

Uncertain Environments and the Evolution of Organization for Disaster Management

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ABSTRACT

Disaster management and emergency response plans have been part of government planning for decades. However, the catastrophic consequences of September 11th and Hurricane Katrina have stimulated the most recent in a long history of reviews of government organization for disaster management.

The inherently uncertain and unpredictable nature of the modern security environment and natural weather phenomena has influenced structural frameworks for disaster management over the past several decades. Literature suggests that uncertainty and other environmental changes are often the impetus for organizational change. Some scholars argue that a government, which encounters uncertainty in its operating environment, such as terrorism and natural disasters, should adopt more networked structures; others argue that uncertain environments cause government to rely on more tested and tried frameworks, which are typically hierarchies. Even further, an additional theory has been put forward, which argues that uncertainty causes some networks, over a period of time, to become more hierarchical in nature.

This study was undertaken using a qualitative research methodology that analyzed the evolution of organization for disaster management to determine if it has followed any of the previously iterated patterns of public administration organization. It did so largely based on a core body of existing research of public administration organization and environmental change and analysis of major legislation effecting organization.

By evaluating the evolution of organization for disaster management through historical legislation, this study determined that uncertain environments cause governments to rely more on hierarchies.

I. INTRODUCTION

Disaster management and emergency response plans have been part of government planning for decades. Since at least 1803, the federal government has provided assistance to local authorities overwhelmed by the devastating effects of disaster (Bumgarner, 2008). However, the catastrophic consequences of September 11th, 2001 and Hurricane Katrina have stimulated the most recent in a long history of reviews of government organization for disaster management. The result has been a blurring of existing disaster management policies and practices that had been largely oriented toward natural disasters with practices to prevent deliberate disasters, such as terrorism (Comfort, 2005)

The core mission of disaster management, and more specifically, its current incarnation in the Federal Emergency Management Agency (FEMA), is to coordinate the response to a disaster that has occurred in the United States, which often encompasses the manpower of local and state authorities. The organization of these disparate local agencies is a key challenge for accomplishing this mission. The inherently uncertain and unpredictable nature of the modern security environment and natural weather phenomena has influenced structural frameworks for disaster management over the past several decades. Literature suggests that uncertainty and other environmental changes are often the impetus for organizational change, and the creation of the Department of Homeland Security (DHS) after the disastrous events of 9/11 is among many examples of these fluctuations. This point solicits many questions related to the environmental characteristics under which disaster management organization has changed that this study will address.

There is a great debate in scholarship on the inherent differences between hierarchical and networked structures and how the environment in which the structure operates influences its

development. While informal networks, loose conglomerations of entities involved in disaster management that operate without the strategic guidance of a secretary-like leader, are an option, the current approach has been the creation of a hierarchical agency like FEMA. On the whole, these debates can be narrowed down to basic patterns illustrated in two streams of thought and an additionally theory on how uncertain effects organization. Some scholars argue that a government, which encounters uncertainty in its operating environment, such as terrorism and natural disasters, should adopt more networked structures because they permit a more rapid response to changing situations (Gortner et al., 1987). Others argue the opposite—that uncertain environments cause government to rely on more tested and tried frameworks, which are typically hierarchies (Wise, 2002). Even further, an additional theory has been put forward, which argues that uncertainty causes some networks, over a period of time, to become more hierarchical in nature to instill a more formal sense of leadership and guidance not present in classic networked organizations (Moe, 2006).

These concepts raise many interesting research questions to be addressed by this study. How has the organization of disaster management evolved over time? Has the evolution of disaster management followed one of the aforementioned patterns illustrated in the existing literature? When structural change occurred, was there a greater degree of certainty or uncertainty in the environment? For example, were threats expected or unexpected? Did a catastrophic event, something comparable to 9/11 or Hurricane Katrina, instigate structural change? Most importantly, what insight do these previous changes provide about the applicability of the patterns of organization? What does this pattern indicate for the future organization of disaster management and further, for the future of its applied research?

This study hypothesizes that one of the patterns of how uncertain environments effect organization will be applicable for disaster management, specifically that uncertain environments cause governments to rely on more tested methods of organization, such as hierarchies. Hierarchies provide a great deal of stability and a clear-cut chain of command that is fitting with the type of structure typical of American bureaucracy. While scholars may argue that networks are better equipped to handle the uncertainty and “wicked problems” that characterize the environment faced by disaster management (see Chapter II. Literature Review), this study hypothesizes that hierarchy is the more likely organizational response the government has made over time. Many scholars have already normatively addressed how uncertainty should cause governments to organize. This study adds to this existing body of literature by establishing the historical record of organization for disaster management and by undertaking an empirical analysis to determine how uncertain environments have effected federal organization for disaster management in practice, rather than reiterating the best or most effective way to overcome environmental uncertainty.

This exploratory study was undertaken using a qualitative research methodology that analyzed the evolution of organization for disaster management to determine if it has followed any of the previously iterated patterns of public administration organization. It did so based on existing research of public administration organization and environmental change, interviews with involved parties, analyses of major legislation effecting organization (such as the Homeland Security Act of 2002), and historical information on past approaches taken to disaster management organization.

This introductory chapter also seeks to establish key concepts associated with the evolution of disaster management including its recent inclusion in the category of “homeland security” and the challenges of managing disasters in the federal system.

Disaster Management in the Context of Homeland Security

The term “homeland security” has come to encompass a number of tasks, missions and federal agencies. It is an amorphous concept that includes many aspects of national security like border patrol, drug enforcement and immigration. Disaster management’s role in the nebulous realm of homeland security has been argued among scholars, particularly after FEMA’s formal inclusion in the Department of Homeland Security. The physical consequences of September 11th demonstrated that emergency response and disaster management have a role to play in terrorism as local, state and federal disaster agencies responded to the attack as they would to the consequences of a natural catastrophe (Waugh, 2003).

However, as terrorism became the poster-child for homeland security, disaster management and emergency response was included as well. While disaster management’s role in homeland security is not necessarily unfounded, the civil defense and terrorism related tasks it has been expected to take on since the 1980s, and increasingly since FEMA’s inclusion in DHS, may have had a negative impact on its overall effectiveness (Waugh, 2003). Terrorism, while a catastrophe in itself, may have complicated the mission of FEMA and other agencies involved with disaster response. Terrorism prevention and preparedness adds different planning schemes, removes the focus from natural disasters and reallocates resources needed for the more likely event of a weather phenomenon (Roberts, 2006).

On the other hand, while homeland security may be a nebulous concept and the newest buzzword, its relationship with disaster management is not unfounded. Civil defense, or the effort to prepare citizens for the consequence of military attack, has been an important part of securing the homeland since the early 1950s (Bumgarner, 2008). Particularly during the Cold War, the threat of nuclear attack and the devastating effects it could cause were an official part of the federal agenda. The creation of the Federal Civil Defense Agency (FCDA) brought together the preparatory efforts of civil defense, and the response efforts of disaster management (Bumgarner, 2008). While the agency was primarily concerned with the threat of nuclear war, preparations and response plans were also developed for natural disasters (Light, 2004). The marriage of civil defense and disaster management has a long history in the United States and has been renewed by the effort to include disaster agencies under the umbrella of homeland security.

While Congress and Presidents have debated the necessity of distinguishing between natural and manmade disasters for decades (Hogue and Bea, 2006), the culture of disaster management organizations has ebbed and flowed from civil defense to natural disasters over the years (See Appendix IV: Timeline of Civil Defense and Natural Disaster Cultures, which outlines the primary focus of disaster management over the decades). This study will often refer to disaster management in the context of homeland security because of its current functions and duties as an all-hazard field of operation. The limited scope of this research cannot accommodate an analysis of the costs and benefits associated with including terrorism or civil defense in the process of disaster management. However, the idea of “mission” is a very important concept in both network and hierarchy theories and the current incorporation of disaster management in the homeland security field raises many questions about the mission of the department. As the

literature review will elaborate, a common mission and unambiguous goals are important adhesives for the disparate parts of a network, and for the division of labor in a hierarchy. When this mission is complicated or compounded due to uncertainty in the environment or in response to a catastrophic event, it may have a particular influence on the type of organizational structure for disaster management.

State, Local and Federal Responsibilities in Emergency Response

As a federal system, the United States often defers to states and localities to perform civil functions, carry out laws and protect civilians. In fact, the Supreme Court has upheld on several occasions that states have the right and responsibility to protect the public health, safety and morals of their citizens under the 10th and 14th amendments (see, *Mugler v. Kansas*, 1887). The same is true of disaster management in which states play a key role by supporting localities with resources and coordinating with the federal government to ensure the health and safety of citizens (Tierney et al., 2001). Local governments are expected to develop their own disaster management or evacuation strategies and train first responders like police (Tierney et al., 2001). States have similar duties and also maintain resources like the National Guard (Tierney et al., 2001).

These roles in disaster management are not unfounded as governments below the federal level are best equipped to deal with the unique characteristics of their community, provide needed resources, prioritize response and provide services in a much timelier manner than a federal agency (Carafano and Weitz, 2006). While some states have their own hierarchical emergency management organizations (such as the Louisiana Governor's Office of Homeland Security and Emergency Preparedness), in general disaster response organization on the local

level are networked structures as unrelated first responders, citizens and government resources attempt to jointly solve problems that a single agency would be hard-pressed to do alone (see, for example, National Governors' Association Study, 1979, which concluded that state and local plans were fragmented and loosely connected).

The private sector also has a role to play in disaster management at the state and local level as well as by coordinating with the federal government. Small businesses and large corporations are also responsible for developing evacuation plans and ways to protect their buildings, employee and products. Some businesses even get involved in disaster response by providing goods and services to victims of a catastrophe as Wal-Mart did during Hurricane Katrina in 2005 when it provided \$20 million in cash donations, 1,500 truckloads of complimentary merchandise, 100,000 meals worth of food and a guaranteed job for all of its displaced workers (Barbaro and Gillis, 2005).

Because of the generally networked structure of state and local response, this research is almost exclusively focused on federal organization for disaster management. While the large and important role state and local governments play in disaster response certainly cannot be discounted, the limited scope of this research is most applicable to federal agencies and programs.

The federal government's role in disaster management finds its roots in the Constitution, which outlines a type of government where power is shared between the national government and the states (Bumgarner, 2008). In particular, the government's role in disaster management, and many other duties, is outlined in Article 1, Section 8 of the Constitution, otherwise known as the "necessary and proper" clause (Bumgarner, 2008). This delicately interpreted line authorizes the federal level to,

...make all Laws which shall be necessary and proper for carrying into the Execution the foregoing Powers, and all other Powers vested by this Constitution in the Government of the United States, or any Department or Officer thereof.

However, the federal government's role in the states execution of disaster management does not come without controversy. States rights advocates argue that the "foregoing Powers" describe in Article 1, Section 8 does not include the financial, resource or organizational assistance the federal government provides states in disaster management (Bumgarner, 2008). However, the government has interpreted its role in this area more broadly by drawing on the wording of the Preamble of the Constitution. This section describes a more active government which is heartily involved in the welfare of its citizens. Specifically, the preamble discusses the need to "...ensure domestic tranquility," and "provide for the common defense." These statements seem to recognize the ultimate role the federal government has in preventing and responding to large-scale terrorist attacks and other disasters (Carafano and Weitz, 2006). Through this interpretation, the federal government has the justification to provide civil defense, response to natural catastrophes, mitigation planning and financial assistance to the states (Bumgarner, 2008). By legislating organizational changes, such as the creation of the FCDA, developing response plans and offering grants, the federal government has solidified its involvement in disaster management.

II. LITERATURE REVIEW

Through hurricanes and floods, terrorist attacks and snowstorms, the federal government has provided assistance to local authorities overwhelmed by disaster. With a new administration, organizational issues in executive branch agencies are particularly salient and beg the questions: how has organization for disaster management evolved over time? What were the characteristics

of the environments in which structural change occurred? What do these past examples mean for the future of disaster management?

Basic Theories of Public Administration Organization

At the broadest level, most scholarship on public administration organization falls into two schools of thought: hierarchy theory and network theory. Both of these theories describe structural notions, with the key difference between them being the formal authority to compel (O'Toole and Meier, 1999).

Hierarchy theory finds its inception in the writings of Max Weber (1922) and Luther Gulick (1937). The school of thought asserts that a specialized division of labor promotes efficiency. The disparate subdivisions are synthesized by a joint authority and the dominance of a common idea, or mission (Gulick, 1937). There is a strong emphasis on authority and leadership in hierarchy theory, in particular that workers cannot effectively serve two “masters,” who naturally impose different values, goals, and expectations. This is Gulick’s theory of “unity of command,” whereby efficiency in government is achieved when the top-down organization is lead by a chief executive authority. This person is responsible for “POSDCORB,” a now common acronym in public administration studies that stands for planning, organizing (establishing subdivisions of labor), staffing, directing, coordinating, reporting (informing subordinates) and budgeting (Gulick, 1937, 13).

Gulick also describes the unique hierarchical structure of the United States government. While the president may be thought of as the most obvious chief executive authority, the federal government should be viewed as more of a “holding company” (Gulick, 1937, 34). In this description of hierarchy, the president represents the “parent company” and individual agencies

act as independent subsidiaries, which retain a great deal of autonomy and freedom (Gulick, 1937, 34). While the parent company is expected to ensure subsidiaries abide and conform to certain rules, standards and practices, each agency itself is a hierarchical structure with its own chief executive authority (usually in the form of a secretary) (Gulick, 1937).

One benefit of hierarchical organization is that it provides a great deal of stability. While the formation and complexity of hierarchies vary greatly, they are all characterized by superior-subordinate links which create a clear-cut chain of command (O'Toole and Meier, 1999). This was in fact one of the foundations of Webers' writings, which included the argument that a clear-cut chain of command—bureaucracy in its now stereotypical form—was the most rational way for a government to function (Weber, 1922). The formal authority to compel given to the central authority helps foster the stability of hierarchies (O'Toole and Meier, 1999). Additionally, as the theory goes, setting in place a strong chain of command helps protect the bureaucracy from politics that only lead to destabilization (Schuman and Olufs, 1988).

Network theory defines an arrangement of government, which is multi-organizational in nature, and attempts to solve problems that a single agency would be hard-pressed to do alone (Agranoff and McGuire, 2001). Networks are independent structures involving multiple parts where, unlike in hierarchy theory, one part is not a formal subordinate of another, and parts do not rely on a common authority (O'Toole, 1997). Networks require inter-disciplinary work, an understanding of partnerships, and effective management to secure collaboration (Moe, 2006). Networks vary greatly in their complexity and formal construction (O'Toole and Meier, 1999). Often, networks are informal relationships between pre-existing hierarchies which work together to solve mutual problems (O'Toole and Meier, 1999), but can also be formal arrangements of independent non-hierarchical entities (Moe, 2006). Some scholars deem these networks of

hierarchies “hybrids,” as they combine the structure of hierarchies within the formation of a network (Kettl, 2005).

In a study done on the emergency preparedness network in St. Louis, researchers identified four key properties of disaster management networks: cohesion, interorganizational contact, autonomy of individual groups, and density of contacts (Gillespie et al., 1992). The balance of these properties can be used to determine the overall effectiveness of a network. For example, Gillespie determined that networks with high autonomy and greater density of contacts have lower levels of preparedness for disaster management, whereas greater cohesion and greater interorganizational contacts displayed higher levels of preparedness (Gillespie et. al., 1992).

These properties help to illustrate some of the management and coordination issues networks face. However, despite the challenges posed by management issues, the greatest benefit networks offer the government is more flexibility in overcoming challenges that are inter-organizational in nature, and that are “beyond the scope” of a single agency (Moynihan, 2005).

The need for flexibility in tackling problems is one of the largest reasons network theory has solidified its position as a school of thought in public administration. Network theory has been the response to an increasingly large gap between traditional models of administration and the character of modern public policy problems (Agranoff & McGuire, 2001). In the literature, these modern problems are often referred to as “wicked problems,” those without a permanent solution, only temporary resolutions (Wise, 2002, Moynihan, 2005, Harmon and Mayer, 1986). Terrorism, natural catastrophes and other problems often faced by the U.S. today fit the definition of “wicked problems,” and the way in which they are approached becomes a major determinant in the future organization of disaster management (Wise, 2002).

Uncertain Environments and Government Organization

These basic theories of organization help develop a foundation for why government is organized the way it is. For example, the fifteen executive agencies of the United States cabinet, including DHS, are a representation of the hierarchical structures described by Weber and Gulick. They are broken down by specialization, such as education, labor or agriculture and are managed by the chief executive authority of the appropriate secretary.

Hierarchical structures have become so institutionalized in the U.S. because they match well with the government's mission to lead the people via strong authority, and chain of command models are how citizens expect government to pursue that mission (Kettl, 2003). However, continuously emerging research on "uncertain environment" and "environmental change," (Gortner et al., 1987, Wise, 2002, Carter, 2002) models of design help to better explain the institutionalization of hierarchy theory, and also explain why there is a call for a move toward networked structures (Wise, 2002).

Environmental factors are an important variable in organization theory. They refer to the physical environment, social, political or economic factors, intraorganizational culture, or other issues within a field of operation (Wise, 2002). When these factors are in flux, they often create uncertainty, which is characterized by fluctuating demands, high levels of resource competition, the need for fast reaction and problem solving, and the need to constantly modify and adapt to meet constantly changing challenges (Graham and Hays, 1993). The environment faced by disaster management—whether it be the consequences of terrorist attack or a natural weather phenomenon—has an inherent degree of uncertainty and urgency (Hodgkinson and Stewart, 1991). Uncertainty does not just exist on the field of operation or whole of government level; it also exists within an organization or agency itself. The rate of change in an organization's work

environment is a significant source of uncertainty, and can often be caused when new or unfamiliar tasks are placed on workers (Burns and Stalker, 1961). Literature suggests that environmental uncertainty has a great deal of influence on the way an organization is structured.

The classic response to uncertainty is to recognize the limitations of the existing system and to broaden the scope of actors, agents, and knowledge that can be called to action, as needed (Comfort, 2005). This can be accomplished by using a variety of systems, including networks or hierarchies. Some literature suggest that because hierarchical structures are not designed to respond rapidly to changes in demands, uncertain environments encourage governments to adopt less formal and more decentralized structures (Gortner et al., 1987). Lawrence and Lorsch (1967) assert that the success of a model of organization is increased when the complexity of the environment is matched by the complexity of structures. When managing a complex environment riddled with “wicked problems,”—those without a permanent solution—a complex structural solution of high reliability networks may be the best approach (Carter, 2002). These networks are sometimes referred to as “organic” organizations which have extensive horizontal communication and teamwork, are adaptable, (Burns and Stalker, 1961) and are arranged around problems rather than ongoing work routines (Bennis, 1966).

However, other research suggests that when environmental factors are unclear, organizational models tend to fall back on tested and validated procedures, which often result in hierarchical structures (Rainey, 1997, Wise, 2002). Wise's (2002) study iterates that uncertain environments can affect government agencies by making goals ambiguous and management of tasks more challenging. Particularly in new agencies, leaders will often seek to overcome the challenges posed by changing environmental factors and the "liability of newness," by relying on pre-established organizational models, which are typically hierarchical in nature (DiMaggio and

Powell, 1983, Wise, 2002).

Despite his sound argument for how environmental changes have created more formal structures, Wise agrees with earlier research, particularly Lawrence and Lorsch (1967), that hierarchical models are not designed to deal with these rapidly changing situations efficiently or effectively. As initially laid out in the writings of Weber (1922) and Gulick (1937), one of hierarchy's benefits is its stability, which inherently inhibits rapid response or organizational change by constructing a bureaucratic chain of command. However, more unstable environments create a greater need for decentralization and less formal structure (Wise, 2002), as rapid decisions cannot be easily made when orders have to travel up and down a bureaucratic chain of command (Rainey, 1997).

The aforementioned scholarship posed two different streams of thought: that the organizational response to uncertain environments is to establish hierarchies, or to establish networks. However, Moe's research on the National Capital Region (NCR) network for homeland security, a regional homeland security and disaster management network comprised of federal and local government agencies, has illustrated an additional theory of the relationship between uncertain environments and public administration organization. This theory indicates that while the appropriate response to the "wicked problems" faced in today's security environment is to create a lithe and responsive network system, networks display a tendency to become more hierarchical over time (Moe, 2006). This could be due to the traditionally hierarchical structure of an emergency network's components. For example, police and other first responders, in addition to the rest of local, state and federal bureaucracy, are largely top-down hierarchical structures (Moe, 2006). While this argument is made specifically for the NCR, and while it is slightly incongruent to the previously described streams of thought, its

applicability to past and future organization changes in disaster management as a whole is worth examining in this study.

Uncertain environment and environmental change theories are very important as they help to explain why hierarchy has been the consistent model of organization, and also explains why in an era of unknown threats, "wicked problems," and changing leadership, network models have become an increasingly popular solution (Wise, 2002). In general, the literature in this area can be broken down into two major streams of thought and an additional theory: that uncertain environments call for more networked structures (Gortner et al., 1987), that uncertain environments develop hierarchies (Wise, 2002) and that uncertain environments over time may cause networks to become more hierarchical (Moe, 2006). Each of these patterns describes a distinct relationship between uncertain environments and organizational change.

Disaster Management, Homeland Security and Organization

The fundamental divide between hierarchy theory and network theory is paralleled in the research on how disaster management and homeland security preparedness should be structured. From the outset, the determination of which model is most appropriate for the current government configuration is difficult based on the largely novel conglomeration of pre-existing government agencies that comprise DHS. The majority of research has pointed to a network structure as the most efficient and viable option for securing America and ensuring proper response to catastrophe, and there are several studies that are representative of this (Wise, 2002, Kettl, 2003, Moe, 2006).

Wise's (2002) study looked at the departmentalization of emergency management into the Federal Emergency Management Agency (FEMA) and applied lessons learned to the field of

homeland security as a whole. He determined that mission and cultural differences between agencies are often underestimated, and the consolidation of these disparate agencies runs the risk of creating ambiguous duties, and an imbalance between original disaster management duties and new homeland security missions. The idea of a top-down, hierarchical organization model is dependent on the idea that an understanding of agencies to be coordinated with, objectives to be accomplished by these inter-organizational relationships, and the means to achieve goals are clear to everyone involved (Wise, 2002). Additionally, he determined that consolidation of disparate government agencies and programs into one organization like FEMA or DHS runs the risk of “overloading” the new agency by complicating leadership and coordination (Wise, 2002).

Kettl (2003), whose study focused on solutions for what he determined to be the five major problems confronting homeland security, comes to the same conclusion. That is, by definition hierarchical models and classic literature rely on structural solutions to remedy problems of coordination. However, the current security environment (one which often deals with uncertainty and “wicked problems”) demands more adaptable or elastic approaches, which can better provide solutions for the uncertain nature of national security and weather phenomena (Kettl, 2003). He asserts that the key to effective homeland security (and likewise, disaster management) is to create a flexible system of networked information and technologies amongst actors with a stake in the field of operation, which by design is the opposite of classical hierarchy theory (Kettl, 2003).

Lastly, Moe’s (2006) dissertation on the effectiveness of the National Capital Region (NCR) network structure comes to mirrored conclusions. Her study reaffirms that the field of operation for homeland security has become a fluid and uncertain environment, which is best tackled by less structured and informal networks. In particular, the local networks that her

research focused on are better equipped to provide plans, coordination and assistance considering terrorism and natural disasters strike localities (Moe, 2006, Kettl, 2003). However, Moe also found that these local networks run the risk of becoming more hierarchical in nature, due to the expectations of government organization from citizens, and the inherent hierarchical structure of local government agencies such as police, fire etc. who are members of these networks. This trend could undermine the performance of networks and make them less responsive to uncertain environments (Moe, 2006).

These studies generate the question of, what, if any, is hierarchy's place in disaster management? There are several arguments that support hierarchical structures in this field, but there seem to be no real champions of research for its use as a response to modern uncertainty. One of the arguments for a hierarchical structure in general, which applies to a government agency such as DHS is that policy and law dictate organization (Gortner et al., 1987). Bureaucracy in the U.S. functions within the legislative framework of Congress for oversight and budgetary purposes. This framework naturally develops hierarchical structures because a chief authority is needed to provide budget guidance and organize different missions within an agency (Hamilton, 2001). The secretary must not only have the authority to advise, but have the power to act and use budget authority to be effective (Hamilton, 2001). Additionally, the departmentalization of different entities dealing with the disaster management or homeland security field of operation, under the guidance of a single authority, creates synergies among agencies while providing the strong leadership that networks often struggle with (Boyd, 2001).

Hierarchies and networks are not necessarily mutually exclusive structures. Uncertain environments could also cause the government to create a hybrid organization, as Kettl (2005) suggests. These hybrids would include the decentralized (i.e. non-agency) and adaptable

approach of networks, but would be coordinated by highly capable leaders in order to ensure effectiveness (Kettl, 2005). There could also be networks of existing hierarchies, working together to solve a mutual concern or problem (Kettl, 2005).

Methodology of Literature and Remaining Questions

The most common method of study in the area of homeland security or disaster management and public administration organization has been qualitative analyses (Wise, 2002, Moe, 2006, Kettl, 2003). These often take the shape of case studies, which look at the effectiveness of a structure of organization within an agency of similar purpose and apply them to homeland security. This was the case in Wise's (2002) study, where evaluations of the structural forms of emergency management and drug enforcement were evaluated, to determine whether a departmental option (such as DHS or FEMA), or a less formal networked option were appropriate.

This was also the case in Moe's (2006) study, where the NCR was analyzed to determine broad consequences for homeland security and public administration theory. In that study, the principle of multiple sources was used to increase the reliability of the study's conclusions. The multiple sources included documents and archives (such as meeting minutes), direct observations and interviews with participants (Moe, 2006).

Despite a large array of research that has attempted to tackle the questions posed by disaster management and homeland security organization from different angles, there are still large gaps in the research that exist to be filled. Firstly, although Wise, Moe, Kettl and others address the importance of environmental changes and how governments *should* respond organizationally, there is a lack of research that thoroughly discusses how the uncertainty in an

environment (be it the physical environment, political, social, or economic factors or the intraorganizational environment, etc.) *actually* influences the way the federal government organizes. There is a need for a more empirical, comprehensive explanation of the practical applicability of the possible patterns of uncertain environments and organization illustrated in the literature, rather than research which comes to normative conclusions on the way the government should overcome uncertainty.

III. STUDY DESIGN AND METHODOLOGY

This study was undertaken using a qualitative and empirical research methodology that analyzed the evolution of organization for disaster management to determine if it has followed any of the previously iterated patterns of public administration organization. It did so based on existing research of public administration organization and environmental change, analyses of major legislation effecting organization (such as the Homeland Security Act of 2002), and historical information on past approaches taken to disaster management organization.

The data used in this study comes from several different areas. The core study is composed of an analysis of legislation and historical data on disaster management, structural changes within the field, and the characteristics of the environments in which these changes occurred. This qualitative data dates back to the origin of organization for disaster management, 1950, and ends in the present. The research of historical legislation and informal organization helped to establish the historical record of organization for disaster management. In order to determine if the evolution of disaster management organization has followed one of the major streams of thought or additional theory on how uncertain environments effect organization, past structural changes or reorganizations were categorized as either “hierarchical,” or “network,”

based on their relative proximity to definitions in the existing literature. This data is operationalized by creating a timeline that outlines the changes in disaster management organization. In creating this timeline, it is visually easier to illustrate the evolution of disaster management and to determine if it has demonstrated one of the patterns illustrated in the major streams of thought and additional theory on how uncertain environments effect organization.

The existing body of research on public administration organization and uncertain environments is important to this study for several reasons. First, the primary research question the study addresses is whether or not disaster management's organizational evolution has followed any of the streams of thought on the relationship between environmental change and organization that exist in the current literature. Secondly, the existing literature will be important in determining how the characteristics of the modern environment or alternate influences may have affected past and present organizational structures for disaster management. Because little data (quantitative or qualitative) exists in many of these research areas, this study is largely exploratory and relies heavily on the existing literature for guidance and methodology.

This study seeks to operate under the conceptual frameworks of hierarchy and network theories for several fundamental reasons. First, they provide a consistent, constant definition in both previous research and within the research done in this study. Secondly, the primary research question to be addressed is whether the evolution of disaster management organization has followed one of the three patterns of organizational evolution that exist in the literature. In order to best answer this question, previous structures and changes to structure will be categorized as either "hierarchical," or "network," based on their relative proximity to the definitions in the existing literature.

To better illustrate how this study may categorize historical organization for disaster management as either hierarchical or network, graphical examples may be useful. The following figures are merely examples of how a network or hierarchy might look, and are largely representative of the definitions that currently exist in the literature, to which this study defers for its analysis of the evolution of disaster management.

Hierarchy

Figure 1, below, is a graphical representation of the hierarchical structure of a basic government agency. This agency is hierarchical in nature as it follows a top-down chain of command that is presided over by a central authority or chief executive. This position has POSDCORB functions, all of which are undertaken (officially or unofficially) by the central authority, or secretary in the case of most agencies. The “unity of command” provided by the central authority is intended to reduce confusion among workers and to promote accountability and responsibility (Gulick, 1937). As O’Toole and Meier (1999) point out, the greatest distinguishing factor of a hierarchy is the formal authority to compel, given to the central authority.

This agency is hierarchical in nature as it follows a top-down chain of command that is presided over by a central authority or chief executive, which has POSDCORB functions. These functions, again, are planning, organizing, staffing, directing, coordinating, reporting and budgeting, all of which are undertaken (officially or unofficially) by the central authority, or secretary in the case of most agencies. The “unity of command” provided by the central authority is intended to reduce confusion among workers and to promote accountability and responsibility

(Gulick, 1937). As O'Toole and Meier (1999) point out, the greatest distinguishing factor of a hierarchy is the formal authority to compel, given to the central authority.

Figure 1. Potential Hierarchical Structure

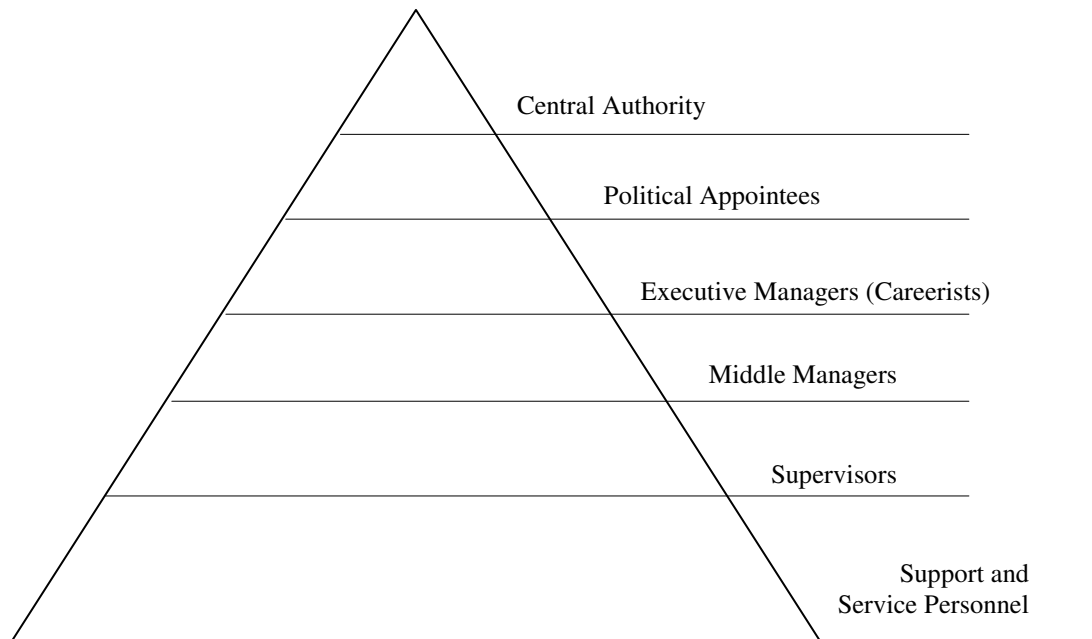


Image abridged from Graham and Hays, 1993, 14.

In addition to the chain of command, this agency would also have a division of labor to promote efficiency, coordinated by the central authority. Gulick (1937) contends that effective coordination of subdivided labor can be accomplished by two methods: by organization and by the dominance of an idea. These primary coordinators are not mutually exclusive, and are intended to coordinate work within one, or several, agencies with related functions. The agency could organize these divisions of labor by “major purpose,” whereby workers with distinct skills are brought together in a department to render a particular service (Gulick, 1937). In the case of disaster management, the creation of an agency such as FEMA, which brings together distinct

skills to render disaster response and preparedness services, is an example of Gulick's definition of hierarchy (See Appendix I: FEMA Organizational Chart).

Network

The National Capital Region (NCR) Homeland Security Network is an organization of leaders from the District of Columbia, the State of Maryland and the Commonwealth of Virginia, area local governments, the Department of Homeland Security's Office for National Capital Region Coordination (NCRC), non-profit organizations and private sector businesses. It was formed to reduce the vulnerability of the NCR from terrorist attacks and to develop and provide effective disaster response (National Capital Region Homeland Security Program). In order to coordinate these different interests, a networked structure of "regional groups" was created. Within the network, individual entities retain autonomy, while contributing to a mutual cause. This network provides both a modern and well-formed graphical example of typical network structure described in the existing literature. While networks differ in size, function and other variables, the NCR network provides an example of how a network might look and work logistically.

As evidenced in Figure 2, below, the NCR functions as a conglomeration of separate entities and working groups. While a Senior Policy Group advises its general functions, helps coordinate and is reported back to, the network does not operate in the same top-down fashion that a hierarchy would. Instead, each individual entity or working group has its own administrators and POSDCORB functions (National Capital Region Homeland Security Program).

Figure 2. Potential Network Structure: National Capital Region

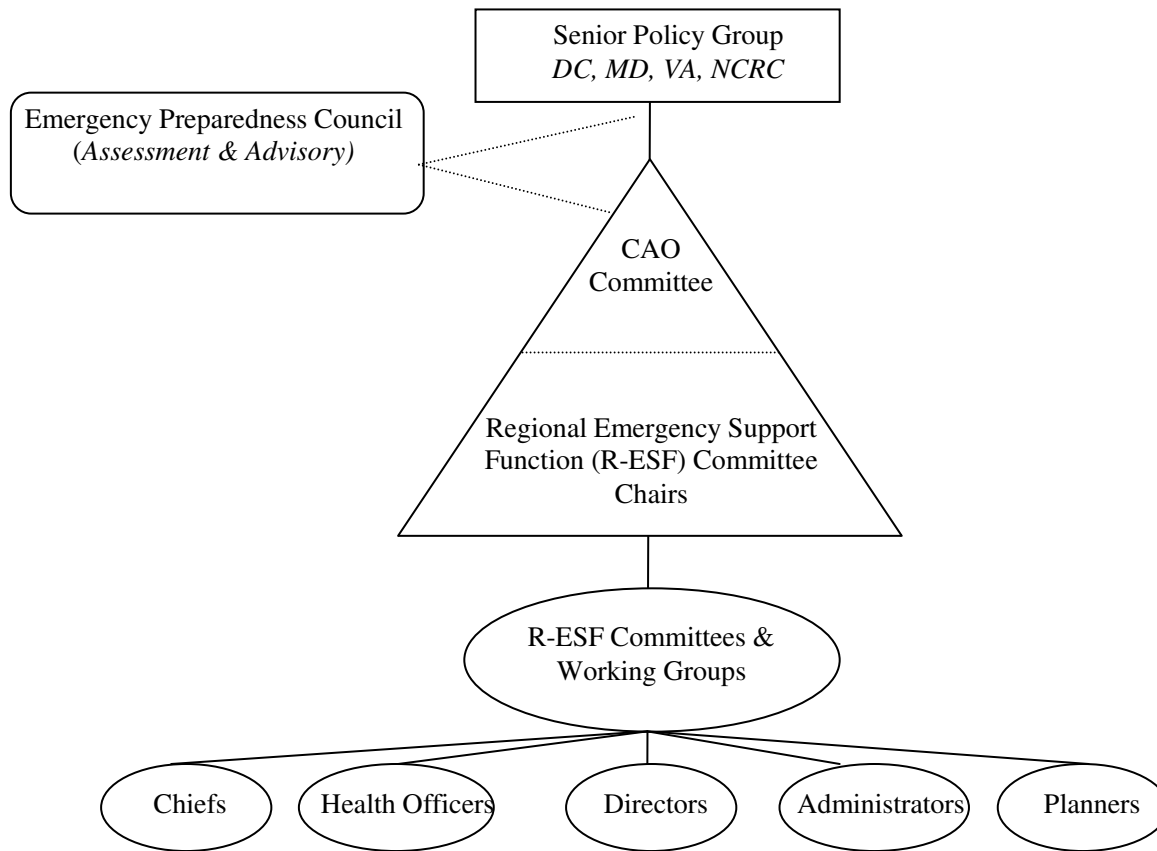


Image replicated from the National Capital Region Homeland Security Program

For example, the NCR Critical Infrastructure Protection (CIP) and the NCR Executive Interoperability Committee (NEIC) are individual working groups that operate under the “R-ESF Committees and Working Groups” section of the network. However, they work distinct and specific issues, deal with different constituencies and answer to directors and administrators unique to their working group (National Capital Region Homeland Security Program). As the literature defines, the NCR network is an independent structure involving multiple parts where, unlike in hierarchy theory, one part is not a formal subordinate of another, and parts do not rely on a common authority (O’Toole, 1997). Additionally, because the individual parts of the NCR

understand the networked structure in which they work, partnerships and inter-disciplinary relationships are understood (Moe, 2006).

Networks can also occur between existing hierarchies through a combination of overlapping duties, joint programs or mutual interests in a certain field (Kettl, 2005). Providing that relationships are understood and responsibility is clearly delegated, these overlap networks can also be effective (Moe, 2006). While they do not represent the most common definition present in the literature, they are still, in effect, networks and will therefore be classified as such by this study when appropriate.

Hypothesis

The main research question this study seeks to address is, has the evolution of organization for disaster management—a field characterized by uncertainty—followed one of the three patterns illustrated in the existing literature? This study hypothesizes that the evolution of disaster management organization will demonstrate one of the major streams of thought or additionally theory that describes the relationship between uncertain environments and organization. More specifically, it hypothesizes that the uncertainty of the environment faced by disaster management has caused the government to rely on more traditional hierarchical structures. This seems to be the most likely conclusion for several reasons. First, the formal authority to “compel” given to the central authority helps foster the stability of hierarchies (O’Toole and Meier, 1999). This stability and leadership seems to be what the general public is looking for in an uncertain environment (Wise, 2002). Secondly, hierarchies fit into the preexisting scheme of American bureaucracy. Bureaucracy in the U.S. functions within the legislative framework of Congress for oversight and budgetary purposes. This framework

naturally develops hierarchical structures because a chief authority is needed to provide budget guidance and organize different missions within an agency (Hamilton, 2001).

The hypothesis will be supported if the evolution of disaster management displays that when facing an uncertain environment, the federal government has continuously relied on traditional hierarchies. This means the government will have created, or reorganized to form structures that are similar to Figure 1 above and that this will be evident in the timeline created. However, the hypothesis will not be supported if uncertainty has caused governments to rely on more networked structures, which would be structured closely to Figure 2, or if there is no discernable pattern between uncertain environments and the major streams of thought on how governments should respond. This pattern would also be demonstrated in the timeline if an illustration of more networks over time, or a random scattering of organizational changes indicates the hypothesis to be unsupported.

This study contributes to the existing body of literature by providing an empirical and comprehensive analysis of the evolution of disaster management, and fills a gap in the current literature by discussing how an environment actually influences organization. While a wide array of existing normative research addresses the ways the federal government *should* respond organizationally, this research fills a void by discussing empirically, how uncertain has *actually* influenced the way the federal government organizes.

IV. THE HISTORY OF ORGANIZATION FOR DISASTER MANAGEMENT

State, local and federal government alike have made strategic efforts to organize for disaster management for years, using informal overlap and formal legislation to institute organizational reforms. The federal government has played a role in the planning, mitigation and

response to disasters since at least 1803 when the United States Congress passed the Fire Disaster Relief Act to provide aid to the decimated town of Portsmouth, New Hampshire (Bumgarner, 2008). This act of assistance is viewed as the federal government's first venture into disaster assistance, which since 1803 has expanded its responsibilities and reformed its organization to meet the challenges of its operational environment (Pampel, 2008).

While more than one hundred pieces of legislation were passed by Congress in the 19th century alone to assist with earthquakes, floods, and other disasters, they were done on a largely ad hoc basis (Bumgarner, 2008). Therefore, this study focuses on only the most critical legislation that introduced organizational changes in disaster management, which will be addressed in this section.

The Disaster Relief Act of 1950

The ad hoc disaster relief of the 19th and early 20th century was typically instigated by Congress enacting financial aid legislation after a major disaster, such as the San Francisco earthquake of 1906. After each disaster, the federal government provided monetary assistance to state and local authorities as well as to victims who were overwhelmed by the cost of recovery (Roberts, 2006). At this time, even when the federal government promised troops, money or other forms of assistance, it was local officials such as mayors and police who maintained control over the disaster response, even if unofficially (Bumgarner, 2008, Pampel, 2008, Light, 2004).

However, in 1950, the federal government took the opportunity to define its own role in disasters and emergencies by enacting the Disaster Relief Act. The legislation authorized the federal government, to provide assistance in any major disaster after the President deemed the

catastrophe to have overwhelmed state and local resources (Disaster Relief Act, 1950). Federal agencies were given the authority to assist by lending federal resources (such as equipment and personnel) as well as “by distributing, through the Red Cross or otherwise, medicine, food, and other consumable supplies” and “by performing ... protective and other work essential for the preservation of life and property, clearing debris and wreckage,” and providing grants to states and localities for these purposes (Disaster Relief Act, 1950).

While the legislation seemingly placed a heavy burden on the federal government, it actually did more to reaffirm that states were the first line of defense in a natural disaster (Light, 2004). However, it did enable the federal government to share in the financial responsibility of disaster management and response, and required a mechanism for coordination between local, state and federal relief (Light, 2004). Because the Disaster Relief Act of 1950 is viewed as the first effort by the federal government to establish statutory involvement in disaster management and as it reaffirms state responsibility in response and relief, it does not present a clear example of hierarchical or networked organization relative to the existing definitions in the literature. Rather, it provides a neutral example of legislation as it codified organizational relationships that had previously existed on an ad hoc basis.

The Federal Civil Defense Act Of 1950

The 1950s were a time of great uncertainty in the United States. In the aftermath of World War II, responsibility for federal civil defense functions was transferred to a succession of different agencies and eventually became part of the National Security Resources Board (NSRB). The NSRB became part of the Executive Office of the President (EOP) following Reorganization Plan No. 4 of 1949 and was charged with the duty of “advis[ing] the President on

a variety of matters, such as the coordination of military, industrial, and civilian mobilization, including the use of manpower and resources; the establishment of reserves for strategic and critical materials; the strategic relocation of industrial and other activities; and the continuity of government” (Hogue and Bea, 2006, 6).

The threat of nuclear war clouded the security environment and presented many “wicked problems” for the federal government to manage. When the fear of the potentially devastating effects of a nuclear attack reached President Truman, he established the Federal Civil Defense Administration (FCDA) to develop, maintain, train and equip civil defense functions and to subsume several duties from the NSRB (Hogue and Bea, 2006). While originally stationed in the Office of Emergency Management in the EOP, the FCDA became a freestanding federal agency with the signing of the Federal Civil Defense Act of 1950 (Hogue and Bea, 2006). With its new status, the FCDA became responsible for minimizing the potential effects of a nuclear attack both before, during and after such event occurred (Hogue and Bea, 2006). While civil defense efforts were largely focused on nuclear threats, strategies were also developed for other man-made or natural disasters (Light, 2004), all of which lend to the classification of the environment surrounding this legislation as uncertain.

The signing of the act significantly expanded the FCDA’s responsibilities by making it the primary financial contributor to state preparedness activities (Bumgarner, 2008), the main procurer of materials for civil defense, and by granting it “emergency authority,” which could be used in the event that the President and Congress proclaimed a state of civil defense emergency (Hogue and Bea, 2006). Most importantly, however, the Federal Civil Defense Act of 1950 granted the FCDA the power to delegate civil defense responsibilities to other federal agencies and to review and coordinate these activities at the federal level (Hogue and Bea, 2006). It is this

formal authority to compel that clearly defines the creation of the FCDA as a hierarchical reorganization.

Within Gulick's descriptions of a classic hierarchy, he establishes the need for a chief executive authority. To be most effective, Gulick (1937) asserts an organization needs a division of labor that must be coordinated. Coordination can be achieved through the establishment of a "system of authority whereby the central purpose or objective of an enterprise is translated in reality through the combined efforts of many specialists, each working in his own field" (Gulick, 1937). As O'Toole and Meier point out, the greatest distinguishing factor of a hierarchy is the formal authority to compel (1999) and so, the system of authority is managed from the top by a chief executive authority, which possesses POSDCORB (Gulick, 1937). The reorganization of government and creation of the FCDA fits Gulick's model of a hierarchical organization as a presidential appointee was granted POSDCORB authorities and delegated civil defense responsibilities to other related agencies. This occurred in the type of "system of authority" where an objective is achieved through the combined efforts of specialists working in their own fields, coordinated by an executive authority.

In addition to the FCDA fitting Gulick's model of hierarchy, the environment in which it was created should also be noted. The threat of nuclear war, as well deliberate and natural disasters are "wicked problems"—those without a permanent solution—that characterize an uncertain environment. In this instance therefore, it can be concluded that the government's organizational response to the uncertain environment in 1950 was a hierarchical structure for disaster management.

Reorganization Plan No. 1, 1958

In July of 1958, President Eisenhower would initiate an era of “White House-centered” organization for disaster management (Hogue and Bea, 2006). In the issuance of Reorganization Plan No. 1, Eisenhower created a new office within the EOP entitled the Office of Defense and Civilian Mobilization (ODCM), which absorbed the functions of the FCDA, Civil Defense Advisory Council and the former Office of Emergency Management (Hogue and Bea, 2006).

According to the President’s issuance message, the reorganization was intended to provide “sounder organizational arrangements” and “promote the increased economy and effectiveness of the Federal expenditures concerned” (Eisenhower, 1958, Letter). Additionally, the President justified the reorganization by describing the environment when he stated that the centralization of disaster response powers was necessary to respond to the “rapidly changing character of the nonmilitary preparedness program” during a catastrophe (Eisenhower, 1958, Letter). As the literature indicates, rapidly changing characteristics often create an environment of uncertainty to which the government may respond with organizational modifications. This first phase of Reorganization Plan No.1 is similar to the organizational response in the Disaster Relief Act of 1950 in that it creates a hierarchical structure to manage the uncertainty of the environment. In effect, the structure is identical to that created by the Disaster Relief Act but raises the level of the chief executive authority from a political appointee to the President himself. This violates the “holding company,” model that Gulick (1937) describes, but still structurally represents a hierarchical organization.

The 1960s were an extension of the uncertain environment that affected the 1950s. The nuclear threat from the Soviet Union was still very real, and Hurricanes Donna and Carla devastated the Florida and Gulf Coasts, killing more than 400 people combined. This uncertain

environment saw more changes in organization for disaster management as the duties outlined by Reorganization Plan No. 1 were altered by President Kennedy's administration in 1961. As a result, many of the civil defense functions of OCDM were transferred to the Department of Defense (Hogue and Bea, 2006). While many important functions for disaster response, including nuclear attack emergency assistance and funding for state civil defense requirements, were then under the authority of the Secretary of Defense, the authority to develop policy related to civil defense and local and state preparedness, delegate roles, coordinate and review federal agencies in civil defense and response still belonged to the OCDM (Hogue and Bea, 2006). While still part of the EOP, the breadth of responsibility given to the OCDM made it a more active advisory body and underscored its hierarchical organizational structure. To reflect the extent of its responsibility, the OCDM was eventually renamed the Office of Emergency Preparedness (OEP) in 1968 (Hogue and Bea, 2006).

The Disaster Relief Act of 1969

The uncertain environment present in the early 1960s continued throughout the decade as the nuclear threat continued and as disasters such as Hurricanes Betsy and Camille killed more than 330 people in their paths (Bumgarner, 2008). In 1969, President Nixon expanded the original disaster relief duties bestowed upon the federal government in the Disaster Relief Act of 1950, most of which were delegated to the OEP. The legislation gave the OEP the authority to provide temporary shelter for displaced persons, provide grants for state and local preparedness programs, designate a "federal coordinating officer," for a disaster zone, in addition to other duties (Hogue and Bea, 2006). This law enacted changes in the duties of the OEP, but maintained its hierarchical organization structure overall.

It is important to note that the OEP, or its predecessors in disaster management and civil defense were not the only agencies involved in the field (Bumgarner, 2008). However, until the 1970s, the role of other agencies in disaster management was relatively limited and was dependent on its individual charter or the delegation of a duty by the OEP. The OEP or predecessor agency's role as a central coordinator for disaster management and formal authority to compel is what sets it apart as a hierarchical organizational structure.

Reorganization Plan No. 1, 1973

The 1970s were a time of change for government in general, and organization for disaster management was no exception. The San Fernando Earthquake of 1971 and killer Hurricane Agnes of 1972 (Bumgarner, 2008) added to the anxiety surrounding Nixon's attempt at a detente policy with the Soviet Union and indicate that a degree of uncertainty existed in the 1970s disaster management environment.

In an effort to downsize the Executive Office of the President, Nixon made many reorganization proposals to Congress, and in Reorganization Plan No. 1 of 1973 he successfully altered organization for disaster management at the federal level by abolishing the OEP and redistributing responsibility for disaster management among several federal agencies (Hogue and Bea, 2006).

The Department of Housing and Urban Development (HUD) received disaster preparedness and relief functions, the General Services Administration (GSA) was made responsible for ensuring government continuity during disaster, resource mobilization and national stockpile maintenance. Additionally, the Department of the Treasury was given the authority to conduct investigations on imports that might threaten national security (these

responsibilities were ordained by Executive Order 11725, issued subsequent to Reorganization Plan No. 1, 1973) (Hogue and Bea, 2006). Additionally, the Federal Disaster Assistance Administration was created within HUD to direct disaster relief to states and localities and the Defense Civil Preparedness Agency (DCPA) was established in the Department of Defense to manage civil defense functions in the event of a nuclear attack (Hogue and Bea, 2006). In doing so, Nixon effectively brought an end to the “White House-centered” era of disaster management organization and began the process of decentralization at the federal level.

This decentralization is representative of the first large federal movement toward a network organizational structure for disaster management, which happened to occur during the uncertain environment of the 1970s. As defined in the literature, networks are an arrangement of government, which are multi-organizational in nature, and attempt to solve problems that a single agency would be hard-pressed to do alone (Agranoff and McGuire, 2001). Networks are independent structures involving multiple parts where, unlike in hierarchy theory, one part is not a formal subordinate of another (O’Toole, 1997). This model is a fitting description of the changes made by Reorganization Plan No. 1, 1973 and the subsequent E.O. 11725 to federal organization for disaster management as responsibilities, previously vested under the executive authority of one primary agency, became shared among several independent structures.

Reorganization Plan No. 3, 1978

By the late 1970s, disaster management and civil defense were handled by myriad of agencies that sometimes worked counter to each other’s efforts (Roberts, 2006). According to some within the bureaucracy, the networked structure instituted in Reorganization Plan No.1, 1973 created many administrative issues for disaster management (Hogue and Bea, 2006). It

appears the reorganization failed largely due to problems of coordination and management, typical of networked structures (Moe, 2006). These issues pushed state and local leaders, frustrated by the problems at the federal level, to call for the creation of a “comprehensive emergency management policy” to coordinate various federal, state, and local responsibilities for disaster management (Roberts, 2006).

To remedy the issue, President Jimmy Carter adopted a policy position, originally put forth by the National Governors’ Association, which advocated for centralization at the federal level once again (Hogue and Bea, 2006). Therefore, in his Reorganization Plan No. 3, 1978, Carter asked Congress to sanction the consolidation of disaster management responsibilities and offices previously divided in Commerce, Defense, GSA, and HUD into one new, independent agency called the Federal Emergency Management Agency (FEMA) (U.S. Congress, House, Message from the President). Congress approved, and in 1979 Executive Order 12127 ensured that FEMA was established and transferred responsibility for civil defense, federal disaster assistance, federal preparedness, hazard reduction, fire prevention and other duties from the agencies of the previous networked system to the new central agency (Hogue and Bea, 2006).

Reorganization Plan No. 3, 1978 appears to have been the response to the management issues associated with the network structure created by Reorganization Plan No. 1, 1973. In doing so, Plan No. 3 is representative of Moe’s contention that in uncertain environments, networks risk becoming more like hierarchies, as they are a more tested and tried form of organization.

V. MODERN ORGANIZATION: FEMA SINCE 1979

The organization of FEMA in 1979 ushered in an age of federal involvement in disaster management that had never been seen before. Under the initial guidance of John Macy, FEMA's first director, the organization began development of an Integrated Emergency Management System with an approach that included "direction, control and warning systems which are common to the full range of emergencies from small isolated events to the ultimate emergency—war" (Federal Emergency Management Agency).

The reorganization was an obvious shift towards a more hierarchical structure as more than one hundred different programs spread across several agencies were centralized under the leadership of a single agency (Roberts, 2006). This section attempts to analyze the progression of FEMA's organization from 1979 to the present, to determine how its internal reorders and shifts contribute to the grand scheme of organization for disaster management.

The 1980s

President Carter's vision for a centralized agency like FEMA was to remedy the fragmentation of disaster response by instituting a "one-stop shop" that would improve and expedite communication between the President, federal agencies, states, localities, the National Guard, and other groups involved in mitigation and response (Roberts, 2006). By all accounts, his reorganization plan was effective in coordinating these disparate government bodies and improved disaster management overall (Roberts, 2006, Frontline, 2005).

However, after the devastating and costly Hurricane Frederick in 1979 the effectiveness of disaster management, and of FEMA in particular, was again brought into question. As Cold War pressures intensified, and the environment retained a degree of uncertainty, President

Reagan decided to reevaluate FEMA's mandate (Roberts, 2006). Rather than reorganizing, Reagan expanded FEMA's duties to provide it with more flexibility in encouraging state mitigation and planning, evacuation planning for nuclear attacks and more latitude to direct redevelopment in post-catastrophe areas (Roberts, 2006).

By expanding FEMA's duties to include civil defense responsibilities, such as preparation for nuclear attack, the agency's original mandate became overextended and created an unintentional overlap between the duties of FEMA and agencies such as the Federal Bureau of Investigation (FBI) and Department of Defense (DOD) (Roberts, 2006). This inadvertent overlap created an unofficial, and unproductive network of sorts, whereby disaster management and civil defense once again intersected. However, as Moe points out, for networks to be effective, relationships must be fully understood and participants must be aware of their individual responsibilities (Moe, 2006).

This network cannot be truly considered an official government reorganization in response to an uncertain environment, as overlap was unintentional rather than legislated, were largely due to Reagan's expansion of FEMA's duties, and relationships were not clearly defined or effective. In fact, the organization for disaster management during the 1980s better represents the stream of thought that governments react to uncertain environments by relying on more tested and tried forms of organization, which are typically hierarchies (Wise, 2002). The pressures of the Cold War and the continued uncertainty of natural disaster caused the government to not only rely on the existing hierarchical structure of FEMA, but to also reinforce the centralized, hierarchical structure by expanding its powers and functions.

The 1990s

FEMA's overstretched mandate during the 1980s overwhelmed the agency and generated many resource and management issues that turned the once productive agency into a scapegoat for government blame (Roberts, 2006). There were a great variety of disasters FEMA was tasked with in the 1980s, including the Cuban refugee crisis, the accident at Three Mile Island and the additional duties associated with natural disasters (McClellan, 2002). When an organization's internal environment is rapidly changing (Burns and Stalker, 1961) or when duties and goals become ambiguous (Wise, 2002), uncertainty develops and can foster ineffectiveness. This seems to be what occurred during the 1980s as the inclusion of civil defense in FEMA's mandate rapidly changed internal cultural dynamics and created ineffectiveness. As some have put it, FEMA during the Bush administration was a "schizophrenic" agency that was forced to respond to the incompatible missions of civil defense and natural disasters (Daniels, 2002).

When Hurricane Andrew hit southern Florida in 1992, discontent with FEMA reached its peak. The agency floundered while the storm caused \$30 billion in damages and left 160,000 people homeless (Roberts, 2006). President George H.W. Bush famously placed his Secretary of Transportation, Andrew Card, in charge of disaster response during Hurricane Andrew, rather than relying on FEMA, thus affirming the agency's reputation as an unproductive and unreliable government agency (Roberts, 2006, Frontline, 2005).

Because of its failures to prepare state and local governments for the disaster response needed for a storm like Andrew, FEMA took on many organizational changes under the direction of James Lee Witt during the Clinton administration (Roberts, 2006). The changes made during 1993 were primarily intended to trim back the agency and make it a more lean and professional organization that would no longer be a "parking lot" for political appointees (Frontline, 2005).

Witt improved the professionalism of the agency when he created more career positions, improved the education level of FEMA employees by hiring more college graduates, and narrowed the purview of the agency (Bea, 2002. Frontline, 2005). In narrowing the agency's jurisdiction, Witt, with the agreement of Congress, began removing some of FEMA's civil defense responsibilities that had been instated during the 1980s. Civil defense functions were not completely abandoned during the reorganization, but were integrated into other basic emergency response functions that apply to almost every disaster. This simultaneously narrowed the focus of FEMA's response functions and streamlined Congressional oversight (Daniels, 2002).

In addition to streamlining the agency's duties, the 1990s brought a new *modus operandi* to FEMA, known as the "all hazards, all phases" approach to disaster management. "All hazards" referenced programs and plans that could be applied to a range of disasters in an effort to more effectively use the finite supply of resources. "All phases" described the initiative to involve the federal government *before* a disaster occurred in order to more efficiently manage known risks and vulnerabilities. It applied to all stages of the "disaster timeline," which includes mitigation, preparation, response, and recovery (Tierney et al., 2001). In order to ensure continuity and effectiveness, states and localities were encouraged to outline their own plans with the same "all hazards, all phases" strategy (Roberts, 2006). The intention in having continuity in planning at the state and federal level was to encourage state involvement in all stages of the disaster timeline and to improve federal response to states' individual needs during a disaster (Daniels, 2002).

It is important to note that much of the success of FEMA during the Clinton administration came from the leadership qualities of James Lee Witt. Leadership is an important quality discussed in organization theory, particularly in hierarchy. While previous directors of

the organization were political appointees with no related experience, Witt brought his experience as the director of Arkansas's Office of Emergency Services to FEMA (Bumgarner, 2008). While experience and leadership are not always dual qualities of a central authority, Witt characterized both of these traits, which many attribute to the success of FEMA during the late 1990s (Daniels, 2002).

By removing civil defense responsibilities from the agency's purview, Witt effectively ended the unofficial and ineffective overlap network between FEMA and defense and intelligence organizations. In doing so, the hierarchical structure that had defined disaster management during the 1980s was strengthened, streamlined and reinforced to become the pattern of organization for the 1990s (Daniels, 2002). This structure reflected the newly focused mission of FEMA and generally improved and hastened response to a number of disasters by eliminating intraorganizational uncertainty and clarifying the agency's mission (Daniels, 2002).

It can also be argued that this organizational choice, as those before it, was made in response to an uncertain environment. While the national security environment seemed to be more stable during the early 1990s, the political environment was, arguably, not. As stated above, political indicators also play a role in an environment's certainty (Wise, 2002) and disasters are, in fact, political events as they effect local districts with representation in Congress and present opportunities to gain or lose political points to other elected officials (Coppola, 2006). FEMA's string of failures during the late 80s and early 90s crested after the debacle of Hurricane Andrew and politicians were eager to reorganize or even abolish the agency and its approach to federal disaster management (Roberts, 2006). There was also a great deal of uncertainty intraorganizationally, as the agency had been largely stovepiped during the 1980s to divide civil defense culture from natural disaster culture (Daniels, 2002). The unintegrated and

poorly structured agency of the 1980s created ambiguity in goals, duties and responsibilities, which fostered intraorganizational uncertainty. Therefore, the reorganization was still a response to an uncertain environment and represents the pattern that governments tend to rely on tested structures, such as hierarchies, during times of uncertainty.

The 21st Century and the Creation of the Department of Homeland Security

The reinvention of disaster management instituted by James Lee Witt in the 1990s saved FEMA from abolition (Roberts, 2006). The “all hazards, all phases” approach became the “intellectual centerpiece” of the agency for many years and improved both mitigation and response to catastrophes at the federal level (Roberts, 2006). Before the new approach had been implemented, the agency’s tactic for disaster preparedness was “dual use mobilization,” whereby federal civil defense and national security resources could be used for their original intention as well as for disaster response (Roberts, 2006).

While Witt’s reorganization intended to retain civil defense functions in FEMA’s response planning (Roberts, 2002), his revitalization of the agency eliminated a lot of civil defense planning functions from strategic planning (Roberts, 2006). By putting natural disasters in the foreground, some argue Witt left FEMA unprepared to battle the terrorist threat that would begin to emerge in the late 1990s (Roberts, 2006). The “all hazards” approach, it appears, placed natural hazards as higher priority, while deliberate disasters were put on the backburner (Roberts, 2006).

When the terrorist attacks of September 11th, 2001 occurred, FEMA was abruptly reminded of its role in national security and civil defense issues. FEMA’s role in national security consequence management was not novel, in fact, it was President Carter’s intention

when establishing the agency that it would provide preparedness and response to all disasters, including terrorist attacks (Bea, 2002). By most accounts, the agency performed well in the response during 9/11 by providing on the scene assistance to local authorities in the immediate aftermath (Frontline, 2005). However, the uncertain environment and national panic initiated by the attack prompted President George W. Bush to initiate an overhaul of the federal government to improve organization for national security (Wise, 2002). Bush was originally hesitant to create a cabinet level agency and his initial efforts were to develop homeland security functions within the White House (Haynes, 2004). Therefore, less than one month after 9/11, Bush established the Office of Homeland Security (OHS) and the Homeland Security Council (HSC) in the Executive Office of the President by Executive Order 13228 (Haynes, 2004).

The new office was charged with the responsibility of coordinating and implementing national security strategies to protect the nation from terrorist attacks. Additionally, Section 3 of E.O. 13228 stated that the office was to coordinate the executive branch's efforts in detection, preparedness, response to and recovery from a terrorist attack. The issuance of the Executive Order not only outlined the functions of the new OHS, but also clarified disaster management's role in homeland security while simultaneously stripping FEMA of its civil defense preparedness function (Frontline, 2005). The overlapping functions outlined by Section 3 seemed to duplicate, or at least interfere with, FEMA's long standing responsibilities (Relyea, 2003). While James Lee Witt had made a purposeful effort to reduce the agency's efforts in this area, legislation and official documents had, until the issuance of E.O. 13228, still defined FEMA as the lead agency for disaster preparedness and response, including response to terrorist attacks (Roberts, 2006).

In November of 2002, just over a year after the creation of the OHS, Congress passed the Homeland Security Act of 2002, which created a cabinet level Department of Homeland Security

(Haynes, 2004). Within hours of the bill being signed into law, President Bush began enacting the Department of Homeland Security Reorganization Plan, which moved preexisting government agencies such as the Secret Service, Transportation Security Administration and FEMA, into the new department (Haynes, 2004). The creation of DHS did not come without controversy however. Those in favor believed that the reorganization would bring all relevant agencies together under one shared mission and grant a senior cabinet-level executive the authority and budget to coordinate performance among them, as a hierarchy designates (Comfort, 2005). Those in opposition, including initially the White House, argued that the individual agencies had distinctive capabilities that would be complicated in a larger organization and that the difficulty of integrating these disparate agencies would delay and distract them from performing their separate functions (Comfort, 2005).

The new department was an unprecedented overhaul of federal organization for national security, with which disaster management became inextricable. As stated above, the limited scope of this study cannot accommodate an analysis of the costs and benefits associated with integrating disaster management into the amorphous concept of homeland security. However, it is important to clarify basic reasons why FEMA was included in the new department. September 11th painfully demonstrated how disastrous the consequences of a terrorist attack could be. These consequences overwhelmed state and local authorities and demanded the type of federal response that FEMA could provide. As Michael Brown, former FEMA Director once stated, “Terrorism was the issue *du jour*. You need to be able to respond to a disaster regardless of what causes it” (Frontline, 2005). Additionally, as the government’s longest standing, centralized agency for disaster management and response, FEMA had the coordination skills, experience and resources needed to respond to catastrophes—natural and intentional—that threatened national security

(Waugh, 2003). Lastly, despite the overlap that occurred after the creation of the OHS, FEMA still had the legislative mandate to be involved in mitigation, preparedness and response to disasters (Relyea and Hogue, 2005).

Undoubtedly, the environment in which the Department of Homeland Security Reorganization took place was uncertain and possessed a number of “wicked problems” caused by terrorist actions. The organizational response to this uncertainty was unprecedented and was the largest federal government reorganization since the creation of the Department of Defense (Relyea and Hogue, 2005) and disaster management was caught in the mix.

When it was first established, DHS was a sort of hybrid, as defined by Kettl (2005) between a hierarchy and a network; more specifically, it represented an organized network of existing hierarchies. In one sense, DHS was a centralized, cabinet level agency, directed by a secretary with POSDCORB powers, and a stark division of labor (See Appendix II: Department of Homeland Security). However, because it integrated a variety of agencies, many of which had existed independently for decades, it also displayed characteristics of a network, particularly a network of hierarchies. As Relyea and Hogue (2005) describe it, the original organization of DHS was shaped almost like a hand, with the secretary as the palm, and individual directorates such as border protection and emergency preparedness as the fingers. In addition to the “fingers” the agency was also bonded to numerous programs, offices and preexisting agencies (Relyea and Hogue, 2005), which created an enormous network of employees, responsibilities and leadership. In subsuming preexisting agencies and programs, the new department looked similar to the network pictured in Figure 2, as individual parts of DHS such as FEMA still retained their directors, and their original mandate and as working relationships between newly related agencies were vaguely defined.

The problems of organization that existed at the birth of DHS began to be remedied by the Second Stage Review, also known as “The 2SR Initiative,” a plan undertaken by the Department’s second secretary, Michael Chertoff (Relyea and Hogue, 2005). The plan was designed to reevaluate DHS policies and organizational structure to ensure that it was best suited to carry out its mission and to solve any issues that may interfere with the effective execution of policy (Relyea and Hogue, 2005). One of the most important effects the 2SR Initiative had on disaster management was that it further consolidated and integrated agencies and offices involved in the Department’s preparedness mission, including FEMA (Relyea and Hogue, 2005). Additionally, the effort spawned the formation of a new operations coordination office to increase accountability internally (Relyea and Hogue, 2005), thereby strengthening the hierarchical elements of the department’s internal structure.

While Bush’s intention in creating the Department of Homeland Security was undoubtedly to centralize and organize in the type of hierarchy defined by Gulick, his initial plans made for more of a hybrid. However, the organizational action taken in both the creation of DHS and in the 2SR Initiative indicate that a hierarchy was intended, and a hierarchy was made to be strengthened. DHS did, and still does, display many characteristics of a network, including leadership and managerial issues that will be discussed below. However, this study will classify the government’s organizational reaction to the uncertain environment as closest to Kettl’s (2005) description of a hybrid organization, which forms a network among existing hierarchies.

Hurricane Katrina, 2005

The disastrous outcomes of Hurricane Katrina, which made landfall on the Gulf Coast in August of 2005, became a defining moment for FEMA and of organization for disaster

management in general. The failures of state and local preparedness, federal response strategies and governmental leaders during the crisis demonstrated fatal flaws in both the federalist system of disaster management and of the fragmented organization of DHS (Waugh, 2003).

Organizational issues were at the center of the debate about what went wrong, which will be reviewed in this section.

The inclusion of FEMA into the Department of Homeland Security and the diversion of its resources from natural to deliberate disasters in 2002 and 2003 may have ill-prepared the agency for such a catastrophe. As Patrick Roberts (2006) points out, even during FEMA's glory years under the direction of James Witt, Hurricane Katrina would have caused coordination problems and costs for the agency due to its massive impact. However, the organizational structure of DHS created management issues, turf wars, a terrorism driven strategy and a bevy of political appointees which all contributed to the agencies failures during the disaster (Frontline, 2005).

While the intention in creating DHS was to centralize agencies and resources to create a hierarchical structure, managerial issues characteristic of networks likely added to the response failures following Hurricane Katrina. As Jane Bullock, FEMA chief of staff (1993-2001), pointed out, "Who was in charge? Brown, Chertoff or the President?" (Frontline, 2005). Little information exists on the decision making process during and after the storm. The issues of disordered leadership can be attributed to several things. First, Hurricane Katrina was a major test of DHS's, still new, internal chain of command and when disaster struck, even contingency plans were largely abandoned. For example, the National Response Plan, adopted in December 2004, gave DHS broad authority to deploy "key essential resources" without a request from state authorities (National Response Plan, 2004), but this authority went unused during the disaster.

Additionally, powers granted to the Secretary of Homeland Security give him the authority to circumvent “normal disaster procedures” and begin federal intervention as soon as needed (Roberts, 2006). However, these powers were ignored in favor of waiting for state requests for aid (Roberts, 2006). The internal chain of command in DHS lacked integrated communication and the confusion of leadership between directors, administrators and the Secretary limited the “unity of command” principle Gulick outlines as a necessary component of an effective hierarchy. Second, by centralizing power over so many disparate agencies into the authority of one person, namely Secretary Chertoff, DHS presented an almost impossible leadership role. Not only did Chertoff lack the experience needed to deal with the problems of Hurricane Katrina, but any leader would be hard pressed to have the requisite skills and experience to manage so many different fields and agencies now labeled as “homeland security.”

In addition to the lack of communication internally at DHS, there was also a deficiency in communication among the different levels of the federal system. With a greater emphasis on terrorism rather than all hazards mitigation, states received fewer preparedness grants and failed to develop or refine plans for natural disaster response and recovery (Roberts, 2006). In addition to a lack of preparedness at the state and local level, federal response—even when authorized to circumvent state requests as indicated in the National Response Plan, 2004—still largely relied on states to make the first effort in disaster response (Roberts, 2006).

While states had traditionally been the first outlet for disaster management, the increasing centralization of resources at the federal level during the twentieth century amplified the expectations of federal response, and of FEMA and DHS during Hurricane Katrina (Roberts, 2006). Therefore, the organization of disaster management, both in the federal system as a whole and in the attempted hierarchical structure of the Department of Homeland Security at the federal

level, contributed to the response failures during Hurricane Katrina. While the failed response during the storm has yet to lead to a major reorganization of disaster management, future organizational possibilities will be examined in the next section.

VI. ANALYSIS AND CONCLUSIONS

Analysis of Results

Organization for disaster management has had a storied evolution over the twentieth and twenty-first century. From limited involvement and ad hoc federal aid, to reorganization legislation and the quick response and recovery now expected from the federal government, disaster management has greatly changed over the past sixty years. This study has attempted to evaluate this history to determine whether organization for disaster management has followed a distinctive pattern, more specifically, if it has followed a pattern that illustrates how governments organize in response to uncertain environments.

Environmental factors are an important variable in organization theory. They refer to the physical environment, social, political or economic factors, intraorganizational culture, or other issues within a field of operation (Wise, 2002). When these factors are in flux, they often create uncertainty, which is characterized by fluctuating demands, high levels of resource competition, the need for fast reaction and problem solving, and the need to constantly modify and adapt to meet constantly changing challenges (Graham and Hays, 1993). The environment faced by disaster management—whether it be the consequences of terrorist attack or a natural weather phenomenon—has an inherent degree of uncertainty and urgency (Hodgkinson and Stewart, 1991, Moe, 2006).

There are three patterns of thought that attempt to explain the likely organizational reaction from a government facing an uncertain environment; that governments, which encounter uncertainty in their operating environments, should adopt more networked structures (Gortner et al., 1987), that uncertain environments cause government to rely on more tested and tried frameworks, which are typically hierarchies (Wise, 2002) and lastly, that uncertain environments cause networks, over a period of time, to become more hierarchical in nature (Moe, 2006).

This study has evaluated major organization legislation for disaster management, which dates back to 1950 and has provided nine samples of the government's organizational reaction to uncertain environments. The results of this evaluation (see Appendix III: Organization for Disaster Management Evolutionary Timeline) staggeringly illustrate that uncertain environments cause governments to rely on a more tested structure, like a hierarchy. This finding validates the statements of Wise (2002) and supports the hypothesis that one of the three patterns of uncertain environments and organization will apply to disaster management, particularly that uncertain environments cause governments to rely on more tested methods of organization, such as hierarchies. The results also demonstrated that institutional networks, such as those created by Reorganization Plan No.1, 1973, have the potential to become more hierarchical over time, as occurred with an official reorganization in 1978. This result corroborates Moe's (2006) finding in her study on the National Capital Regional Homeland Security Network, that leadership and communication issues provide the potential for networks to progressively become more hierarchical.

However, the limited sample of this study poses significant challenges for drawing strong conclusions about how uncertain environments effect government organization for disaster management. First, the history of organization for disaster management is drastically shorter than

federal organization for a field such as agriculture, which in and of itself limits the available sample. Secondly, the scope of this study was limited to federal organization evidenced through major reorganization. As previously stated, the federal government has long been involved with disaster management on an ad hoc basis, has often organized for disasters via unofficial means (such as unintentional overlap between agencies), and minor internal reorganizations have often gone undocumented. However, this study only focused on official organizational response, which further restricted the sample size. Particularly as only one piece of official reorganization legislation fit the definition of a networked structure, the assertion that this study corroborates Moe's (2006) finding deserves further evaluation over time with larger samplings. Therefore, more research is needed in the future to reassess the findings of this study. A more robust statement could likely be made after several more reorganizations occur in the future.

Despite the limited sample, the overwhelming reliance on hierarchical structures certainly makes a strong statement about the choice organizational framework for the United States government. There are strong scholarly arguments for why the flexibility and responsiveness of networks makes sense for the type of uncertainty security environment the government faces now, and has faced in the past (Moynihan, 2005, Wise, 2002, Carter, 2002). Networks, such as the NCR, provide interorganizational response to interorganizational problems and are able to provide an inclusive environment where local, state and federal entities can develop plans together (Moynihan, 2005, Moe, 2006). While networks seem to be the most effective means to solving "wicked problems," with no permanent solution, such as terrorism or natural disasters, there are also reasons why hierarchies have dominated the federal organization framework for the past sixty years.

First, as increased expectations for federal response over time demonstrate (Roberts, 2006), the general public anticipates action in the face of a disaster. While networks can certainly provide response and reaction, a hierarchical agency provides the type of structure and leadership the American public expects of federal government, as it has been a primary form of organization for decades (Wise, 2002). While the bureaucracy and red tape of hierarchies may cause problems for rapid decision-making, it does provide a solid leadership structure (secretary, deputy secretary etc.), offers stability (Weber, 1922) and accountability (Wise, 2006), and is better suited to work within the existing executive and legislative structure of the U.S. government (Hamilton, 2001). While these reasons do not provide the ultimate explanation for the reliance on hierarchies in organizing for disaster management, they do reveal striking reasons why a hierarchy may be more appealing to a government facing an uncertain environment, despite the fact that networks may be better suited to tackle “wicked problems.”

Another interesting result of this study was a timeline indicating the primary focus of disaster management agencies over time. While Congress and Presidents have debated the necessity of distinguishing between natural and manmade disasters for decades (Hogue and Bea, 2006), the culture of disaster management organizations has ebbed and flowed from civil defense to natural disasters over the years. As Burns and Stalker (1961) pointed out, the rate of change in an organization’s work environment is a significant source of uncertainty, and can often be caused when new or unfamiliar tasks are placed on workers. Therefore, this ebb and flow has likely been a driving factor of uncertainty in the disaster management environment as rapidly changing duties and expectations create confusion among leaders and careerists intraorganizationally.

Appendix IV illustrates the changes in disaster management culture over the past several decades, and indicates a continuous change between the focus on civil defense, and the focus on natural disasters. Reorganization Plan No. 1, 1973 and the Department of Homeland Security represent times where both civil defense and natural disaster management seem to have been equally stovepiped among different government agencies, which is likely due to their networked and hybrid structural forms. While this timeline does not make any indications about the three patterns in the literature, it does provide an illustration of a pervasive source of uncertainty, which has likely caused many of the reorganizations for disaster management over time.

The Future of Disaster Management

Having empirically visited disaster management's past, it is worth considering how future uncertain environments could effect governmental organization for the field. The tragic outcomes of Hurricane Katrina have provided the type of "environmental jolt" (Meyer, 1982), needed to inspire policy makers to rethink organization for disaster management. However, the types of decisions they make will have to address the key issues of interorganizational response, effective leadership and communication as well as collaborative decision making to be truly effective (Wise, 2005).

The results of this study would indicate that despite the aptitude, responsiveness and inclusiveness of networks, hierarchies would continue to be the government's most likely organizational response to an uncertain environment. However, Kettl's (2005) suggestion for a hybrid form of organization, which would develop networks of hierarchical entities, may be the most viable option for the future. This concept has already come to fruition in the constant evolution of the Department of Homeland Security. For example, prior to Hurricane Katrina,

DHS was building regional networks that would be equipped to respond to unpredictable war on terrorism scenarios (Moe, 2006). While these networks failed to be prepared for even a predicted scenario like a natural disaster, they should not be discounted completely, as the successful integration of the NCR network into the DHS structure illustrates (Moe, 2006).

While regional networks that ensure better coordination among all levels of government demonstrate one approach, networks of existing federal hierarchies are another option (Kettl, 2005). In some ways, the creation of the Department of Homeland Security represents this type of hybrid. It is a conglomeration of hierarchical entities, which work together to provide solutions to problems that a single agency, which did not include all entities related to its field of operation, would be hard-pressed to solve. While hybrid organizations can take many shapes, it seems that they may provide the best of both worlds—offering the stability, leadership and accountability of a hierarchy while also supplying the flexibility, rapid response and coordinated decision-making of a network.

Conclusion

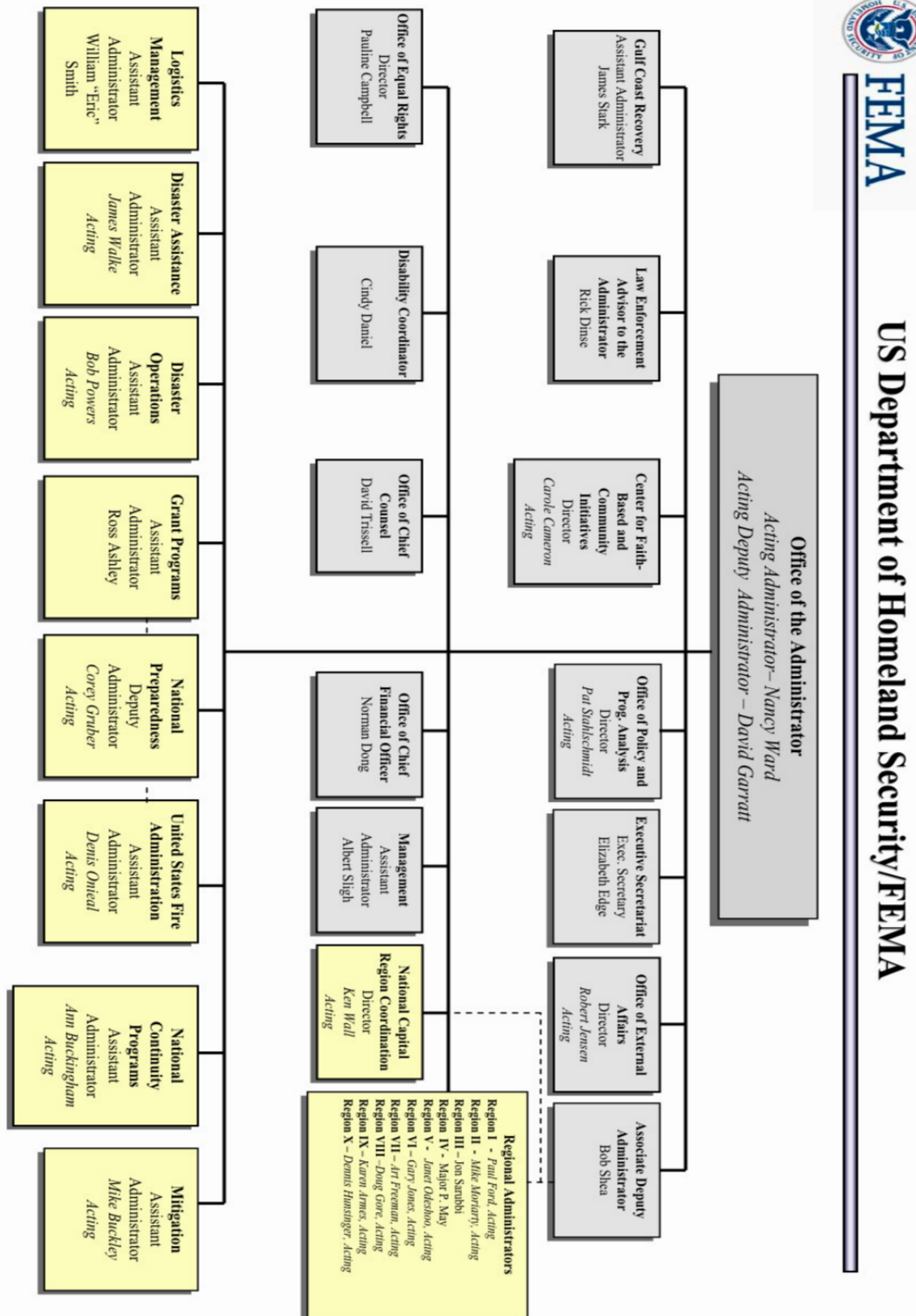
This study has attempted to empirically evaluate the evolution of organization for disaster management to determine how uncertainty has actually effected government organization for disaster management. It did so by analyzing three patterns of thought evident in the existing literature, which attempt to explain the most likely organizational course the government might take in the face of an uncertain environment. The results have supported the original hypothesis by determining that, not only are these streams of thought applicable to the field of disaster management, but more specifically support the hypothesis by validating Wise's assertion that uncertain environments cause governments to rely on more tested methods, like hierarchies.

While the current literature thoroughly discusses the best or most effective organizational response to an uncertain environment, little research has been done to determine what is the most likely response. Therefore, this study adds to the existing body of research literature by providing an empirical and comprehensive analysis of the evolution of disaster management, and fills a current gap in the literature by discussing how an uncertain environment actually influences organization. While a wide array of existing normative research addresses the ways the federal government *should* respond organizationally, this research fills a void by discussing empirically, how uncertain has *actually* influenced the way the federal government organizes. However, further research is needed in this area in the future, particularly due to the small sampling this study refers to. A more robust statement about the relationship between uncertainty and organization for disaster management could likely be made after several more reorganizations in the future.

Organization for disaster management has seen a rapid evolution over the past sixty years and is likely to continue on that same trajectory in the future. In an age of “wicked problems,” and uncertainty, government response to catastrophe has become more important than ever. Regardless of its structure, organization for disaster management must ensure effectiveness, rapid response and decision-making. While its future structure may be unclear, the United States government will continue to organize for disaster management to save lives and restore order as quickly as possible and uncertainty will continue to play a large role in how this is achieved.

VII. APPENDICES

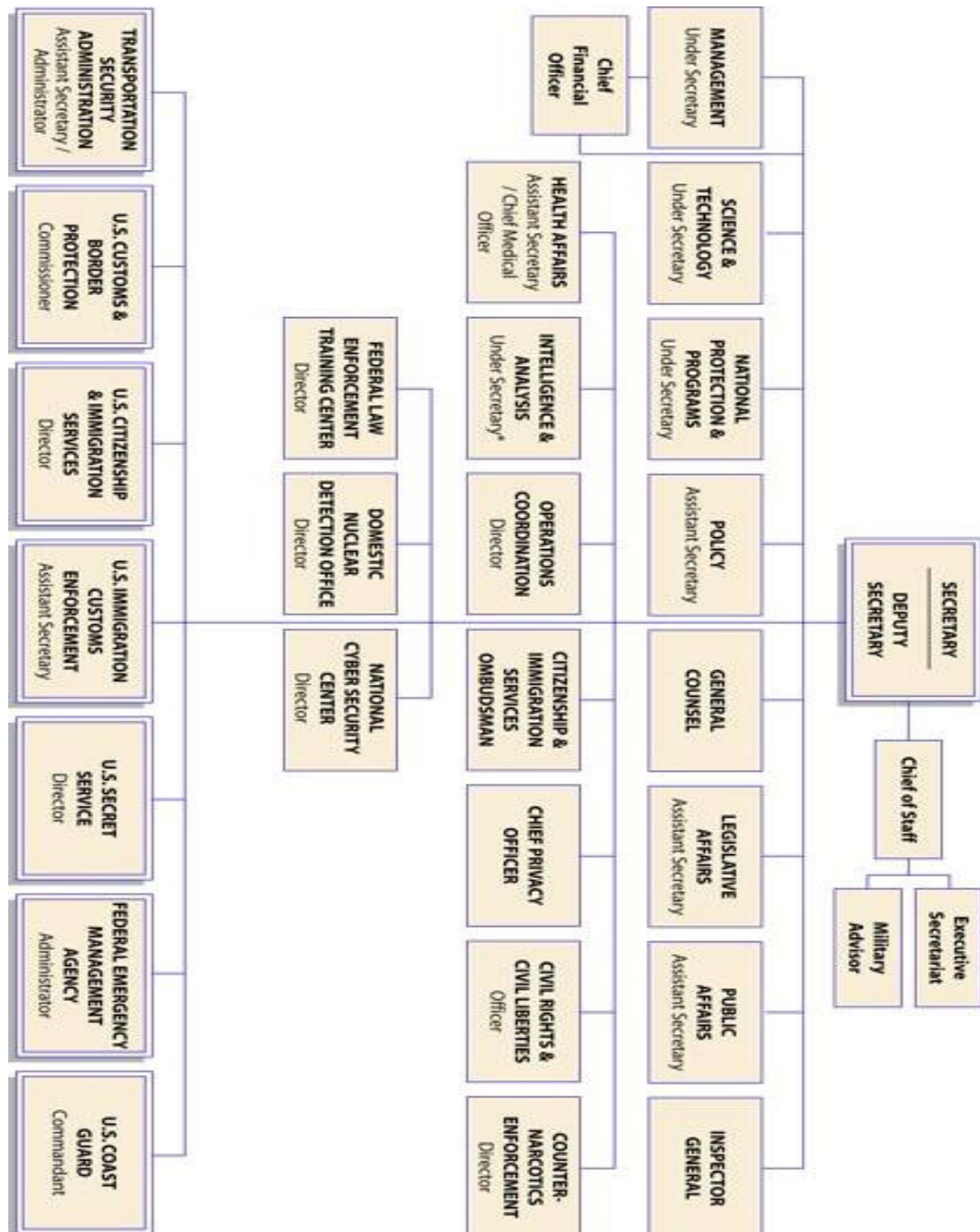
Appendix I: FEMA Organizational Chart



Dotted Lines are Coordination Solid Lines Are Command and Control
Names in Italics are in Acting positions
As of 1/21/09

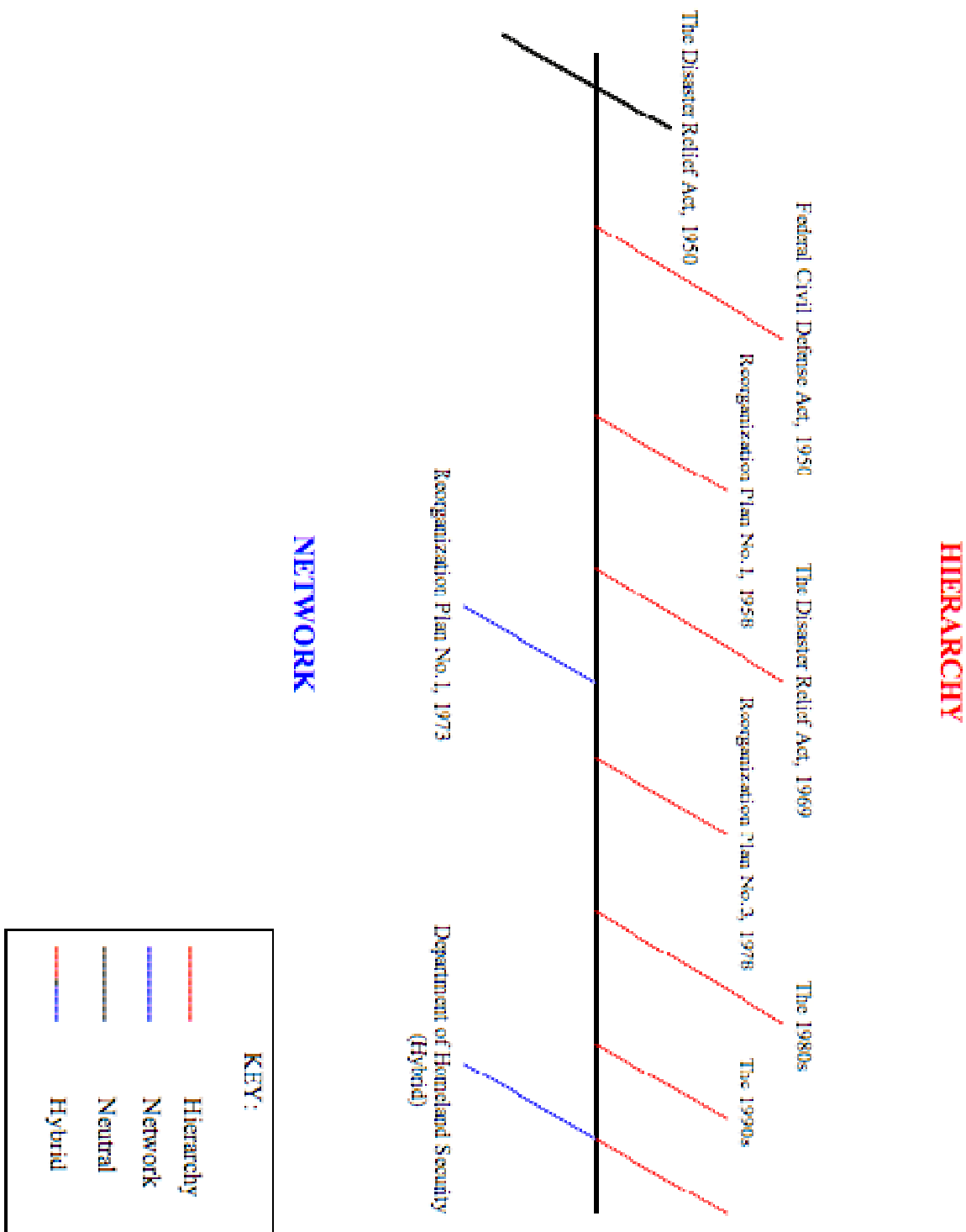
Courtesy of the Federal Emergency Management Agency, www.fema.gov

Appendix II: Department of Homeland Security Organizational Chart

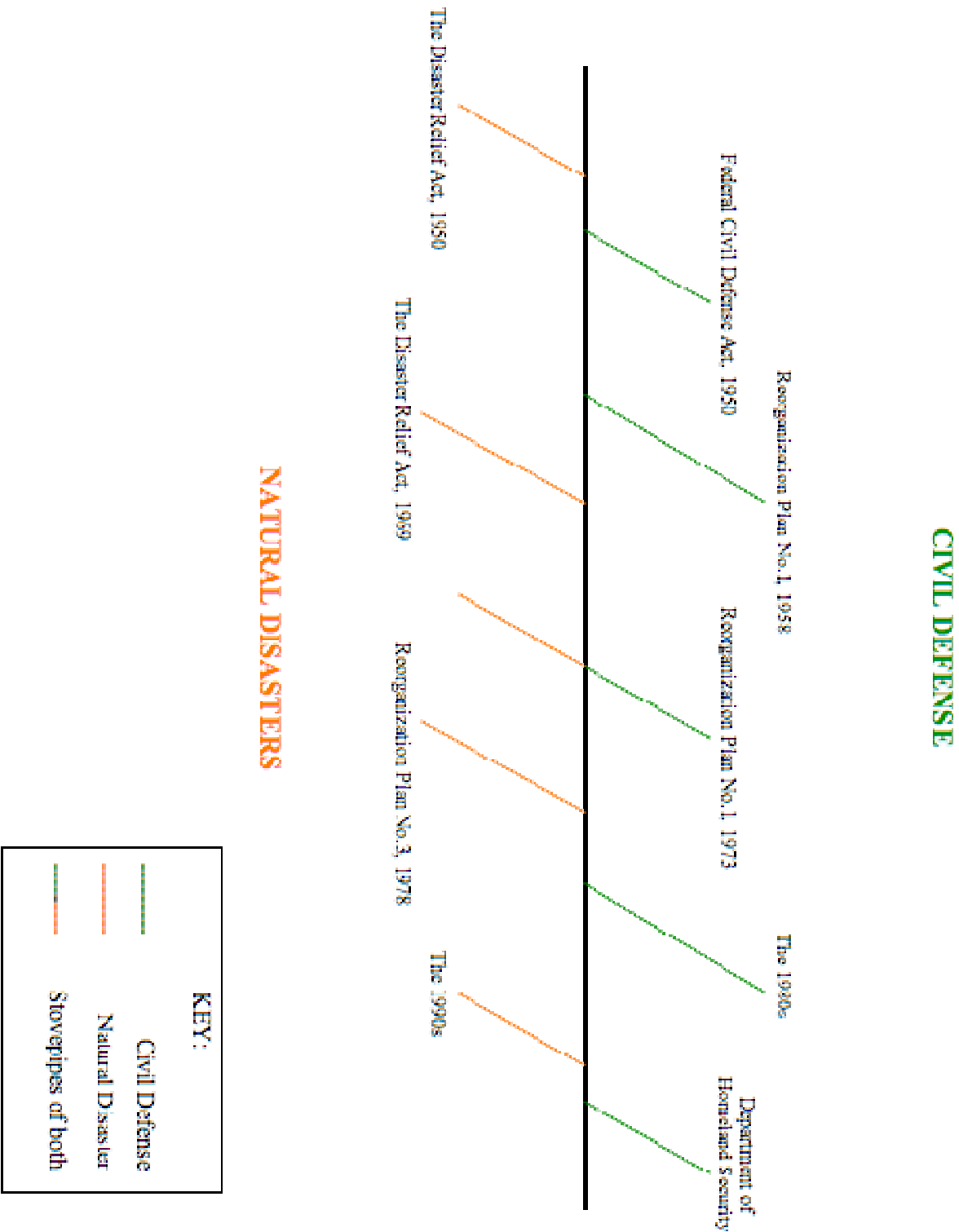


Courtesy of the Department of Homeland Security, www.dhs.gov

Appendix III: Organization for Disaster Management Evolutionary Timeline



Appendix IV: Timeline of Civil Defense and Natural Disaster Cultures



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