real-time complete information than ever before. The

task of the Emergency Manager was how to best utilize this new medium and not let the technology over-take them and overshadow the mission of saving lives and property. The Emergency Manager still needed all of their skills in communications in dealing with political officials, the public and others in their respective fields but now more than in the past they had to be literate in this newer technology . From this disaster the term Techno-manager was born. The Techno-manager is a combination Emergency Manager and a technologically literate person who understands the value and the limitations of technology. They also understands that computers are only a tool to be used. The final decision made on an action is based solely on the manager's experience and ability.

Many software vendors started to develop and sell management information software, for tracking resources, record message logging, situation reporting, some "if analysis" and mapping. Though most of the packages were weak in some areas, it was a start and showed there was a viable market that could be explored. The race to develop a package that could encompass it all was on. The dynamics of the Emergency Management Field were so wide and ever changing that the software had to be able to adapt to almost any situation. In order to change with these ever moving dynamics the systems were large, complex and they lacked the trained personnel who were knowledgeable in the Emergency Management Field. These personnel were at a premium.

Then came the Northridge Earthquake of 1994. Computer technology came into it's own. The prices of these computer systems had dropped tremendously. Speed was at an all time high with the introduction of the Intel Pentium Chip and the Power PC chip for the Macintosh. Storage capability had increased and information was moving form hard drive storage to CD ROM storage. The systems were easier to use. The ability to share information across different platforms had become paramount. Trained personnel were not plentiful and were in high demand. Never before had so much technology been available to deliver so much real time information in real time. What before took weeks and months to accurately assess how extensive the damage to an area was, now only took hours and days. Computers were now used to track external resources. They plotted the affected areas to assist in obtaining potable water, drinking water, blankets, food and other supplies. They were utilized for accounting purposes to track the amount of money that had been or were forecast to be spent and also to keep a running account of the total damage to the area. Computers were even used to track other computers for logistic and operations uses. Desktop computers produced 3-D mapping and images. These computers coupled with the use of geo-locating devices enabled Emergency Managers to pinpoint locations in damaged areas, where there were no street or road markings, within an accuracy of 2 meters. The Emergency Manager now not only received written reports describing the situation but, they could now view maps representing detailed demographic information and locations of the

damaged areas and the impact upon the effected communities. Computers were also used to monitor the seismic events as they were occurring in a real-time mode. As seismic events occurred, computer generated maps showing location, depth and magnitude were generated on computer screens. The information was received, via alpha numeric pager, from CALTECH and USGS which were connected to the serial port of an IBM computer at the warning center. A piece of translation software turned the information into a generated image of what was occurring at the time of the event. Field personnel armed with 486 notebook computers and Personal Data Assistants (PDA's), which now weigh less than 5 lbs, and specialized software were able to collect information at a much faster and accurately. All of this vital information was down loaded into a central database at the Disaster Field Office in Pasadena. This information was used during the analysis of determining where to setup the Disaster Field Offices (DFO's), Disaster Assistance Centers (DAC's), annexes, shelters and treatment facilities.

Again we focus on the Emergency Manager (Techno-manager). How can they assemble the massive amount of information presented to them to make vital decisions with out letting the technology saturate them. The Emergency Manager needs to be technology savvy, not an expert but with an understanding of the concept of the technology and how the information is obtained. This will determine how it should be used in a decision process.

Example: Information is being collected via phone (random sampling) and entered into a database. This application shows that only a small area has been damaged during an event. Field agents are sent out to the same area that was contacted via phone to do follow-up. You find that the community was heavily damaged based on real time field reporting information that was just collected. You then can adjust your plan thus making a decision based on the new information would be appropriate.

The human factor still plays a vital role in the decision making process. Machines are machines and cannot make decisions of life and death. Who gets help and who doesn't. As we enter the age of the information super highway and technology becomes accessible to every one we may find ourselves in the position of media overload.

Example: The news media has saturated the public with information concerning the O.J.Simpson case on television, radio and in the newspapers. Some true, some false. There are computer bulletins boards on the Information Highway where discussions are taking place whether or not he did murder his ex-wife and the waiter. Where do we draw the line for our search for information?

Hardware and software will continue to shrink in size and increase in user friendliness. Cost will not be a factor even today computers are more affordable than they ever were. The PDA's used in the Northridge Earthquake have become expendable, costing only around $500 apiece. In the past technology of this sophistication would have cost hundreds of thousands of dollars. Even

desktop and portable computers prices have plummeted. Systems that are in some cases 100 times faster and can store up to a gigabyte worth of information only cost a few hundred dollars verses a couple of thousand dollars for the word processors used in the early eighties. Once calculators that did simple math functions and cost hundreds of dollars now cost only pennies. Technology is becoming throw away. It is has become affordable to everyone thus driving down the cost. Having looked at technology and its throw away future, many computer manufactures are designing green PC's that can be recycled at the end of their useful operation.

I was speaking with Jane Hindmarsh[2] an Emergency Manager who has been in the field for some 20 years. I took down some of her thoughts of where she believes the field is heading and how it will affect the way mangers make decisions. She reminded me of an old Star Trek episode in which Capt. Kirk was replaced by a artificial intelligence computer that was put into control of the Enterprise. This computer malfunctions, fires upon and ultimately destroys another ship while on a training exercise. She believes that no matter how much technology advances there will always need to be a human factor in the equation. She also said there is a real need for people, such as myself, who understand the computer technology and can translate this technical tower of Babel into information useful to Emergency Managers. All in all, Emergency Managers will still have to make the hard decisions that they did before computers became a viable tool, they will just have better and more information in which to base their decisions on.

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Mr. Keel was promoted to Emergency Services Coordinator, Hazardous Materials Unit February 15, 1994. He is currently working on a Single Comprehensive Hazardous Material Inventory program for the State of California and is responsible for tracking Area Business Plans for hazardous materials generators in the State of California.

Prior to state service Mr. Keel was the manager for a computer software and hardware company based in Sacramento. He served 10 years in the USAF as an Emergency Actions NCO in the command post both ground and airborne.

Mr. Keel graduated from the College of the Air Force with a degree in Communications and is continuing is education in both Computer Information Systems Technology and Hazardous Materials Technology.

EMERGENCY MANAGEMENT ON THE "INFORMATION SUPER-HIGHWAY"

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INTRODUCTION

The concept of an "Information Super-highway" has many meanings. For commercial entities such as the telephone company it is an opportunity to conduct business outside of the realm of regulatory agencies and in a new and uncharted environment. The plunge into the new world of the "Super-highway" will allow the ordinary household to have a "video dialtone" which will allow access to a cornucopia of services such as visual shopping at an electronic mall, including parking your car, entering an elevator and deciding which shop to enter to browse and perhaps purchase. Just imagine being able to call up the latest movie at home and view it in the comfort of your own living room - all this through your home computer or television screen.

The possibilities of this gigantic leap in technology are only limited by the human imagination. We, in the emergency management community, must start planning now on how to include this new and vital resource into our day-to-day and emergency disaster operations. What are the possibilities? How will the system operate? What can we do with it? How can we use it on a daily basis? These are only a few of the questions we must now ask.

PROJECT BACKGROUND

Nine years ago some far sighted people at the Federal Emergency Management Agency (FEMA) realized that computers were going to impact more and more on the day-to-day existence of the emergency management community. Along with this came the fact that if emergency management, as a national community, was to be effective in the use of this technology, an organization had to be formed to provide advice to the decision makers at all levels. To address this question, a meeting was held in Cheyenne, Wyoming with several FEMA and State computer "experts". From this beginning sprang the State and Local Data Users Group (SALEMDUG). SALEMDUG has become the advisory group for several other organizations, including: the National Emergency Management Association (NEMA), the organization of the State Emergency Management Directors; the National Coordinating Council on Emergency Management (NCCEM), an association of local emergency managers, military emergency managers and business, industry emergency

management personnel including international representation; the National Disaster Medical Services (NDMS), the arm of the Public Health Service responsible for rapid responses to disasters where emergency medical services are required; the National Institute for Urban Search and Rescue (NIUSAR), an institute for the promotion and advancement of the urban search and rescue specialty, and the Federal Emergency Management Agency (FEMA).

SALEMDUG has consistently promoted the "open architecture" approach to the dissemination of emergency management information. Through its sub-committees it has promoted the free distribution of information which could be of benefit to the profession. Information exchange is accomplished through utilization of an electronic bulletin board (BBS). While the SALEMDUG organization operates the board and provides policy direction for its use, the equipment is purchased by FEMA. Some of the things which the BBS is currently used for are: conferences where designated topics may be discussed and interested parties may leave messages; conferences where organizations may conduct business; areas where interested parties may upload and down load files from several areas of interest; and the exchange of information with other bulletin board systems nationally and internationally.

THE PROJECT

One of the concerns of the SALEMDUG Executive Board has, for years, been how to provide the benefits of connection with the bulletin board to the local emergency management community without requiring them to call FEMA Headquarters in Washington. To partially accomplish this, there has been a history of connecting to other bulletin board networks which had "nodes" (connection points) distributed throughout the country and allowed the storage and forwarding of messages. While this was a viable solution and allowed some local calling, it did not provide access for direct file transfers and "chatting" with other users through the board.

In an effort to accomplish a wider series of local connections, SALEMDUG joined with the Emergnet organization and established an Memorandum of Understanding under which both organizations would work toward the development of a national network. The resulting national network would allow low/no cost access to local jurisdictions. Since Emergnet was closely aligned with the fire community, this provided an ideal opportunity for the emergency management and fire community to join in promoting a single "pipeline" through which information could flow.

During this same time frame there was a dramatic increase in the incidence of Presidentially declared disasters of a catastrophic nature. With hurricanes Hugo, Andrew and Iniki, the flooding in the Midwest, the L.A. Riots,

the California wildfire and earthquakes, the ice storms in the east and many other disasters, there came the understanding that vital information resided within the Federal Government and that FEMA could and would gather that information and send it to the impacted areas to help alleviate the effects of the disaster. However, there was no established method to electronically transfer the information. Enter the SALEMDUG Pilot Project Proposal.

In an effort to start defining the problem and intelligently moving toward development of an "Emergency Lane" on the new "Information Super-highway", the State and Local Emergency Management Data Users Group (SALEMDUG), with the support of the National Emergency Management Association (NEMA), the National Coordinating Council on Emergency Management (NCCEM) and the National Volunteer Fire Council (NVFC), forwarded a pilot project proposal to the Federal Emergency Management Agency (FEMA). The purpose of the pilot project was to develop a computer bulletin board system connecting twelve states. The resultant system would be capable of exchanging data files and electronic mail either on a timed store and forward basis or a "blast up" (immediate access) basis. Additionally, the system could be used to direct the delivery of messages and files (such as situation reports) to specified receiving points, thus, allowing the overnight delivery of "mail". This project concept was approved by Mr. James Lee Witt, Director of FEMA.

As a part of the proposal process, SALEMDUG pledged to attempt to obtain outside funding for this project and not to depend on FEMA funding sources. To date SALEMDUG has obtained software, software support and personnel time donations which are valued at approximately $250,000. These assets were pledged as an in kind matching funds for a grant proposal submitted to the Department of Commerce and the National Information Infrastructure (NII) Grant program. If successful, the resulting $250,000 grant will be used to fund travel, programming, and installation of terminals and other tasks which will allow initial connection of the twelve states through the current FEMA wide area network to and through the SALEMDUG bulletin board.

SALEMDUG is dedicated to the logical organized expansion of technology within the emergency management community. This initial step with the leaders of emergency management from local, state and federal organizations will serve not only the emergency management community, but all others who have an interest in the success of emergency management. Such diverse organizations as the Flood Plain Managers Association, the American Red Cross, the Salvation Army, National Voluntary Organizations Active in Disasters, the national insurance industry, research facilities and others can not only benefit from participation in the national system, but from its interconnection to international networks. The distribution of this tremendous amount of knowledge and information can only benefit the emergency

management community as a whole.

While the initial Pilot Project involves only twelve states, the final network should include all states and U.S. Territories with a link to all local jurisdictions wishing to participate in the national network. The original concept of using linked bulletin boards will expand to include links to internet, direct routed distribution of information on a regular basis, distance learning and perhaps interactive video. These technologies are currently on the market and could be easily integrated into the current FEMA wide area computer network. So the physical portion of the system is fairly easily attainable.

FUTURE EXPANSION POSSIBILITIES

The Pilot only involves the physical linking of twelve states to the national bulletin board. Once this premise has proved feasible, then an expanded project may be authorized and the first steps to construct a true "emergency lane on the information super highway" can start to be developed. The first step from the SALEMDUG viewpoint has started with the integration of the SALEMDUG bulletin board with the Hazardous Materials Information Exchange (HMIX) bulletin board located at Argon National Laboratories in Chicago. After that is accomplished there will be 800 telephone access to the board, and, with the internet domain server access with the combined boards, there will be a gateway to worldwide communications and information exchange. By linking those three assets together, FEMA will have provided the local emergency manager the ability to literally search the world for answers to local problems.

Stage two in this process may very well be the inclusion of an E-mail capability into the network where each emergency manager utilizing the network will have an internal mailbox. This would allow the distribution of mail and information from one entity to another. For example, the director of a state could write a memorandum to the directors of that state's local jurisdictions and have that delivered electronically overnight. In the morning the local director would find that message waiting in the office computer. This would also allow such things as automated distribution of FEMA disaster situation reports to all state directors at the same time that they are distributed to FEMA Regional Headquarters. Each state director could then forward the information to all or selected local jurisdictional directors.

In the reverse, normal daily business could be conducted over the network by simply automating reporting requirements. Now the Comprehensive Cooperative Agreement is reported through the CARL computer program. It could just as easily be electronically formatted and a local jurisdiction would complete its report and electronically transfer it to the state. The state would

then compile all the local reports and forward the aggregate report to the regional office. The regional office would then compile all its state reports and forward that composite report to the national office. To carry the idea even further, there could be a similar system set up to forward damage assessment information through proper channels during a disaster.

The computing power required to run complicated models such as hazardous materials plume models, fire spread models, flood inundation models and evacuation models is not readily available at the state much less the local level. These models can best be run at FEMA headquarters and gridded data sets (geographically related information) can be sent across such a network and utilized in personal computers in a state or local office. This centralized use of advanced computer modeling would greatly reduce the overall cost of implementing a high technology capability for disaster response. By using software which would allow the direct import of the gridded data sets exported by advanced computer models the emergency management community could utilize the vast amounts of data collected by the federal government in very positive ways.

As the progress of the development of a national system advances, there would be satellite back up or primary communications. These links would allow the use of sophisticated audio visual links through multi-media capable computers. Such links would allow the Director of FEMA from headquarters to provide a visual briefing for all the state and local directors on such matters as the situation surrounding a disaster, budget questions which would impact the emergency management community as a whole, conduct a national staff meeting with all the regional directors and many other functions.

The future national system will allow the implementation of distance learning through the use of interactive computer video linkages. Instructors at the Emergency Management Institute and National Fire Academy will be able to teach classes without the need for high travel budgets. Those savings could be used to develop more and better courses for emergency management.

The best part of the system is that it doesn't apply only to the emergency community, but those pathways developed for emergency management would be open to the engineers, flood plain managers, business and industry representatives, other local, state and federal departments and agencies, universities and colleges, police departments, fire departments and associations, public works interests and other entities. These various interests all contribute to the success of emergency management during disasters and should be participating in the dialog which will be taking place on the computer system.

SUMMARY

The SALEMDUG Pilot Project is the entry by the emergency management community into the world of interactive technology. Support for the project comes from all aspects of the emergency management community and has received support from the fire and public health communities. By working together the "emergency lane of the information super-highway" will become a reality.

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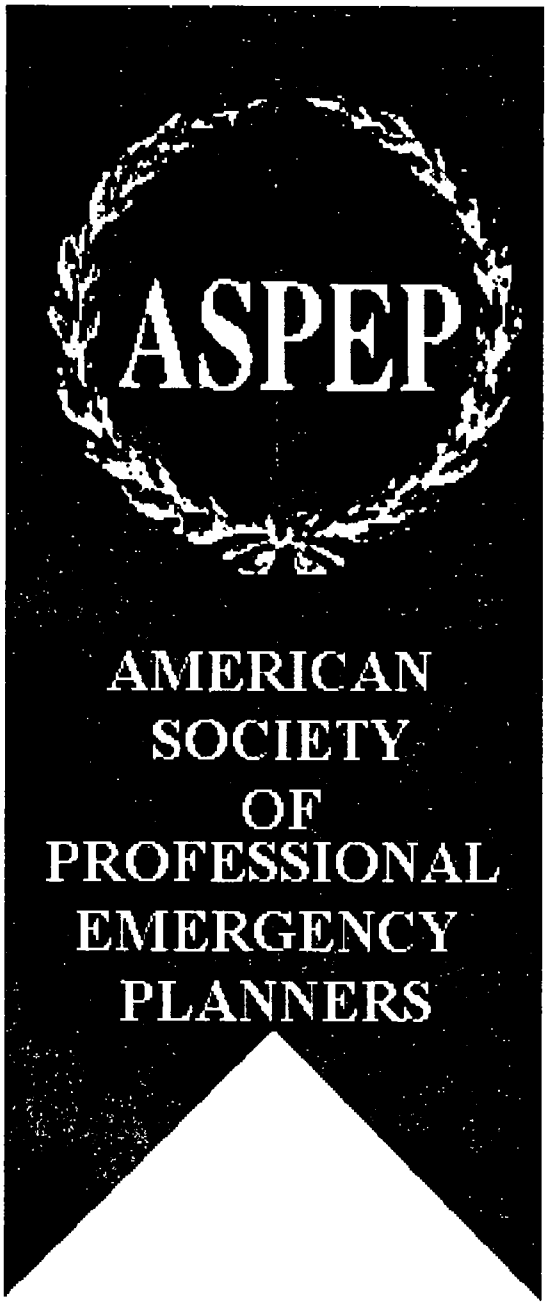

TRAINING

ISSUES

JOB COACHING AND EXERCISE CONTROLLERS AS PERFORMANCE ENHANCERS FOR EMERGENCY RESPONSE ORGANIZATIONS

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Introduction

Job Coaching, what is it and how will it enhance job performances in the nuclear world, particularly in the successful demonstration of emergency services?

Performance enhancement is a hot topic in the majority of training environments and rightly so. Training that does not provide a positive change in the individual's performance can no longer be acceptable from a safety and an economical standpoint. The enhancement of performance is not a magical combination of bat wings and eye of Newt. It is the utilization of basic instructional methodology. This basic instructional methodology is not specialized to any type of instructional media, but stretches across all instructional and performance methodologies. Therefore, much can be learned from other specialized areas of instruction. The necessity of developing completely new methodologies is neither beneficial nor cost effective. An example of these cross-line methodologies is the applicability of job coaching from its original specialized field of Special Education to the nuclear emergency response environment.

Job Coaching is a part of **O**n-the **J**ob **T**raining (**OJT**) where the **S**ubject **M**atter **E**xpert (**SME**), possessing the applicable job skill, walks the student (trainee) through that particular task until the student is able to complete the task on his/her own to acceptable performance standards. This form of performance enhancement has become manifested in the skill augmentation of the developmentally and physically disabled with the intervention of a job coach directly with the trainee. Repetition and progression of the task by the job coach, the job coach and the trainee, and finally, the trainee, is paramount to the long-term success of the trainee retaining the job skill.

You are probably saying to yourself that this is all well and good for the instruction of a particular job skill for the disabled, but how does this apply to the non-disabled individual and, particularly, to the performance enhancement of the emergency responder and the successful completion of an exercise? While the overall skills needed by these individual groups are light years apart, the basic educational theory of drill and re-drill is the same. Basic to the drill

theory is that the repetitive act must be performed correctly if the specific skill is to be learned and then demonstrated satisfactorily. For the skill to be performed correctly, it must first be demonstrated to the trainee accurately and then practiced in the same manner. The correct demonstration of the skill to the trainee and the continual practice of the skill accurately must be monitored perpetually. This is the task of the job coach. The job coach is the skill expert that demonstrates the skill to the trainee and then validates the precision of the trainee' s attempts. If the trainee deviates from satisfactory skill performance, the job coach positions him or herself in the location where instant correction is possible.

Therefore, applying this concept to the successful completion of a non-evaluated emergency drill is an easy transformation. The utilization of a controlled network combines the ideas of job coaching and the ability to control the progress of a drill. utilizing this concept does have some drawbacks. If adequately controlled, this concept will have minimal affect upon the overall outcome and may result in an ancillary short-term expense, and will have tremendous payback in enhanced job performance and thereby long-term savings.

The first variable that must be controlled is the use of competent controllers. These controllers must be experts in the particular skill(s) in question. The controller must also be able to communicate effectively with the emergency responder (trainee) so that satisfactory performance is differentiated from unsatisfactory performance. Additionally, the emergency responder must understand what the controller is asking him/her to do to be successful. Conversely, the controller must understand what the emergency responder is attempting, so that a satisfactory performance is the consequence.

The controller must understand the big picture. The controller must know the outcomes that are expected from the emergency responder and be proficient in the skills of the individuals who interact with him/her. This allows the controller to role play the positions with whom the emergency responder MUST interface and allows for practice of that skill.

The initial costs associated with the training of the controllers will result in a larger expenditure for the first year. This is due to the conducting of a skills audit of each of the controllers and then, where deficiencies are noted, the additional training needed to bring the deficient controllers up to speed.

While the individual roles of a job coach and controllers are in different worlds, their basic concepts are corresponding. Both positions utilize the concept of practice and instantaneous feedback to correct unsatisfactory performance. Reinventing the wheel is not always necessary even in the

nuclear world. Basic performance enhancement concepts are the same to whatever world they are applied.

Summary

Job coaching, while a significant part of the development of the disabled, has applicability to the enhancement of performance in the nuclear world, particularly, emergency response. Training that does not provide a positive change in the individual's performance can no longer be acceptable from a safety and an economical standpoint. The enhancement of performance is not a magical combinations of bat wings and eye of Newt. It is the utilization of basic instructional methodology, that is not specialized to any type of instructional media, but stretches across all instructional/performance methodologies. The need for hands-on and walk-through forms of repetitive practice is the cornerstone of performance and instruction methodology. The job coach/controller becomes the Subject Matter Expert and provides the necessary hands-on skill training that is needed by the student to enhance his/her emergency response job performance.

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ANALOGIES FOR A TRAINING TOOL

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Introduction

> Dealing with hazardous materials and associated hazardous titles is like working to a "live" audience without the benefit of video taping or retakes. Once the performance is offered, there's no turning back, no chance for correcting any errors. (Rose, 1992)

The number of hazardous chemicals used in the United States grows every year, and the competency [that is, "being able to work self-sufficiently" (Gery, 1992)] of many workers to avoid harmful exposure does not keep pace. Competency is related to the ability of the worker to understand and correctly use hazard information on these chemicals, to properly recognize the symptoms of overexposure, and to properly use the methods to minimize harmful exposure.

The term "competency" is not used in OSHA safety and health standards, but, the term "understanding" is used:

> Ensure that all employees understand the hazards to which they may be exposed and how to prevent harm to themselves and others from exposure to these hazards ... (OSHA, 1989, p. 3907)

When OSHA issued the guide for the Voluntary Protection Program in 1989, the use of the term "understanding" was questioned during the public comment. OSHA (1989) responded as follows:

> Although there is not fully reliable means of ensuring understanding, effective safety and health management will apply the same diligence with respect to safety and health protection as is applied to ensuring an understanding of other operational requirements, such as time and attendance, production schedules and job skills. (p. 3907)

To help ensure that workers would be better prepared for the chemical hazards in the workplace, the Occupational Safety and Health Administration (OSHA) issued the Hazard Communication (HAZCOM) Standard (OSHA, 1983). This standard mandates hazard evaluations of chemicals and communication of the hazard information to workers at risk. OSHA chose the Material Safety Data Sheet as the most appropriate means of transmitting information regarding

hazardous chemicals in the workplace.

The technical level of MSDSs, however, limits their effectiveness as a method of communicating information on hazardous chemicals. In an attempt to assess the effectiveness of hazard communication, OSHA funded a study by the University of Maryland and Kearney/Centaur to identify problems with the comprehensibility of MSDSs. Among the conclusions of this descriptive study was the following: "There remains a sizeable portion of key information presented on MSDSs that is not comprehensible to workers" (Kearney/Centaur, 1991). That portion is approximately one-third of the crucial safety and health information. Readability, workers' literacy levels, and the format were identified as problem areas that should receive further study.

Hadden (1989) found that MSDSs are too long and full of technical terms unfamiliar to most workers. Cohen, Schmidt, and Colligan (1989, p. 46) determined that "much of the technical information has little meaning to the average workers and may even frustrate the workers' ability to read other portions of the MSDS that have pertinent information on hazard recognition and safe practices." The technical terms on MSDSs are precisely defined, abstract concepts that express relationships among chemicals, humans, and the environment. They are relationship concepts that express a defined relationship among the attributes of a concept (Bruner, Goodnow, & Austin, 1986). These relationships are affected by the perceived meaning of the words that define them.

The language used on MSDSs requires a level of technical literacy that is higher than that of those at risk. Ninety-five percent of the population of the United States lacks a basic vocabulary of scientific and technical terms and concepts (Miller, 1987; Lightman & Miller, 1989). This lack of technical literacy significantly affects the value of MSDSs as a source of usable information. Technically trained professionals readily comprehend the terminology found on MSDSs because they have learned the terminology through formal education and their work reinforces this knowledge. However, these professionals represent only a small fraction of the total population at risk from hazardous chemicals.

To further complicate the issue of using MSDS's, the number of people who use them has drastically increased since the passage of SARA Title III. OSHA has recognized the growing number of people who are expected (and required) to use the information contained in MSDSs:

> This issue [of technical language used on MSDSs] is further complicated by the use of MSDSs outside the workplace. Under Title III of SARA, Congress mandated that MSDSs be made available to State Emergency Response Commissions, Local Emergency Planning Committees, and fire departments, to support emergency planning and emergency response, as well as to provide the general public with information about chemicals for

right-to-know purposes.(OSHA, 1990, p. 4356)

Because OSHA intended for MSDSs to be the primary source of information on hazardous chemicals, training is intended to prepare people to use these resources competently. The HazCom Standard (OSHA, 1983) recognizes the following:

> Training is critical to effective hazard communication — it is the forum in which hazard information can best be presented in such a way as to result in workers taking protective action, and thus decreasing the possibility of occupationally-related chemical source illnesses and injuries. (p. 53301)

Without effective training, workers at risk from hazardous chemicals may respond in one of three ways (Cherniak, 1992, p. 20):

- They shrug their shoulders, self-interpret safe use [of the chemical] and assume good fortune.

- They nod their heads in approval and conclude that the product can't be all bad or else they wouldn't have been asked to use it.

- They fear the product, emotionally respond to the danger and ultimately mistrust the management responsible for its application in the workplace.

Teaching workers about the technical terms on MSDSs is difficult for the trainer and instructional designer because these concepts cannot be categorized into easily learned groups. Technical terms are abstract, defined concepts (secondary concepts), not concrete concepts (primary concepts) that are "material body in the external world, typically visible, tangible, and manipulable" (Heidbreder, 1945, p. 2). Terms on MSDSs must be learned through language because examples of these concepts cannot be observed: "Many concepts can only be acquired as defined concepts and cannot be identified by 'pointing to' them, as can concrete concepts" (Gagné, Briggs, & Wager, 1988, p. 61).

To solve the comprehension problem for MSDS users who have limited technical literacy, a way must be found to bridge the gap from the familiar to the unfamiliar (Zeitoun, 1984), a way to "enhance learning by creating vivid imagery that can be associated with the systems to be learned" (Gilbert, 1989, p. 316). Analogies are a way to create that imagery and bridge the gap from the known to the unknown.

The technical terms on MSDSs express relations between chemicals and the environment (including humans) in the same way as analogies express

relations. Analogies hold promise in solving the problem of understanding MSDSs because of their similarity to the relationships expressed by technical terms: "The power of an analogy in learning is in the system of relations that can be mapped" (Gentner & Toupin, 1986, p. 278).

Analogic Tools

Gagné (1985) divided concepts into two classifications: concrete and defined. Concrete concepts are associated with tangible things in everyday life, things that can be seen and touched. Chair, bird, and ball are examples of concrete concepts. Each of these examples is a thing that can occur in a wide variety of forms, but the words "chair," "bird," and "ball" evoke common understanding. Such easily remembered examples of concrete concepts are prototypes, the "clearest cases, the best example" (Rosch & Mervis, 1975).

Gagné (1985) described defined concepts as rules used to classify events and objects. Romiszowski (1981) further described defined concepts as "classes of other concepts" that depend on a "suitable language." Pikas (1966) called them abstract concepts. Abstract concepts, by their very nature, are not tangible; they exist only through the words used to define them. Rothwell and Kazanas (1992) described abstract concepts as "invisible." Because abstract concepts must be defined, a learner cannot use an easily remembered prototype as is possible in the case of concrete concepts. Material Safety Data Sheets use defined concepts to describe the properties and hazards of chemicals and the relationships between the characteristics of a chemical and its environment. Although these terms are commonly used by the scientific and technical communities, most workers at risk from hazardous chemicals cannot competently use them.

Analogies are tools a learner can use to generate a "prototype substitute" for an abstract concept (Newby & Stepich, 1987, 1990; Stepich & Newby, 1988a, 1988b).

> An analogy is an explicit, non-literal comparison between two things in which their structural, functional, and/or casual similarities, and often their differences are described. (Stepich & Newby, 1988)

Analogies range from the simple to the complex. A map is a form of an analogy and the use of the solar system to describe atomic structure is another use analogy.

Robert Oppenheimer, renowned physicist and a leader of the Manhattan Project, addressed the American Psychological Association (APA) referred to the relatedness of things as he spoke on the topic "Analogy in Science:"

> Whether or not we talk of discovery or of invention, analogy's inevitable in human thought, because we come to new things in science with what equipment we have, which is how we have

learned to think, and above all how we have learned to think about the relatedness of things. We cannot, coming into something new, deal with it except on the basis of the familiar and the old-fashioned.(Robert Oppenheimer, 1956)

Oppenheimer pointed out the following:

- analogies are inevitable in human thought;
- our way of thinking equips us to approach new things;
- we have been trained to view relationships between things;
- we can deal with new things only in terms of things we already know.

Properties of Analogies

Analogies aid in the storage and recall of new information: "The more critical quick retrieval is, the more necessary it is for the learning task to include activities which promote both storage and retrieval" (Richey, 1986, p. 153). Analogies can be used by a wide range of learners because "training can be effectively provided to older students and to students of gifted as well as average ability" (Alexander et al., 1987, p. 401). Analogies can be supplied by the teacher, or learners can be encouraged to generate their own analogies (self-generate). To self-generate analogies, learners must take new information and transform it into analogies that can be used for recall and application of that new information: "The use of analogies in solving problems involves transfer with transformation of what is transferred" (Dreistadt, 1969, p. 168).

Analogies offer hope in partially solving the problem of learning complex, technical information when people have limited technical education and training. People use analogies because of the feeling of comfort they provide: "When individuals are confronted with a learning task, they invariably attempt to subsume the to-be-learned material into the structure of their language and general knowledge" (Wang, 1983, p. 310). The comfort is a result of the user's familiarity with this learning tool. People learn to use analogies (usually unconsciously) early in the development year. The overall learning process will probably be aided by this familiarity.

Analogies are fundamental to thinking. The entire educational process is organized to teach thinking patterns that use familiar information and apply it to new and unknown situations. Ledger (1977) commented on the educational system when he stated: "Analogy is the concept behind the process" (p. 8).

The term "drawing an analogy" is frequently heard in everyday speech. Analogies help to establish relations between familiar information and new information (Schustack & Anderson, 1979). Analogies describe new concepts or ideas by linking them to "familiar ones that are outside of the content area of immediate interest" (Reigeluth & Stein, 1983, p. 360). This linking provides a level of comfort to those who are faced with new information. The use of

analogies is "a means of establishing conceptual bridges between the known and the unknown" (Nichter & Nichter, 1986, p. 63). Just as we use bridges to travel from one place to another, we use analogies as "bridges" from known to unknown information.

The word "analogy" comes from the Greek word *analogia*, which implies a correspondence or ratio (Poze, 1983). A simple analogy is of the form A:B::C:D, which is read "A is to B as C is to D." The relationship expressed by A:B::C:D is the analogical set. The pairs A plus C and B plus D are the comparison sets. The "A:B" relationship is called the *target concept*, and the "C:D" is the *base concept*. An analogy is a nonliteral, explicit comparison of two things that identifies similarities and differences. A comparison of the attributes or characteristics of two objects is set up by the connector "is like," which allows the learner to draw a parallel relationship between the two objects. Newby and Stepich (1987) and Stepich and Newby (1988) identified other words that can be used as connectors: "resembles"; "works like"; "may be compared to"; "but"; "differs from ... because"; and "is not like ... because." The effectiveness of the analogy depends on the use of a connector (Rumelhart & Norman, 1981) that bridges from the familiar to the unknown.

Analogies are made up of four parts: the subject, the connector, the analog and the ground. The subject is something new that must be learned. The connector usually reads "is like." The analog is something that we already know. And, the ground clearly states the similarities and the differences. The relationship between the base and the target concepts must be known by the user for the analogy to be effective.

The analogy of building a scaffold is one way to explain the use of analogies. Scaffolding has been described as the "gradual building of a mental structure" (Lupart, 1991, p. 159). The use of analogies suggests Bruner's idea for support to learners that is "temporary and adjustable" (Palincsar, 1991, p. 54), as are the scaffolds used in building construction. As scaffolds are aids for building other structures, analogies are aids for learning new concepts. When a scaffold is no longer needed for access and support of workers, it is removed; similarly, when an analogy is no longer needed because the new concept has been learned, it can be removed. Presumably, the use of analogies requires skill at constructing the scaffold lest the tool become more of a hinderance than a help.

The use of analogies to teach defined, abstract concepts (Newby & Stepich, 1987, 1990; Stepich & Newby, 1988a, 1988b; Duit, 1991) holds promise for instructional solutions to the problem of teaching technical terminology to learners with a limited technical literacy.

New information must fit into an existing grouping, or a new grouping must be identified. The purpose of fitting a new concept into a group or category is to facilitate explanation to the uninformed (Reigeluth, 1983). The analogy is a method to facilitate explanation. Thus, it is appropriate that analogies based on the relatedness of things should be explored as a method to

teach terminology that expresses relationships.

Problems with Analogies

Analogies are a familiar and common tool that increases our understanding of the world around us. Yet, we must exercise caution when we use analogies. The use of analogies must be tempered with knowledge of the potential pitfalls. Unfortunately, we usually learn to use analogies without the benefit of "warning messages." It is well to remember that rarely do solutions to problems come without potential problems of their own. The advantages of the use of analogies must be weighed against the cost measured in terms of the number and importance of problems resulting from that use.

Similarity in the appearance of words can create problems for the user of analogies (Ignoffo, 1980). Poze (1983) reported that problems can occur when one hears an analogy for the first time. Simons (1984) and Curtis and Reigeluth (1984) cautioned about the use of analogies when the learner cannot readily comprehend the subject matter. Analogies used in these instances may increase the encoding time, distract the learner, and thereby slow the learning process.

Ambiguity in the relationship between the base and target terms in the analogy can affect its value. Johnson-Laird (1989) noted that when the tasks represented by the base concept and the target concept differ, the mapping and transfer of relevant knowledge is hindered. Curtis and Reigeluth (1984) warned that the analogies can be carried too far and create confusion in the user. Gentner (1982) warned that the use of analogies can result in "vagueness."

The simple analogy can be used in gaining a preliminary grasp of difficult and complex concepts but can later become a hindrance to fuller understanding of these concepts: "Analogies seduce learners into reducing complex concepts to a simpler and more familiar analogical core" (Spiro et al., 1989, p. 498). Spiro et al. (1989) offered two solutions to the problems of analogies: (1) warn analogy users about the ways in which analogies can be misleading or incomplete, and (2) use integrated multiple analogies when encountering complex concepts.

Analogies, though attractive, must be supported and tempered with full knowledge of their potential pitfalls. Users of analogies should not be discouraged by these shortcomings, however. The identification of pitfalls shows the amount of scrutiny to which analogies have been subjected. If analogies were not an important tool for learning, they would not have been studied so thoroughly.

Example

A simple term, "Absorption," from the research treatment given to the three groups tested in this research is given as an example. This following model of the way an analogy works is a synthesis of the work of Gentner and the work of Holyoak.

Table 2-2: Synthesized Model for the Analogy Between a Sponge and Absorption

Target concept:	Absorption: Movement of a chemical ***into*** a plant, animal or soil. This is an exposure route into your body.
Base concept:	A sponge is used to soak up spilled water.

Synthesis of Gentner's and Holyoak's Models	Sponge/Absorption Analogy Map
Holyoak step 1: Construct mental representations of the base and target concepts.	Common use of sponges facilitates this step. The definition starts the mental image of water soaking into a leaf on a plant.
Holyoak step 2: Notice the potential analogy; i.e., something must trigger the reminder to use the base (familiar) information to explain the target (unfamiliar).	The word "into" triggers the analogy of water being absorbed by a sponge.
Holyoak step 3: Establish an initial set of correspondences that constitute the start of the mapping.	• porous surface of sponges and plants • "disappearance" of the liquid after absorption • limited capacity to absorb • liquid released under pressure
Gentner step 3: Map base relations onto the target concept and store the inferences in the target domain.	• surfaces to surfaces • soaking up liquid to absorbing liquid • fill sponge to watering running off leaves • squeezing sponges and leaves
Gentner step 4: Discard isolated, nonessential relations.	• color of sponge and plants • location of sponge and plants • shapes of sponges and plants

Synthesis of Gentner's and Holyoak's Models	Sponge/Absorption Analogy Map
Holyoak step 4. Extend the mapping by obtaining or constructing new information about the target concept.	Absorption applies to dry, solid chemicals, including airborne ones.
Gentner step 5: Extract the principle common to both domains.	Sponges and plants objects hold limited amounts of liquids.
Holyoak step 5: Generalize from the results of the mapping.	Living matter holds limited amounts of chemicals near the surface and release liquids under pressure.

Conclusion

The introduction of new chemicals with their attendant hazards will not be slowed just because the workforce cannot maintain the requisite level of technical literacy. The amount of information that must be assimilated by the competent worker continues to grow at an increasing rate. Thus, the problem remains: How can technical information be presented to effect minimum levels of learning in a workforce with limited preparation to learn technical information?

Analogies offer promise as a cognitive strategy to be used in technical learning situations. Analogies are particularly attractive because of their common use in our society. To be used effectively, trainers must be trained to use analogies tempered with the knowledge of potential pitfalls. Analogies can be a tool for trainers but they must be used wisely ... wisely just as one uses any tool.

AFTER training

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POSITION PAPER FOR CONSISTENCY IN TRAINING STANDARDS

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Emergency managers have been working for years to change the image of emergency management from a "job" done by retired air raid wardens to a "profession" executed by well-trained, skilled practitioners. The National Coordinating Council on Emergency Management (NCCEM) supported by the Federal Emergency Management Agency (FEMA) and the National Emergency Management Association (NEMA) developed a certification program based upon competency within this profession. The Certified Emergency Manager (CEM) program requires, among other things, a commitment to continuing education and emergency management training. The CEM Commission accepts FEMA courses, field and resident, as meeting the continuing education requirement.

The FEMA curricula are developed carefully through a process which includes review of comments from practitioners as to the training needs they have. Plans of Instruction are developed and revised. Courses are written, piloted, revised and placed in the field where they are reviewed again to determine whether or not they meet the need in practice. Courses are submitted to the American Council on Education (ACE) for content review and recommendations for college credit equivalency. This part of the process requires that courses have a learning assessment, a test, as part of the course.

Scores of final exams for some courses must be included in the course manager's report, yet FEMA does not mandate a standard for successful completion. The state training offices are left with the responsibility to set policy on completion criteria. Some states DO set such standards. For example, the Utah Division of Comprehensive Emergency Management asks participants to achieve a minimum score of 75% on the Professional Development Series (PDS) courses. In California the Governor's Office of Emergency Services has set strict passing criteria for the Radiological Series courses. Some states give certificates to any participants that attend the courses.

FEMA creates no criteria for successful completion in its resident courses. A case can be made that some courses, such as Microcomputer Applications for Emergency Management, require completion of a final project which substitutes for an exam. Train the trainer courses usually require a demonstration of teaching skills in a micro-unit from the field course. Yet quality is not addressed; all attendees are given certificates.

FEMA Home Study courses are administered by contract with Lewis & Clark College. These courses must be completed with passing scores of 75% and certificates are not sent to students who do not achieve these scores. Repetition of the course to achieve a successful score is allowed.

The field courses are administered by the states and taught by individuals chosen by the state. In the past, requirements for individuals serving as course managers have been set by FEMA to include completion of the Emergency Management Institute (EMI) resident train-the-trainer (TTT) course for the field course. Recent changes in the Comprehensive Cooperative Agreement (CCA) between FEMA and the states have eliminated the requirement for TTT completion by course managers. Setting standards for this position is now left to the individual states. And the core courses formerly required in the CCA four-year work planning cycle, are no longer mandated. States no longer must offer the very courses which the CEM Commission accepts as continuing education in the certification process.

FEMA develops its training courses carefully yet is inconsistent in setting training standards. Such disparate criteria raises questions. What is the level of credibility of the certificates of course completion? How does this impact the CEM program? Is emergency management a profession which adheres to standards of quality?

The apparent "mixed message" from FEMA says that it is important to develop training to meets needs, yet not important to adhere to standards in the teaching and completion of the courses. The message can be unscrambled if FEMA will mandate (1) core courses to be taught; (2) requirements for course managers or lead instructors who teach the courses; and (3) criteria for successful completion of its courses, both field and resident.

Core courses: The Professional Development Series courses have proven their worth time and again. The Tenth Anniversary booklet (printed by EMI and NCCEM) describing situations where the PDS information and skills were directly applied, documents this value. These courses should be designated again as the core of basic education for emergency management practitioners. And these courses should be reviewed and revised routinely to keep them current in terms of changing federal policy and new information.

Instructor Requirements: Completion of the Train-the-Trainer courses should be required for those who serve as Course Manager/Lead Instructor in the field offerings of FEMA courses. Participants in the TTT courses learn the rationale behind objectives in the courses, discuss specific content issues, share training techniques, and practice their personal training skills. Specialists teach the significance and effective use of such materials as the instruments used in

Leadership & Influence. This training gives the iterations in various states a level of consistency. Course managers and lead instructors share experiences and philosophies which they implement in their states.

Criteria for successful completion: FEMA employs a variety of participant assessment methods in its courses. Written examinations should be complete with minimum passing scores of 75%. Skills assessments (computer projects action plans, etc.) should be scored by use of a checklist which delineates the key elements which should be included in the project. Point values should be assigned to the elements and a passing score again should be 75% of the tot possible.

For the profession to grow, to flourish, to gain credibility, we must do more than have a Certified Emergency Manager program. We must be certain completion of the core courses accepted for continuing education represents certain levels of knowledge and skill wherever the courses are taught. We n be certain the course managers/lead instructors themselves have the requisit skills as trainers and practitioners. NCCEM testimony in support of the FEM budget emphasizes the importance of education. Let us lobby FEMA to assu the training and education it provides meets standards of high quality every where in the country.

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