

Chapter 46

DOMESTIC DISASTER RESPONSE: FEMA AND OTHER GOVERNMENTAL ORGANIZATIONS

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INTRODUCTION

The United States has been and remains susceptible to natural and technologic disasters. Hurricanes, earthquakes, floods, and tornadoes have caused significant loss of life and property damage. Accidents involving hazardous materials occur with regularity, causing evacuation of populations and exposure to victims. As coastal regions and areas surrounding flood plains and fault lines become more populous, the risk of large-scale injury and death increases.¹ Additionally, the threat of widespread release of hazardous materials, accidentally or intentionally, remains significant. The US federal government, through its various departments and

their respective agencies, is responsible for providing assistance to state and local governments in their response to disasters. The Federal Response Plan (FRP) is the means by which the government assigns agency responsibility for the various components of the disaster response.² The National Disaster Medical System (NDMS), a component of the FRP, has been created to direct the medical response to domestic disasters. It is important that military medical personnel understand their role in this intricate yet immense system because they have played a successful part in many recent domestic disasters and so will probably be called on again.

EVOLUTION OF DOMESTIC DISASTER RESPONSE

Historically, domestic disaster response has been fragmented and uncoordinated.³ Federal agencies were not integrated into an overall national system of response. The Defense Production Act of 1950 authorized the President to establish performance priorities and allocate resources to promote the national defense. In the 1960s, local civil defense organizations were the primary means of managing the aftermaths of disasters. Volunteer organizations, mainly the American Red Cross, augmented the local response by running temporary shelters and providing food.

The Civilian–Military Contingency Hospital System was developed in 1980 by the Department of Defense (DoD) in recognition of the possibility that large numbers of casualties from an overseas conflict could overwhelm the military’s hospital capacity. This system utilized volunteer private hospitals that promised inpatient beds to back up the combined medical systems of the DoD and the Veterans Administration. Although the system was never

deployed, it served as the model for the NDMS.

In 1979, the Federal Emergency Management Agency (FEMA) was established to develop a national plan for responding to a catastrophic domestic disaster. FEMA was also tasked with providing a mechanism for the continuity of government in the event of a domestic nuclear strike. But as the Cold War ended in the late 1980s, FEMA’s emphasis was shifted from continuity of government toward the coordination of the federal government’s response to domestic disasters. In 1981, the Emergency Preparedness Mobilization Board was created to establish policy and programs to improve the nation’s preparedness for a catastrophic disaster. One of the key laws guiding the government response is the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended), which allows the federal government to respond to disasters by giving assistance and protecting the public health, safety, and property.

THE FEDERAL EMERGENCY MANAGEMENT AGENCY

By executive order (12148, Federal Emergency Management, July 20, 1979), the director of FEMA has the authority and responsibility to coordinate and oversee the federal response during declared disasters. Coordination is provided by FEMA through the FRP in support of agencies at national, regional, and field levels (Figure 46-1). At the initiation of a federal response, the FEMA director appoints a Federal Coordinating Officer (FCO) who assumes command of the overall coordination

and allocation of federal resources. The FCO works closely with the officials from the affected states to establish needs and priorities. The FCO ensures that, in accordance with the FRP, federal resources are made available to the state and that the appropriate federal agencies provide those resources. The FCO’s responsibilities include administration and logistics, information and planning, response operations, and recovery operations (Figure 46-2).

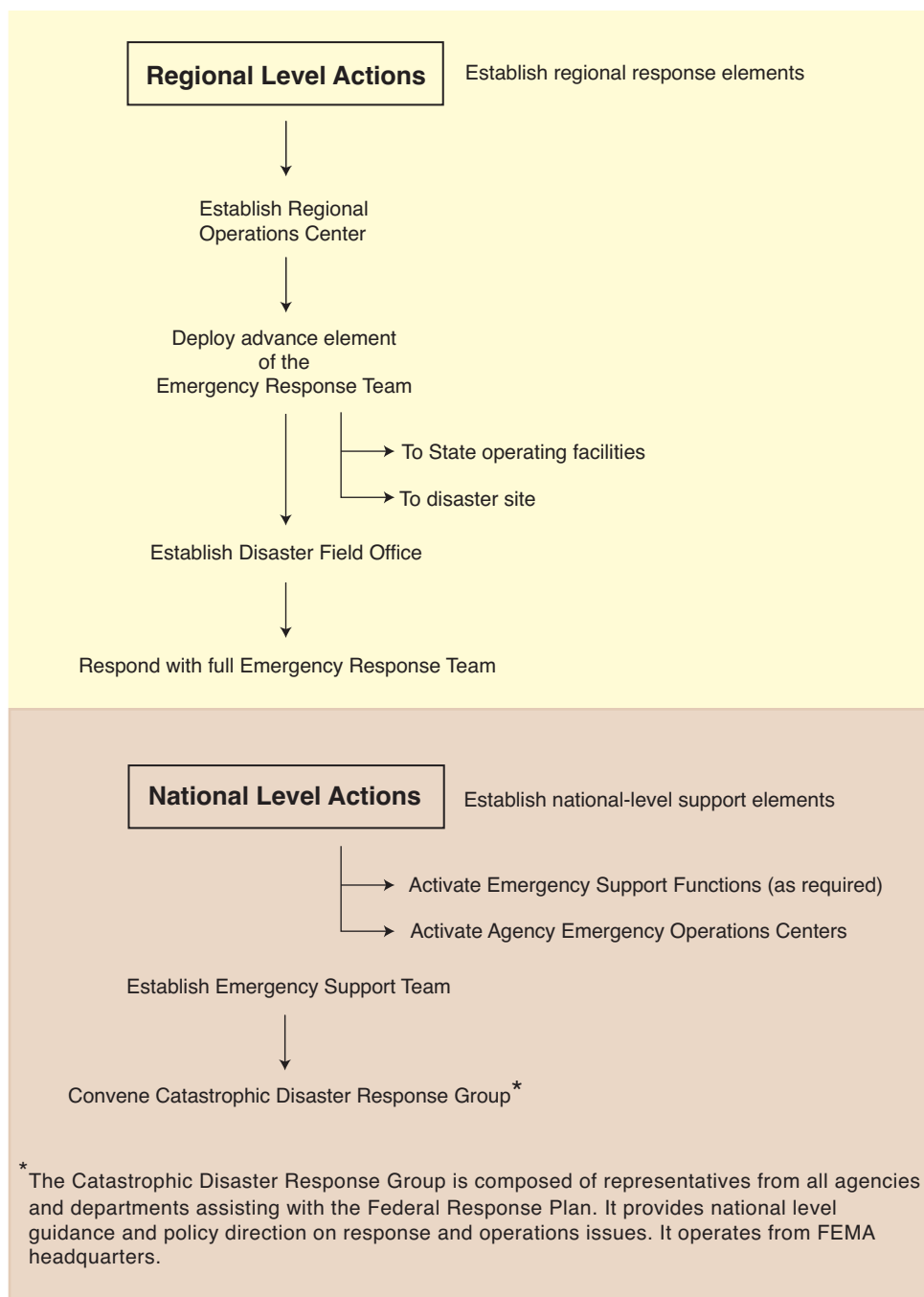


Fig. 46-1. Sequence of Actions Taken To Establish Response Activities on the Regional and National Levels.
Source: Federal Emergency Management Agency. *The Federal Response Plan*. Washington DC: FEMA; 1997.

FEMA not only coordinates the response activities but also assists the states before disasters strike. FEMA has training programs for disaster planners and responders to improve the local response capability. FEMA also assists states in the recovery phase of a disaster. Recovery pro-

grams within FEMA include Individual Assistance (eg, temporary housing, grants and loans to individuals and businesses), Public Assistance (eg, debris clearance, repair of utilities) and Hazard Mitigation (eg, measures to lessen the impact of future disasters).

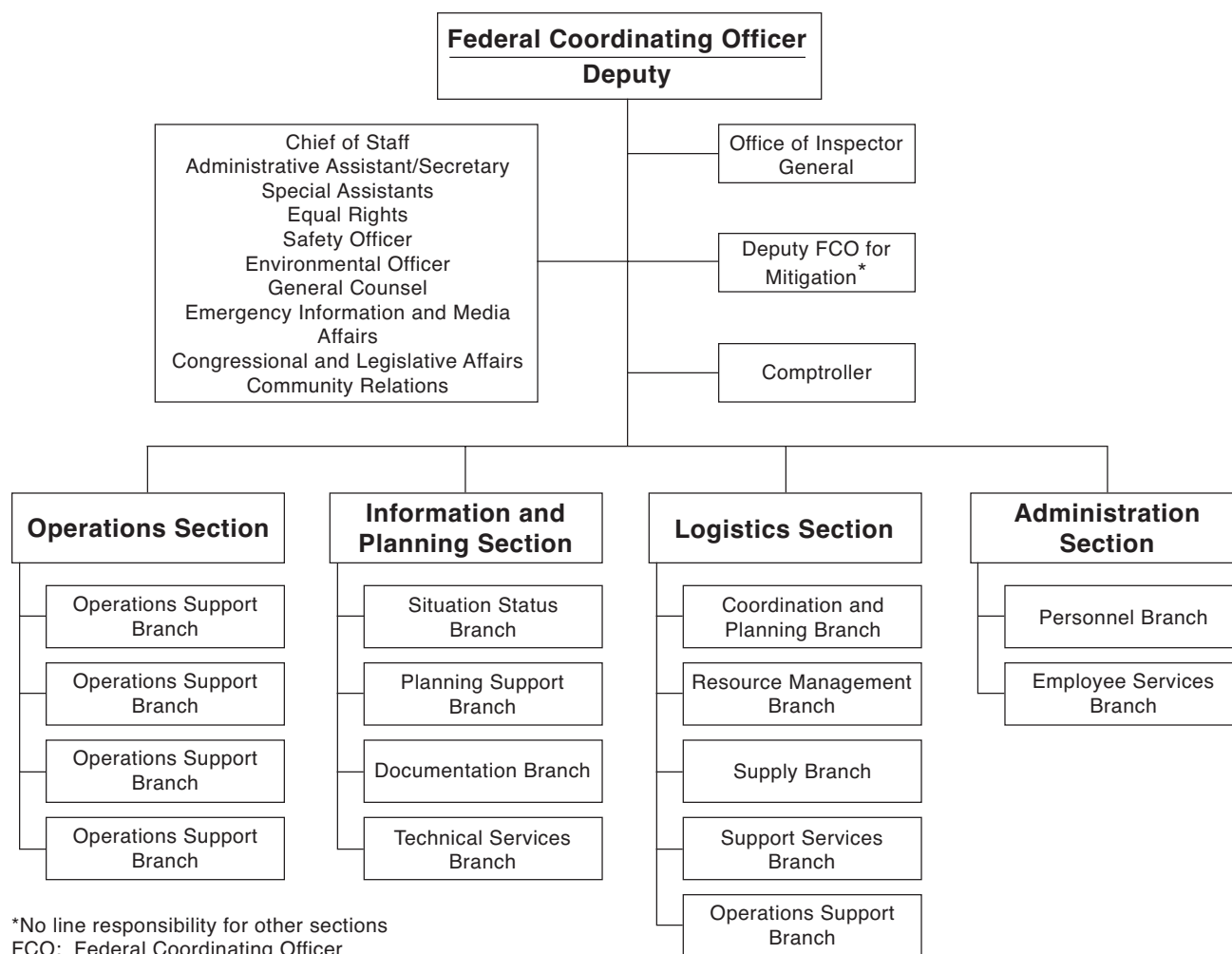


Fig. 46-2. Organization of the Emergency Response Team.

Source: Federal Emergency Management Agency. *The Federal Response Plan*. Washington DC: FEMA; 1997.

THE FEDERAL RESPONSE PLAN

The FRP was developed in 1992 as a means of delineating the federal responsibilities for disaster response under the authorization of the Stafford Act. The FRP has been tested and refined since it was written.⁴⁻⁸ A variety of natural disasters of significance have resulted in the activation of the FRP since its inception. By incorporating the lessons learned from each disaster, in a relatively short time the FRP has been significantly improved and refined.

Scope

The FRP describes the mechanisms by which the federal government mobilizes its resources to aug-

ment state and local disaster response efforts. Through the FRP, federal response is designed to be systematic, coordinated, and effective. The FRP establishes policy, describes a concept of operations for interagency response, assigns and coordinates agency responsibilities based on function, and identifies specific actions to be taken by participating agencies.

The FRP assists in the efforts to save lives, protect public health and safety, and protect property. It does not address recovery assistance, even though this often occurs concurrently with response efforts. In those cases where national security is at risk, the FRP includes national security authorities in the response. The FRP is an “all hazards” plan, mean-

ing that regardless of the nature of the disaster, the FRP uses a single mechanism to respond. The “all hazards” concept increases the odds that the response will be more effective than a separate plan for each type of disaster because of established nature of the federal agency relationships, the ability to activate a response quickly, and the ability to utilize common resources.

There are several assumptions made in the FRP. Foremost is that the FRP will be coordinated with individual state response plans. The FRP will augment the state response, but it is not a substitute for a state plan.⁹ It is also understood that components of the FRP will need to be activated quickly and deployed rapidly to minimize morbidity and mortality. If an imminent disaster can be reasonably predicted, advanced deployment of federal assets may be approved. Finally, the federal response requires a rapid needs assessment performed in the immediate postdisaster period. FEMA uses this assessment to coordinate the activation of the Emergency Support Functions (ESFs) and ensure that the response is more directed, effective, and fiscally efficient. All FRP efforts are built on these assumptions.

Terrorism Incident Annex

The Terrorism Incident Annex of the FRP addresses the federal response to a terrorist event within the United States. This annex is based in Presidential Decision Directive 39, which establishes policy to reduce vulnerability to terrorism; respond to terrorist events; and enhance capacity to prevent, detect, and manage the consequences of terrorism. A delineation between crisis management and consequence management is made in the directive. Crisis management is defined in the annex as “measures to identify, acquire, and plan the use of resources needed to anticipate, and/or resolve a threat or act of terrorism”¹² and is the primary responsibility of the federal government. The Department of Justice is the lead federal agency responsible for crisis management, with the Federal Bureau of Investigation responsible for the operational response. Consequence management is referred to as “measures to protect public health and safety, restore essential government services, and provide emergency relief to governments, businesses, and individuals affected by the consequences of terrorism.”¹² FEMA is designated as the lead federal agency for consequence management. State and local governments have primary responsibility for this response.

The health and medical components of the consequence management are coordinated through ESF No.

8 and are managed by the Department of Health and Human Services (DHHS). DHHS enhanced its response through the development of Metropolitan Medical Response System (MMRS) teams, which maintain specialized equipment and supplies to perform extrication, decontamination, and initial medical treatment of chemical and biological casualties. The MMRS teams are considered local assets and are available to respond immediately. DHHS has also developed four National Medical Response Teams, which are located regionally and can be rapidly deployed in response to a chemical or biological terrorist event. They can also be predeployed, as needed. These teams provide decontamination and medical management augmentation of local assets.

The DoD has a role in consequence management. In 1999, the DoD established the position of Assistant to the Secretary of Defense for Civil Support as the focal point and coordinator for DoD’s consequence management. DoD also created the Joint Task Force-Civil Support (JTF-CS), which is the primary DoD command and control headquarters for domestic consequence management. JTF-CS is designed to respond on-site and provide military support to the lead federal agency and to provide life-and-limb-saving support to local responders.

The National Guard and Reserves also have roles in domestic consequence management. Army and Air National Guard personnel staff 10 Weapons of Mass Destruction Civil Support Teams, which can provide medical and technical assistance to local responders. Each team consists of 22 full-time, specially trained personnel. These teams will perform their mission primarily under the command and control of the state governor (through the adjutant general of the state).

The Federal Radiological Emergency Response Plan

There is a specific federal plan to manage radiological emergencies. The Federal Radiological Emergency Response Plan (FRERP) evolved from perceived inadequacies in federal plans used to respond to the Three Mile Island nuclear power plant accident in 1979. In June 1980, the National Contingency Plan became law, and it outlined a coordinated response by federal agencies to protect the public health and safety in the event of a commercial nuclear power plant accident. In 1982, the Federal Radiological Monitoring and Assessment Plan was developed, and its expanded scope included all radiological emergencies. In 1996, it was replaced by the FRERP.

The FRERP delineates the federal government’s response to a peacetime radiological emergency that

may have potential or actual consequences within the United States. It provides a concept of operations, outlines relevant policy, and specifies authorities and responsibilities of those federal agencies that may have a role in a radiological emergency. Like the FRP, the FRERP recognizes state, local, and tribal preeminence. The FRERP identifies the Lead Federal Agency (LFA) specific to the type of radiological event. The LFA is responsible for coordination of the federal response. The Department of Energy, DoD, National Aeronautics and Space Administration, Environmental Protection Agency, and Nuclear Regulatory Commission can all be the LFA, depending on the scenario.

The FRERP can be employed without Stafford Act declaration or activation of the FRP. The LFA has overall coordination of the federal response to the emergency, and FEMA will use the FRP to coordinate any nonradiological support. Under a Stafford

Act declaration, the LFA coordinates the radiological response while FEMA coordinates the overall federal response to assist the affected state.

Emergency Support Functions

The FRP consists of twelve ESFs, which describe the most likely types of assistance needed. Each ESF is directed by a primary agency and supported by secondary agencies, based on the authority, the resources available, and the capabilities in the functional area. The ESFs are the mechanisms through which federal assistance is directed. It is important to note that ESFs may be activated individually or in limited numbers or in their entirety, based on need. The twelve ESFs and their responsible agencies are listed in the Figure 46-3. Twenty-six federal agencies and the American Red Cross have responsibilities under the ESFs.

IMPLEMENTING THE FEDERAL RESPONSE PLAN

Activation of the FRP begins a sequence of events that ultimately results in federal assistance to the affected area. After a disaster occurs, the state governor must request that the President declare the affected area a federal disaster area. The President, after making the declaration, then assigns the FEMA director as the overall coordinator of the federal response. Various regional and national activities may occur, as is outlined in Figure 46-1. The FEMA director may activate all or part of the plan based on the situational requirements. At the onset of a

declared disaster, the FEMA director appoints a federal coordinating officer (FCO). Near the site of the disaster, a disaster field office is established to serve as the primary field office for the FCO, the state emergency manager (or representative), and the ESF representatives. An advance emergency response team is sent by the FEMA regional office to the affected area to perform an initial needs assessment, as well as to provide early on-site coordination of the federal response. In multi-state disasters, this arrangement is repeated in each state.

THE NATIONAL DISASTER MEDICAL SYSTEM

The NDMS was established as the medical component of the federal disaster response.^{10,11} It is a joint venture among the DoD, Department of Health and Human Services, Department of Veterans Affairs, and FEMA. The US Public Health Service oversees the NDMS and is responsible for mobilizing medical resources when the system is activated. The NDMS provides medical assistance to disaster areas, evacuates patients from the disaster site, and develops a nationwide network of hospitals to accept patients from a catastrophic disaster.

Disaster Medical Assistance Teams

The essential component of NDMS is the Disaster Medical Assistance Team (DMAT), which is based on the military's medical clearing company.¹² The DMATs are medical teams deployed to perform

forward stabilization of casualties, definitive medical care, and evacuation. DMATs consist of volunteer civilian medical professionals organized locally but coordinated through the NDMS. When the NDMS is activated under the FRP, these civilian volunteers become federalized, thus permitting them to practice medicine in any state. Deployed team size ranges from 30 to 50 members, usually with 3 to 5 physicians, 8 to 12 nurses, 5 to 10 emergency medical technicians, 2 to 4 pharmacists, 1 to 2 lab technicians, and 4 to 8 ancillary personnel.¹³ Standardized supply and pharmaceutical packages have been developed for the DMATs. There are no organic transportation or security assets within the DMATs. Logistical support for the teams is provided through mission support teams (which are also part of the NDMS), whose purpose is to provide re-supply, equipment, transportation, and communications.

<div>Emergency Support Function</div> <div>Organization</div>	1	2	3	4	5	6	7	8	9	10	11	12
	Transportation	Communications	Public Works and Engineering	Firefighting	Information and Planning	Mass Care	Resource Support	Health and Medical Services	Urban Search and Rescue	Hazardous Materials	Food	Energy
USDA	S	S	S	P	S	S	S	S	S	S	P	S
DOC		S	S	S	S	S	S			S		
DOD	S	S	P	S	S	S	S	S	S	S	S	S
DOEd					S							
DOE	S		S		S		S	S		S		P
DHHS			S		S	S	S	P	S	S	S	
DHUD						S						
DOI		S	S	S	S					S		
DOJ					S			S		S		
DOL			S				S		S	S		
DOS	S									S		S
DOT	P		S		S	S	S	S	S	S	S	S
TREAS	S				S							
VA			S			S	S	S				
AID								S	S			
ARC					S	P		S			S	
EPA			S	S	S			S	S	P	S	
FCC		S										
FEMA	S	S		S	P	S	S	S	P	S	S	
GSA	S	S	S		S	S	P	S	S	S		S
NASA					S							
NCS		P			S		S	S				S
NRC					S					S		S
OPM							S					
SBA					S							
TVA	S		S									S
USPS	S					S		S				

P: Primary agency; responsible for management of the Emergency Support Function

S: Support agency; responsible for supporting the primary agency

USDA: US Department of Agriculture; DOC: Department of Commerce; DOD: Department of Defense; DOEd: Department of Education; DOE: Department of Energy; DHHS: Department of Health and Human Services; DHUD: Department of Housing and Urban Development; DOI: Department of the Interior; DOJ: Department of Justice; DOL: Department of Labor; DOS: Department of State; DOT: Department of Transportation; TREAS: Treasury Department; VA: Department of Veterans Affairs; AID: Agency for International Development; ARC: American Red Cross; EPA: Environmental Protection Agency; FCC: Federal Communications Commission; FEMA: Federal Emergency Management Agency; GSA: General Services Administration; NASA: National Aeronautics and Space Administration; NCS: National Communications System; NRC: Nuclear Regulatory Commission; OPM: Office of Personnel Management; SBA: Small Business Administration; TVA: Tennessee Valley Authority; USPS: US Postal Service

Fig. 46-3. Emergency Support Function Assignment Matrix: Primary and secondary support responsibilities by Agency under the federal response plan.

Medically Related Emergency Support Functions

The medically related ESFs include ESF No. 8, “Health and Medical”; ESF No. 9, “Urban Search and Rescue”; and ESF No. 6, “Mass Care.” The scope of responsibilities in ESF No. 8 is listed in the Exhibit 46-1. The US Public Health Service, through its Office of Emergency Preparedness, has primary responsibility for all of the 16 items listed. In addition to managing the acutely injured and ill, another major function of ESF No. 8 is restoring the public health infrastructure. Crucial partners with the Department of Health and Human Services (the parent organization of the US Public Health Service) in the operations of ESF No. 8 are the Centers for Disease Control and Prevention (CDC) and the DMATs. In addition to performing hazards assessment and vector control assistance, the CDC will, on request, provide medical epidemiologists to perform needs assessments and health surveillance during the acute and recovery phases. The DMATs fill the vital role of augmenting patient care in the disaster area. DMATs perform patient triage, resuscitation and stabilization, inpatient care, and patient evacuation. Specialty DMATs also can provide surgical care. Mortuary services and victim identification are provided by Disaster Mortuary Services Teams. Federal health and medical resources are coordinated through the NDMS, which will be discussed in detail later.

Mass Care (ESF No. 6) is coordinated through the American Red Cross. Mass Care encompasses shelter, feeding, disaster welfare information (eg, death notification, help in locating relatives), and distribution of emergency relief items. The American Red Cross personnel may provide emergency first aid to residents of Red Cross temporary shelters, but patients requiring more extensive care will be treated by local medical resources or the DMATs. Because of the relatively crowded living conditions, health surveillance, food safety, and reliable sanitation facilities must be major priorities to prevent disease outbreaks.

Urban Search and Rescue (ESF No. 9) can be activated when victims are trapped in collapsed structures. Urban search and rescue teams maintain medical resources for initial treatment of trapped victims; however, it is expected that these teams will turn over extricated victims to DMATs or to local medical care. Since victims of building collapse are often seriously injured, coordination with other medical services is essential for effective urban search and rescue operations.

EXHIBIT 46-1

SCOPE OF RESPONSIBILITY: EMERGENCY SUPPORT FUNCTION NUMBER 8, HEALTH AND MEDICAL SERVICES

1. Assessment of health and medical needs
2. Health surveillance
3. Medical care personnel
4. Health and medical equipment and supplies
5. Patient evacuation
6. In-hospital care
7. Food, drug, and medical device safety
8. Worker health and safety
9. Radiological hazards
10. Chemical hazards
11. Biological hazards
12. Mental health
13. Public health information
14. Vector control
15. Potable water, wastewater and solid waste disposal
16. Victim identification, mortuary services

Source: Federal Emergency Management Agency. *The Federal Response Plan*. Washington DC: FEMA; 1992.

The Military's Role

The military's role in domestic disaster response is directed through the Secretary of the Army. The Directorate of Military Support is the lead agent for civil emergency relief operations. The DoD Directive 3025.1 “Military Support to Civil Authorities” of 1997 outlines DoD policy on assistance to the civilian sector during disasters and other emergencies. This act limits DoD support to those resources that are not otherwise needed for DoD to conduct its primary defense mission. After a disaster is declared, a Defense Coordinating Officer is appointed to serve in the field as the DoD point of contact for requests of military assistance. The Defense Coordinating Officer should be familiar with DoD assets and how to identify and access such assets quickly. There is no formal training available for this position, but those familiar with logistics and supply are well suited for this assignment. The DoD has an FRP-defined role in all the ESFs. The advantages of military forces detailed by Sharp and colleagues for an international response also apply to a domestic response.¹⁴

EXAMPLES OF THE SYSTEM AT WORK

The FRP and NDMS have been activated and deployed to respond to a wide variety of situations since 1989, including hurricanes, earthquakes, and floods. The lessons learned from each experience have improved responses to subsequent disasters. The DMAT concept was given its first real challenge in the 1989 Hurricane Hugo response. Two DMATs were deployed to the Virgin Islands to provide care. The military's deployable medical system (DEPMEDS) facility was used as the temporary medical facility. The DEPMEDS facility can provide advanced medical and surgical services and radiological and laboratory diagnostics; it can also support a large number of inpatients in a field setting. Several items of note came from this deployment. The first is that the DMAT concept did work in the austere setting. Military support in the form of security, transportation, and medical evacuation were necessary for the concept's success.⁴ The other significant factor in this activation was the time it took to get the DMAT in place. Almost 2 weeks passed before the island government requested assistance and the DMATs were deployed. This resulted in a perceived limitation of the effectiveness in this mission.⁴

Hurricane Andrew was at the time (1992) the most expensive natural disaster to affect the United States. It destroyed or seriously damaged over 75,000 homes and created over 160,000 homeless people with significant increases in medical needs.^{7,13} The hurricane affected southern Florida and Louisiana. The FRP had been implemented shortly before Andrew struck, but many were not familiar with the plan. Additionally, activation of the plan was delayed for several days. Criticism of the federal response to Hurricane Andrew was summarized in a General Accounting Office report,¹³ which contended that the FRP lacked provisions for postdisaster assessment, did not have the mechanisms in place for timely response, and was unable to provide mass care for such a large-scale event. The GAO concluded that the DoD should be given a larger role in domestic disaster response, that FEMA and other federal agencies should have greater authority in responding, and that state and local governments' capacities to respond should be enhanced.

Three weeks after Hurricane Andrew's landfall in Florida, Hurricane Iniki struck the island of Kauai. DMATs were deployed within 24 hours. Medical teams there noted that, as in other disasters, delivery of basic primary care consumed most of the medical assets.^{4-6,15} The General Accounting Office report praised the federal response in Hawaii, primarily for its timeliness, but also for the plan's flexibility in meeting the island's needs.¹³

The 1993 floods in the midwestern United States did not cause a need for acute medical care; however, the magnitude of the flooding and the vast area affected by the floods posed unique problems for the federal responders. Although no DMATs were deployed, members of federal teams worked very closely with state officials and state health departments, assisting them in managing potable water outages, sanitation problems, and other preventive medicine problems. This slow-developing, prolonged disaster permitted local, state, federal, and DoD personnel to work cooperatively and to develop insights into each agency's response capabilities.

The Northridge, Calif, earthquake of 1994 resulted in activation of the FRP. Using the lessons learned from Hurricane Andrew, rapid activation of the FRP provided a timely medical response. Medical assets deployed and provided care with an emphasis on community outreach. Rather than setting up fixed facilities, DMATs remained relatively mobile and went into the affected communities to provide care to those who were unable or unwilling to leave their property and belongings. The timeliness, responsiveness, and flexibility of the response restored credibility to FEMA.

Another significant event has altered the planning of the federal response to disasters. The terrorist bombing of the Alfred P. Murrah Building in Oklahoma City, Okla, in April 1995 has resulted in a far greater emphasis on planning for a domestic terrorist attack. The threat is considered to include conventional weapons, as well as chemical and biological weapons. Plans include mitigation to limit consequences (eg, shatter-resistant windows) and further development of multiple rapid-response teams trained in the management of chemical or biological injuries.

EFFORTS FOR THE FUTURE

Since the inception of a coordinated federal response to domestic disasters, planning has been constantly refined, based on a wide variety of ex-

periences. Despite differences in these disasters, several concepts remain crucial to a federal response. First, local governments and states must be

prepared to manage the disaster response until federal assets can be mobilized.^{3,9,16,17} The need for training and research on all levels has been articulated.^{3,17} The basics of epidemiology, planning, medical response in a disaster setting, and public health are curriculum components that have been suggested.^{18,19} This training needs to include uniformed personnel as well.²⁰ Response time needs to be shortened as much as possible for improved effectiveness. Current national plans include predeployment of assets when the disaster can be reliably predicted.

Many also argue the need for disaster research. Epidemiologic research regarding the types of injuries caused by specific types of disasters may aid in the determination of the response needed.^{17,21,22} Specific areas, such as standard methodologies for needs assessments, casualty estimations, and triage, require more research. Burkle and colleagues²³ have developed the concept of "measurements of effectiveness" as a method of assessing the success of a disaster response. They propose that their yardsticks serve as a unifying mechanism for the various components of a disaster response.

SUMMARY

It is clear from experience, in both international and domestic areas, that the US military has many valuable assets necessary for disaster response.²⁴ Domestically, the military is a major participant in the FRP and has provided outstanding support in recent disaster responses. The expertise provided by the military in the areas of command and control, communications, field operations, logistics, and preventive medicine are in great demand during a domestic disaster.

Activation of the FRP results in a complex series of activities designed to augment the local and state capabilities in times of domestic disasters. Coordination of federal assets is directed by FEMA, and responsibility for providing those assets is delegated to a variety of federal agencies. Field-level

coordination is provided by representatives of the ESFs located at local and regional emergency operations centers. The DoD maintains the expertise in the areas of command, control, communications, field operations, logistics, and preventive medicine, all of which are in great demand during a domestic disaster. As a result, the DoD provides support to each of the ESFs. DoD assets are made available through the Directorate of Military Support and then coordinated on a regional level by the Defense Coordinating Officer. Since the issuance of the FRP in 1992, the military has provided outstanding assistance in responding to domestic disasters. Disaster specific training for military personnel has been recommended as a means of improving the military's response capabilities.

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